

# Mpox (monkeypox)

# What we know

01 DECEMBER 2023

- Mpox is an infectious disease caused by the monkeypox virus (MPXV), a species of the genus *Orthopoxvirus*, family *Poxviridae*. Two different clades exist: clade I and II.
- Symptoms can include a rash, fever, and body aches, among others.
- It spreads from person to person or from exposure to infected animals or materials.

- Most people will recover within 2-4 weeks with appropriate care.
- Since 2022, person-to-person transmission has been sustained in a global outbreak.
- Exposure due to contact with animals occurs in a few countries in East, Central and West Africa.

- In the global outbreak, mpox has occurred primarily but not exclusively among men who have sex with men; anyone who has close contact with someone who has mpox may be at risk.
- Both clades I and II are sexually transmissible.

## THE DISEASE

### Common symptoms

Common symptoms of mpox are:

- Skin rash or mucosal lesions accompanied by:



- Skin lesions can range from one to hundreds or thousands, and last two to four weeks
- The skin rash looks like blisters or raised firm lesions, affecting the face, palms of the hands, soles of the feet, groin, genital and/or anal regions.
- Mucosal lesions are found in the mouth, throat, anus, rectum, or on the genitals, or in the eyes.
- Rectal pain is a common feature.

### Disease severity

Severe mpox may occur in:

- Persons who are immunosuppressed
- Children
- Pregnancy

May result in complications:

- Bacterial infection of skin, eyes or lungs
- Inflammation of:
  - brain (encephalitis)
  - heart (myocarditis)
  - lungs (pneumonia)
  - urinary passages (urethritis)
  - genital organs (e.g., balanitis)
  - rectum (proctitis)

May lead to:

- scarring
- blindness
- fetal loss
- death

The case fatality ratio (CFR, deaths among cases) ranges from <1% to >5% in different contexts. In the global outbreak, the CFR is 0.2%. Clade I may cause more severe disease.



### Sexual health, HIV, and mpox

- People living with well-controlled HIV who have mpox are not at higher risk of serious illness than people without HIV.
- People whose immune system is weakened, such as those with undiagnosed or untreated HIV, are at risk of more serious illness with mpox.
- A person with mpox should be screened for HIV and other sexually transmitted infections (STIs) to allow for diagnosis and treatment.
- Unusual skin or mucosal lesions should be assessed for mpox by a health care provider.

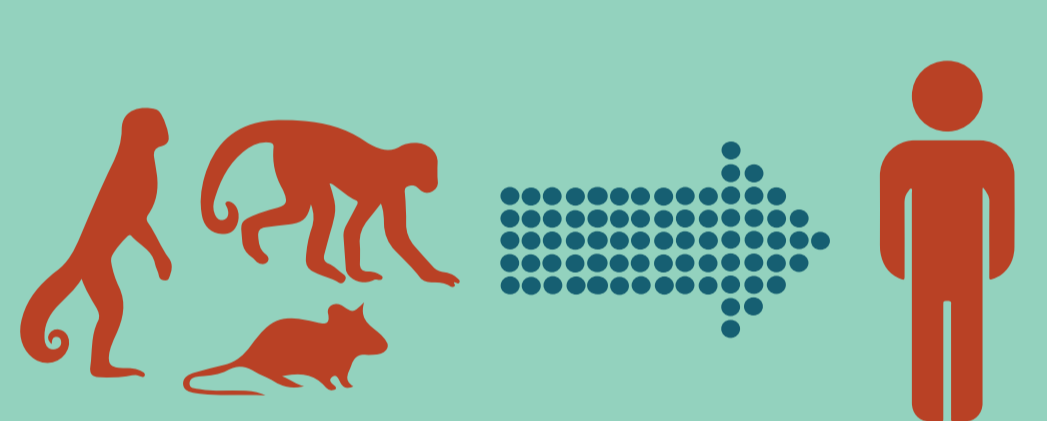


## TRANSMISSIBILITY

### Human to human spread

- A person with mpox can spread it to others until the rash and lesions have fully healed.
- Person-to-person transmission of mpox occurs via:
  1. **Direct contact with skin or mucosal lesions** (in the mouth or genitals of a person with mpox); **these contacts include:**
    - face-to-face (talking or breathing)
    - mouth-to-mouth (kissing)
    - skin-to-skin (touching, hugging, or vaginal/anal sex)
    - mouth-to-skin contact (oral sex or kissing the skin)
    - respiratory secretions, droplets or possibly short-range aerosols from prolonged close contact
  2. **Indirect contact with:**
    - contaminated bedding, clothing or linens, utensils, surfaces, other objects
    - contaminated sharps such as medical needles or tattoo equipment
    - in health care, home or community settings
  3. **Vertical transmission (mother-to-child)**
    - during pregnancy
    - through the placenta
    - during or after delivery

