Monkeypox and HIV

Mpox cases have declined dramatically, but people living with HIV remain at greater risk.

January 9, 2023 By Liz Highleyman

Monkeypox—recently renamed mpox—was one of the biggest health stories of 2022. Historically a rare disease mostly seen in Central and West Africa, a new outbreak emerged in London in May. Most cases were among men who have sex with men, suggesting sexual transmission. Before long, mpox skyrocketed in cities across Europe and the United States. New cases have since declined dramatically, but major disparities remain, including a high proportion of cases among people living with HIV.

Demetre Daskalakis, MDCourtesy of CDC

“From the beginning, it was clear that mpox was not going to live in isolation,” says Demetre Daskalakis, MD, MPH, director of the Centers for Disease Control and Prevention (CDC) Division of HIV Prevention, who in August was brought on board as the White House national monkeypox response deputy coordinator. Mpox, HIV and sexually transmitted infections (STIs) are “interacting epidemics that are reinforced by social determinants that allow them to fester and get worse.”

As of December 1, the CDC had tallied nearly 30,000 mpox cases in the United States and more than 81,000 cases worldwide. A large majority of cases have been among gay, bisexual and other men who have sex with men, and sexual contact is the most commonly reported transmission route.

Mpox cases fell by more than 90% after peaking in late July and early August, according to Daskalakis. Experts attribute the drop to a combination of factors, including immunity in the initially infected group, rapid vaccine uptake and behavior change. A CDC survey conducted in August found that half of men who have sex with men had made changes, such as having fewer sex partners.

Monica Ghandi, MDCourtesy of UCSF

“Mpox has disappeared in the city of San Francisco,” says Monica Gandhi, MD, MPH, medical director of Ward 86, the HIV clinic at Zuckerberg San Francisco General Hospital. “Ward 86 and San Francisco City Clinic, which serve diverse populations, gave out vaccines like crazy. We saw really high vaccine uptake, natural immunity in the population and changes in behavior early on.”

Yet even as mpox has declined, disparities have widened, leading to concern that the virus could continue to circulate at a low level in disadvantaged groups. What's more, viruses aren't bound by borders. Countries in Africa that have been dealing with mpox for decades still do not have ready access to vaccines and treatment. If the virus is allowed to spread freely anywhere in the world, new outbreaks could continue to emerge.

Dealing With Disparities

Many early mpox cases were among white gay men in cities with large LGBTQ communities. But before long, Black and Latino men who have sex with men accounted for more than half of new cases. What's more, the outbreak has shifted to smaller cities and to the South, following the trajectory of the HIV epidemic. The Kaiser Family Foundation reported in October that Black Americans were five times more likely and Latinos were three times more likely to contract mpox compared with their white counterparts. Yet these groups initially did not receive their fair share of mpox vaccines.

Justin Smith, MPHCourtesy of Justin Smith

“This pattern with mpox mirrors the social fault lines we have seen when it comes to infectious diseases. They tend to concentrate among people who are most socially marginalized,” says Justin Smith, MPH, director of the Campaign to End AIDS at Positive Impact Health Centers in the Atlanta metropolitan area. “At the root of this is structural racism, poverty—the same things keep coming up over and over again. Until we really address those more fundamental causes, we’ll continue to see these types of racial inequities.”

People in marginalized communities often have more barriers to accessing care, including not having a regular care provider or health insurance. In addition, they may face stigma around sexual orientation and gender identity and be unwilling to disclose their sexual activities. As a result, they are less likely to get vaccinated or tested for mpox.

Monkeypox cases reported to the CDC by race/ethnicity Adapted from CDC Monkeypox Technical Report 4

“While well-intentioned, the strict eligibility rules around who could get mpox testing and vaccination, which required people make a checklist of ‘I had X number of sex partners and had sex in a particular venue’ was off-putting for many people,” Smith says. “Even though that was done in the spirit of trying to prioritize who was most in need, it had the unintended consequence

of scaring away people that may not be out or may not identify with the label queer or gay.”

