World Health Organization

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Mpox

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Key facts

- **Mpox, previously known as monkeypox, is a viral illness caused by the monkeypox virus, a species of the genus *Orthopoxvirus*. There are two distinct clades of the virus: clade I (with subclades Ia and Ib) and clade II (with subclades IIa and IIb). In 2022–2023 a global outbreak of mpox was caused by the clade IIb strain.**
- **Mpox continues to be a threat today, and an upsurge of cases in the Democratic Republic of the Congo and other countries caused by clades Ia and Ib has raised concern.**
- **There are vaccines for mpox. Vaccination should be considered along with other public health interventions.**
- **Common symptoms of mpox are a skin rash or mucosal lesions which can last 2–4 weeks accompanied by fever, headache, muscle aches, back pain, low energy and swollen lymph nodes.**

Recovering from mpox at home (infographic)

How to use a bifurcated needle to perform multiple puncture vaccination technique

- **Mpox can be transmitted through close contact with someone who has mpox, with contaminated materials, or with infected animals. During pregnancy, the virus may be passed to the fetus, or to the newborn during or after birth.**
- **Mpox is treated with supportive care for symptoms such as pain and fever, with close attention to nutrition, hydration, skin care, prevention of secondary infections and treatment of co-infections, including HIV where present.**

Overview

Mpox is an infectious disease that can cause a painful rash, enlarged lymph nodes, fever, headache, muscle ache, back pain and low energy. Most people fully recover, but some get very sick.

Mpox is caused by the monkeypox virus (MPXV). It is an enveloped double-stranded DNA virus of the *Orthopoxvirus* genus in the *Poxviridae* family, which includes variola, cowpox, vaccinia and other viruses. There are two distinct clades of the virus: clade I (with subclades Ia and Ib) and clade II (with subclades IIa and IIb).

A global outbreak of clade IIb began in 2022 and continues to this day, including in some African countries. There are also growing outbreaks of clades Ia and Ib affecting the Democratic Republic of the Congo and other countries in Africa. As of August 2024, clade Ib has also been detected beyond Africa.

The natural reservoir of the virus is unknown, but various small mammals such as squirrels and monkeys are susceptible.

Transmission

Mpox spreads from person to person mainly through close contact with someone who has mpox, including members of a household. Close contact includes skin-to-skin (such as touching or sex) and mouth-to-mouth or mouth-to-skin contact (such as kissing), and it can also include being face-to-face with someone who has mpox (such as talking or breathing close to one another, which can generate infectious respiratory particles).

People with multiple sexual partners are at higher risk of acquiring mpox.

People can also contract mpox from contaminated objects such as clothing or linen, through needle injuries in health care, or in community settings such as tattoo parlours.

During pregnancy or birth, the virus may be passed to the baby. Contracting mpox during pregnancy can be dangerous for the fetus or newborn infant and can lead to loss of the pregnancy, stillbirth, death of the newborn, or complications for the parent.

Animal-to-human transmission of mpox occurs from infected animals to humans from bites or scratches, or during activities such as hunting, skinning, trapping, cooking, playing with carcasses or eating animals. The animal reservoir of the monkeypox virus remains unknown and further studies are underway.

More research is needed on how mpox spreads during outbreaks in different settings and under different conditions.

Signs and symptoms

Mpox causes signs and symptoms which usually begin within a week but can start 1–21 days after exposure. Symptoms typically last 2–4 weeks but may last longer in someone with a weakened immune system.

Common symptoms of mpox are:

- **rash**
- **fever**
- **sore throat**
- **headache**
- **muscle aches**
- **back pain**
- **low energy**
- **swollen lymph nodes.**

For some people, the first symptom of mpox is a rash, while others may have fever, muscle aches or sore throat first.

The mpox rash often begins on the face and spreads over the body, extending to the palms of the hands and soles of the feet. It can also start on other parts of the body where contact was made, such as the genitals. It starts as a flat sore, which develops into a blister filled with liquid that may be itchy or painful. As the rash heals, the lesions dry up, crust over and fall off.

