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Monkeypox: Key questions answered

Cases are rising worldwide, leaving some people anxious that the virus could evolve into a pandemic alongside covid-19. **Michael Le Page** addresses monkeypox's risks

WITH monkeypox cases appearing globally (see page 7), some with no obvious source of infection, it seems the virus may be spreading undetected. While not as serious a disease as covid-19, it is understandable that some people feel a sense of familiarity with the early days of the coronavirus pandemic. Here are the key facts you need to know as the outbreak unfolds.

What is monkeypox?

Monkeypox is a disease caused by a virus that, as the name suggests, usually spreads among monkeys in Central and West Africa, but occasionally jumps to people.

It was first spotted in monkeys in labs in 1958. The first human case was identified in what is now the Democratic Republic of the Congo in 1970.

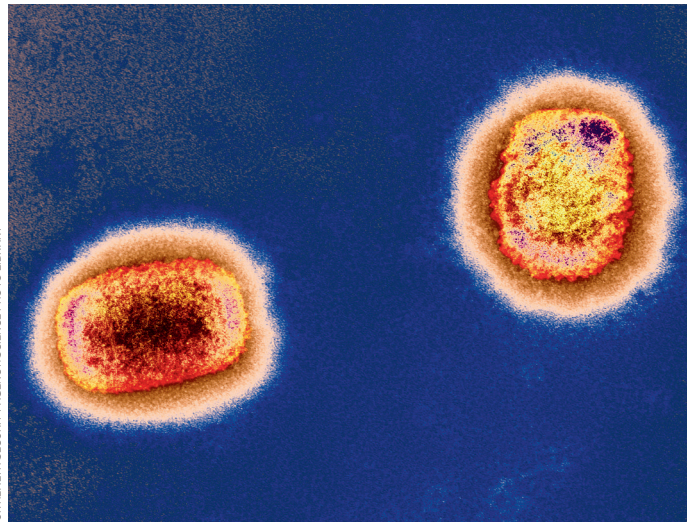
How does it spread?

According to the World Health Organization (WHO), “monkeypox can be transmitted by droplet exposure via exhaled large droplets and by contact with infected skin lesions or contaminated materials”. Some might interpret this as meaning the virus is airborne, but the WHO doesn't use this term.

The US Centers for Disease Control and Prevention (CDC) states: “Human-to-human transmission is thought to occur primarily through large respiratory droplets. Respiratory droplets generally cannot travel more than a few feet, so prolonged face-to-face contact is required.”

But the virus doesn't usually spread easily between people, with the UK Health Security Agency (UKHSA) saying the risk to the UK population amid the ongoing outbreak “remains low”.

Monkeypox can also spread via contact with clothing or bedding



UK HEALTH SECURITY AGENCY/SCIENCE PHOTO LIBRARY

Monkeypox virus particles captured via a coloured transmission electron micrograph

used by an infected person.

It isn't regarded as a sexually transmitted infection, but it can be passed on during sex via skin-to-skin contact, says the UKHSA.

What are the symptoms?

The first symptoms of monkeypox include fever, headache, muscle aches, backache, swollen lymph nodes, chills and exhaustion, says the UKHSA.

1958

The year monkeypox was first identified in monkeys

1 in 100

The death rate of the West African monkeypox strain in known cases

170+

The number of confirmed or suspected cases worldwide so far

A rash can also develop, typically on the face first and then on other parts of the body, including the genitals. The rash can look like chickenpox, before forming scabs.

How deadly is it?

Monkeypox is usually mild, with most people recovering within a few weeks without treatment.

In Africa, monkeypox can be deadly in as many as 1 in 10 people who contract the disease, according to the CDC. However, there are two main types of monkeypox: the Congo strain and the West African strain. The WHO states that the 1 in 10 figure applies to the Congo strain and the West African strain is deadly in around 1 in 100 reported cases.

Amid the ongoing outbreak, only the West African strain has been identified in the UK. This information isn't yet available for all of the other affected countries.

What's more, the WHO says these figures refer to the proportion of deaths in those confirmed to be infected, called the case fatality ratio. But with diseases whose symptoms can be mild, many cases go

undetected, meaning the infection fatality ratio – the proportion of deaths among all those infected – can be substantially lower.

According to the WHO, children with monkeypox are more likely than adults to become seriously ill. Becoming infected during pregnancy can also lead to complications, including stillbirth.

Are there any treatments or vaccines?

Yes. The antiviral drug tecovirimat (also sold as Tpoxx) is approved in most of Europe for treating monkeypox, smallpox and cowpox. It is only approved for smallpox in the US. In animal studies, tecovirimat significantly increased the survival rate of animals given very high doses of monkeypox.

