

News in focus

but because the twins were born prematurely, they were initially denied coverage, which He stepped in to pay, according to Kirksey's investigations. He and the university should make good on promises of medical assistance, Kirksey says.

The children, who are now toddlers, are the only known children with edited genomes. It is possible that others have been born since, but Qiu says that this is unlikely to have happened in China, where researchers would have been deterred by He's harsh punishment. "No scientist will dare to further cross the line," he says.

But other researchers have stated their interest in implanting genome-edited embryos, including Denis Rebrikov, a molecular biologist and geneticist at the Kulakov National Medical Research Center for Obstetrics, Gynecology and Perinatology in Moscow. He has developed a technique to use CRISPR to edit mutations in a gene linked to deafness, called *GJB2*, but he has yet to implant a genome-edited embryo owing to a lack of interest among deaf couples in Russia. "I am sure that sooner or later we will find a couple who want to give birth to a hearing child," says Rebrikov. If he does find one, he plans to edit the embryos and store them before requesting permission from Russian regulatory bodies to implant them.

The three children in China "will not be the last" babies with edited genomes, says Ayo Wahlberg, an anthropologist specializing in reproductive technologies at the University of Copenhagen.

Excessive surveillance

Qiu and Lei drafted their recommendations with the three girls in mind, although Qiu says they could apply to future children. But researchers have expressed several concerns.

Kirksey agrees that the girls are vulnerable because they could encounter psychological and social risks. Their experiences should be researchers' and societies' main concern. But he disagrees with the level of surveillance and testing that Qiu and Lei propose, which he sees as excessive, because there is no clear evidence that genome editing has harmed the children. "Special protections could also translate into more intense surveillance."

Qiu agrees that the children could be unaffected. "This is our wish. But who could be sure of it?" He says that their proposal, including regular genome monitoring, addresses that uncertainty.

Burgio says that regular sequencing will be needed for the rest of the girls' lives to assess the extent of the edits and their potential health implications. More advanced techniques have emerged since 2018, and these should be used to take a closer look at the site where the genomes were edited, for signs of any unwanted changes, he says. "We don't know which type of genetic mutations will be carried out into adulthood and

passed on to the next generation," says Burgio.

But Zhang worries that without clearly defined roles and responsibilities, the document opens up future abuses of power. The main risk to the children is likely to be the sociopolitical stigma that they could face, so "putting them in the hands of a few elites will only add to that, not help", she says.

Kirksey says that lessons should be taken from Louise Brown, who in 1978 became the first person to be born through *in vitro* fertilization. "She was subjected to all kinds of medical tests," says Kirksey. "The story in the long run about these children will be about a struggle to be normal if they do become public figures like Louise Brown."

THE CHINA INITIATIVE IS ENDING — RESEARCHERS ARE RELIEVED

The US Department of Justice has announced major changes to the espionage-detection programme.

By **Natasha Gilbert & Max Kozlov**

The US Department of Justice (DoJ) announced on 23 February that it will effectively terminate the controversial China Initiative, a programme that sought to protect US laboratories and businesses from espionage. Instead of focusing on China, the programme will be broadened to cover other countries of concern, and will be renamed.

Scientists who spoke to *Nature* are relieved to see the initiative end — the programme frequently targeted academic researchers for failing to disclose funds from China or partnerships with institutions in that country.

But they fear that the damage to collaborations with researchers in China will be long-lasting, and hope the US government will make amends for the harm that the initiative caused.

"These changes are long overdue and certainly welcome," says Jenny Lee, a social scientist at the University of Arizona in Tucson who studies research collaborations and geopolitics. In particular, she was glad to see that, during the DoJ's announcement, "it seemed there was an acknowledgement that the China Initiative failed in some respects".

In a speech announcing that the agency would be shuttering the programme, Matthew Olsen, the US assistant attorney-general for national security, said that "safeguarding



Matthew Olsen, the US assistant attorney-general for national security, spent three months reviewing the China Initiative, which was launched in 2018.

the integrity and transparency of research institutions is a matter of national security. But so is ensuring that we continue to attract the best and the brightest researchers and scholars to our country from all around the world.”

Olsen maintained that China is a threat to US research security. The DoJ, however, will pursue a broader plan called the Strategy for Countering Nation-State Threats to tackle the increasingly “aggressive” and “nefarious” activity of what he called hostile nations in addition to China, including Russia, Iran and North Korea.

