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Deadly Mpox Outbreak Strikes Democratic Republic of the Congo

Nearly 600 people have died this year, far above the fatality rate of last year's global outbreak.

December 7, 2023 By Liz Highleyman

UPDATE: On December 7, the Centers for Disease Control and Prevention issued a health advisory alerting clinicians and health departments to be aware of the possibility of Clade I mpox in travelers who have been to the DRC. The Jynneos vaccine is expected to be effective for both Clade I and Clade II mpox, but vaccination coverage in the U.S. remains low. The CDC "recommends that clinicians encourage vaccinaton for patients who are eligible."

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The Democratic Republic of the Congo (DRC) is in the midst of an mpox (formerly known as monkeypox) outbreak that has led to nearly 600 deaths, according to the World Health Organization (WHO). Unlike last year's global outbreak, this one involves a different type of mpox virus (Clade I) that causes more severe disease. For the first time, sexual transmission of this strain is playing a role, especially among men who have sex with men.

The DRC outbreak underscores the need for mpox vaccines and treatment, which are still not widely accessible in Africa. "These tools are available and can't be limited only to wealthy countries," says Boghuma K. Titanji, MD, PhD, of Emory University. "We need to do better."

The global mpox outbreak that started in May 2022 has declined dramatically, though sporadic clusters are still being reported. To date, the Centers for Disease Control and Prevention (CDC) has identified 31,010 mpox cases in the United States, resulting in 55 deaths. The WHO has tallied nearly 92,000 cases and 167 deaths worldwide as of October 2023, but this does not include the DRC outbreak.

Mpox is an orthopoxvirus closely related to smallpox. It causes lesions on the skin and mucous membranes, sometimes accompanied by flu-like symptoms. Mpox virus has two known types, Clade I (endemic in the Congo Basin region), which is more severe, and Clade II (endemic in West Africa). Last year's global outbreak, which involved Clade II, had a low fatality rate, though it was more deadly among people with AIDS and others with advanced immune suppression.

Prior to the global outbreak, mpox was historically known as an uncommon disease in western and central Africa, where it largely affected children. It was often associated with contact with wild animals and was not thought to spread easily between people. The epidemiology changed with a 2017 Clade II mpox outbreak in Nigeria, in which most of those affected were men and sexual transmission appeared to play a key role—but this largely flew under the radar.

The U.K. Health Security Agency announced the first case in the global outbreak in May 2022—a man who had recently traveled to Nigeria. After that, Clade II mpox began to spread among gay men, many of whom reported international travel. Before long, outbreaks emerged in cities in Europe and North and South America. Worldwide, most cases have involved gay, bisexual and other men who have sex with men, many of whom had multiple sex partners and frequented venues and events where sex takes place. According to a recent CDC report, sexual activity appears to be the most common route of transmission in the United States even among people who do not report male-to-male sexual contact.

2023 DRC Outbreak

So far this year, more than 12,500 suspected cases of Clade I mpox—meaning clinically diagnosed but not necessarily confirmed by laboratory testing—have been identified in the DRC, which did not report any Clade II mpox cases during the global outbreak.

In March, a resident of Belgium tested positive for Clade I mpox in Kenge, a city in Kwango province, during a visit to the DRC, according to the WHO report. However, a report on the same case cluster in Emerging Infectious Diseases said the man is from the DRC. Because he already had symptoms on the day of his arrival, exposure may have occurred outside the DRC. According to the Emerging Infectious Diseases report, he recently had sex with a man in Europe, who often visited the DRC, who had mpox symptoms at the time.

During his travels, the man visited discretely operated underground clubs frequented by men who have sex with men, and he reported nine sexual contacts in the DRC (six men and three women). These individuals reported an additional 36 sexual contacts. Ultimately, five people (four men and one woman) tested positive—the first time Clade I mpox virus has been linked to sexual transmission. These five patients received supportive care and pain control on an outpatient basis.

“This event is unusual and highlights the risk that [mpox virus] Clade I could also widely spread among sexual networks, as seen for Clade II during the 2022-23 global outbreak,” the WHO authors wrote. “These new features of sexual transmission now raise additional concerns over the continuing rapid expansion of the outbreak in the country in a nationally and internationally mobile key population…The risk of mpox further spreading to neighboring countries and worldwide appears to be significant.”

