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China Is Collecting DNA From Tens of Millions of Men and Boys, Using U.S. Equipment

Even children are pressed into giving blood samples to build a sweeping genetic database that will add to Beijing's growing surveillance capabilities, raising questions about abuse and privacy.



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The police in China are collecting blood samples from men and boys from across the country to build a genetic map of its roughly 700 million males, giving the authorities a powerful new tool for their emerging high-tech surveillance state.

They have swept across the country since late 2017 to collect enough samples to build a vast DNA database, according to a new study published on Wednesday by the Australian Strategic Policy Institute, a research organization, based on documents also reviewed by The New York Times. With this database, the authorities would be able to track down a man's male relatives using only that man's blood, saliva or other genetic material.

An American company, Thermo Fisher, is helping: The Massachusetts company has sold testing kits to the Chinese police tailored to their specifications. American lawmakers have criticized Thermo Fisher for selling equipment to the Chinese authorities, but the company has defended its business.

The project is a major escalation of China's efforts to use genetics to control its people, which had been focused on tracking ethnic minorities and other, more targeted groups. It would add to a growing, sophisticated surveillance net that the police are deploying across the country, one that increasingly includes advanced cameras, facial recognition systems and artificial intelligence.

The police say they need the database to catch criminals and that donors consent to handing over their DNA. Some officials within China, as well as human rights groups outside its borders, warn that a national DNA database could invade privacy and tempt officials to punish the relatives of dissidents and activists. Rights activists argue that the collection is being done without consent because citizens living in an authoritarian state have virtually no right to refuse.

Already, the program is running into an unusual amount of opposition in China.

“The ability of the authorities to discover who is most intimately related to whom, given the context of the punishment of entire families as a result of one person’s activism, is going to have a chilling effect on society as a whole,” said Maya Wang, a China researcher for Human Rights Watch.

The campaign even involves schools. In one southern coastal town in China, young boys offered up their tiny fingers to a police officer with a needle. About 230 miles to the north, officers went from table to table taking blood from schoolboys while the girls watched quizzically.

Jiang Haolin, 31, gave a blood sample, too. He had no choice.

The authorities told Mr. Jiang, a computer engineer from a rural county in northern China, that “if blood wasn’t collected, we would be listed as a ‘black household,’” he said last year, and it would deprive him and his family of benefits like the right to travel and go to a hospital.



Police officers from Shigu, China, collecting DNA samples from boys from the junior high school in September. The Shifang Municipal People's Government

Tracking China’s Males

The Chinese authorities are collecting DNA samples from men and boys for one simple reason: They commit more crimes, statistics show.

The impetus for the campaign can be traced back to a crime spree in the northern Chinese region of Inner Mongolia. For nearly three decades, the police there investigated the rapes and murders of 11 women and girls, one as young as 8. They collected 230,000 fingerprints and sifted through more than 100,000 DNA samples. They offered a \$28,000 reward.

Then, in 2016, they arrested a man on unrelated bribery charges, according to the state news media. Analyzing his genes, they found he was related to a person who had left his DNA at the site of the 2005 killing of one of the women. That person, Gao Chengyong, confessed to the crimes and was later executed.

Mr. Gao’s capture spurred the state media to call for the creation of a national database of male DNA. The police in Henan Province showed it was possible, after amassing samples from 5.3 million men, or roughly 10 percent of the province’s male population, between 2014 and 2016. In November 2017, the Ministry of Public Security, which controls the police, unveiled plans for a national database.

China already holds the world’s largest trove of genetic material, totaling 80 million profiles, according to state media. But earlier DNA gathering efforts were often more focused. Officials targeted criminal suspects or groups they considered potentially destabilizing, like migrant workers in certain neighborhoods. The police have also gathered DNA from ethnic minority groups like the Uighurs as a way to tighten the Communist Party’s control over them.

The effort to compile a national male database broadens those efforts, said Emile Dirks, an author of the report from the Australian institute and a Ph.D. candidate in the department of political science at the University of Toronto. “We are seeing the expansion of those models to the rest of China in an aggressive way that I don’t think we’ve seen before,” Mr. Dirks said.

In the report released by the Australian institute, it estimated that the authorities aimed to collect DNA samples from 35 million to 70 million men and boys, or roughly 5 percent to 10 percent of China's male population. They do not need to sample every male, because one person's DNA sample can unlock the genetic identity of male relatives.

When The Times tried to fax questions about the database to the Ministry of Public Security, an employee said it could not accept them "without permission from a senior official."

Local officials often publicly announce the results of their sampling. In Donglan County in the Guangxi region, the police said they had collected more than 10,800 samples, covering nearly 10 percent of the male population. In Yijun County in Shaanxi Province, the police said they had collected more than 11,700 samples, or one quarter.

To estimate the project's ambitions, the Australian institute looked at sampling rates in 10 counties and districts, then studied purchase orders for DNA test kits from 16 more jurisdictions. The Times reviewed the same public documents, along with 15 similar orders from the past six months that were not included in the report.

Purchase orders were often filled by Chinese companies, but some contracts went to Thermo Fisher, the Massachusetts maker of genetics testing equipment.