Some people may have one or a few skin lesions and others have hundreds or more. These can appear anywhere on the body including:

- **palms of hands and soles of feet**
- **face, mouth and throat**
- **groin and genital areas**
- **anus.**

Some people also have painful swelling of their rectum (proctitis) or pain and difficulty when peeing (dysuria) or when swallowing.

People with mpox can pass the disease on to others until all sores have healed and a new layer of skin has formed. Some people can be infected without developing any symptoms. Although getting mpox from someone who is asymptomatic (not showing symptoms) has been reported, information is still limited on how common it is.

Children, pregnant people and people with weak immune systems, including people living with HIV that is not well controlled, are at higher risk for serious illness and death due to complications from mpox.

Some people with mpox become very sick. For example, the skin can become infected with bacteria, leading to abscesses or serious skin damage. Other complications include pneumonia; corneal infection with loss of vision; pain or difficulty swallowing; vomiting and diarrhoea causing dehydration or malnutrition; and infections of the blood (sepsis), brain (encephalitis), heart (myocarditis), rectum (proctitis), genital organs (balanitis) or urinary passages (urethritis). Mpox can be fatal in some cases.

Diagnosis

Identifying mpox can be difficult because other infections and conditions can look similar. It is important to distinguish mpox from chickenpox, measles, bacterial skin infections, scabies, herpes, syphilis, other sexually transmitted infections, and medication-associated allergies. Someone with mpox may also have another sexually transmitted infection at the same time, such as syphilis or herpes. Alternatively, a child with suspected mpox may also have chickenpox. For these reasons, testing is key for people to get care as early as possible and prevent severe illness and further spread.

The preferred laboratory test for mpox is detection of viral DNA by polymerase chain reaction (PCR). The best diagnostic specimens are taken directly from the rash – skin, fluid or crusts – collected by vigorous swabbing. In the absence of skin lesions, testing can be done using swabs of the throat or anus. Testing blood is not recommended. Antibody detection methods may not be useful as they do not distinguish between different orthopoxviruses.

HIV testing should be offered to adults with mpox, and children as appropriate. Diagnostic tests for other conditions should be considered where feasible, for example, varicella zoster virus (VZV), syphilis and herpes.

Treatment and vaccination

The goal of treating mpox is to take care of the rash, manage pain and prevent complications. Early and supportive care is important to help manage symptoms and avoid further problems.

Getting an mpox vaccine can help prevent infection (pre-exposure prophylaxis). It is recommended for people at high-risk of getting mpox, especially during an outbreak.

Groups that may be at high risk of mpox include:

- **health and care workers at risk of exposure;**
- **people in the same household or close community as someone who has mpox, including children;**
- **people who have multiple sex partners, including men who have sex with men; and**
- **sex workers of any gender and their clients.**

The vaccine can also be administered after a person has been in contact with someone who has mpox (post-exposure prophylaxis). In these cases, the vaccine should be given less than 4 days after contact with someone who has mpox. The vaccine can be given for up to 14 days if the person has not developed symptoms.

Some antivirals have received emergency use authorization in some countries and are being evaluated in clinical trials. To date, there is no proven effective antiviral treatment for mpox. It is a priority to continue evaluation of therapeutics in robust clinical trials and to focus on optimizing supportive care for patients.

Individuals with HIV and mpox should continue taking their antiretroviral therapy (ART). ART should be initiated within 7 days of diagnosis of HIV.