Mpox Among People With HIV

Many people who have contracted mpox are living with HIV or taking pre-exposure prophylaxis (PrEP) for HIV prevention. An analysis of nearly 2,000 mpox cases described in the September 9, 2022, edition of the CDC’s Morbidity and Mortality Report found that 38% were HIV positive and 41% had an STI during the past year. Worldwide, just over half of cases with a known status are among HIV-positive people, according to the World Health Organization.

But national and global figures can hide higher local rates. In Georgia, for example, health officials reported in August that about two thirds of people with mpox, most of whom were Black, were living with HIV.

Although only about 3% of mpox cases reported worldwide have been among women, those living with HIV are again overrepresented. A recent analysis published in The Lancet found that 8% of 69 cisgender women and 50% of 62 transgender women with mpox were HIV positive.

The reasons for this overrepresentation of people living with HIV are not fully understood. People with HIV are more likely to be engaged in health care, and the sexual health and HIV clinics where they receive care are more clued in about mpox. It’s possible that people with HIV are more often part of networks of highly sexually active gay and bisexual men. And although people with well-controlled HIV generally are not considered immunocompromised, they could have more subtle immune impairment that might increase their susceptibility to mpox.

Boghuma Titanji, MDCourtesy of Boghuma Titanji

“I think a lot of it has to do with behavior and being overrepresented in vulnerable networks,” says Boghuma Titanji, MD, of Emory University in Atlanta. “However, I think there are also plausible mechanisms for increased risk for mpox infection due to underlying immunocompromise from HIV. For example, we know that people with HIV have impaired antiviral immune responses, which may make it harder for them to clear viral infections if exposed. This could be contributing to the enhanced vulnerability to mpox that has been described in this population.”

The good news is that HIV-positive people who are on antiretroviral therapy and have a high CD4 T-cell count do not appear to have more severe mpox illness.

“It’s not just HIV, it’s HIV that’s not adequately controlled that increases the risk for more severe

disease," says Daskalakis. "Being aware of your HIV status is so important. People who are aware, who are linked to care, who are on antiretrovirals, whose viral loads are suppressed, they aren't having as severe manifestations."

The mpox virus can cause sores anywhere on the body, including lesions on the genitals or in the throat or rectum that can be extremely painful. The sores can resemble other STIs, which makes diagnosis more challenging. Most people with mpox recover without complications, but the illness can be more severe, especially in immunocompromised people, potentially affecting the eyes, lungs and brain.

In many of the reports to date, most HIV-positive people with mpox had well-controlled HIV and well-preserved immune function, and they did not have worse outcomes than their HIV-negative peers. But it's a different story for people who are not on HIV treatment and have a detectable viral load or a low CD4 count.

Prior reports from Africa, where fewer people were on optimal antiretroviral therapy, showed that people with HIV had more severe and prolonged mpox illness and higher mortality. Growing evidence suggests that this is also true in high-income countries as mpox moves into communities where people living with HIV are less likely to know their status and be engaged in care.

The September CDC analysis found 8% of HIV-positive people with mpox were hospitalized—rising to 27% for those with a detectable viral load—compared with 3% of their HIV-negative peers. In another study recently published in the journal AIDS, HIV-positive people with mpox were more likely than HIV-negative people to require urgent care visits (53% versus 29%) and hospitalization (11% and 4%) and to develop rectal pain or abscesses and pneumonia. So far, 17 deaths have been reported among people with mpox in the United States. While health departments have not disclosed their HIV status, several were described as severely immunocompromised.

Another analysis, published in the October 26, 2022, Morbidity and Mortality Weekly Report, shed more light on who develops severe mpox. Between August 10 and October 10, the CDC provided clinical consultation for 57 adults hospitalized with severe mpox. Most (82%) were HIV positive, but only four (9%) were on antiretroviral treatment before their mpox diagnosis. Two thirds were Black, and a quarter were experiencing homelessness. Among those with a known CD4 count, 72% fell below 50, indicating profound immune suppression. Seventeen people (30%) required intensive care, and 12 people (21%) died.

