scholarly publications" – although it makes an exception in cases where data sharing would pose a significant legal, ethical or technical burden. The NIH recommends that these data be shared only in a reputable repository; ultimately, researchers will decide where to upload the information.

The broad term 'scientific data' has left some researchers confused about exactly what information they'll be required to share. It's hard to predict which data might be useful for other researchers, or whether those data will ever be accessed by anyone, Coughlan says.

In response to an early draft of the policy, the American Association for Universities, an organization based in Washington DC that represents 66 universities, wrote in 2020 that the NIH's definition of scientific data needed to be narrowed, and suggested that the agency limit it to include only data underlying scholarly publications.

Jorgenson says that data collected when experiments don't work – and therefore that are not in publications – are just as important to communicate, because they include information that could help other researchers to understand the full context of an experiment's success. The ambiguity in the policy offers researchers flexibility in determining which data are truly necessary to reproduce research findings, she says.

Brian Nosek, executive director of the Center for Open Science, based in Charlottesville, Virginia, points out that it will be a major challenge for the NIH to ensure that all relevant data have been shared at the conclusion of a project. Although the policy is an "important milestone of maturing the open-science movement beyond just thinking about open access", Nosek worries that some applicants might not take it seriously if there are no consequences for non-compliance. Jorgenson responds that if the policy is not followed, future funding awards for researchers or institutions could be jeopardized.

Despite its potential pitfalls, Ross thinks that the policy will have a ripple effect that will persuade smaller funding agencies and industry to adopt similar changes. "This policy establishes what people expect from clinical research," he says. "It's essentially saying the culture of research needs to change."

CHINA'S APPROVAL OF GENE-EDITED CROPS ENERGIZES RESEARCHERS

Newly published guidelines will spur research into crops that have improved resilience to climate change.

By Smriti Mallapaty

Researchers in China are excited by their government's approval of gene-edited crops, which they say clears the way for the plants' use in agriculture and should boost research into varieties that are tastier, pest-resistant and better adapted to a warming world.

Since China's agriculture ministry released preliminary guidelines on 24 January, researchers have been hurrying to submit applications for the use of their gene-edited crops. These include the development of wheat varieties resistant to a fungal disease called powdery mildew, described in a paper in *Nature* (S. Li *et al*. *Nature* **602**, 455–460; 2022).

"This is very good news for us. It really opens the door for commercialization," says plant biologist Caixia Gao at the Chinese Academy of Sciences' Institute of Genetics and Developmental Biology in Beijing, who is a co-author of the paper.

"The decision is a big step forward for China," and will take research from theory into the field, says Jin-Soo Kim, who heads the Center for Genome Engineering at the Institute for Basic Science in Daejeon, South Korea.

NIGEL CATTLIN/ALAMY

Powdery mildew affects crop yields.

China's new rules are more conservative than those in the United States – which does not regulate gene-edited crops that incorporate small changes similar to those that could occur naturally – but are more lenient than the tough European Union stance of treating all gene-edited crops as genetically modified (GM) organisms.

No foreign genes

Gene-edited crops are developed using technologies such as CRISPR–Cas9 that can make small tweaks to DNA sequences. They differ from crops obtained by genetic modification because this typically involves the insertion of entire genes or DNA sequences from other plant or animal species. However, until now, in China they have come under the same legislation as that covering GM organisms.

Currently, it can take up to six years to get biosafety approval for a GM crop in China. But researchers say the new guidelines – which lay out the process for receiving a biosafety certificate for gene-edited crops – could reduce the approval time to one to two years.

GM crops require extensive, large-scale field trials before they are approved for use. The new guidelines stipulate that, for gene-edited crops deemed to pose no environmental or food-safety risks, developers need only provide laboratory data and conduct small-scale field trials.

However, researchers say that some of the guidelines are ambiguous. They apply to crops in which gene-editing technology is used to remove genes or make single-nucleotide changes, but it is not clear whether they also apply to crops that have had DNA sequences introduced from other varieties of the same species.

"We will have to confirm whether these are allowed," because it is important to have clarity around the rules, says Chengcai Chu, a rice geneticist at South China Agricultural University in Guangzhou.

Already, researchers are planning to focus more of their work on developing new crops that will be valuable to farmers. For example, Jian-Kang Zhu, a plant molecular biologist at the Southern University of Science and Technology in Shenzhen, says he wants to develop gene-edited varieties that have increased yields, resilience against climate change and an improved response to fertilizer.

Others are preparing applications for rice that is particularly aromatic, and soya bean that has a high content of oleic fatty acids, which could produce oil low in saturated fats.

Gao's powdery mildew-resistant wheat could be one of the first to be approved. In 2014, she and her team used gene editing to knock out a gene that makes wheat susceptible to the fungal disease, but found that these changes also stunted the plant's growth (Y. Wang *et al*. *Nature Biotechnol*. **32**, 947–951; 2014).

However, one of their edited plants grew normally, and the researchers found that this was due to deletion of a portion of chromosome that meant the expression of a gene involved in sugar production was not repressed.

Since then, the researchers have been able to remove that same portion of the chromosome, in addition to the gene that makes the plant susceptible to powdery mildew, generating fungus-resistant wheat varieties that don't have restricted growth.

"This is a very comprehensive and beautifully done piece of work," says Yinong Yang, a plant biologist at Pennsylvania State University in University Park. It also has broad implications for almost all flowering plants, he says, because powdery mildew can infect some 10,000 plant species.

