

of whether the Pfizer vaccine is authorized for 5-to-11-year-olds. That is, unless another variant of concern emerges, says Katriona Shea, an applied theoretical ecologist tracking the pandemic at Pennsylvania State University in University Park. “If there’s a new variant, that’s like a slap to the system.”

Shea co-leads the COVID-19 Scenario Modeling Hub, which in September released its ninth forecast of the pandemic’s trajectory, factoring in how a vaccine for children aged 5–11 could affect new US infections and deaths (see [go.nature.com/3cycjpk](https://go.nature.com/3cycjpk)). The forecast averages the predictions of nine other modelling teams, and shows that although vaccines for kids would lead to lower case counts, “it might not make a huge difference at the population level if we are lucky enough just to stick with the Delta variant”, Shea says. But the data show that if a concerning variant were to emerge by mid-November, inoculating children could make a significant difference to the course of the pandemic in the United States (see ‘A kid effect’).

But even if the Pfizer–BioNTech shot is fully approved for emergency use, it remains to be seen how kids in the 5–11 age group will feel about getting vaccinated – and whether their caregivers will allow them to. Mina Fazel, a child and adolescent psychiatrist at the University of Oxford, UK, and her colleagues surveyed nearly 28,000 pupils aged 9–18 at 180 UK schools and found that the younger children were more undecided than their older counterparts (M. Fazel, *et al. EClinicalMedicine* 40, 101144; 2021).

The survey also suggested that social media plays a part: pupils who spent more than 4 hours a day on social platforms were less willing to receive the vaccine than were those who spent less time on social media. “We have a generation of young people before us who are engaging with information and learning at an unparalleled scale,” Fazel says, adding that it is more important than ever to tailor public-health campaigns for kids.

### Global implications

What the authorization of a vaccine for US children aged 5–11 might mean globally also remains to be seen. Almost 70 countries have fully vaccinated less than one-fifth of their populations and will probably not vaccinate younger children for months, or even years, to come. But some countries, including Israel, are waiting to see the US regulators’ decision before approving their own jabs.

Other countries, however, are already vaccinating children under the age of 12. For instance, Chile, China, Cuba and the United Arab Emirates have begun inoculating kids with various COVID-19 vaccines in the past three months.

In places where the population has a very low natural immunity to the virus because community transmission has remained low throughout the pandemic, McBryde says,

childhood vaccination will be essential. Australia, for example, plans to reopen its international border this month, allowing citizens and permanent residents to leave and enter the country if the vaccination rate in their state of residence has hit 80%. The move will “invite the virus” into the country, McBryde says, so it will be essential to “soften the landing” as much as possible by building up people’s immunity to the virus through vaccination – and that includes children. Shots for children under 12 have not yet been submitted to Australia’s

regulators for approval.

On 25 October, vaccine maker Moderna, based in Cambridge, Massachusetts, said that a low dose of its mRNA-based jab for children aged 6–11 is safe and effective, but it has not yet applied for FDA authorization. Data on Pfizer’s jab for children younger than 5 is expected by the end of the year, according to a statement the company’s chief executive made at an event run by magazine *The Atlantic* in September. Moderna is also conducting a trial with children as young as six months old.

## DNA REVEALS SURPRISE ANCESTRY OF XINJIANG MUMMIES

Genomes of 4,000-year-old remains suggest they weren’t migrants, as previously supposed.

By Smriti Mallapaty

Since their discovery a century ago, hundreds of naturally preserved mummies found in China’s Tarim Basin have been a mystery to archaeologists. Some thought the Bronze Age remains were those of migrants from thousands of kilometres to the west, who had brought farming practices to the area. But now, a genomic

analysis suggests the bodies were those of indigenous people who may have adopted agricultural methods from neighbouring groups.

As they report in *Nature*, researchers have traced the ancestry of these early farmers to Stone Age hunter-gatherers who lived in Asia some 9,000 years ago (F. Zhang *et al. Nature* <https://doi.org/gm8pm9>; 2021). They seem to have been genetically isolated, but despite this had learnt to raise livestock and grow grains in



Cemeteries in the Taklamakan Desert, China, hold human remains up to 4,000 years old.

## News in focus

the same way as other groups.

The study hints at “the really diverse ways in which populations move and don’t move, and how ideas can spread with, but also through, populations”, says co-author Christina Warinner, a molecular archaeologist at Harvard University in Boston, Massachusetts.

The finding demonstrates that cultural exchange doesn’t always go hand in hand with genetic ties, says Michael Frachetti, an archaeologist at Washington University in St. Louis, Missouri. “Just because those people are trading, doesn’t necessarily mean that they are marrying one another or having children,” he says.

