

Monkeypox: An Emerging Zoonotic Threat - A Comprehensive Overview with Nursing Care Guidelines

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Summary

Monkeypox, a zoonotic viral disease, has recently spread beyond its endemic regions in Central and West Africa, prompting global concern. This article reviews the epidemiology, clinical presentation, and transmission of the virus, focusing on its recent emergence in India. The Indian government responded swiftly with public health measures, including surveillance, testing, and isolation protocols. While India's monkeypox cases remain low, ongoing public education and preparedness in healthcare are vital to preventing future outbreaks. Nurses play a critical role in this response, ensuring proper care, reducing stigma, and helping to mitigate the spread of the virus through community engagement.

Key words: Monkeypox, Zoonotic threat, Nursing care

Monkeypox is a rare zoonotic viral disease caused by the monkeypox virus, which belongs to the Orthopoxvirus genus, the same family as smallpox. Though it is less severe than smallpox, monkeypox has become a growing concern, especially with recent outbreaks outside of Africa. The disease primarily occurs in Central and West African countries, but recent global outbreaks have heightened the need for awareness, preparedness, and effective nursing care strategies.

Nurses are central to managing monkeypox cases, providing clinical care and infection control. This article details nursing guidelines, including use of personal protective equipment (PPE), patient monitoring, wound care, and psychological support for affected individuals. Preventive strategies such as vaccination and pre- and post-exposure prophylaxis are also discussed.

Epidemiology and Statistics

Monkeypox was first identified in laboratory monkeys in 1958, with the first human case reported in the Democratic Republic of Congo (DRC) in 1970. Since then, the disease has been endemic in certain African regions, particularly in the DRC, Nigeria, and the Central African Republic. According to the World Health Organisation (WHO), there were over 19,000 suspected cases of monkeypox reported globally in 2022, with the largest outbreaks outside Africa occurring in the United States, the United Kingdom, and several European countries.

In 2022, the global spread of monkeypox was classified as a public health emergency of international concern (PHEIC) by the WHO, emphasising the need for international collaboration in surveillance, treatment, and prevention.

Global Spread and Emergence in India

Until 2022, monkeypox outbreaks were primarily confined to Central and West Africa. However, in mid-2022, there was an unprecedented global outbreak of monkeypox, with cases reported in multiple countries outside Africa, including Europe, the Americas, and Asia (Ilic et al, 2022).

India's first cases: India reported its first case of monkeypox on 14 July 2022, in Kerala. The patient was a man who had returned from the United Arab Emirates (UAE) and was hospitalised after developing symptoms consistent with monkeypox, such as fever, rashes, and swollen lymph nodes. Following this, a few more cases were identified in Kerala and Delhi involving individuals with a history of international travel (William & Madan, 2023).

Government response: Upon the detection of the first case, the Indian government, through the Ministry of Health and Family Welfare (MoHFW) issued guidelines for the management of monkeypox, including surveillance, case definitions, contact tracing, and laboratory testing. Health authorities were on high alert, particularly at airports and seaports, to screen travellers from affected countries (MoHFW, Govt of India, 2022).

Control measures: The government implemented a multi-faceted response, including isolation of confirmed cases, training healthcare workers, and sensitising the public about its symptoms and transmission. The National Centre for Disease Control (NCDC) and the Indian Council of Medical Research (ICMR) played key roles in coordinating the response and testing suspected cases.

Current Status

Since the initial cases in 2022, the number of monkeypox cases in India has remained relatively low. The country has not seen a widespread outbreak, and the government continues to monitor

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the situation closely, with guidelines and protocols in place to manage any new cases.

Transmission

Monkeypox is transmitted to humans through close contact with an infected animal, human, or contaminated material. The virus enters the body through broken skin, respiratory tract, or mucous membranes (eyes, nose, mouth). Human-to-human transmission occurs primarily through respiratory droplets, direct contact with body fluids, or lesion material. The incubation period is typically 6 to 13 days but can range from 5 to 21 days (Moore et al, 2024).

Clinical presentation: The disease presents with a prodrome of fever, headache, muscle aches, and fatigue followed by a characteristic rash. The rash usually begins on the face and spreads to other parts of the body, including the palms and soles. The lesions progress through several stages, from macules to papules, vesicles, pustules, and finally, scabs that fall off. Lymphadenopathy is a key feature that distinguishes monkeypox from other similar conditions like smallpox (Reynolds et al, 2006).

