BRIEFING

Monkeys: what we know about the 2022 outbreak so far

With WHO declaring monkeypox a public health emergency of international concern, Mun-Keat Looi explains the current state of the global outbreak.

Mun-Keat Looi

Which authorities have declared monkeypox a public health emergency?

The World Health Organization declared monkeypox a public health emergency of international concern (PHEIC) on 24 July. Since then only the United States, which accounts for more cases than anywhere else in the world, has done similarly. The Biden administration made the call on 4 August, just days after the cities of New York and San Francisco announced their own, in a bid to free up access to funding and expand the workforce and vaccines, as well as raise public awareness of the dangers.

At the time of writing, more than 35 000 monkeypox cases have been reported in 92 countries worldwide, with 12 deaths.

“Almost 7500 cases were reported last week—a 20% increase over the previous week, which was also 20% more than the week before,” said WHO’s director general, Tedros Adhanom Ghebreyesus, at a press briefing on 18 August. Almost all cases were from Europe and the Americas.

What are the current and new symptoms of monkeypox?

Symptoms that were present since before this year’s outbreak still stand. As a BMJ Best Practice guide states: “Patients typically present with a characteristic rash that progresses in sequential stages at the same stage of development over all affected areas of the body. It may be associated with fever, lymphadenopathy, backache, and myalgia.”

On 22 July the largest study of confirmed monkeypox cases to date identified new clinical symptoms that were similar to those of syphilis and other sexually transmitted infections and could easily lead to misdiagnosis. These symptoms included single genital lesions and sores on the mouth or anal mucosa. The study, published in the New England Journal of Medicine, found that 95% of 528 patients from 16 countries presented with a rash, 73% with anogenital lesions, and 41% with mucosal lesions. One in 10 of the patients (54) had only a single genital lesion, and 15% had anal or rectal pain (or both).

A smaller study of London cases, published in The BMJ on 28 July, found that penile swelling and erectile dysfunction were among new clinical symptoms not normally associated with the disease. Of 197 male patients who tested positive for monkeypox from May to July 2022, 71 reported rectal pain and 31 penile swelling. Eight of 20 hospital admissions were for anal or rectal pain and five for penile swelling.

What’s the vaccine situation?

The smallpox vaccine Jynneos (also known as MVA) is the only one licensed for monkeypox and is valid in the US, Canada, the EU, and the UK. The monkeypox licence is based on animal studies and immune responses in humans, rather than on clinical studies. Critics point out that the main study used for indicating efficacy—reported as 85%—is from the 1980s and looked at a different, more powerful, type of vaccine than the ones used today.

No randomised controlled clinical trials of the vaccine have been conducted on humans infected with monkeypox, although some early data are now emerging from its use in the current outbreaks. In a preprint released in August, French doctors administering it as post-exposure prophylaxis to 276 people reported that 12 developed a monkeypox infection, 10 of whom got it within five days of vaccination and two after more than 20 days.

Shortages of Jynneos have hit newspaper headlines over the summer as the rise in cases has made for unprecedented demand. There are multiple issues: for one thing, it is made by one company, Bavaria Nordic, which insisted on producing all stocks at its Denmark plant, claiming that to do otherwise would take too long and be too complicated. However, Rolf Sass Sorenson, a vice president at the company, told an investor call on 17 August that it was “no longer certain” that it could meet demand that way and was talking with others about third party technology transfer. The UK Health Security Agency said on 15 August that it was experiencing a temporary shortage of vaccine but that 10 000 more doses were due to arrive in September. As of 10 August, around 27 000 people in the UK had been vaccinated.

Because Jynneos is normally an emergency stockpile drug against smallpox, different countries had different volumes of doses in their stockpiles, and—in an echo of the vaccine hoarding seen in the covid pandemic—new orders, of which 12 million are currently stored in Denmark, have been tied up largely by a handful of high income countries. The UK and the US have some of the largest, with the US expecting 500 000 doses in 2022 and an additional 2.5 million doses in 2023. The US has supported Bavarian Nordic’s vaccine development for nearly 20 years, pumping in close to $2bn (£1.66bn; €1.97bn), the New York Times reported.

The EU’s newly created Health Emergency Preparedness and Response Authority (HERA) is reportedly struggling to secure new stocks. Many
countries on the continent are short of vaccines despite several countries having stockpiles in case of a smallpox outbreak. This has led to patients crossing borders to where they can get a shot more readily: Politico has reported on patients travelling from Brussels to a clinic in France. Similar anecdotes have emerged in US states.

