

# Impact of Monkeypox Virus: Analyzing Transmission Dynamics and Societal Responses

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## Dear Editor,

The Ortho poxvirus that causes monkeypox (mpox), which belongs to the same genus as cowpox, vaccinia, and variola, is the origin of this zoonotic disease. Although monkeypox has occasionally caused infections and outbreaks; mostly in a few nations in west and central Africa; the first human case was documented in 1970 in the Democratic Republic of the Congo (DRC) [1]. The first evidence of the monkeypox virus was discovered in 1958 in Danish research monkeys. Human infections began to be documented in 1970 when a nine-month-old boy from the DRC became the first human case. After the eradication of smallpox in 1980, mpox began to appear more frequently in central, east, and west Africa. An outbreak in the United States in 2003, linked to imported wild animals, marked the first significant case outside of Africa. Since 2005, thousands of cases have been reported annually in the DRC.

The resurgence of mpox in Nigeria in 2017, along with its continued spread among Nigerians and

international visitors, further emphasizes the virus's persistent and evolving presence. Recent outbreaks, including the global one starting in 2022, have highlighted the disease's growing international impact [2].

The mpox virus is believed to have two distinct varieties or clades: Clade I (Central African) and Clade II (West African). Clade IIb, a subtype of the less severe West African clade, is the primary cause of the current global outbreak [3]. Prior to 2018, only a few cases were reported outside of Africa, including a single outbreak involving imported animals and eight cases in individuals who had traveled to endemic regions. In recent years, Clade IIb has spread globally, causing large outbreaks, particularly in regions with increased international travel.

People contract monkeypox by coming into close contact with scabs, rashes, or infected bodily fluids. Risks also arise from intimate contact and contact with contaminated materials or objects. The virus can infect pregnant women, potentially affecting their unborn

children. In regions where monkeypox is endemic, animal bites, scratches, or contact with excrement can transfer the virus from animals to humans. The high risk of exposure is further exacerbated by hunting and processing animals for food. While related viruses can infect rodents like gerbils and hamsters, there have been no documented instances of monkeypox in these species [5].

A common symptom of mpox is a rash, which lasts anywhere from two to four weeks. This rash can appear as blisters or sores, often affecting the face, hands, feet, groin, and genitalia. Other symptoms include fever, headache, muscle aches, back pain, low energy, and enlarged lymph nodes, which may appear before or alongside the rash [6]. The majority of mpox cases in recently impacted regions have been seen in men, especially

those who identify as gay or bisexual and have intimate relations with other men. However, limited cases have been reported involving mothers and children [7].

### Clade I vs. Clade II

- **Clade I (Central African):** This clade is typically more severe, with higher mortality rates and more severe symptoms. The outbreaks of Clade I have been largely contained in Central Africa.
- **Clade II (West African):** The West African clade (specifically Clade IIb) is less severe, but its global spread in recent years has made it a major public health concern. Clade II has a lower mortality rate compared to Clade I, but it still presents significant challenges due to the virus's ability to spread widely.

Table 1

Feature	Clade I (Central African)	Clade II (West African)
<b>Mortality rate</b>	Higher (approx. 10%)	Lower (approx. 1%)
<b>Severity of symptoms</b>	More severe	Milder, though still concerning
<b>Geographic distribution</b>	Central Africa, isolated outbreaks	Widespread, including global spread
<b>Transmission pattern</b>	Less frequent human-to-human spread	Higher frequency of human-to-human transmission

### Prevention and Vaccination

Currently, there are no antiviral medications authorized for the treatment of monkeypox. However, your doctor might suggest antiviral medications such as tecovirimat or cidofovir for critically ill patients [8]. Tecovirimat, still undergoing clinical trials, has been shown to be effective in treating smallpox and is being investigated for use against mpox. Widespread use of tecovirimat has been limited due to its availability and cost.

Vaccination with the smallpox vaccine is 85% effective in preventing mpox. JYNNEOS™, a vaccine developed with a weakened live vaccinia virus, provides protection against smallpox, monkeypox, and other related diseases. The vaccine has been FDA-approved for individuals aged 18 and older who are at high risk of contracting monkeypox [10]. JYNNEOS™ is typically

administered in two doses, spaced four weeks apart, with booster doses recommended every two to ten years for individuals who remain at risk.

In addition to vaccination, the following preventive measures are crucial in limiting the spread of monkeypox:

- Avoiding raw meat consumption
- Frequent handwashing with soap or alcohol-based gel
- Avoiding close contact with infected individuals or animals
- Implementing sanitation measures in communities and households

## Global Response and Prevention Efforts

Community-level initiatives are essential to curb the spread of mpox. Effective efforts include improving sanitation, increasing vaccine availability, and public health education. Worldwide, health organizations have been working to increase surveillance, promote vaccination, and educate the public about the risks of monkeypox. Increased access to healthcare and preventive measures have been essential in containing the virus in endemic regions.

## Conclusion

As the mpox virus continues to challenge public health globally, it is crucial to implement comprehensive strategies to raise awareness, enhance vaccine distribution, and develop effective treatments. By focusing on prevention and community-level response, we can mitigate the spread of this disease and protect vulnerable populations.

## References

1. Mitjà O, Ogoina D, Titanji BK, et al. (2022) Monkeypox [published correction appears in *Lancet*. 400: 1926
2. World Health Organization. Mpox. Available at: <https://www.who.int/news-room/fact-sheets/detail/mpox>
3. Cleveland Clinic. (n.d.). Monkeypox, from <https://my.clevelandclinic.org/health/diseases/22371-monkeypox>
4. World Health Organization. Mpox (monkeypox) is an infectious disease caused by the monkeypox virus. Available at: <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON493>
5. Mayo Clinic. (n.d.). Monkeypox: FAQ from <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/expert-answers/monkeypox-faq/faq-20533608>
6. World Health Organization. (n.d.). Mpox: Questions and answers, from <https://www.who.int/news-room/questions-and-answers/item/mpox>
7. World Health Organization. (n.d.). Monkeypox: Who is at risk? Retrieved from <https://www.who.int/podcasts/episode/science-in-5/episode--76---monkeypox--who-is-at-risk>
8. Cleveland Clinic. Monkeypox. Retrieved from <https://my.clevelandclinic.org/health/diseases/22371-monkeypox>
9. Samitivej Hospitals. Monkeypox: Symptoms and prevention. Retrieved from <https://www.samitivejhospitals.com/article/detail/monkeypox-Symptoms-Preventions>
10. Centers for Disease Control and Prevention. (n.d.). Smallpox and monkeypox vaccine information statement. U.S. Department of Health & Human Services. Retrieved from <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/smallpox-monkeypox.html>

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