· Popular science reading ·

Public Awareness of Monkeypox Prevention and Control (2024 Edition) Charpter1

Yingmei Feng[1*]

[1]Department of Science and Technology, Beijing Youan Hospital, Capital Medical University, Beijing, China.

What is monkeypox?

Monkeypox is a zoonotic disease caused by infection with the monkeypox virus (MPXV), which is classified into two branches: branch I and branch II. The sources of infection include patients with monkeypox, and monkeypox-infected rodents, monkeys, and other primates. Historically, monkeypox outbreaks have been prevalent in Africa, but since 2022, the disease has spread to most countries and regions around the world. Common clinical symptoms include fever, rashes, and swollen lymph nodes.

What are the main symptoms when a monkeypox patient becomes ill?

Rash is the commonest symptom, often preceded by fever, headache, fatigue, and swollen lymph nodes. The rash typically appears on the face and limbs, but can also appear in the mouth, anus, and genital areas. Anorectal rashes are susceptible to bacterial infection, leading to abscesses and ulcers that can affect bowel movements.

Who is susceptible to monkeypox?

The general population is susceptible to monkeypox. Previous vaccination with the smallpox vaccine provides some level of cross-protection against the monkeypox virus.

What is the incubation period for monkeypox?

The incubation period for monkeypox is generally 5–21 days, with most cases occurring within 6–13 days.

What is the prognosis for monkeypox?

Monkeypox is a self-limiting disease, and most patients have mild symptoms that resolve within weeks with symptomatic and supportive treatment. However, young children, pregnant women, and immunocompromised individuals (e.g., those with low CD4 cell counts, human immunodeficiency virus (HIV)-infected individuals, or patients with hematological malignancies) may develop severe disease or die if treatment is delayed.

***Correspondence:**
Yingmei Feng; Email: yingmeif13@ccmu.edu.cn.

Why did the World Health Organization declare monkeypox a "public health emergency of international concern" again?

In July 2022, the World Health Organization (WHO) declared monkeypox a "public health emergency of international concern", after an outbreak caused by the branch II virus. In response to global efforts, the epidemic was quickly brought under control, and in May 2023, the WHO declared the emergency status lifted. However, in September 2023, the branchIb variant of the monkeypox virus was detected in the Democratic Republic of Congo. The disease spread to neighboring countries, causing persistent community transmission, with a potential risk of spreading to countries outside Africa. Current data indicate that infections with the branch Ib variant may lead to more-severe symptoms and a higher risk of severe illness and death. On August 14, 2024, the WHO again declared monkeypox a "public health emergency of international concern".

What are the similarities and differences between the branch I and branch II monkeypox viruses?

Based on current data and relevant research, the similarities between the branch I and branch II monkeypox viruses include: both are primarily spread through direct contact with lesions and exudates from infected patients; and both can cause rashes, fever, and swollen lymph nodes. The differences are mainly: in terms of geographic distribution, both branches I and II viruses circulate in Africa, whereas outside Africa, only branch II is prevalent; in terms of population distribution, cases in Africa show no significant gender differences, with a higher proportion of cases in children and adolescents aged ≤15 years, whereas outside Africa, branch II infections are primarily found in young men engaging in male-to-male sexual activity; in terms of disease severity, branch I infections are associated with more-extensive and more numerous rashes, and may carry a higher risk of severe illness and death.

What is China's response strategy for the monkeypox epidemic?

After reporting the first local cases of monkeypox in June 2023, China quickly classified monkeypox as a Category B infectious disease and implemented preventive and control measures appropriate for such diseases. The country follows the principles of "prevention first, combined prevention and treatment, targeted control, and rapid response," implementing measures for "early detection, early reporting, early isolation, and early treatment." Multichannel monitoring is conducted in medical institutions, key populations, incoming travelers, and high-risk areas, while epidemic analyses and risk assessment are strengthened, targeted health education is conducted, and comprehensive interventions are made available to key groups. China maintains the policy of "detecting and controlling each case promptly".

What is the current situation of monkeypox in China?

The monkeypox epidemic in China is currently maintaining a low epidemic level, with cases reported in most provinces. Over 90% of cases are male, and are primarily transmitted through close contact, such as male-to-male sexual activity. More than 40% of cases involve individuals with a history of HIV infection. Currently, all confirmed cases in China are infected with branch II virus, and no branch I virus has been detected. It is essential to dynamically monitor and assess

the international epidemic situation and the risk of importing branch I virus, while preparing for appropriate control and response measures.

What measures has China taken to further prevent and respond to the importation of monkeypox?