"Monkeypox and HIV have collided with tragic effects," says Jonathan Mermin, MD, MPH, who leads the CDC's mpox response.

Closing the Gaps

Daskalakis describes mpox, HIV, STIs, mental illness, substance use and homelessness as a "syndemic," or constellation of intersecting epidemics. "When you deal with things in isolation, you tend to not be as efficient and tend not to use all of your resources in the most optimal way," he says.

The shift of mpox to marginalized populations, the high rates of HIV and STIs among people with mpox and the risk for severe mpox in people with HIV underline the need for a holistic approach. Although there is ongoing debate about whether mpox is technically an STI, there's a growing consensus that it should be addressed as one, taking into account the social determinants that fuel the syndemic.

Unfortunately, public health officials and sexual health and HIV services have been forced to add mpox to their existing workload without additional resources. "Because Congress has not appropriated any additional funding for mpox, it's hard—particularly for some of the smaller organizations—to continue to really dive into that work," says Smith.

To address this shortfall, the CDC and the Health Resources and Services Administration recently gave grantees the flexibility to repurpose funds earmarked for HIV and STI services to support the mpox response. But as happened with HIV, advocates fear that as mpox concentrates in marginalized and especially Black communities, the media and the general public will lose interest and governments will fail to deliver adequate resources.

The CDC recommends that all sexually active people with suspected mpox should also be tested for HIV and other STIs. Ideally, experts would like to see routine integrated testing—and potentially self-tests—for HIV, STIs and mpox. This is a good opportunity to offer PrEP to those who are HIV negative and link HIV-positive people to care. While most mpox cases so far have been among gay men, providers who see women and heterosexual men should also be aware of mpox and able to offer or refer patients for care. Expanding the mpox response to a wide variety of clinic settings "will help destigmatize the notion of getting tested or treated or vaccinated against mpox," Smith says.

With more than 1 million doses administered to date, mpox vaccines have helped curb the outbreak, but they're still not reaching everyone who could benefit. To address this disparity, the CDC has allocated vaccines specifically for vulnerable populations.

The Jynneos vaccine—the one now used in the United States—contains a non-replicating virus, and it is safe for people with HIV. However, the older ACAM2000 vaccine contains live virus and should not be used by immunocompromised people. While limited evidence suggests that Jynneos is effective for people with well-controlled HIV, those with unsuppressed virus or a low CD4 count may not respond as well. Experts advise that people living with HIV should be prioritized to receive two doses of the vaccine using the most effective administration method.

HIV-positive people with mpox can be treated with the antiviral medication TPOXX (tecovirimat), although here, too, there are limited data about its effectiveness. People with advanced immune suppression and severe mpox may require prolonged treatment, which could lead to drug resistance.

Perhaps the best way for people living with HIV to avoid severe mpox is to start and stay on antiretroviral therapy to keep their HIV in check and their immune system strong.

“For all infectious diseases—including mpox, including COVID—those who have lower T-cell counts and elevated HIV viral load are most at risk for severe infections,” says Gandhi. “We have highly effective antiretroviral treatment, and we have a way to prevent these complications. Treating HIV is really important as soon as you get diagnosed.”

This means it’s more important than ever to reach people with HIV who don’t know their status and aren’t engaged in care. HIV-positive people who are not on antiretroviral therapy when diagnosed with mpox should start as soon as possible.

“It would be great if we were able to create a system such that your primary care physician would feel equipped to at least begin your treatment journey. We want to make sure the primary care workforce, wherever somebody encounters them, are able to comfortably have conversations about sex and sexuality,” says Smith. “It’s not just about individuals changing their behavior—it’s really about how do we create a system that is more responsive to the people who need us?”