Africa, the only continent where monkeypox is endemic, has no access to the vaccine, although a clinical trial of Jynneos is under way in the Democratic Republic of the Congo. The Africa Centers for Disease Control and Prevention is in “very advanced discussions” with multinational institutions and non-African governments to purchase stocks. Its acting director, Ahmed Ogwell, said on 11 August that there were no discussions with the private sector because all available doses had already been bought up by countries, AP News reported. WHO has issued warnings calling for donations and fairness. “We remain concerned that the inequitable access to vaccines we saw during the covid-19 pandemic will be repeated and that the poorest will continue to be left behind,” said Tedros at the 18 August WHO briefing.

It also warns that vaccines are not a panacea. “The fact that we’re beginning to see some breakthrough cases tells us that the vaccine is not 100% effective in any given circumstance, whether preventive or post-exposure,” said Rosamund Lewis, WHO’s technical lead for monkeypox, at the briefing. “We have known from the beginning that this vaccine would not be a silver bullet, that it would not meet all the expectations that are being put on it.”

The agency emphasised that the importance of other interventions remained vital, including reducing the number of sex partners in high risk groups and giving time for the vaccine to generate a maximum immune response, usually two weeks after the second dose.

What’s happening in the US?

The country with the most cases in the world has been plagued by problems with testing, messaging, and the distribution of drugs and vaccines, with the Biden administration under fire for “bungling” the response—an accusation that comes as the US Centers for Disease Control and Prevention (CDC) admitted to failures during the covid-19 pandemic. Various agencies at local, state, and national levels have blamed federal mismanagement and bureaucracy, particularly in distributing vaccines from the national emergency stockpile. Some quarters are also calling for another smallpox vaccine, ACAM2000, which is also held in the national stockpile, to be considered for use against monkeypox.

On 18 August the Biden administration announced that it would accelerate rollout, making 1.8 million additional doses of Jynneos and 50 000 courses of the antiviral Tpoxx available. Additionally, the CDC said that it was launching a pilot programme to make 50 000 vaccine doses available at events with high attendance of gay and bisexual men.

The urgency of the situation has led the US Food and Drug Administration to grant emergency approval for a fractional dosing technique—to avoid complications with the small number of vaccine doses available. The agency emphasised that the importance of other interventions will continue to be left behind,” said Tedros at the 18 August WHO briefing.

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What about monkeypox in Africa?

Africa is seeing spillovers to countries that don’t usually see cases of the disease, although 80% of the cases are in countries where the disease is endemic. Unlike the global outbreak, transmission still seems to be through contact with animals, and the Africa CDC has said that no evidence yet shows that transmission between men who have sex with men is driving any changes.

The demographic split of cases is also more evenly split than in Europe and the Americas. In a WHO press conference on 4 August, Otit Patrick Ramadan, health emergency officer at WHO, said that currently, 60% of the cases that we have—the 350-60% are men, 40% are women.

What happened to renaming monkeypox?

Monkeypox was first identified in laboratory monkeys but actually infects a variety of animals—monkeys are not even the main reservoir (which remains unknown) for the virus. It was named following scientific naming conventions. This August WHO had to take the unusual step of urging people not to abuse monkeys. In June WHO admitted that the name of the disease was unhelpful in efforts to combat the outbreak and said that it would look into relabelling the disease to reduce stigma. That has proved easier said than done.

In a nutshell, it involves renaming the actual virus and, separately, the disease. The International Committee for the Taxonomy of Viruses oversees virus nomenclature, and adopting a name like “the orthopoxvirus monkeypox” for the virus could work. There are concerns that relabelling the disease without the keyword would confuse and disconnect new research from half a century of existing scientific literature on the virus.
Renaming the disease is more difficult, even though WHO has more control over this. Once a disease is named it enters the International Classification of Diseases and is assigned a code, which countries and companies use for data collection, medical billing, and more. It allows researchers to compare rates of different diseases around the world and over time, for instance. Changing the name and code has many repercussions and so is not undertaken lightly, and the process is long. Moreover, no suitable alternative to “monkeypox” has yet been proposed.

That’s not to say that it can’t be done: Down’s syndrome, or trisomy 21 as it’s officially known, was renamed from its past title of mongolism. Adding an alternative or preferred name like this is a likely way to speed up the process.

WHO did manage to rename the two common variants of the monkeypox virus—now known as clade I and clade II, removing their stigmatic references to central and west Africa, respectively. However, some critics say that the variant behind the global outbreak, currently called subvariant clade IIb, should be considered a third clade because of the significance of genetic and other differences.

Correction: We amended this story on 5 September 2022 to correct the date of the WHO briefing, which was initially stated as 17 August in one instance.

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