Self-care and prevention

Most people with mpox will recover within 2–4 weeks. Things to do to help the symptoms and prevent transmitting mpox to others:

Do

- **contact your health care provider for advice;**
- **stay at home and in your own, well-ventilated room if possible;**
- **wash hands often with soap and water or hand sanitizer, especially before or after touching sores;**
- **wear a mask and cover lesions when around other people until your rash heals;**
- **keep skin dry and uncovered (unless in a room with someone else);**
- **avoid touching items in shared spaces and disinfect shared spaces frequently;**
- **use saltwater rinses for sores in the mouth;**
- **take warm baths with baking soda or Epsom salts for body sores; and**
- **take over-the-counter medications for pain like paracetamol (acetaminophen) or ibuprofen.**

Do not

- **pop blisters or scratch sores, which can slow healing, spread the rash to other parts of the body, and cause sores to become infected; or**
- **shave areas with sores until scabs have healed and you have new skin underneath (this can spread the rash to other parts of the body).**

To prevent spread of mpox to others, people with mpox should isolate at home following guidance from their health care provider, or in hospital if needed, for the duration of the infectious period (from onset of symptoms until lesions have healed and scabs fall off). Covering lesions and wearing a well-fitting mask when in the presence of others may help prevent spread. Using condoms during sex will help reduce the risk of getting mpox but will not prevent spread from skin-to-skin or mouth-to-skin contact. If having sex, use condoms as a precaution for 12 weeks (about 3 months) after you have recovered.

Taking a break from sexual activity with new partners during periods of increased transmission can reduce the risk of getting mpox. Those who have had contact with someone with mpox should monitor for signs and symptoms for 21 days (3 weeks) and take precautions such as avoiding sexual activity during this period.

Health workers should follow infection prevention and control measures to protect themselves while caring for patients with mpox by wearing appropriate personal protective equipment (PPE) (i.e. gloves, gown, eye protection and respirator) and adhering to protocol for safely swabbing lesions for diagnostic testing and handling sharp objects such as needles.

Outbreaks

The monkeypox virus was discovered in Denmark (1958) in monkeys kept for research. The first reported human case of mpox was a nine-month-old boy in the Democratic Republic of the Congo (1970). Following the eradication of smallpox in 1980 and the end of smallpox vaccination worldwide, mpox steadily emerged in central, east and west Africa. Since then, mpox has been reported sporadically in

central and east Africa (clade I) and west Africa (clade II). In 2003, an outbreak in the United States of America was linked to imported wild animals (clade II). Since 2005, thousands of cases are reported in the Democratic Republic of the Congo every year. In 2017, mpox re-emerged in Nigeria and continues to spread between people across the country and in travellers to other destinations.

Data on suspected and confirmed cases reported up to 2021 are available here and data on laboratory confirmed cases from 2022 until today are available here.

In May 2022, an outbreak of mpox appeared suddenly and rapidly spread across Europe, the Americas and then all six WHO regions. The global outbreak has affected primarily (but not only) gay, bisexual, and other men who have sex with men and has spread person-to-person through sexual networks. More information on the global outbreak is available here, including information on community responses to control the outbreak.

In 2022, outbreaks of mpox due to clade I occurred in refugee camps in the Republic of the Sudan.

Since 2022, there has also been an upsurge in mpox cases and deaths in the Democratic Republic of the Congo. In some areas of the country, a new offshoot of clade I, called clade Ib, has been spreading person-to-person. As of mid-2024, the clade has also been reported in other countries.

Over 120 countries have reported mpox between Jan 2022 – Aug 2024, with over 100 000 laboratory-confirmed cases reported and over 220 deaths among confirmed cases.

Stigma and discrimination

Stigma and discrimination for any disease are never acceptable. Stigma linked to mpox can undermine public health efforts or prolong a disease outbreak, as people may be more reluctant to come forward and seek care and treatment. For mpox, stigma, discrimination and racism have been particularly directed against communities initially most affected by the disease, namely men who have sex with men, trans people and gender diverse communities.

WHO response

WHO works with Member States and partners to prevent and respond to outbreaks of mpox. This includes coordinating research on vaccines and treatments, strengthening country health systems, and working to facilitate equitable access to vaccines, therapeutics, diagnostics and other tools.

WHO Director-General Dr Tedros Adhanom Ghebreyesus has declared mpox a public health emergency of international concern (PHEIC) twice, the first time in May 2022 and the second time in August 2024.