### Animal to human transmission in Africa



- The monkeypox virus can be transmitted from small mammals such as squirrels or monkeys to people. The animal reservoir is not well understood.
- Exposure occurs through direct contact with animals or their body fluids through bites or scratches or from consumption of uncooked bushmeat
- Infection from animals can lead to further spread within a family or household

People with mpox are infectious until their rash has completely healed (2 to 4 weeks).



Persons exposed to someone with mpox could develop symptoms up to 21 days afterwards.



Close physical contact, including contact during sexual activity, can lead to transmission. MPXV has been found in semen, vaginal fluid and rectal swabs.



### High risk environments

Social gatherings or events may expose people to close, prolonged or frequent interactions with others. Such gatherings or contexts are an opportunity to reach people at risk.



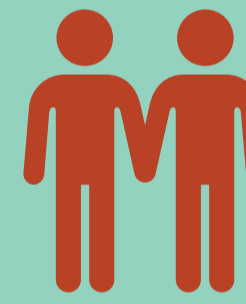
People may be at risk where close physical contact occurs, which may include sexual contact with new or multiple partners.

Contexts where risk may be higher include congregate settings with crowding such as residential or correctional facilities or camps for refugees or displaced persons.

For gatherings of any size or congregate settings, a risk-based approach should be used to assess information and risk communication needs, opportunities for preventive measures such as vaccination and other risk mitigation measures to put in place.

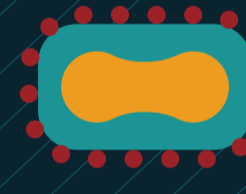
### People at risk include:

- Individuals with new or multiple casual sexual partners
- Gay, bisexual and other men who have sex with men
- Sex workers
- Health workers without appropriate PPE
  - caring for patients with mpox
  - collecting specimens from patients
  - research or clinical laboratory personnel performing diagnostic testing
  - outbreak response team members
- In East, Central and West Africa, people in contact with wild animals in forest areas
- Partners, family members and children in the household of someone with mpox



### Pathogen

- The monkeypox virus, a DNA virus, is an orthopoxvirus (other orthopoxviruses include variola virus, vaccinia, cowpox virus, and others).
- There are two identified clades of the virus, clades I and II. Clade II has two subclades, IIa and IIb.
- Clade I virus is seen in Central and East Africa.
- Clade II virus is seen in West Africa and other countries affected by the global mpox outbreak. Subclade IIb is the primary variant circulating in the global outbreak.



