

Navigating the Monkeypox Outbreak: A Call for Vigilance and Preparedness

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ABSTRACT

Mpox (earlier known as monkeypox) is a zoonotic viral illness caused by the monkeypox virus, affecting both humans and various animal species. Initially endemic to Central and West Africa, the virus spread to non-endemic regions such as the United States, Brazil, Spain, France, Colombia, Mexico, and Peru. This global spread prompted the World Health Organization (WHO) to declare it a Public Health Emergency of International Concern (PHEIC) in 2022. On August 14, 2024, a surge of Mpox cases in the Democratic Republic of the Congo, along with its spread to neighboring countries, was declared a PHEIC. Transmission occurs through direct contact with infected individuals, animals, or contaminated materials. Symptoms typically include fever, rash, and swollen lymph nodes. Differentiating Mpox from other pox-like illnesses is crucial, with diagnosis confirmed through polymerase chain reaction (PCR) testing. Effective preventive strategies, such as vaccination, enhanced surveillance, and strict isolation protocols, are essential for controlling the spread. Although the risk of a widespread outbreak in countries like India remains low, continued vigilance, global coordination, and robust public health preparedness are vital to mitigating future outbreaks.

Keywords: Monkeypox, zoonosis, clinical presentation, prevention measures

Monkeypox (earlier known as monkeypox) is a zoonotic viral illness caused by the monkeypox virus, a member of the genus *Orthopoxvirus* that primarily affects humans and various animal species¹. Initially identified in captive monkeys as the cause of a pox-like illness, the name “monkeypox” is somewhat misleading. Evidence suggests that rodents, rather than monkeys, are the primary natural reservoir of the virus². Mpox is endemic in parts of Central and West Africa³. However, in 2022, the virus spread to non-endemic regions, including the United States, Brazil, Spain, France, Colombia, Mexico, and Peru, during an outbreak caused by the Clade IIb strain of the monkeypox virus, which originated in Europe and

subsequently spread globally⁴. In response, the World Health Organization (WHO) declared Mpox a Public Health Emergency of International Concern (PHEIC) in July 2022, maintaining this status until May 2023. The global outbreak from 2022 to 2023, caused by the Clade IIb strain, resulted in over 14,000 cases and 524 deaths in Africa alone⁵. In 2024, the virus was detected in new regions, including Sweden, Thailand, the Philippines, and Pakistan, indicating its ongoing spread⁶. India has also reported its first case of a new Mpox strain in an individual from Kerala. This variant, designated as Clade 1b, is highly transmissible and has been linked to the current Mpox outbreak in Africa⁷.

TRANSMISSION AND SYMPTOMS

Mpox is transmitted to humans through close physical contact with infected individuals, contaminated materials, or direct contact with infected animals. Human-to-human transmission primarily occurs through direct contact with infectious skin or mucosal lesions, such as those in the mouth or genitals⁸. The virus can enter the body via injuries, mucosal surfaces (e.g., oral, pharyngeal, ocular, genital, anorectal), or through the respiratory tract via droplets⁹.

The incubation period for Mpox typically ranges from 3 to 21 days. Infected individuals can transmit the virus

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1 to 4 days before the appearance of clinical signs. Common symptoms include skin rashes or mucosal lesions, which may persist for 2 to 4 weeks, along with fever, headache, muscle aches, and swollen lymph nodes. A distinguishing feature of Mpox, compared to other pox-like illnesses such as smallpox and chickenpox, is severe lymphadenopathy. The Mpox rash typically begins on the face and spreads across the body, including the palms of the hands and soles of the feet. It may also originate in areas of contact, such as the genitals. The rash initially presents as flat lesions, which progress into fluid- or pus-filled blisters that may cause itching or pain. As the rash heals, the lesions dry out, form crusts, and eventually fall off¹⁰. Secondary bacterial infections can occur, leading to abscesses or severe skin damage¹¹. Children, pregnant women, and immunocompromised individuals are at a higher risk of severe illness and death¹².

SURVEILLANCE, DIAGNOSIS, AND TREATMENT

Surveillance and rapid identification of new cases are crucial for containing the Mpox outbreak¹³. Contacts should be monitored daily for 21 days after their last exposure to an infected person or contaminated materials. Laboratory diagnosis is essential, as Mpox can be challenging to differentiate from other infections with similar symptoms. It is crucial to distinguish Mpox from conditions such as chickenpox, measles, bacterial skin infections, scabies, herpes, syphilis, other sexually transmitted infections (STIs), and medication-associated allergies. Co-infection with another STI, like syphilis or herpes, is also possible in individuals with Mpox¹⁰. Confirmation of the virus is made by detecting unique viral DNA sequences through polymerase chain reaction (PCR) or sequencing¹⁴. Infected patients must be managed in isolation with strict infection control precautions to prevent further transmission.

There is no specific antiviral treatment for Mpox. Most cases require supportive care, which includes protecting compromised skin with topical antiseptics and using antibiotics to prevent secondary bacterial infections. Symptomatic relief can be provided through antihistamines for itching, topical lotions for rash, and rehydration therapy along with nutritional support¹¹. Pharmacological options that have shown promise include the Modified Vaccinia Ankara–Bavarian Nordic (MVA-BN) smallpox vaccine for pre- or post-exposure prophylaxis, as well as antiviral drugs like tecovirimat and cidofovir or its prodrug brincidofovir. Additionally, Vaccinia Immune Globulin Intravenous (VIGIV) is available for severe cases¹⁵.

PREVENTION

Preventing the spread of Mpox requires vigilance and a collective international response. Public health workers and organizations play a crucial role in this effort. Preventive measures include enhanced surveillance, isolation of infected individuals, proper hand hygiene, and the use of personal protective equipment. Vaccination is recommended for individuals at high risk of contracting Mpox. This includes those living in forested areas near habitats of potential animal reservoirs (such as squirrels), individuals residing in homes with confirmed Mpox cases, males, children under 15 years of age, and those engaging in high-risk sexual behaviors, which is considered a potential risk factor for transmission¹⁶. Currently, available vaccines include Jynneos (also known as Imvamune or Imvanex) and LC16, though the latter is approved only for use in children¹⁷. The Centers for Disease Control and Prevention (CDC) also recommends pre-exposure vaccination for health care workers, veterinarians, animal-control personnel, and field investigators involved in treating or researching Mpox³.

CONCLUSION

While the risk of a large-scale Mpox outbreak in India remains low, continued vigilance is essential. Strengthening surveillance, raising public awareness, and maintaining preparedness are key to preventing the virus from establishing itself. A coordinated global response, supported by sound public health practices, will be critical in controlling the spread and mitigating the impact of future outbreaks.

Conflict of Interest: None.

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