China has carefully summarized its experience in controlling the COVID-19 epidemic and the effective practices taken since monkeypox was classified as a Class B infectious disease. Measures have been further strengthened, including enhanced joint prevention and control; establishing a coordination mechanism between relevant departments; reinforcing health quarantine for incoming travelers; conducting health education for individuals traveling to key countries and regions; advocating personal protective measures; and ensuring health monitoring upon return. These strategies are aimed at preventing monkeypox virus, particularly branch I, entering the country. Multichannel epidemic monitoring has also been strengthened, preparations for training drills have been made, and epidemic prevention materials have been organized to ensure an effective and timely response to imported cases of monkeypox.

What are the modes of transmission of the monkeypox virus?

The primary transmission mode is direct contact with the secretions or exudates of a patient's lesions, for both branch I or branch II monkeypox virus. Common direct contact modes include sexual behavior, close household contact, and contact during medical care. Contact with virus-contaminated environments or objects can also cause infection, but the transmission efficiency is lower than for direct contact. The WHO considers that prolonged, close-range inhalation of respiratory droplets from infected persons can also result in infection, although this transmission mode is less common. Epidemiological surveys in China have shown that no instances of infection via respiratory transmission have been detected among individuals who have had close contact with patients with monkeypox, such as family members or colleagues.

How do the transmission modes of monkeypox and HIV differ?

Both monkeypox and HIV can be transmitted through sexual contact, but monkeypox is more commonly transmitted through direct contact with the secretions and exudates of the lesions of an infected individual during sexual activity. HIV, in contrast, is primarily transmitted through the exchange of body fluids during sexual contact. Casual interactions, such as shaking hands with or hugging an HIV-positive person, do not result in transmission. Therefore, correct condom use can effectively prevent the transmission of HIV, but does not entirely prevent the spread of monkeypox. Furthermore, individuals with compromised immune function, such as those with HIV, are at a higher risk of severe symptoms and death if infected with monkeypox.

Are vaccines available to prevent monkeypox?

Currently, four monkeypox vaccines have been approved overseas for the prevention of monkeypox infection. These vaccines were originally developed to prevent smallpox. China currently has no approved monkeypox vaccine. The relevant authorities are organizing efforts to accelerate the research and development required, as well as the review and approval processes, to expedite the market launch of a monkeypox vaccine.

Why is the smallpox vaccine effective in preventing monkeypox?

Monkeypox virus and smallpox virus both belong to the genus Orthopoxvirus in the family Poxviridae, and share some common antigenic characteristics, so prior vaccination with the smallpox vaccine provides some protection against monkeypox. However, monkeypox and smallpox are distinct diseases. Smallpox is a highly virulent infectious disease that has been eradicated in humans, whereas monkeypox is a newly emerging infectious disease with a much lower fatality rate than smallpox. The transmission patterns and pathogenic mechanisms of monkeypox still require further observation and research.

Can a monkeypox patient be reinfected after recovery?

After recovery, monkeypox patients develop protective antibodies that can prevent reinfection for a certain period. However, as these protective antibodies wane, reinfection may occur. There have been cases abroad where recovered monkeypox patients were reinfected.

What should pregnant women do if they contract monkeypox?

Pregnant women who contract monkeypox are at higher risk of severe illness, and the virus can be transmitted to the fetus via the placenta, potentially leading to miscarriage, stillbirth, or preterm birth. The monkeypox virus can also be transmitted to the newborn through close contact during labor and delivery, and newborns are at high risk of severe illness if infected. Pregnant women with a history of exposure to monkeypox or who show symptoms such as fever, rash, or lymphadenopathy, should promptly seek medical attention for diagnosis and, under the guidance of a healthcare provider, take the necessary preventive and treatment measures to reduce the risk of transmission and severe disease.

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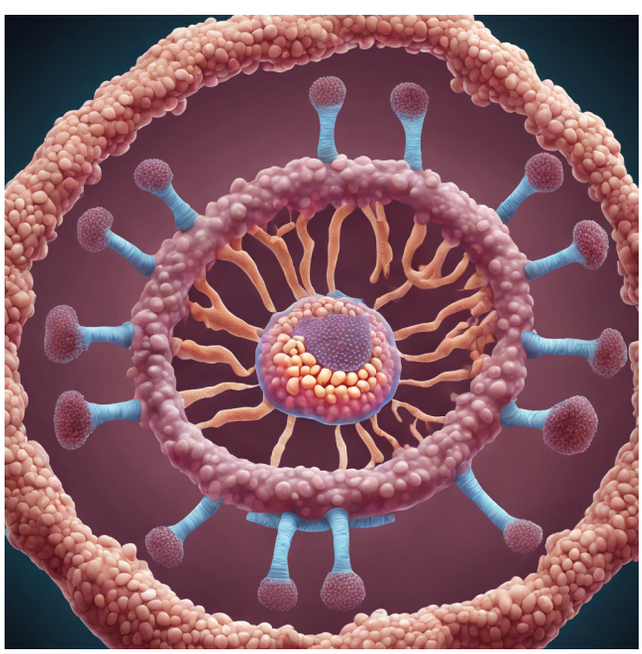

Monkeypox virus