In August, mpox cases were confirmed for the first time in Kinshasa, DRC’s capital. Four separate events were identified in which people exposed in other provinces traveled to the city, leading to local transmission clusters. Of the 102 suspected cases in Kinshasa, two thirds were among men. At least one person was a health care worker. One individual, who also had tuberculosis, died after

contracting mpox in a hospital.

In September, the first mpox case was reported in South Kivu province. It involved a young trader who had traveled from another province where Clade I mpox is endemic. Epidemiological investigation identified 113 contacts. This outbreak grew to 80 suspected and 34 confirmed cases, including 20 sex workers.

“Our findings highlight historically unrecognized [mpox virus] transmission through sexual contact and indicate the need for increased routine screening in sexual health clinics in mpox-endemic and nonendemic regions,” wrote the authors of the Emerging Infectious Diseases report. “Population movement and previously unreported routes of transmission could exacerbate global distribution of [mpox virus], which could be compounded by the lack of routine diagnostic testing or inadequate access to rapid point-of-care testing. In view of this investigation, epidemiologic and genomic surveillance for [mpox virus], in both endemic and nonendemic regions, should be improved and strengthened.”

High Fatality Rate

The 12,569 Clade I mpox cases reported through November 12 have occurred in 22 out of 26 provinces in the DRC. This is the largest number of annual cases ever reported, more than double the 6,216 cases reported in 2020. However, due to limited access to diagnostics, only 1,106 suspected cases—about 9%—have undergone PCR testing, with 714 testing positive (a 65% positivity rate).

The DRC outbreak has led to 581 deaths, for a case fatality rate of 4.6%. In contrast, the Clade II global outbreak had a case fatality rate of about 0.2%. In fact, the number of deaths in the DRC this year already far exceeds that of the global outbreak since May 2022. However, as Jeremy Faust, MD, of Brigham and Women’s Hospital, noted in an article for MedPage Today, this includes only people who were sick enough to seek medical care. With limited testing available, many more people might have had mild or asymptomatic mpox, suggesting the infection fatality rate is actually substantially lower.

The high death rate is likely attributable in part to Clade I mpox, which is known to cause more severe illness. Health status may also be a factor. The WHO and Emerging Infectious Diseases reports did not state whether these mpox patients were HIV positive or immunocompromised, but the DRC has a high rate of HIV among men who have sex with men and, due to the limited availability of care, many people may be unaware of their status and remain untreated.

In the Clade II global outbreak, people with advanced HIV were prone to more mpox complications and had a high mortality rate (27%), although this was not the case for HIV-positive people with an adequate CD4 T-cell count. In the United States, around 40% of people diagnosed with mpox were living with HIV, but HIV-positive people accounted for more than 80% of those hospitalized, and most of the 55 people who died were Black gay men with AIDS.

To control the Clade I outbreak, “three major challenges lie ahead: diagnosis, treatment and

vaccination," according to Jean-Jacques Muyembe-Tamfum, MD, PhD, director-general of the DRC's National Institute for Biomedical Research. While homosexuality is not illegal in the DRC, it is highly stigmatized, which may discourage people with mpox from seeking care.

While the MVA-BN vaccine (brand names Jynneos, Imvamune or Imvanex) has been widely deployed in the United States and several other high-income countries, it is still not readily available in Africa outside of research settings. Studies have shown that this and older smallpox vaccines are effective against both Clade I and Clade II mpox. The same is true for the antiviral drug TPOXX, or tecovirimat. (A clinical trial of TPOXX is underway in the DRC.)

"I am still able to offer vaccines for mpox at my clinic in Atlanta, although our case numbers have decreased dramatically in recent months," Titanji said. "Health care providers in the DRC should be able to do the same for communities there facing a far more deadly outbreak of the disease. It is shameful that this is still a debate just a few months after the global outbreak of mpox, which was an emergency when wealthy Western countries were affected."

What's more, the Clade I global outbreak shows the potential for mpox to spread beyond endemic countries, especially within sexual networks of highly mobile gay and bisexual men. Although mpox has waned in the United States, the CDC now recommends routine vaccination for men who have sex with men, transgender people and others at risk, even when an outbreak is not currently underway.

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