### Perfect preservation environment

Starting in the early twentieth century, the mummies were found in cemeteries belonging to the so-called Xiaohe culture, which are scattered across the Taklamakan Desert in the Xinjiang region of China. The desert “is one of the most hostile places on Earth”, says Alison Betts, an archaeologist at the University of Sydney in Australia.

Here, bodies had been buried in boat-shaped coffins wrapped in cattle hide. The hot, arid and salty environment of the desert naturally preserved them, keeping everything from hair to clothing perfectly intact. Before the latest study, “we knew an awful lot about these people, physically, but we knew nothing about who they were and why they were there”, says Betts.

The mummies – which were buried over a period of 2,000 years or more – date to a significant time in Xinjiang’s history, when ancient communities were shifting from being hunter-gatherers to farming, she adds.

Some of the later mummies were buried with woollen fabrics and clothing similar to those of cultures found to the west. The graves also contained millet, wheat, animal bones and dairy products – evidence of agricultural and pastoral technologies characteristic of cultures in other regions of Eurasia, which led researchers to hypothesize that these people were originally migrants from the west, who had passed through Siberia, Afghanistan or Central Asia.

The researchers behind the latest study – based in China, South Korea, Germany and the United States – took DNA from the mummies to test these ideas, but found no evidence to support them.

They sequenced the genomes of 13 individuals who lived between 4,100 and 3,700 years ago and whose bodies were found in the lowest layers of the Tarim Basin cemeteries in southern Xinjiang. They also sequenced the genomes of another 5 mummies from hundreds of kilometres away in northern Xinjiang, who lived between 5,000 and 4,800 years ago.

They then compared the genetic profiles of these people with previously sequenced genomes from more than 100 ancient groups of people, and those of more than 200 modern



The harsh desert conditions preserved the bodies as natural mummies.

populations, from around the world.

They found that the northern Xinjiang individuals shared some parts of their genomes with Bronze Age migrants from the Altai Mountains of Central Asia who lived about 5,000 years ago – supporting an earlier hypothesis

about their origins.

But the 13 people from the Tarim Basin did not share this ancestry. They seem to be solely related to hunter-gatherers who lived in southern Siberia and what is now northern Kazakhstan some 9,000 years ago, says co-author Choongwon Jeong, a population and evolutionary geneticist at Seoul National University. The northern Xinjiang individuals also shared some of this ancestry.

Evidence of dairy products was found alongside the youngest mummies from the upper layers of cemeteries in the Tarim Basin, so the researchers analysed calcified dental plaque on the teeth of some of the older mummies to see how far back dairy farming went. In the plaque, they found milk proteins from cattle, sheep and goats, suggesting that even the earliest settlers here consumed dairy products. “This founding population had already incorporated dairy pastoralism into their way of life,” says Warinner.

But the study raises many more questions about how the people of the Xiaohe culture got these technologies, from where and from whom, says Betts. “That’s the next thing we need to try and resolve.”

## MYSTERIOUS ‘ALIEN BEACON’ WAS FALSE ALARM

A signal that seemed to come from the star Proxima Centauri will refine the search for extraterrestrial life.

By Alexandra Witze

A radio signal detected by an Australian telescope in 2019, which seemed to be coming from the star closest to the Sun, was not from aliens, researchers reported last week in two papers published in *Nature Astronomy*<sup>1,2</sup>.

“It is human-made radio interference from some technology, probably on the surface of the Earth,” says Sofia Sheikh, an astronomer at the University of California (UC), Berkeley, and a co-author of both papers.

But the disturbance, detected by Breakthrough Listen – an ambitious and privately funded US\$100-million effort to search for extraterrestrial intelligence (SETI) – looked intriguing enough at first that it sent astronomers on a nearly one-year-long quest to understand its origins.

It was the first time that data from Breakthrough Listen triggered a detailed search, and the experience puts scientists in a better

position to study future candidate detections.

“It’s really valuable for us to have these dry runs,” says Jason Wright, an astronomer at Pennsylvania State University in University Park. “We need these candidate signals so we can learn how we will deal with them – how to prove they are extraterrestrial or human-made.”

### Mysterious blips

Since 2016, Breakthrough Listen has used telescopes around the world to listen for possible broadcasts from alien civilizations. The programme has picked up millions of radio blips of unknown origin, nearly all of which could be swiftly classified as coming from radio interference on Earth – from sources such as mobile-phone towers or aircraft radar.

The 2019 signal was different. It was detected by the 64-metre Parkes Murriyang radio telescope in southeastern Australia and came from the direction of Proxima Centauri – the nearest star to the Sun, just 1.3 parsecs