Diagnosis: Diagnosis of monkeypox can be challenging, especially in non-endemic areas. A combination of clinical evaluation and laboratory testing is required for confirmation. Polymerase chain reaction (PCR) testing of lesion samples is the preferred laboratory method due to its accuracy. Serology and antigen detection methods may also be used, but they are less specific.

MoHFW Guidelines regarding Monkeypox

Reporting: Any suspected case must be promptly reported to the District Surveillance Officer (DSU) or State Surveillance Unit (SSU). The SSU or DSU will further escalate the case to the Central Surveillance

Unit (CSU), which will relay it to the Directorate General of Health Services (Dte. GHS), MoHFW.

Sample collection: Testing samples should be sent to designated laboratories following established protocols. The Integrated Disease Surveillance Programme (IDSP) SSUs are responsible for maintaining detailed records of all samples submitted for testing, along with their results.

Isolation: Patients diagnosed with monkeypox should remain in isolation until all scabs have naturally fallen off, and new skin has formed. The isolation period can only be concluded upon the treating physician's approval. Patients should avoid leaving home unless in emergencies or for necessary follow-up care, and if feasible, they should use a bathroom separate from other household members.

Contact tracing: Once a positive case is confirmed, immediate contact tracing must begin, covering all individuals the patient had contact with during the 21 days preceding the positive test.

Treatment: There is no specific antiviral treatment approved for monkeypox, and care is generally supportive. This includes pain management, hydration, and treatment of secondary bacterial infections if they occur. In some cases, antiviral medications such as tecovirimat (ST-246) may be used under investigational protocols. The smallpox vaccine has been shown to provide some cross-protection against monkeypox, and it may be used in outbreak settings to control the spread of the virus (Adler et al, 2022).

Preventive Strategies

Preventive measures include avoiding contact with animals that could harbour the virus and practicing good hygiene and infection control when caring for infected patients.

Vaccination: Immunisation with smallpox vaccines can protect against monkeypox and reduce the severity of the disease. Several observational studies have shown that the smallpox vaccine is 85 percent effective in preventing human monkeypox. This effectiveness may be attributed to the close genetic relationship between smallpox and monkeypox viruses, as well as the fact that vaccination has been found to protect laboratory animals from severe monkeypox infections (Choudhary et al, 2022).

Pre-exposure prophylaxis: Vaccination is recommended for individuals at high risk of exposure, including laboratory personnel and healthcare workers.



Figure 1: Six stages of monkeypox lesions: (1) early vesicle, (2) pustule, (3) umbilicated pustule, (4) ulcerated skin lesion with growing scab, (5) crusted, mature lesions, and (6) removed scab.

[Source: DOI: <https://dx.doi.org/10.13005/bpj/2712>]

Post-exposure prophylaxis: Those with significant exposure should receive a vaccine within 4 days to prevent disease onset or within 14 days to reduce symptoms.

Personal protective equipment (PPE): Proper use of PPE, including N95 masks and gloves, can prevent transmission during close contact with infected individuals.

These strategies aim to mitigate the spread and impact of monkeypox in both pre- and post-exposure scenarios (Rizk et al, 2022).

Complications of Monkeypox

While most cases of monkeypox are mild and self-limiting, severe complications can occur, especially in children, pregnant women, and immunocompromised individuals. Complications include:

Secondary bacterial infections: Skin lesions can become infected with bacteria, leading to cellulitis, abscesses, or septicemia.

Pneumonia: Respiratory involvement can lead to viral or secondary bacterial pneumonia, which can be life-threatening.

Encephalitis: In rare cases, monkeypox can cause inflammation of the brain, leading to seizures, confusion, and other neurological symptoms.

Corneal infection: Infection of the eye can lead to corneal scarring and potential vision loss.

Septicaemia: In severe cases, the infection can spread to the bloodstream, leading to septic shock and multi-organ failure.

Psycho-social Issues Related to Monkeypox

Stigma and discrimination: Like other infectious diseases, monkeypox can lead to stigma and discrimination, especially among those diagnosed with or suspected of having the disease. This stigma can extend to their families and communities, leading to social isolation and emotional distress (Banjar & Alaqeel, 2023).