## PUBLIC HEALTH & SOCIAL MEASURES

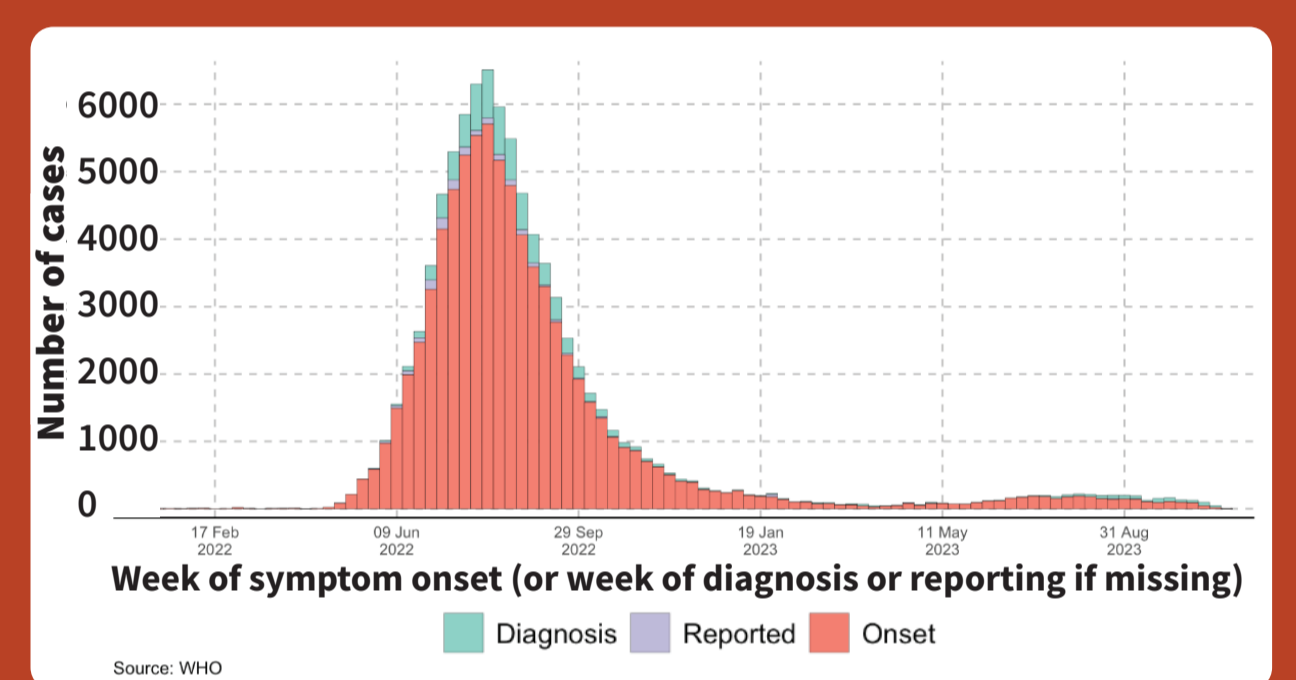
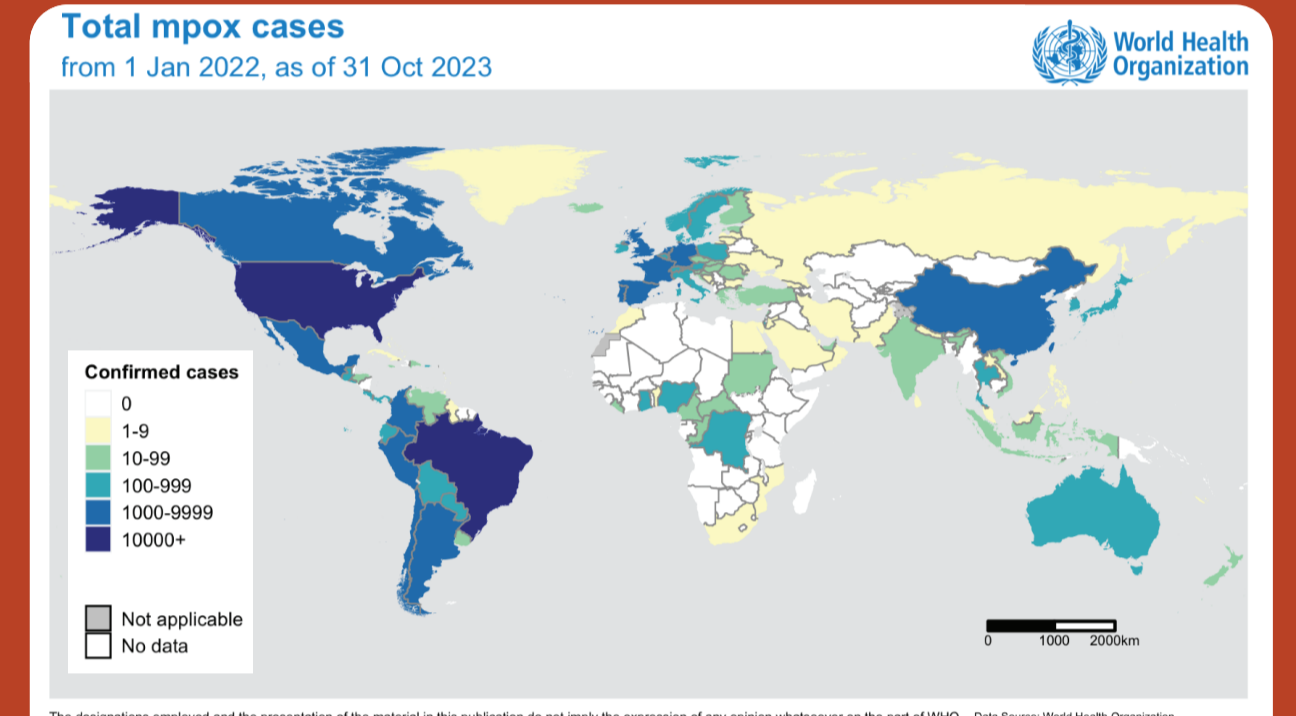
### To prevent infection, people should

