## The CDC raises its alert on the global monkeypox outbreak to level 2, but abruptly drops the use of facemasks for infection prevention

## Benjamin Mateus 8 June 2022

On Monday the US Centers for Disease Control and Prevention (CDC) raised its monkeypox alert to level two, meaning travelers should "practice enhanced precautions." Specifically, avoid close contact with sick people, including anyone with skin or genital lesions. Additionally, the CDC asks that travelers avoid contact with contaminated material used by sick people like clothing and bedding.

The CDC had also included in their guidance the wearing of facemasks to help prevent the spread of the virus. The guidance bluntly stated that facemasks could help protect against "many diseases, including monkeypox." However, the CDC abruptly removed this recommendation later the same day.

According to Reuters, a spokesman for the CDC said on Tuesday, "Late yesterday, CDC removed the mask recommendation from the monkeypox travel health notice because it caused confusions." Their explanation for the aboutface was that the rare disease had been mostly transmitted through sexual contact and therefore never warranted the maskwearing precaution.

The CDC neglected, however, to explain that health care workers treating patients with monkeypox in hospitals must take precautions against airborne infection, including wearing face masks. Indeed, recent evidence that has emerged in the last decade (discussed below) suggests that airborne transmission of monkeypox is quite possible.

Keeping the mask recommendation would also underline the glaring contradiction with their guidance for COVID, a far more transmissible and far more deadly disease than monkeypox, which continues to surge across the country, under conditions where mask-wearing has been virtually abandoned.

In the month since the first monkeypox case was confirmed in a British citizen returning from Nigeria, the global epidemic has burgeoned to involve more than 36 countries where the virus has not been endemic. Though most of the cases have been in Europe, monkeypox cases have been detected in North and South America, Africa, Asia, and Australia. According to the BNO monkeypox tracker, as of yesterday there have been 1,083 confirmed cases and 33 probable or suspected cases. The United Kingdom currently has the highest number of confirmed cases with 302, followed by Spain with 198 and Portugal with 166. No person has died of the disease thus far.

Placing the scope of this outbreak into context, the largest outbreak previous to this occurred in 2003 with 47 cases across six states in the US—Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin—from contact with infected pet prairie dogs.

According to the CDC, "investigators determined that a shipment of animals from Ghana, imported to Texas in April 2003, introduced monkeypox virus in the United States. The shipment contained approximately 800 small mammals representing nine different species ... laboratory testing showed that two African giant pouched rats, nine dormice, and three rope squirrels were infected with monkeypox virus."

The infected animals were housed near prairie dogs at an animal facility in Illinois. However, all these infections were zoonotic, and, unlike the current outbreak, no person-to-person infection was reported.

The question of whether monkeypox is airborne or not has come to the fore of the current discussion. Linsey Marr, an engineering professor at Virginia Tech and an expert in airborne transmission of viruses and air quality weighed in on the topic in a long twitter thread posted on May 31, 2022.

She explained that the fact that monkeypox virus is larger than SARS-CoV-2 has nothing to do with whether it can be aerosolized. She wrote, "How far a virus can travel is determined by the size of the droplet/aerosol carrying it, not the size and weight of the virus itself." She then added, "the monkeypox didn't scream 'airborne' at me like COVID-19 did, but it may whisper. If it is occurring, it does not seem to be very efficient, at least based on past outbreaks. Things could be changing. We don't know yet!"

In a recent study published in The Lancet Infectious

*Disease*, the authors examined viral dynamics among seven previously infected patients diagnosed with monkeypox in the UK between 2018 and 2021. Three of the patients had acquired the infection in the UK. One was a health care worker who acquired it in a hospital and the other two were an adult and child within a household who acquired it from another adult who was infected abroad.

According to the above report, monkeypox virus DNA was detected in the upper respiratory tract and their blood. Five of the patients remained in prolonged isolation for more than three weeks due to "prolonged PCR positivity." One of the patients relapsed six weeks later. As the authors noted, "Prolonged upper respiratory tract viral DNA shedding after skin lesion resolution challenged current infection prevention and control guidelines."

These findings have significant implications because they suggest that even after a patient has cleared their skin lesions, they may continue to shed monkeypox viral DNA from their respiratory tract. What remains unclear is exactly how much virus is released in aerosol form and how infective it is.

Marr highlighted a study from 2013 in which the monkeypox virus was aerosolized in a rotating chamber built to fit in a Class three biological safety cabinet. Viable airborne viruses were detected even after up to 90 hours of aging.

Additionally, she noted that in a laboratory setting macaques could become infected after being exposed to the monkeypox virus via large aerosols from a micro sprayer. The 2011 report she was referencing was attempting to create an animal model for infection that would replicate the primary viremia stages of the disease seen in humans in animals in real-world setting. Previously, these nonhuman primates had been infected through an intravenous infusion of the virus which would bypass the incubation and primary stages of the disease.

Though the disease is endemic to Central and West African countries, the size and geographical spread of the current outbreak has confounded public health officials. Certainly not as contagious as SARS-CoV-2, the transmissibility of the virus between humans, potential for respiratory route of infection and prolonged period of infectivity pose significant dangers to the overall health of the population.

Adding to these findings, on Friday the CDC reported that they had sequenced two genetically distinct variants circulating in the US. Jennifer McQuiston, deputy director of the CDC's High Consequence Pathogens and Pathology Division, told CNBC, "While they're similar to each other, their genetic analysis shows that they're not linked to each other. It's likely that within the last couple of years, there have been at least two different instances where monkeypox virus spilled over to people in Nigeria from the animal that maintains it and that that virus likely began to spread through person-to-person close contact, possibly intimate or sexual contact."

It also means that there could very well be multiple entry points for the monkeypox virus with the potential for it to take root in the community, smoldering undetected. The dangers posed to pregnant women, children, and immunocompromised people are significant despite the existence of a battery of antivirals and vaccines.

Conditions in which international travel has become so commonplace, combined with the complexity posed by global climate change and encroachment by human populations into previously untouched natural habitats, have provided the impetus for the current outbreak.

The World Health Organization (WHO) and other international health experts have not been able to explain why there has been a sudden sharp rise in cases of monkeypox across the globe. Aside from recent large celebrations being "superspreader" events, some have speculated that monkeypox may have been spreading undetected for some time. Others have speculated that the virus has evolved for more efficient transmission between people. One can assert that all these seem plausible hypotheses working together.

Professor Andrew Read at Pennsylvania State University, who studies the evolution of infectious disease, told CNBC, "I worry a lot about if it becomes very common in humans. The potential to become more common and more transmissible through time, as we've had with COVID, would be very, very unfortunate."

Considering the current COVID pandemic, the emergence of another infectious pathogen raises significant concerns about the efficacy of public health systems in the US. The complete rejection of the precautionary principle by public health officials, as displayed by their immediate turnaround on the issue of masks, underscores the dangers to the population posed by the complete indifference of the political and medical establishment to these threatening pathogens.



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