

## The Latest Orthopoxvirus Surge: Who Gets Monkeypox Next?

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Do you know? Orthopoxvirus is a genus (a group of living things) composed of viruses where mammals and humans and arthropods (invertebrates like spiders) serve as natural hosts. All human orthopoxvirus infections are zoonoses (diseases transmitted from animals to humans). Diseases associated with this genus include smallpox, cowpox, horsepox, camelpox, rabbitpox, Alaskapox and monkeypox among others. The most widely known member of the genus is variola virus. Although variola virus which causes smallpox was eradicated in 1980, this variola virus strain has now become prevalent and reemerged as the genus descendant Monkeypox. (MP).

MP continues to occur in countries of central and west Africa. Two distinct clade (biological term for a distinct ancestry) have been identified: the west African clade and the Congo Basin clade. The Congo Basin clade is also known as the central African clade. Cases of MP are often found close to tropical rainforests where there are animals that carry the virus. Animals like squirrels, rats, mice and different species of monkey among others can carry the virus. Until recently MP was isolated in endemic countries. However, during the month of May 2022 other non-endemic countries began reporting confirmed and possible cases in Argentina, Australia, Canada, Belgium, Italy, the United Kingdom, Portugal, Sweden, Spain, Netherlands, Germany, France and the United States. According to the World Health Organization (WHO), the current circulating strain appears to be the milder West African type that often starts with flu-like symptoms and swelling lymph nodes with progression to a blistering rash. When does an individual believe they have the MP virus? Fever, malaise, head and body aches, and occasionally vomiting. One lesion may occur but other body lesions may occur. Lesions surrounded by inflammation may progress to pustules and eventually become dry crusts.

Although transmission can come from animals, human-to-human contact is the generally documented transmission activity based on family members taking care of ill patients who have been infected. This also includes health care providers. It is transmitted by close contact with infected skin lesions or contaminated materials and usually incubates in 6 - 13 days before symptoms appear. Children are at higher risk and MP can cause pregnancy complications or stillbirth. The West African clade has shown a fatality rate of around 1% while the Congo Basin clade has a higher rate: 10%. It can be transmitted through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces such as the mouth or throat or exhaled respiratory droplets.



Contact with humans in the USA began with animals imported from Ghana in May of 2022 when the outbreak of MP began globally. In many countries the prevalent host is the common cat often purchased from retail animal sales outlets or adopted from animal humane shelters. This begs the question should animals being sold by retail outlets or animal recovery groups be tested for MP, in addition to typical test currently being completed---before being transferred to another adult? Yes and in addition, individuals should avoid zoos or animal reserves where close contact with various animals such as elephants or other African sources, when exhaling, offer aerosols that contain the MP virus.

Current cases being reported to WHO and the US Center for Disease Control (CDC) have reached nearly 1000 in just two months since the May of 2022 worldwide and appears to be accelerating at the rate of 250% weekly. What will be the cases reported by the end of the next 52 weeks? Individuals who are infected can be diagnosed with detection of viral DNA by polymerase chain reaction (PCR) laboratory test for MP. Antigen and antibody detection methods may not be useful as they do not differentiate between the orthopoxvirus strains.

Treatment of MP is being adjusted using vaccinia immunoglobulin (VIG) which is an isotonic sterile solution of the immunoglobulin fraction of plasma from persons vaccinated with vaccinia virus. Research and clinical activities are also ongoing using Imatinib, a compound approved by the FDA (US Food and Drug Administration) for cancer treatment. Many scientists believe that the smallpox vaccine developed in the late 1970's will be also a solution.

Where to next? Is this the new era where all in the world must be prepared for the next plague? Is this MP the next COVID? Probably not, based on worldwide WHO surveillance communications from viral experts that are part of the WHO international panel committed to maintain awareness of MP trends. But the experts are still uncertain because of the involvement in non-endemic countries.

Individuals interested in keeping track of this newest virus surge should follow WHO ([www.who.int](http://www.who.int)). It offers weekly updates on many health issues globally. It includes MP and COVID advances, including countries with health assist challenges as being experienced currently in the Ukraine.

Be well!

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