

New superbug could be epidemic, scientists find

Chinese scientists have discovered a new drug-resistant strain of bacteria that can spread stealthily and has epidemic potential.

The superbug is a strain of *Salmonella typhimurium* whose plasmid – mobile DNA that can be easily copied and shared between bacteria – contains the MCR1.6 gene, a newly discovered variant of the drug-resistant MCR1 gene.

“This is the first time the MCR1.6 gene has been found in *Salmonella*, a common foodborne pathogen, and from a healthy carrier,” said Kan Biao, deputy director of the Chinese Center for Disease Control and Prevention’s National Institute for Communicable Disease Control and Prevention.

MCR1 and its variants could help bacteria resist polymyxins – a last-resort class of antibiotics that includes colistin, the most potent, but toxic, antibiotic – according to studies by the institute, the results of which were published this month by *Antimicrobial Agents and Chemotherapy*, a journal produced by the American Society for Microbiology.

Bacterial infections caused by the MCR1 gene and its variants are treatable with other antibiotics, “but often at the cost of killing good bacteria and breaking the body’s microflora balance”, Kan said.

Kan’s team first discovered the MCR1.6 gene in a 2014 fecal sample of a 46-year-old woman from the Guangxi Zhuang autonomous region.

“The situation is alarming because healthy individuals may have been unknowingly spreading this superbacteria for years. *Salmonella* is one of the major micro pathogens of food poisoning and can cause diarrhea and vomiting. A drug-resistant version could pose a serious threat to public health.”

Kan added that the superbug has the possibility of becoming an epidemic, similar to the typhoid outbreak in the early 20th century, when a healthy female carrier, Mary Mallon, is believed to have infected two dozen people with typhoid fever while displaying no symptoms.

Since its discovery in 2015, the MCR1 gene has spread to more than 30 countries, including the United States, the United Kingdom, Canada, India and Malaysia, according to Kan.

“The MCR1.6 gene or other MCR1 gene variants might begin to appear in other countries,” he warned. “A conservative estimate of more than 3 million Chinese suffer from *Salmonella*-related illnesses each year, with children and the elderly most at risk.”

Salmonella outbreaks also occur in the US on a regular basis, with the last major outbreak in late November, according to the US Centers for Disease Control and Prevention.

To tackle the superbug issue, governments should strictly regulate the use of antibiotics in livestock farming, educate the public on antibiotic uses, strengthen surveillance of resistant bacteria, and promote research and development of new antibiotics, Kan said.

For the general public, “something as simple as washing your hands, cooking food properly and strictly following a doctor’s prescription for antibiotics can greatly reduce the chance of catching a serious infection”, he added.

Paper machines get mixed reviews

“Let me try,” a short, middle-aged woman said as she moved in front of one of the face-recognition toilet paper dispensers that have been installed in restrooms at Beijing’s Temple of Heaven Park. She removed her hat and glasses, and stared straight into the camera. A group of amused fellow tourists looked on, keen to see the new high-tech machines in action.

However, nothing happened.

“Try standing further back,” came a voice from in the crowd. “Make sure you’re standing in the yellow area marked on the floor.”

The 62-year-old woman, surnamed Wang, readjusted her position and, after several seconds, was rewarded with a 60-centimeter strip of crisp, white toilet paper. If she wanted more, she was going to have to wait nine minutes to start the process all over again.

“If I were in a rush, it would be inconvenient,” Wang said.

The Temple of Heaven Park, one of the capital’s major tourist attractions, was not swarmed with visitors on Tuesday afternoon, but many of those who were there made a beeline for the bathrooms.

Managers of the venue have said the dispensers, which have so far been installed in three restrooms on a trial basis, are designed to prevent an age-old issue of people stealing or wasting toilet paper.

However, some people have questioned whether such a high-tech solution sacrifices convenience, as patrons now need to wait for paper before they can relieve themselves.

Shortly after Wang had finished, a mother visited the same restroom with her young daughter. She walked straight past the machine and into a cubicle.

“I have everything I need in my bag, so I don’t need to bother with the dispenser,” she said after re-emerging, adding that the machines are not convenient for parents, particularly those with small children.

Given that the screen is placed at about average height for an adult, it is also unlikely to be of use for wheelchair users. Meanwhile, twins could have a problem, too, if they both need to use the restroom at the same time.

A worker who helped install the dispensers said the management plans to adjust their locations because the long lines of people waiting for toilet paper have been blocking entrances to the venue.

However, some people are happy to put up with a little inconvenience if it puts a stop to thieves.

“Since the new machines have been installed, many of the thieves have disappeared,” said a middle-aged man waiting outside a restroom. “I think it’s good to teach them a lesson.”

Girl rents over 900 taxis to propose

A love message is posted on a taxi’s top light on March 16 in Zhoushan.

“Zhang Jianfeng, I want to marry you, do you dare to marry me?” This love message and a group of pictures posted by a girl in Zhoushan, a small city in Southeast China, became an internet sensation recently.

On March 16, a girl spent over 10,000 yuan (US\$1450) to advertise on more than 900 taxis between 5 p.m. and 7 p.m. in Zhoushan, to propose to her boyfriend.

Mr. Yuan is the manager of an advertising company which runs the advertisements on the top lights of taxis in Zhoushan. According to him, the girl works in Ningbo and her boyfriend works in Zhoushan. They met each other in Zhuhai.

