HIV in Kentucky: Interactions with Mpox, Vaccines, & Public Health

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The 2022 mpox outbreak disproportionately impacted gay men and those living with HIV. Was this some cosmic hate crime or just a side-effect of our community's tendency to spread our love far and wide? In this article, we'll unpack the relationship between three diseases—smallpox, mpox, and HIV—and their role in contemporary vaccine research and public safety.

Routine vaccination for smallpox ended in the 1970s due to the WHO's declaration that smallpox was eradicated. No more disease meant no more worries—we thought. Global vaccination rates against smallpox fell dramatically, sometimes as dramatically as 95% to 5% of the total population (based on studies from Denmark and Spain). We know there is at least some cross-immunity to mpox generated from smallpox; one study even found a connection between smallpox vaccination and resistance to mpox, even when the vaccines were administered a decade or more earlier. If we connect the dots, diminishing vaccination rates for smallpox could mean diminishing immunity from mpox. This is one reason current vaccination efforts are so important—if you haven't been vaccinated against smallpox, you've got a heightened risk of contracting mpox.

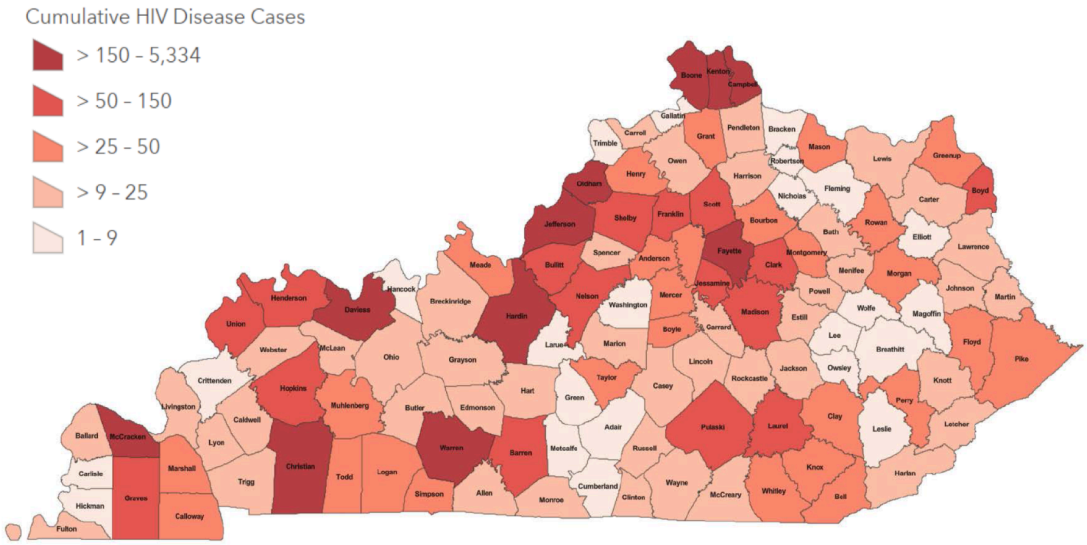
While prior mpox infections had been relatively constrained to regions of Africa, the 2022 outbreak was an anomaly. These new variants disproportionately targeted gay men (94% of total infections) and those living with HIV (41% of total infections). This isn't due to some cosmic hate crime (though I haven't personally ruled that option out), it's likely due to the connection between multiple sexual partners and mpox transmission. More sexual encounters means more chances to contract, statistically speaking.

For those with HIV, mpox vaccines have shown very few possible reactions with HIV medications. While there is no demonstrated connection between being HIV+ and one's odds of contracting mpox, the immunocompromisation that comes with longer-term HIV and AIDS would put them at greater risk for experiencing a severe and potentially fatal mpox infection without the vaccine. While some "live" vaccines may pose a risk to the immunocompromised, both major vaccines on the market today—Jynneos and ACAM2000—use "dead" viruses which are incapable of causing infection. Vaccines which use a weakened, as opposed to dead, virus may lead to further infection to those with weakened immune systems, but this is highly dependant on the individual and their specific health factors. Being immunocompromised may also reduce the efficacy of certain vaccines, since vaccination's primary goal is stimulating the immune system.

HIV and vaccination have a long history, going back as far as 1984 when HIV was identified as the cause of AIDS. At this time, government officials declared a 2–3 year window between this discovery and the development of a functional vaccine. This estimate has proved wrong, to the tune of decades. There was indeed a trial in 1986, though this was fraught with controversy. Daniel Zagury, leader of the trial, was the first person to try the vaccine and would later have charges levied against him for medical misconduct when three of the trial participants, in the late stages of AIDS, died during the trial. These charges were ultimately dismissed, with the understanding that all medical trials carry with them some amount of risk and the participants all gave informed consent regarding that risk. Since this initial trial, there have been several subsequent attempts to develop a vaccine against HIV, each powered by new discoveries around the virus's structure, behavior, and interaction with other systems within the body.

Kentucky HIV/AIDS Annual Surveillance Report 2023

Figure 6. Cumulative HIV Disease Cases Diagnosed By Residential County at Time of Diagnosis as of December 31, 2022, Kentucky*



* One case was missing residential county at time of diagnosis

While we don't have a vaccine to eradicate HIV just yet, we do have preventative PrEP and many treatments for treating an HIV infection before it can develop into AIDS. In Kentucky, only an estimated 28.8% of residents have been tested for HIV at least once in their lifetime. Combine this with an estimated 8.6% of those Kentuckians testing positive for HIV, and we get a clearer picture. If there are 4.5M residents in Kentucky, 28.8% of whom know their status one way or another (1.3M), we're left with 3.2M who don't know and who may not be engaging in preventative measures. PrEP use has been steadily climbing since its release in 2012, with an estimated 4,500 Kentuckians routinely using it. Those who have more sex with more people and who use intravenous drugs may be at higher risk of contracting HIV—but regardless, not knowing your status (and perhaps not being aware that you don't know) is an issue of community safety. HIV may have had its terrifying, pandemic-era time in the spotlight, but it is no less of a concern than mpox, COVID, or any other disease that draws attention, resources, and action. We can all do our part in preventing the spread of HIV by using PrEP, knowing our status, and keeping one another safe and healthy.