There is also a vaccine called Jynneos (also known as Imvanex and Imvamune), which is approved in the US and most of Europe

“It's important not to put this on the same levels as a novel coronavirus”

for preventing monkeypox and smallpox in people aged over 18.

In addition, those who are old enough to have been vaccinated against smallpox as babies should have some protection. Routine smallpox vaccination ended in the UK in 1971 and in the US in 1972.

Have there been outbreaks outside Central and West Africa before?

There have been several monkeypox outbreaks outside these regions, but usually involving only a handful of cases with very limited local spread. In 2018, a person arriving from Nigeria spread the virus to two people in the UK. In 2021, the UK reported three cases in one

Australia votes for climate action in 'greenslide' election

Alice Klein

household, one member of which had travelled to Nigeria.

This week, it was revealed that one of these 2021 cases was treated with tecovirimat. This may have shortened the duration of their illness, as their viral load fell immediately after treatment began (*The Lancet Infectious Diseases*, DOI: 10.1016/S1473-3099(22)00228-6).

Could this outbreak be caused by a new strain of monkeypox?

That remains unknown. The fact that so many cases are being reported in several countries certainly suggests this strain is more transmissible than others. But chance events can help a virus spread more widely, such as being carried by a "superspreader".

A team in Portugal has released a draft genome of the virus behind the ongoing outbreak, confirming it is the West African variant and most closely related to the virus responsible for much smaller outbreaks in the UK, Singapore and Israel in 2018 and 2019.

It is unclear whether this virus has mutated to become more transmissible. Viral sequencing is ongoing, but establishing whether the circulating virus is unique won't be easy, given its large and complex genome.

Could this become another pandemic?

The expectation is this outbreak can be contained by contact tracing. The UK is offering vaccines to contacts regarded as being at high risk of infection. While researchers aren't totally ruling out a pandemic, they don't think it is at all likely. "I don't think the science points to that at this moment," says John Brownstein at Boston Children's Hospital. "It's important not to put this on the same level as a novel coronavirus." ■

AUSTRALIA'S election on 21 May has been described as a "greenslide" after voters abandoned the long-standing, pro-coal, Liberal-National Coalition government in droves in favour of candidates that support stronger action on climate change.

The Labor party, which promised to do more to tackle climate change, has won the most seats overall. Its leader, Anthony Albanese, was sworn in as prime minister on 23 May.

But the big surprise was the record number of seats snatched from both major parties by the Australian Greens party and several independents who advocate more ambitious climate action.

Votes were still being counted as *New Scientist* went to press, with Labor looking likely to form a majority in the House of Representatives on its own. The Greens party looks set to win three out of 151 seats in the House of Representatives and

Greens supporters celebrate in Brisbane, Australia

12 of 76 Senate seats – its best result ever. Another nine House of Representatives seats have been won by independent candidates dubbed the "teal independents" because of their shared climate focus.

If Labor falls short of a majority after counting is complete, the Greens and teal independents could hold the balance of power in parliament.

Greens leader Adam Bandt called the result a "greenslide"

91%

Share of Australia's electricity supplied by fossil fuels

and said that the people of Australia, where voting is compulsory, have "delivered a mandate for action on climate".

"I think it's a resounding statement from the Australian public that they think that climate change needs to be taken much more seriously," says Mark Howden at the Australian National University in Canberra.

Australia has been notoriously slow to transition away from fossil fuels, largely due to vested

interests. The country has the third-largest reserves of coal and still relies on fossil fuels to generate 91 per cent of its electricity. It also rakes in about A\$100 billion a year from exporting coal.

During its nine years in power, the Liberal-National Coalition has actively tried to delay coal plant closures even when plants are no longer economically viable.

Outgoing prime minister Scott Morrison once brought a lump of coal to parliament, announcing: "This is coal. Don't be afraid. Don't be scared. It won't hurt you."

However, three years of extreme droughts, fires and floods have made Australians increasingly fearful of climate change and anxious for change, says Cassandra Star at Flinders University in Adelaide. "If we were ever going to have a climate election, this was it," she says.

Labor has promised to increase Australia's 2030 target for reducing carbon emissions from 26–28 per cent below 2005 levels to 43 per cent. The party says it will roll out more solar and battery infrastructure, update the electricity grid so that it can handle more renewable energy, make electric vehicles cheaper and invest in green hydrogen and steel.

There is a good chance that Labor will be pushed to go further by the Greens, who want a 2030 emissions reduction target of 75 per cent, and the teal independents, who have mostly advocated for 60 per cent, says Star.

Modelling by the University of Melbourne shows the target should be at least 74 per cent for Australia to contribute its "fair share" to keeping global warming within 1.5 °C. ■



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