

## Popular Article

# MONKEYPOX- A Global Emergency

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## Introduction

Monkeypox is a viral zoonosis (a virus transmitted to humans from animals) with symptoms similar to those seen in the past in smallpox patients, although it is clinically less severe. With the eradication of smallpox in 1980 and subsequent cessation of smallpox vaccination, Monkeypox primarily occurs in central and west Africa, often in proximity to tropical rainforests, and has been increasingly appearing in urban areas. Animal hosts include a range of rodents and non-human primates. Monkeypox virus, a zoonotic orthopox DNA virus related to the virus that causes smallpox. Sporadic outbreaks of infection have been reported in Africa, typically originating from contact with wildlife reservoirs (particularly rodents). Such outbreaks and travel-associated cases outside Africa have had limited secondary spread, and therefore human-to-human transmission has been deemed inefficient. Despite the fact that monkeypox virus has circulated for decades in regions where it has traditionally been endemic, research into monkeypox has been neglected and underfunded. Since early May 2022, more than 3000 monkeypox virus infections have been reported in more than 50 countries across five regions, prompting the World Health Organization to declare monkeypox an “evolving threat of moderate public health concern” on June 23, 2022. Monkeypox virus was first isolated and identified in 1958 when monkeys shipped from Singapore to a Denmark research facility fell ill. However, the first confirmed human case was in 1970 when the virus was isolated from a child in the Democratic Republic of Congo. Most cases of monkeypox occur in rural Africa.

## Etiology

Monkeypox is from the family: Poxviridae, subfamily: chordopoxvirinae, genus: orthopoxvirus, and species: Monkeypox virus. Monkeypox virus is an enveloped double-stranded DNA virus. Monkeypox virus is relatively large (200-250 nanometers). Poxviruses are brick-shaped, surrounded by a lipoprotein envelope with a linear double-stranded DNA genome.



There are two distinct genetic clades of the monkeypox virus: the central African (Congo Basin) clade and the west African clade. The Congo Basin clade has historically caused more severe disease and was thought to be more transmissible. The geographical division between the two clades has so far been in Cameroon, the only country where both virus clades have been found.

### **Natural host of monkeypox virus**

Various animal species have been identified as susceptible to monkeypox virus. This includes rope squirrels, tree squirrels, Gambian pouched rats, dormice, non-human primates and other species. Uncertainty remains on the natural history of monkeypox virus and further studies are needed to identify the exact reservoir(s) and how virus circulation is maintained in nature.

### **Outbreaks**

Since 1970, human cases of monkeypox have been reported in 11 African countries: Benin, Cameroon, the Central African Republic, the Democratic Republic of the Congo, Gabon, Coted'Ivoire, Liberia, Nigeria, the Republic of the Congo, Sierra Leone and South Sudan. Since 2017, Nigeria has experienced a large outbreak, with over 500 suspected cases and over 200 confirmed cases and a case fatality ratio of approximately 3%. Cases continue to be reported until today. In 2003, the first monkeypox outbreak outside of Africa was in the United States of America and was linked to contact with infected pet prairie dogs. These pets had been housed with Gambian pouched rats and dormice that had been imported into the country from Ghana. This outbreak led to over 70 cases of monkeypox in the U.S. Monkeypox has also been reported in travelers from Nigeria to Israel in September 2018, to the United Kingdom in September 2018, December 2019, May 2021 and May 2022, to Singapore in May 2019, and to the United States of America in July and November 2021. In May 2022, multiple cases of monkeypox were identified in several non-endemic countries. Studies are currently underway to further understand the epidemiology, sources of infection, and transmission patterns.

### **Transmission**

Animal-to-human (zoonotic) transmission can occur from direct contact with the blood, bodily fluids, or cutaneous or mucosal lesions of infected animals either by being scratched or bitten by the animal or by preparing or eating meat or using products from an infected animal.. In Africa, evidence of monkeypox virus infection has been found in many animals including rope squirrels, tree squirrels, Gambian pouched rats, dormice, different species of monkeys and others. The natural reservoir of monkeypox has not yet been identified, though rodents are the most likely. Eating inadequately cooked meat and other animal products of infected animals is



a possible risk factor. People living in or near forested areas may have indirect or low-level exposure to infected animals. Human-to-human transmission can result from close contact with respiratory secretions, skin lesions of an infected person or recently contaminated objects. Transmission via droplet respiratory particles usually requires prolonged face-to-face contact, Direct contact with monkeypox rash, scabs, or body fluids from a person with monkeypox. Monkeypox can spread to anyone through close, personal, often skin-to-skin contact, including-Touching objects, fabrics (clothing, bedding, or towels), and surfaces that have been used by someone with monkeypox. Contact with respiratory secretions. A pregnant person can spread the virus to their fetus through the placenta.

## Symptoms

People with monkeypox get a rash that may be located on or near the genitals (penis, testicles, labia, and vagina) or anus (butthole) and could be on other areas like the hands, feet, chest, face, or mouth.

- The rash will go through several stages, including scabs, before healing.
- The rash can initially look like pimples or blisters and may be painful or itchy.

Other symptoms of monkeypox can include:

- Fever, Chills, Headache, Exhaustion
- Swollen lymph nodes
- Muscle aches and backache
- Respiratory symptoms (flu-like symptoms)
- Monkeypox symptoms usually start within 3 weeks of exposure to the virus. If someone has flu-like symptoms, they will usually develop a rash 1-4 days later.



## Prevention Steps

- **Avoid close, skin-to-skin contact with people who have a rash that looks like monkeypox like** do not touch the rash or scabs of a person with monkeypox, do not kiss, hug, cuddle or have sex with someone with monkeypox.
- **Avoid contact with objects and materials that a person with monkeypox has used like** do not share eating utensils or cups with a person with monkeypox, do not handle or touch the bedding, towels, or clothing of a person with monkeypox.



- **Wash your hands often** with soap and water or use an alcohol-based hand sanitizer

## **Treatment**

There are no treatments specifically for monkeypox virus infections. However, monkeypox and smallpox viruses are genetically similar, which means that antiviral drugs and vaccines developed to protect against smallpox may be used to prevent and treat monkeypox virus infections.

### **Approved Monkeypox vaccines in the world**

Canada, the European Union, and the United States have authorised a smallpox vaccine, MVA-BN, for use in monkeypox prevention. LC16 and ACAM2000, two more vaccines, are also being explored for monkeypox prevention. People under 45 who did not get the smallpox vaccination are considered to be especially at risk.

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