

## News in focus

virus continues to spread, the more opportunities it will have to infect other populations, including wild animals – which scientists have warned might establish viral reservoirs that could infect humans repeatedly.

### ‘Teeming with virus’

When a person contracts monkeypox, they can develop influenza-like symptoms, enlarged lymph nodes and distinctive fluid-filled lesions on their skin. Although some researchers have suggested that the monkeypox virus could spread through respiratory droplets or airborne particles, as SARS-CoV-2 does, Mitjà and his colleagues report that samples from skin lesions, collected at the time of diagnosis, contain much more viral DNA than do those from the throat<sup>1</sup>. The lesions seem to be comparatively “teeming with virus”, says Boghuma Titanji, an infectious-disease physician at Emory University in Atlanta, Georgia, who was not involved with the study.

Several studies<sup>2,3</sup>, including Mitjà’s, show that few people contract the disease from an infected household member with whom they didn’t have sexual contact. This finding, paired with the data about viral load, suggests that respiratory droplets and airborne particles probably aren’t the main transmission route, Titanji says. If corroborated by further research, it could call into question whether people should isolate for the entire duration of infection, which might be difficult because the illness seems to take up to a month to resolve, she adds.

Still missing are detailed data about how a person’s viral load changes over time, says Jessica Justman, an infectious-disease physician at Columbia University in New York City. Although Mitjà and his colleagues didn’t detect much viral DNA in samples that they collected from people’s throats early during infection, it’s possible that if they had collected them later – or even earlier – viral levels could have been higher, she says.

Whether monkeypox is sexually transmitted in absolute terms – passed from one person to another through blood, semen or other bodily fluids during sex – is also still unclear. But several studies have found that DNA from the monkeypox virus is present in a person’s semen for weeks after they become infected<sup>2,3</sup>. One study also isolated infectious virus from a single individual’s semen six days after their symptoms appeared<sup>4</sup>.

Even if the virus can be sexually transmitted, it’s unclear how large a role this mode of transmission has, compared with simply being in close, skin-to-skin contact with a person or inhaling their respiratory particles – which also occur during sex. If other studies find infectious virus in semen, understanding how long it can persist in that bodily fluid will be important. Viruses such as Ebola can persist in semen for months, if not years, after infection,

which has complicated efforts to prevent outbreaks. Until researchers know more, the UK Health Security Agency recommends that people should continue to use condoms for eight weeks after infection.

Mitjà and his colleagues noticed that, in the people they examined, having a larger number of lesions in the mouth and throat was linked to oral sex, and having more lesions in and around the anus was linked to anal-receptive sex. Given all these findings, Titanji says, it’s crucial that public-health officials don’t shy away from talking about sex in their guidance.

More data from rigorously designed studies can’t come fast enough, Justman says. Some researchers already worry that the outbreak

is past the point of being contained, given news of inadequate vaccine stockpiles and inaccessible antiviral treatments, as well as insufficient testing. Funding and motivation to study monkeypox are limited compared with COVID-19, she says. “We don’t have an ‘Operation Warp Speed,’” like there was to rev up US vaccine development during the pandemic, she adds.

1. Tarín-Vicente, E. J. et al. *Lancet* [https://doi.org/10.1016/S0140-6736\(22\)01436-2](https://doi.org/10.1016/S0140-6736(22)01436-2) (2022).
2. Thornhill, J. P. et al. *N. Engl. J. Med.* <https://doi.org/10.1056/NEJMoa2207323> (2022).
3. Peiró-Mestres, A. et al. *Eurosurveillance* **27**, 2200503 (2022).
4. Lapa, D. et al. *Lancet Infect. Dis.* [https://doi.org/10.1016/S1473-3099\(22\)00513-8](https://doi.org/10.1016/S1473-3099(22)00513-8) (2022).

# NEW ANIMAL VIRUS THAT CAN INFECT PEOPLE IDENTIFIED IN CHINA

‘Langya’ is related to the Nipah and Hendra viruses, but cannot spread easily in humans.

By Smriti Mallapaty

**A** new animal virus that can cause respiratory symptoms in people has been identified in eastern China. But scientists say they are not overly concerned because the virus doesn’t seem to spread easily between humans, nor is it fatal.

The virus, named Langya henipavirus (LayV), can cause fever, cough and fatigue, and is closely related to two other henipaviruses known to infect people – Hendra virus and Nipah virus. These also cause respiratory



Some species of shrew might be carriers of Langya virus, scientists suggest.

infections, and can be fatal. Researchers think LayV is carried by shrews, which might have infected people directly or through an intermediate animal. The virus was described in *The New England Journal of Medicine* on 4 August (X.-A. Zhang et al. *N. Engl. J. Med.* **387**, 470–472; 2022).

Researchers say LayV has infected only 35 people since 2018, and none of the cases seems to be linked. “There is no particular need to worry about this, but ongoing surveillance is critical,” says Edward Holmes, an evolutionary virologist at the University of Sydney in Australia. Regularly testing people and animals for emerging viruses is important to understand the risk of zoonotic diseases – those that can be transmitted from other animals to humans, he says.

