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## Health inequities continue to drive the public health threat of mpox

Mpox has been downgraded as a public health emergency, but vulnerable communities continue to bear the brunt of its impact, say **Abraar Karan and colleagues**

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The global mpox (formerly monkeypox) outbreak was downgraded from a public health emergency of international concern by the World Health Organisation on 10 May 2023.<sup>1</sup> Members of the International Health Regulations Emergency Committee noted a decline in the number of cases being reported globally but also emphasised ongoing uncertainties about the disease and the need for rigorous surveillance. Just days later, a preprint paper from scientists at the US Centers for Disease Control and Prevention (CDC) reported phenotypic resistance to the first line antiviral medication tecovirimat in mpox virus samples from immunocompromised patients in the United States.<sup>2</sup>

Several reports from the US and globally have found that many patients who have died of mpox during this outbreak also had advanced HIV.<sup>3,4,5,6</sup> The covid-19 pandemic disrupted HIV/AIDS care globally, creating a particularly challenging set of conditions just before the mpox outbreak emerged.<sup>7</sup> Furthermore, access to mpox vaccines and antivirals has been severely limited in low and middle income countries, despite these countries bearing the brunt of the disease before this outbreak.<sup>8</sup>

It's a paradox of contemporary healthcare that, just as we have patients living with HIV/AIDS for more than 30 years, we also are seeing patients in their 30s with HIV who are dying from mpox.<sup>9</sup> A recent global case series of patients with mpox and advanced HIV argued that the severe, necrotising form of mpox seen in these patients should be considered an AIDS defining condition—a condition that triggers the diagnosis of AIDS regardless of CD4 count.<sup>10</sup>

To say that the cause of death in these cases is the mpox virus is an oversimplification. The answer becomes clearer when examining a CDC case series of patients with severe mpox who were in hospital.<sup>11</sup> Of 57 patients, 82% had HIV but only 9% were on antiretroviral therapy before they were admitted to hospital; 68% of patients were black, and 23% were experiencing homelessness. Twelve of the 57 patients (21%) died within two months. For context, the death rate for mpox cases in the US population is 0.1%.<sup>12</sup> Viewed from a purely biological standpoint, these patients did not have an adequate immune response to fight off a virus that otherwise would most likely not have killed them. But, ultimately, the right social systems weren't in place to ensure that they could access and take antiretroviral medications every day to control their HIV. Having access to these treatments would have likely saved their lives.

Tackling the social determinants of health must be a central focus for the rollout of tecovirimat to be successful. This drug requires a high calorie meal

with each administration, which should be twice daily for 14 consecutive days.<sup>13</sup> For patients experiencing homelessness, the lack of regular food sources can make it impossible to complete this treatment. And incomplete courses of the drug are likely to have contributed to the drug resistance that was noted by the CDC.

The mpox outbreak received notable media coverage in 2022, but as cases slowed, the lay press considered the outbreak “over.” What happens as outbreaks “end?” Who continues to be harmed? We're still seeing ongoing low levels of transmission in people experiencing advanced HIV, homelessness, substance abuse disorder, and psychiatric disease, making it clear from our clinical experience that the most vulnerable people (often from ethnic minorities) are continuing to bear the brunt of the mpox outbreak.

This matters, not only from a moral lens focused on health equity, but also because, as the virus continues to spread and mutate within and between hosts, variants that are more transmissible, virulent, or drug resistant are possible.<sup>14</sup> We saw drug resistant variants emerge within just a few months of the outbreak.<sup>14</sup> These variants could set off future outbreaks in the general population depending on the pathogen's evolution, which we are already seeing happen.<sup>15</sup> As the late physician and anthropologist Paul Farmer argued, “Equity is the only acceptable goal.”

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