Fear and anxiety: The uncertainty surrounding monkeypox, its transmission, and its impact on health can generate widespread fear and anxiety. This can be exacerbated by media coverage and misinformation, leading to heightened public concern.

Impact on mental health: The psychological toll of being diagnosed with monkeypox, particularly in severe cases or where quarantine is required, can include feelings of loneliness, depression, and anxiety. The fear of long-term health consequences may also contribute to mental health challenges (Jaleel et al, 2024).

Economic and social disruption: The social and economic impact of monkeypox, including the potential for lost income due to illness or quarantine, can lead to stress and financial insecurity. This can affect individuals' ability to access necessary healthcare and support, further exacerbating psychosocial issues.

Impact on vulnerable populations: Vulnerable groups, such as those with pre-existing mental health conditions, the elderly, and individuals in marginalised communities, may be disproportionately affected by the psychosocial consequences of monkeypox.

Misinformation and communication challenges: The spread of misinformation about monkeypox can contribute to public panic and stigmatisation. Clear, accurate communication from health authorities is crucial in addressing these issues and reducing the psychosocial burden (Brown & Leggat, 2016).

Cultural and religious factors: In some cultures, there may be specific beliefs or practices related to disease and health that affect how individuals cope with monkeypox. Understanding these factors is important in providing culturally sensitive care and support.

Addressing these psychosocial issues requires a holistic approach that includes mental health support, public education, and community engagement to reduce stigma and promote understanding of monkeypox.

Nursing Care Guidelines

Nurses play a crucial role in managing and preventing the spread of monkeypox. The following nursing care guidelines are essential in providing effective care for monkeypox patients:

Infection Control Measures

- o Implement standard, contact, and droplet precautions when caring for patients with suspected or confirmed monkeypox.
- o Use personal protective equipment (PPE), including gloves, gowns, masks, and eye protection, to prevent exposure.
- o Isolate patients in a single room with negative air pressure, if possible, to prevent the spread of the virus.

Patient Assessment and Monitoring

- o Regularly monitor vital signs, especially temperature, to detect fever early.
- o Assess the skin for the development and progression of lesions and provide appropriate wound care to prevent secondary infections.
- o Monitor respiratory status, particularly in patients with respiratory symptoms, and provide oxygen therapy if needed.

- o Evaluate neurological status to detect early signs of complications such as encephalitis.

Symptomatic Treatment

- o Administer antipyretics for fever and analgesics for pain relief.
- o Provide adequate hydration and nutrition to support the patient's recovery.
- o Offer antiviral medications, such as Tecovirimat, under the guidance of a healthcare provider, for severe cases.

Patient Education and Support

- o Educate patients and their families about the mode of transmission and the importance of adherence to isolation protocols.
- o Provide psychological support, as the visible lesions and isolation can lead to anxiety and depression.
- o Encourage patients to avoid scratching lesions to prevent secondary infections and scarring.

Discharge Planning and Follow-Up

- o Ensure the patient understands the signs and symptoms of complications and when to seek medical attention.
- o Arrange follow-up appointments to monitor for any delayed complications or the need for additional care.
- o Educate the patient on the importance of avoiding contact with others until all lesions have crusted over and fallen off.

Future Insights

The future perspective of monkeypox in India, as discussed in the article, suggests cautious optimism. The country has so far managed to contain the spread of the virus since its first detection in 2022, with relatively low case numbers. India's proactive measures, including stringent surveillance, public education, and preparedness in healthcare facilities, have played a critical role in this (Choudhary et al, 2022).

Healthcare providers will continue to play a crucial role in shaping the future of monkeypox management in India. Their responsibilities include early detection through vigilant monitoring, prompt isolation of suspected cases, and the implementation of strict infection control measures. Additionally, healthcare workers are essential in educating the public about prevention strategies, reducing stigma, and providing comprehensive care, including mental health support to affected individuals. Ongoing training and awareness among healthcare providers will be key in ensuring a sustained, effective response to any future outbreaks.

Conclusion

Monkeypox is an emerging public health threat that requires vigilant nursing care, particularly in outbreak settings. Understanding the transmission, clinical presentation, and potential complications is essential for providing effective care and preventing the spread of the virus. Nurses are at the frontline of managing monkeypox, from implementing strict infection control measures to providing holistic care that addresses both the physical and psychological needs of patients. Continued research, education, and global collaboration are vital in the fight against monkeypox and in safeguarding public health.

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