"It is really exciting work," adds David Jackson, a plant geneticist at Cold Spring Harbor Laboratory in New York, although he cautions that the data on how well the wheat grew were based on relatively few plants largely grown in greenhouses and will need to be confirmed with larger field trials.

Studies such as this are evidence of China's strong track record of research into gene-edited crops, and the new regulations "are set to see China take full advantage of their academic lead", says Penny Hundleby, a plant scientist at the John Innes Centre in Norwich, UK.

HEART-DISEASE RISK SOARS AFTER COVID — EVEN WITH A MILD CASE

Massive study shows a long-term rise in risk of heart attack and stroke after a SARS-CoV-2 infection.

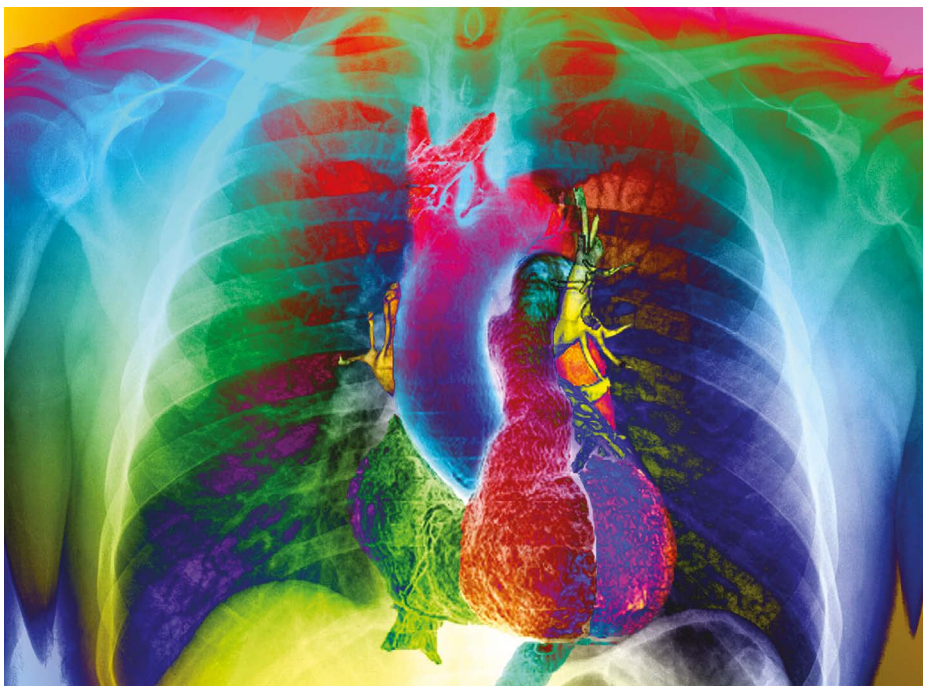
Saima May Sidik

Even a mild case of COVID-19 can increase a person's risk of cardiovascular problems for at least a year after diagnosis, a new study shows. Researchers found that rates of many conditions, such as heart failure and stroke, were substantially higher in people who had recovered from COVID-19 than in similar people who hadn't had the disease (Y. Xie *et al. Nature Med.* https://doi.org/gpdqjx; 2022).

What's more, the risk was elevated even for those who were under 65 years of age and lacked risk factors, such as obesity or diabetes.

"It doesn't matter if you are young or old, it doesn't matter if you smoked, or you didn't," says study co-author Ziyad Al-Aly at Washington University in St. Louis, Missouri, and the chief of research and development for the Veterans Affairs (VA) St. Louis Health Care System. "The risk was there."

Al-Aly and his colleagues based their research on an extensive health-record database curated by the United States Department of Veterans Affairs. The researchers compared more than 150,000 veterans who survived for at least 30 days after contracting COVID-19 with two groups of uninfected people: a group of more than five million people who used the VA medical system during the pandemic, and a similarly sized group that used the system in 2017, before SARS-CoV-2 was circulating.



The risk of 20 cardiovascular diseases is high for at least a year after a COVID-19 diagnosis.

LIVING ART ENTERPRISES/SPL

Troubled hearts

People who had recovered from COVID-19 showed stark increases in 20 cardiovascular problems over the year after infection. For example, they were 52% more likely to have had a stroke than those in the contemporary control group, meaning that, out of every 1,000 people studied, there were around 4 more people in the COVID-19 group than in the control group who experienced stroke.

The risk of heart failure increased by 72%, or around 12 more people in the COVID-19 group per 1,000 studied. Hospitalization increased the likelihood of future cardiovascular complications, but even people who avoided hospitalization were at higher risk for many conditions.

"I am actually surprised by these findings that cardiovascular complications of COVID can last so long," Hossein Ardehali, a cardiologist at Northwestern University in Chicago, Illinois, wrote in an e-mail to *Nature*. Because severe disease increased the risk of complications much more than mild disease, Ardehali wrote, "it is important that those who are not vaccinated get their vaccine immediately".

Ardehali cautions that the study's observational nature comes with some limitations. For example, people in the contemporary control group weren't tested for COVID-19, so it's possible that some of them actually had mild infections. And because the authors considered only VA patients — a group that's predominantly white and male — their results might not translate to all populations.

Ardehali and Al-Aly agree that healthcare providers around the world should be prepared to address an increase in cardiovascular conditions. But with high COVID-19 case counts still straining medical resources, Al-Aly worries that health authorities will delay preparing for the pandemic's aftermath for too long. "We collectively dropped the ball on COVID," he said. "And I feel we're about to drop the ball on long COVID."