- 1 Stay informed about the risk of mpox in your community. Know the symptoms and check yourself regularly.
- 2 Have open conversations with close contacts, including sexual partners, where it is safe to do so.
- 3 If you are at risk, get vaccinated if this is available to you.
- 4 Seek health advice and monitor closely for symptoms if exposed: Get tested if you have symptoms compatible with mpox.
- 5 Refrain from close contact with individuals who have mpox. If close contact cannot be avoided, appropriate personal protective equipment should be worn.
- 6 Do not share bedding, clothing, or towels with sick people.
- 7 Wash hands frequently with soap and water or an alcohol-based hand sanitizer.
- 8 Follow the guidance of your health care provider or national public health authority when diagnosed with mpox. Follow infection prevention control measures to stop transmission; this may include isolation.
- 9 Avoid contact with sick or dead wildlife. Do not use dead animals for medicinal, religious, or cultural practices.
- 10 Cook all foods containing meat parts properly before eating.
- 11 Keep taking steps to protect yourself and others, even after you have been vaccinated.
- 12 Help combat misinformation by sharing only reliable, evidence based and non-stigmatizing information from trustworthy sources.
- 13 If you are a contact, self-monitor for symptoms for 21 days. Quarantine onsite is not required.

## GLOBAL SPREAD

During the global outbreak ongoing since May 2022, more than 92 000 laboratory-confirmed cases of mpox, including over 170 deaths, were reported to WHO from 116 countries across all six WHO regions.

Outbreaks continue as the virus circulates globally. Africa reports thousands of suspected cases and hundreds of deaths.



## DIAGNOSTICS

Laboratory confirmation of mpox is done by PCR of skin or mucosal lesion material. In the absence of skin or mucosal lesions, PCR can be done on an oropharyngeal, anal or rectal swab. While a PCR-positive mucosal swab confirms mpox, a negative result may not rule out MPXV infection.

PCR testing can distinguish between virus clades. Sharing of genome sequences is essential to follow the geographic spread of virus lineages and genetic evolution of the virus.

Molecular point of care (POC) tests are being validated for use in field settings. POC antigen testing is not yet available for mpox.

Limited access to PCR testing in some settings severely limits surveillance of mpox, leading to underestimation of disease incidence in those settings.



## VACCINES

- Vaccination remains a major response strategy to protect against mpox. Mpox vaccines provide 66- 90% protection against mpox infection and reduces severity of disease.
- Mass vaccination is not recommended.
- Immunization strategies should be tailored following a detailed risk and feasibility assessment and reviewed regularly.
- Primary preventive (pre-exposure) vaccination (PPV) is recommended for groups at high risk for exposure to mpox.
- Post-exposure preventive vaccination (PEPV) is recommended for contacts of cases within four days of first exposure (and up to 14 days in the absence of symptoms).
- Vaccines approved for prevention of mpox are LC16-KMB, MVA-BN and OrthopoxVac. ACAM2000 may be used.
- For individuals for whom replicating (ACAM2000) or minimally replicating (LC16) vaccines are contraindicated, non-replicating vaccines (MVA-BN) should be used.



## TREATMENT

- Patients should be treated symptomatically with optimal supportive care to alleviate symptoms and prevent complications:
  - Antipyretics for fever
  - Oral, topical or other analgesics for pain management
  - Localized care to keep skin clean and prevent bacterial infection of lesions
  - Adequate nutrition and hydration. Nutritional support is especially important for children.
- New antiviral agents for severe disease (e.g tecovirimat) are available for use under monitored emergency or compassionate use protocols or in clinical trials.