“These nations seek to undermine our core democratic, economic and scientific institutions,” he said. “And they employ a growing range of tactics to advance their interests and to harm the United States.”

Initiative drift

Scientists and civil-liberties groups had been calling for the China Initiative to end for more than a year. Critics of the initiative said it was biased against researchers of Chinese descent, and pointed to the damaged lives and careers of those who have been arrested. For instance, nanotechnology researcher Anming Hu at the University of Tennessee, Knoxville, was acquitted in September last year after a mistrial. He had been under house arrest for over a year while awaiting trial, and was fired from his job (the university rehired him last month).

Although the US government has caught genuine Chinese spies stealing US trade secrets and scientific and technological developments, many think that the China Initiative veered off course by focusing on academics who had improperly filled in applications for funding from US agencies. One of the initiative’s architects, Andrew Lelling, a former US attorney for the district of Massachusetts, acknowledged this shift in a statement he posted online last year: “This was sound policy, but the Initiative has drifted and, in some significant ways, lost its focus.”

The reforms to the China Initiative were driven in part by concerns from the academic and scientific community, Olsen said. A number of university and advocacy groups submitted letters to US attorney-general Merrick Garland asking for a review of the programme last year. Olsen was asked to evaluate the initiative, a process that took three months.

He acknowledged that the cases brought against researchers under the China Initiative gave a perception of bias against those of Chinese descent, and undermined international collaboration. However, he said he hadn’t seen any evidence to suggest that the DoJ had taken any decisions owing to racial prejudice.

The volunteer group APA Justice, which has been advocating on behalf of researchers of Asian descent, disagrees with Olsen’s assessment but welcomes “the end of the



Mechanical engineer Gang Chen at the Massachusetts Institute of Technology in Cambridge was arrested under the China Initiative. Prosecutors later dropped the charges.

ill-conceived initiative and DoJ’s openness to listen and respond to community concerns”.

An October report co-authored by Lee surveyed nearly 2,000 scientists in the United States (see go.nature.com/3ecgmrt). About half of respondents of Chinese descent reported experiencing “considerable” fear, anxiety or a mixture of both that they are being surveilled by the US government. Only 12% of non-Chinese scientists reported the same concern. The survey also found that many US scientists of Chinese heritage had become less inclined to communicate with scholars in China. “All of those impacts combined means that there’s damage that’s already been done,” Lee says.

“These changes are long overdue and certainly welcome.”

Olsen said that the DoJ will continue to pursue all current China Initiative cases, a move that Gang Chen, a mechanical engineer at the Massachusetts Institute of Technology in Cambridge, called “disappointing” in an e-mail to *Nature*. Chen was arrested under the China Initiative in January 2021 for allegedly failing to disclose on grant applications that he had ties to China and had received funding from Chinese institutions. He maintained his innocence until prosecutors acknowledged in January this year that he had not been obligated to disclose those affiliations, and dropped the charges.

The DoJ’s National Security Division (NSD), which was set up after the 11 September 2001 terrorist attacks in the United States to coordinate the government’s national security work, will now take an “active supervisory role” in

assessing evidence and guiding decisions on whether to pursue criminal prosecution for cases involving academic integrity and research security, Olsen noted in his speech. Rather than pursue criminal cases against academic researchers, the agency might decide that the offences should be remedied through civil suits or fines, he added. Wyn Hornbuckle, a DoJ spokesperson, declined to elaborate on what these changes might look like in practice, or whether the NSD had previously had an “active supervisory role” over cases associated with the China Initiative.

Hu says that the reforms are “encouraging” and could be a positive start to healing the hurt caused by his and others’ wrongful prosecution. However, he is waiting to see what action the government actually takes, and whether the FBI and other law-enforcement agencies are held to account for their behaviour.

Some researchers have been trying to get the US government to make amends for wrongful prosecutions. For instance, Xiaoxing Xi, a physicist at Temple University in Philadelphia, Pennsylvania, has been attempting to sue for compensation after his wrongful arrest for allegedly sharing restricted technological know-how with China. His case pre-dates the China Initiative, but shares features with those brought under the programme. Prosecutors dropped his charges ahead of trial.

Chen told *Nature* that he applauds the changes but also thinks that the US Congress should hold the DoJ and FBI to account for the “harassment” of academic researchers. “The chilling effect will have a long-lasting damaging effect to US higher education and America’s ability to attract and retain world talents unless the government acknowledges its own wrongdoings,” he says.