their best efforts to collaborate with the owners. The database was designed to ensure the rights of data submitters.

GISAID was hugely popular during the COVID-19 pandemic, and it contains close to 17 million sequences of SARS-CoV-2, the virus that causes COVID-19. But researchers have raised concerns around transparency in its governance, how it mediates disputes over credit and how it sanctions those it thinks to have violated its conditions for use.

"GISAID has led to a lot of frustration in the past few years," but the scientific community has also learnt lessons on how to do things better, says Spyros Lytras, an evolutionary virologist at the University of Tokyo. "Starting from scratch is what we need as a community, and Pathoplexus might be the solution."

A GISAID representative said in an e-mail that the trust it has with the scientific community is strong, and that more than 70,000 researchers use the site. The roles of its governing bodies and funding sources are displayed on its website, and their terms of use haven't changed since it was founded in 2008, the representative said.

Building trust

Pathoplexus offers some protections for users. For instance, researchers can set restrictions on how their data are used, such as not allowing them to be included as a key focus of scientific publications for up to a year without explicit permission. This should give data owners enough time to submit a manuscript on their findings.

Users must also credit the data owners in their publications. "We aim to build a community where researchers feel confident that their contributions will be respected and properly credited," says Jamie Southgate, a member of Pathoplexus and the head of operations at the global coalition Public Health Alliance for Genomic Epidemiology, based in Cape Town, South Africa.

Pathoplexus doesn't block individuals who breach the terms of use from accessing the site, which GISAID has done in rare cases. Instead, if published data breach the terms, the team will approach the journals to ensure that the data are used in accordance with the way in which they were shared, says Emma Hodcroft, a co-founder of Pathoplexus and a molecular epidemiologist at the Swiss Tropical and Public Health Institute in Basel, Switzerland. "We have tried to be incredibly explicit" about the terms, she says.

"It's a good, clever solution," says Senjuti Saha, a molecular microbiologist at the Child Health Research Foundation in Dhaka, who agrees with the approach of reaching out to publishers. "That's the way it should be." She thinks that Pathoplexus's transparency will breed trust among the scientific community.

But it's too early to say whether the
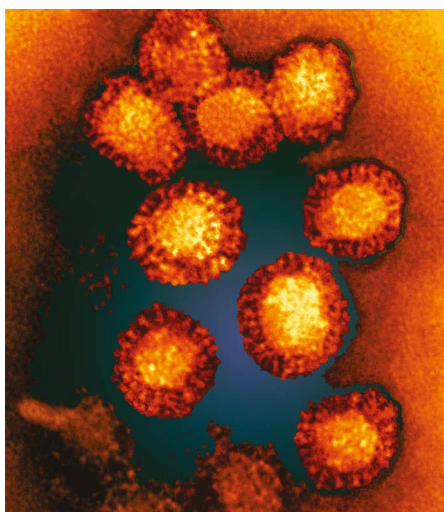
West Nile virus.

repository will solve the current data-sharing problems, says Saha. "It is an excellent and fantastic first step."

Users might also stick to sharing sequences on local databases. For instance, in China, researchers are probably more likely to publish sequences for emerging viruses on Chinese databases, says Shi Mang, an evolutionary biologist at Sun Yat-sen University in Shenzhen, China, who is also on Pathoplexus's

scientific advisory board. But for established viruses, they are likely to use repositories with well-maintained collections, which Pathoplexus offers.

Improved experience

Pathoplexus's creators have tried to improve the user experience, such as by making uploading as easy as possible. Pathoplexus also checks for errors in the sequence data and accompanying information and assists with organizing viruses into subtypes. "This is actually what attracted me to this database," says Shi. Incorrect sequences in current repositories can cause lots of trouble for researchers, he says.

So far, Pathoplexus has used GenBank data for the four viruses to populate the site. Thousands of people have visited the site, and 50 have created accounts to submit data, but none has submitted sequences, says Hodcroft. "We did not expect high volumes of data for the pathogens that we've launched with."

Researchers who work on other viruses will have to wait until the database expands to include them. And to expand, the team needs to secure long-term funding. The site is currently reliant on volunteers and donated computing time, which ends in about six months. Hodcroft says her priority right now is to appeal to donors. "I'm cautiously hopeful."

HOW TO CHANGE MINDS ABOUT CLIMATE CHANGE: WHAT THE SCIENCE SAYS

Telling people about the scientific consensus can help, but personal conversations are needed, too.

