



A Reemerging Disease: Could Mpox be a Pandemic Threat?

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Mpox (formerly known as monkeypox) is an uncommon zoonotic disease caused by the Mpox virus, which is a member of the Orthopoxvirus genus within the Poxviridae family. The Variola virus, commonly referred to as the causative agent of smallpox, belongs to the same family and was eradicated globally in 1980 through the implementation of an effective vaccination strategy. Following the declaration of smallpox eradication and the cessation of routine smallpox immunization programs, Mpox, although rare, has been observed to occur, particularly in Central and West Africa. Cases and outbreaks have occurred in non-endemic countries through international travel or the importation of infected animals from affected areas.^{1,2}

The 2022 Mpox outbreak marked the first significant dissemination of the virus within communities in several countries beyond the specific areas in Africa where it had previously been endemic. A total of 99,176 confirmed cases of Mpox, including 208 deaths, have been reported by 116 countries up until the end of July 2024. The international outbreak has primarily affected men who identify as gay, bisexual, or other men who engage in sexual activity with men. In July 2022, the World Health Organization (WHO) declared it a “public health emergency of international concern” (PHEIC). From September 2023 onwards, there has been an increase in case reports in the Democratic Republic of the Congo, followed by neighboring countries such as the Central African Republic, Congo, Rwanda and Uganda by 2024. The latest increase in cases, occurring in June 2024, is believed to be due to the Type I (Clade 1) strain, which is more contagious and causes severe disease. In view of the prevalence and spread of Mpox in many parts of Africa, the WHO has again declared Mpox a PHEIC on August 14, 2024.¹⁻³

During the 2022 Mpox epidemic that affected the entire globe, cases were also identified in our country. The Ministry of Health conducted surveillance of these cases, yet the total number of cases remained undisclosed. As reported by the U.S. Centers for Disease Control and Prevention (CDC), a total of 12 cases have been identified within our country.⁴

It was not anticipated that Mpox disease would result in a pandemic on the scale of that caused by the Coronavirus Disease 2019 (COVID-19). This is attributable to a number of factors, including the fact that the signs and symptoms of Mpox are distinct, it rarely causes asymptomatic infection, and it is transmitted through close and long-term contact. The primary mode of transmission is through close skin-to-skin contact with infected individuals or their contaminated personal items, including clothing and bed linens. The disease frequently manifests as visible lesions on the skin, which can result in a reluctance to engage in physical contact with others. Additionally, it demonstrates a reduced propensity to mutate compared to other viruses, given its DNA structure and inherent stability. This contrasts with the phenomenon observed in the case



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of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus, where the emergence of new variants has been a notable phenomenon. However, in the ongoing 2023 Mpox epidemic, concerns have increased due to the fact that all demographic groups are affected, there is a higher incidence of transmission, and the mortality rate is higher. Nevertheless, as it is not a virus primarily transmitted through the respiratory tract, it is not expected to cause a major epidemic similar to that of SARS-CoV-2.

In contrast to the situation during the early stages of the SARS-CoV-2 pandemic, a range of vaccines and treatments are currently available for Mpox. The efficacy of the smallpox vaccine in preventing Mpox has been demonstrated in observational studies, with an estimated 85% effectiveness.⁴ It can be reasonably deduced that those who have been vaccinated against smallpox may exhibit less severe disease or alternatively, may be protected from the disease. However, the availability of smallpox vaccines for clinical use has ceased.

A third-generation vaccine based on a live, attenuated orthopoxvirus, Modified Vaccinia Ankara (MVA), has been granted approval for the prevention of smallpox and Mpox. Moreover, the Advisory Committee on Immunization Practices (ACIP) has recommended vaccination for individuals at risk of exposure to orthopoxvirus infections, including Mpox.⁵ It is not recommended that the general public undergo routine immunization against Mpox. The ACIP has issued recommendations for laboratory personnel and healthcare worker response teams who may be at an increased risk of exposure to orthopoxviruses.⁶

Although the evidence is inconclusive, some antivirals (tecovirimat, brincidofovir, cidofovir) have been suggested as a potential treatment for Mpox. The effects of the agents have yet to be demonstrated, although anecdotal evidence has been reported in real-life case-control studies.⁶

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