



Aug. 9, 2022

Contact: Nardy Baeza Bickel, 734-763-0368, [nbbickel@umich.edu](mailto:nbbickel@umich.edu)

## FACULTY Q&A

### **Monkeypox: U-M experts discuss symptoms, spread**

ANN ARBOR—Monkeypox has been declared a national public health emergency. Two epidemiologists at the University of Michigan School of Public Health discuss the disease and its implications.

[Joseph Eisenberg](#), professor of epidemiology, is an infectious disease epidemiologist studying environmental determinants of infectious disease with a focus on waterborne and vector borne diseases. [Andrew Brouwer](#), assistant research scientist in epidemiology, uses mathematical and statistical modeling to address public health problems in infectious disease, cancer and tobacco control.

#### **Should we be worried now that the monkeypox virus (MPV) has been declared a public health emergency in the United States?**

**Brouwer:** MPV has been declared a public health emergency by the World Health Organization, the U.S. Department of Health and Human Services, and some states and localities. These declarations serve to bring attention to the topic, enhance coordinated responses, and make money and resources available. It does *not* mean that we're all in imminent danger of being infected.

#### **Is monkeypox going to be the next pandemic?**

**Eisenberg:** Monkeypox is the next pandemic. It is spreading globally through several countries, including the U.S. In the U.S., cases are rapidly increasing into the thousands. It's a different kind of pandemic than what we see in COVID, however, because it is much less infectious and it is currently affecting a specific risk group that involves very close, intimate contact. And so, yes, it's a pandemic, but it's not anything like the COVID pandemic.

**Brouwer:** The COVID-19 pandemic has sensitized us to disease transmission. Other outbreaks, such as the hepatitis A epidemic (predominantly 2016-2018, with more than 30,000 cases in the U.S.), received much less attention. That is not to say that we should let the MPV and other outbreaks fly under the radar, but we should have some perspective that outbreaks of various diseases happen all the time and not all are existential threats. It is good that there is a lot of attention being paid to MPV so that transmission can be interrupted and those infected can be treated. But MPV is not the next COVID.

Unlike SARS-CoV-2, MPV is not spread by casual contact. It is primarily sexually transmitted. It is unlikely to become a widespread epidemic in the broader public, and we should not be too worried about catching it when we're in public. However, the virus has likely spread to many localities throughout the country, so sexually active individuals should be aware of the signs and discuss MPV with their sexual partners.

### **What is monkeypox?**

**Eisenberg:** Monkeypox is a viral disease related to smallpox. It's different from smallpox in that the disease primarily is spread among nonhuman animals like rodents and primates—what we call a zoonotic disease—and historically has been endemic in central and west Africa, primarily in rainforest areas.

Historically, monkeypox is able to be transmitted from animals to humans with some limited person to person spread. But this new strain is different in that it is now spreading more rapidly through close person-to-person contact and spreading globally throughout different countries in the world. We don't fully understand why this strain is spreading globally.

### **How is monkeypox spread?**

**Eisenberg:** This virus is spread through very close contact, often skin to skin. Monkeypox causes lesions and rashes, and the fluid from the lesions and rashes are infectious. It also can be through droplets, that is, droplets that are released through your mouth, through even just talking. The virus can, in addition, contaminate objects like fabrics and it can survive there for a period of time, and people can be exposed through touching those objects, but this mode of transmission seems to be rare.

**Brouwer:** The vast majority of monkeypox transmission is through skin-to-skin sexual contact. Transmission can also occur through nonsexual close contacts and from contaminated objects, typically within a home.

### **Should we be worried that this is going to spread like COVID-19?**

**Eisenberg:** No. The big difference between monkeypox and COVID is that monkeypox is much less effective in spreading. First of all, it can't aerosolize into the air and therefore stay in the air for hours or even days like COVID. Second of all, it requires a much higher dose to become infected. So the fact that it's much less infectious is one reason why monkeypox will not spread in the way we see something like COVID spreading.

Also, it is thought that only symptomatic individuals that have these rashes and lesions are infectious. As far as we know, people that are infected but presymptomatic cannot transmit the disease. And that's also very different from COVID, as somebody could be walking around with COVID without any symptoms and be infectious and spread the disease.

### **What are the symptoms?**

**Eisenberg:** A lot of the initial symptoms of monkeypox are what we call broad spectrum, symptoms like fever, headache, muscle ache, typical respiratory symptoms—types of symptoms that don't necessarily tell you that it's monkeypox as opposed to COVID, the flu or common cold. The lesions are what's the most characteristic symptom of monkeypox. And those lesions are what is diagnostic for a clinician to say, oh, this is monkeypox and not COVID. And that comes sometimes a little later than the first phase of just having your general fever and headache and respiratory symptoms.

### **What should someone do if they are experiencing these symptoms?**

**Eisenberg:** If they're experiencing these symptoms, they should isolate themselves. If they've got lesions and rashes, they should separate even within their house, separate themselves from animals, because this can be transmitted to animals as well as family members. And then contacting their physician would be also prudent to see whether or not there are treatments that are available for them.

### **There's been some confusion about the spread of this disease, and there has been a lot of focus on the gay and queer communities. Is MPV an STI? Should we be focusing on those communities?**

**Brouwer:** MPV *is* a sexually transmitted infection. Sexual transmission is not the only mode of transmission, but it is by far the most important one right now. The fact is that 98% of cases worldwide in this epidemic have been in men who have sex with men. To gloss over this fact creates incorrect risk perceptions for both low- and high-risk individuals. It is possible to be forthright about who is currently at highest risk and what precautions can be taken without stigmatizing whole populations. In general, public health messaging needs to do a better job of recognizing that diseases create fear responses and that people with infections (of any kind) are often blamed for their infection. We saw this in the COVID-19 pandemic, too.

### **And how concerned should the public be? Should everyone get the vaccine?**

**Eisenberg:** Only people that have been potentially exposed or have high-risk behaviors or are immunocompromised should be considering getting a vaccine. It's just not widespread enough to make it something that everybody should be getting.

**Brouwer:** No, at this point the vaccine should be targeted to high-risk individuals. There is little indication that the outbreak will become epidemic in the larger population. It may become an endemic sexually transmitted infection, however, so continued awareness and education is important.

### **So if I go to the grocery store, I most likely won't get monkeypox?**

**Eisenberg:** Exactly. So that is not the kind of casual contact that can occur and cause transmission for, again, COVID, the flu, common cold, those are all things that you could get if you just went to the grocery store. Monkeypox is much less infectious.

### **Can you talk about zoonotic diseases and how climate change might impact how often we see these types of diseases coming up?**

**Eisenberg:** Zoonotic diseases are diseases that are coming from nonhuman animals, livestock and even wild animals. Most of the emerging and reemerging pathogens that become human diseases, including all the childhood diseases like measles and smallpox and such, were originally zoonotic. That is, pathogens have been emerging from animals into human populations, ever since the development of agriculture. Agriculture created a situation where there is much more intimate contact with animals.

What climate change has done is exacerbate the risk of new emerging or reemerging pathogens that we've always had. For some pathogens, we will see an expansion of transmission and more intense transmission. For other pathogens, we'll just see geographic shifts. That is, some locations

will have less transmission and in some locations we will have an increasing amount of transmission.

This geographic shift in transmission will be challenging to address. Public health infrastructures will have to be much more nimble and flexible in addressing future risks that may be different than what the risks were in the past. So, again, we should not only be focused on the idea that climate change is going to be increasing the risk of disease, rather that it's going to be shifting where the high-risk locations are over time.