By Alix Soliman

Telling people that scientists almost unanimously agree that human-caused climate change is happening can help to nudge their thinking in that direction. A study published last month in *Nature Human Behaviour*[1] tested this 'consensus message' across 27 countries and found that the people least familiar with the message or who were sceptical of climate science were the most likely to change their perspective when presented with it.

Climate-communication researchers who spoke to *Nature*'s news team say that the findings add to a growing body of social-science research identifying the best strategies to help people come to grips with the concept that climate change is real — but that consensus messaging doesn't always translate

to a lasting shift in perspective.

For an enduring shift, they suggest, the message needs to be personally relevant. That's because "climate change is affecting the people and places and things that we love right now", says Anthony Leiserowitz, the director of the Yale Program on Climate Change Communication in New Haven, Connecticut.

Many studies have found that informing people of the scientific consensus on climate change can shift their attitude[2,3]. But most have focused on climate opinions in the United States. Bojana Većkalov, a social psychologist at the University of Amsterdam, and her colleagues wanted to see whether that messaging works cross-culturally.

They shared an online survey through social media and e-mail newsletters, and then analysed 10,527 responses from people across 27 countries. Respondents estimated

How you deliver climate messaging matters, researchers are finding.

the proportion of climate scientists who they think agree that human-caused climate change exists. They then ranked how confident they were in their estimates and shared their own opinions. Afterwards, the researchers showed the participants several facts, including that 97% of climate scientists agree that human-caused climate change is real[4], and then re-polled them.

The fact that some — including those who are politically conservative — shifted their views is a "testament to the universal cultural authority of science", Većkalov says.

David Holmes, a media sociologist and the chief executive of the non-profit organization Climate Communications Australia in Melbourne, says that this study "reconfirmed previous studies" showing that consensus messaging works, even on a global scale. He wishes, however, that the team could have teased out country-level trends or discerned whether various cultural attitudes had an impact on the results. The study also didn't test whether the change was lasting.

Personal relevance

What's clear from this study and others, however, is that climate-communication strategies have become more sophisticated as researchers have learnt what works. Gone are the days of showing a polar bear clinging to a melting ice sheet to explain the seriousness of the situation. It's important to talk about global warming, "not as a polar bear issue, but as a people issue", Leiserowitz says.

An emerging area of research that shows promise, researchers say, is how personal conversations help. Start with things your audience cares about, such as food prices, national security or fishing, says Matthew Goldberg, a climate-communication researcher at Yale University. "There is a climate-change angle to almost everything," he adds.

Montana Burgess is the executive director at Neighbours United, a non-profit advocacy organization in Castlegar, Canada. The organization created a climate-conversation toolkit after having success running a campaign persuading people in a rural town in Canada to support a renewable-energy policy. Burgess says that one top strategy is to "get out of talking-point fact land" by exchanging personal stories. For instance, because wildfires have worsened in Canada, there are now "six weeks of the year where it's too smoky and hot to let my kid go outside, and my kid has asthma", Burgess says. She remembers only a handful of smoky days when she was growing up, so she shares that experience to help people process the changes they are seeing.

The next step is to listen carefully and "connect the dots" between a person's experience and local climate information, Goldberg says.

This strategy is based on a landmark study[5] in which canvassers went door-to-door and had ten-minute conversations with voters in Miami, Florida, that were geared towards reducing prejudice towards transgender people. After sharing their views, voters were asked to talk about a time they faced judgement for being different from others. The conversations increased support for a non-discrimination law, and social acceptance persisted when participants were resurveyed three months later. Using this strategy with climate change specifically is still being systematically tested.

Leiserowitz has a personal experience that suggests the strategy will work. He has a family member who used to deny climate change. "It has taken me about 20 years of slow, careful, loving, supportive conversations" to change their mind, he says.

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GENES EXPLAIN WHY SOME WOMEN ENTER MENOPAUSE EARLY

A single genetic variant can reduce reproductive span by six years.

By Heidi Ledford

Two studies of more than 100,000 women have revealed a suite of genes that help to regulate when a person enters menopause and thus the length of their reproductive span. Some of the genes could also influence the risk of cancer.

Age at menopause can vary widely and is known to be influenced by both environmental and genetic factors. The hope is that these genetic catalogues will help researchers to develop treatments for infertility and create methods for predicting when a person will enter menopause.

The studies were published on 27 August (A. Oddsson *et al. Nature Genet.* **56**, 1804–1810; 2024) and on 11 September (see page 608).

Rare but powerful

These studies join a bevy of recent efforts to identify genes that contribute to premature menopause. But most of those studies looked for genetic variants that are common in the population, whereas the new projects instead