Thermo Fisher has sold DNA testing kits to police agencies in at least nine counties and cities for establishing a "male ancestry inspection system," or a male DNA database, according to corporate bidding documents found by Mr. Dirks and verified by The Times.

The company actively sought the business. In 2017, one week before the start of the DNA collection program, a company researcher, Dr. Zhong Chang, said at a conference in Beijing that the company could help, according to a video of the event. The company designed one testing kit to look for the specific genetic markers sought by the Ministry of Public Security, Dr. Zhong said, a common industry practice. Another was tailored to gather genetic information from members of China's ethnic groups, including Uighurs and Tibetans, he said.

Dr. Zhong did not respond to requests for comment.

Thermo Fisher said its DNA kits "are the global standard for forensic DNA testing." In a statement, the company said it recognized "the importance of considering how our products and services are used — or may be used — by our customers."

"We are proud to be a part of the many positive ways in which DNA identification has been applied, from tracking down criminals to stopping human trafficking and freeing the unjustly accused," it added.

China has other reasons to buy Thermo Fisher's equipment aside from compiling genetic data to track people: The company's gear can help Chinese physicians screen for deadly diseases. Thermo Fisher also sells DNA equipment to the police in many other countries.

But scientists, medical ethicists and human rights groups say its equipment can also become a critical tool for social control. Last year, in the wake of criticism, the company said it would stop selling its gear to the authorities in Xinjiang, in northwestern China, where the police are collecting DNA from the largely Muslim Uighur minority group for social control purposes.

A Thermo Fisher booth at the Beijing Conference and Exhibition on Instrumental Analysis in 2017. The company sells DNA equipment to the police in many countries. Shutterstock

Privacy and Consent

Though the Chinese authorities are still building their database, its contents are already being used to ramp up surveillance.

In March, officials in the Guanwen township in southwestern Sichuan Province said the male blood samples they had collected would be used to bolster the local Sharp Eyes Project, according to a government notice found by the Australian Strategic Policy Institute. The project is a major government surveillance program that encourages people in the countryside to report on their neighbors.

Anke Bioengineering, a biotech company based in eastern Anhui Province, is using the male DNA database to build a “DNA Skynet,” according to Hu Bangjun, a spokesman for the company. Skynet is China’s policing system that combines video surveillance and big data.

But the national male DNA collection program is running into an unusual amount of opposition in China. Generally, China’s citizens have accepted intrusions by the central government into their internet use and other facets of life. But DNA collection is not regulated under Chinese law, and officials worry that the public would react negatively to a broad database containing their genetic secrets and family ties.

At a session of China’s Parliament in March, two delegates to China’s political advisory body proposed that the government regulate DNA collection. One of them, Wang Ying, an official from Beijing, said that when the technology reached a certain scale, the government needed to protect the rights of users “in a timely manner.”

In 2015, Liu Bing, the deputy chief forensic physician at the Ministry of Public Security’s Institute of Forensic Science, warned in the ministry’s forensic journal that the collection of blood samples “with improper measures” could cause social instability, especially “in today’s society where the citizens’ awareness of their legal rights is increasing.”

The authorities have moved quietly. Mr. Dirks, co-author of the Australian paper, said nearly all of the collection was taking place in the countryside, where there was little understanding of the implications of the program.

In rural areas, many officials show pride in their work. Officials in the city of Dongguan posted a photo showing boys in an elementary school lining up to have a teacher collect their blood. Officials in Shaanxi Province also posted online a photo of six boys gathered around a table at an elementary school watching a police officer take blood from one of their friends.

In another photo from northwestern Shaanxi, a young boy bawls in front of two police officers as one squeezes his fingertip for blood. A woman consoles him.

Police officers from the Jiufeng police station in Shaanxi Province collecting DNA samples from a boy. Xi'an police

It is unclear whether the people in those photos fully understood what the blood collection was for. Interviews and social media posts have suggested that the failure to give blood would result in punishment.

Mr. Jiang, the computer engineer, lives and works in Beijing but is originally from a village in Shaanxi. In February 2019, the police told him that he had to return to his village to give his DNA samples.

In an interview, Mr. Jiang said he had paid a hospital in Beijing to collect his samples and mailed them. He was not told why his blood was needed, nor did he ask. He shrugged off privacy concerns. Since China's people are required to carry identity cards and use their real identities online, he said, "all our information is with them already."

But rights activists say genetic science gives the Chinese authorities unprecedented powers to prosecute people they do not like. They could cite DNA to give their accusations even more credibility in the eyes of the public. In the hands of local officials, said Li Wei, a rights activist, DNA evidence could also be planted. The Beijing police already have a sample of his DNA, collected while he was serving a two-year sentence for "disrupting public order," a charge that the authorities use against many dissidents.

Two years ago, the police in Hangzhou tried to get a sample of their own, he said. They knocked on his hotel room door soon after he checked in. Mr. Li said that when he refused to go to the police station, they hit him with rubber batons and dragged him there. But when they asked for a DNA sample, Mr. Li said, he stood fast, fearing that the Hangzhou police could use it against him.

"In some cases, your blood and saliva, which was collected in advance, can be put at the crime scene later," Mr. Li said. "You're not there, but your DNA might be on the scene. This is what I'm worried about — the possibility of being framed."

Amber Wang and Liu Yi contributed research.