Large outbreaks of infectious diseases typically take off after a lot of false starts, says Emily Gurley, an infectious-diseases epidemiologist at Johns Hopkins University in Baltimore, Maryland. “If we are actively looking for those sparks, then we are in a much better position to stop or to find something early.”

The research team that identified LayV did so while monitoring patients at three hospitals in the eastern Chinese provinces of Shandong and Henan between April 2018 and August 2021. Participants were recruited into the study if they had a fever.

The team sequenced the LayV genome from a throat swab taken from the first patient identified with the disease, a 53-year-old woman.

The virus was named after a town called Langya, in Shandong, where she was from, says co-author Linfa Wang, a virologist at Duke–National University of Singapore Medical School in Singapore.

Throughout the study period, the researchers found 35 people who were infected with LayV, mostly farmers, with symptoms ranging from severe pneumonia to a cough. Most patients said in a questionnaire that they had been exposed to an animal within a month of their symptoms appearing.

The LayV genome shows that the virus is most closely related to Mojiang henipavirus, which was first isolated in rats in an abandoned mine in the southern Chinese province of Yunnan in 2012. Henipaviruses belong to the *Paramyxoviridae* family of viruses, which includes measles, mumps and many respiratory viruses that infect people. Several other henipaviruses have been discovered in bats, rats and shrews, from Australia to South Korea and China, but only Hendra, Nipah and now LayV are known to infect people.

The researchers did not find strong evidence of LayV spreading between people – there were no clusters of cases in the same family, within a short time span or in close geographical proximity. “Of the 35 cases, not a single one is linked,” says Wang. Gurley says that this is good news, but the study did retrospective contact tracing on only 15 family members of 9 infected individuals, which makes it difficult to determine how exactly the individuals were exposed. Still, she notes that she didn’t see anything in the data to “cause alarm from a pandemic-threat perspective”.

### Animal origin

To determine the potential animal origin of the virus, the researchers tested goats, dogs, pigs and cattle living in the villages of infected patients for antibodies against LayV, and took tissue and urine samples from 25 species of wild small animals to look for the presence of LayV RNA. They found LayV antibodies in a handful of goats and dogs, and identified LayV viral RNA in 27% of the 262 sampled shrews. This suggested that shrews are a reservoir for the virus, passing LayV between themselves “and somehow infecting people here and there by chance”, says Gurley.

But it is not clear how people were infected in the first place – whether directly from shrews or an intermediate animal, says Gurley. A lot of research still needs to be done to work out how the virus is spreading in shrews and how people are getting infected, she adds.

Holmes says there is an urgent need for a global surveillance system to detect virus spillovers and rapidly communicate those results to avoid more pandemics, such as the one sparked by COVID-19. “These sorts of zoonotic spillover events happen all the time,” he says. “The world needs to wake up.”



US climate envoy John Kerry and Xie Zhenhua, China's representative on climate change.

## WILL A HALT IN US–CHINA CLIMATE TALKS JEOPARDIZE ACTION?

Researchers worry that a protracted stand-off could slow global progress on tackling warming.

By Smriti Mallapaty

Cooperation between the United States and China on global warming has been dealt a major blow after China's foreign ministry suspended climate talks with the United States on 5 August. The decision came in response to a high-profile trip to Taiwan by Nancy Pelosi, speaker of the US House of Representatives, which China says violated its sovereignty. Researchers say a temporary freeze in discussions will probably affect only high-level political engagements, but that a longer stand-off could have a chilling effect on academic collaborations.

“Climate discussions have always been somewhat immune from the turbulent bilateral politics between the US and China,” says Li Shuo, a policy adviser at Greenpeace China in Beijing. But China's announcement has brought this relationship to a very new place, he says.

Talks between the world's two largest emitters of greenhouse gases are important for advancing global action on climate change, say researchers. Both countries have demonstrated their commitment to addressing the problem within their borders: on 16 August, US President Joe Biden signed into law a massive spending bill to invest in clean-energy technologies, and China has promised to become carbon neutral

before 2060. But cooperation between the two nations could accelerate global action this decade, especially in areas such as the cutting of methane emissions.

A protracted rift between the two could also threaten the success of discussions at the next round of global climate talks in Sharm el-Sheikh, Egypt, in November. Meetings between the United States and China have been crucial in facilitating multilateral consensus at previous summits, says Fei Teng, a climate-policy researcher at Tsinghua University in Beijing. “I hope that China and the US can resolve this conflict soon and go back to the regular routine.”

If the freeze in communications continues until then, Li anticipates a more politically divisive climate summit in Egypt. But others think that such multilateral engagements will probably continue.

### Joint agreement

Discussions on climate change between the two countries ramped up when Biden took office in January 2021, after being on the back-burner for several years.

In April last year, climate envoy John Kerry became the first senior member of Biden's administration to visit China, meeting Xie Zhenhua, China's representative on