They then came to the park near the sea and lit dozens of candles. “I am ready, will you marry me?” said the girl. “I want to marry you. Please marry me!” replied her boyfriend. Friends from both sides witnessed the romantic moment.

This is not the first time that taxi top lights have been used to send love messages in the city. On June 25 last year, a man posted a love message to his girlfriend on taxi top lights. The message read: “I will remember you when it is rainy, Fang Xiaojie, be with me please!” The love message shined on the taxi top light for ten days.

However, these two advertisements are different. The advertisement posted on March 16 was displayed for two hours exclusively, while the advertisement posted on June 25 alternated with other advertisements for ten days.

Nowadays, young lovers are bold and open in China. A growing number of young

lovers use modern media to express their feelings and even to propose to their lovers.

[Saving China from 'cancer of the Earth'](#)

A bird's-eye view of Babusha, a large sand dune on the southern edge of the Tengger desert in Northwest China. [Photo/China Daily]

The government is promoting measures to eradicate desertification, one of the most-pressing problems facing China's western regions, and looking to reclaim vast areas of land. Su Zhou reports from Beijing with Xue Chaohua in Lanzhou. In January, 65-year-old Guo Wangang took over his father's job. His work is of national importance, but he isn't running a giant corporation; instead he is guarding the Babusha Forest Farm in Gulang, a county in the northwestern province of Gansu.

In the 1970s, Babusha, an enormous sand dune on the southern edge of the Tengger desert, gradually encroached south, threatening the county's social and economic development and the livelihoods of the people who lived there.

"Rather than bow down to the desert's advance and become ecological refugees, six local farmers, including my father, Guo Chaoming, decided to plant trees to improve soil absorption and prevent the spread of the desert by fixing the sand in place," said Guo Wangang, who is head of the farm. "They did it all voluntarily, despite the fact that they could not even feed themselves at the time."

After three decades, the combined efforts of two generations have paid off. The desertification of the 75,000-square-meter area has been reversed and Gulang has once again become a vibrant forest farm, where produce is grown and sheltered under a canopy of greenery. The dramatic change has prompted more than 30,000 people from the surrounding areas to settle in the once-threatened county.

Shrinking deserts

The Guo family's story is a microcosm of China's lengthy battle against desertification, often described as "cancer of the Earth". It is the most serious ecological issue facing China, especially in western areas such as Gansu and the Ningxia Hui, Inner Mongolia and Xinjiang Uygur autonomous regions.

According to the latest survey by the State Forestry Administration, the areas affected by desertification and sandification – where the top soil has been stripped away and replaced by sand – are shrinking.

By the end of 2014, the area of desertified land nationwide had fallen by 12,120 square kilometers to 2.6 million sq km, and the area of sandified land had retreated by 9,902 sq km to 1.7 million sq km.

China has vowed to step up efforts to tackle desertification and land degradation and the government plans to reclaim 100,000 square kilometers of sandified land by 2020.

In recent decades, the country has gained rich experience of combating desertification and is now an international leader in the field.

Shapotou, a district of Zhongwei, a prefecture-level city in Ningxia, first hit the headlines not because of tourism, but as a result of successful innovations in desertification control, said Wang Fuzhong, chairman of the Ningxia Shapotou Tourism Industry Group.

He recalled that many tourists from overseas were eager to visit Shapotou in the 1970s and 80s because it was the birthplace of the now globally renowned "straw checkerboard" technique, in which straw, usually made from wheat or rice stalks, is laid out like a grid across the sand and then partially buried.

"The checkerboards have remarkable properties – acting as windbreaks and helping to keep dunes in place, thus allowing topsoil to form. When a sufficient amount of soil has been established, drought-resistant plants can be grown," he said. Liu Shizeng, director of the Gansu Desert Control Research Institute in Lanzhou, the provincial capital, said China originally adopted anti-desertification measures used in the former Soviet Union, but quickly started exploring its own techniques.

"In addition to improving anti-desertification techniques that were adopted in different geographical circumstances, we also encouraged the control of desertification through the development of local businesses, such as those that plant shrubs and dune plants to fix the sand in place and prevent major shifts. This has encouraged more locals to participate," he said.

According to Tian Zhiguo, deputy head of Pingchun, a county in Gansu, before the development of the dune plant industry, local residents rarely played an active role in tree planting.

"The cost of planting trees in deserts is very high, and once planted, the trees were not allowed to be cut down for sale. So, it made sense for them not to participate," he said. "Now, with plant farms generating profits, the locals are more willing to join the campaign."

National desert parks

Liu said years of research have resulted in the maturation of technologies that enable the large-scale domestic cultivation of wild plants, such as Asian onions. Moreover, homegrown techniques have already provided support to the development of the "sand industry" along the Hexi corridor, a fertile region which provides most of the crops grown in Gansu.

“Another good example is the founding and construction of national desert parks, which provide effective management of deserts and maximize their value,” he added.

Since August 2013, the State Forestry Administration has approved 70 pilot projects for national desert parks and has pledged to build 170 by 2020, accounting for 2.4 percent of the estimated area of sandified land that can be reclaimed across the country.

Liu has been dealing with deserts for more than 30 years. At first, he regarded them as essentially dangerous places because they can destroy people’s lives and livelihoods.

Now, he has changed his mind: “Just like the ocean, a desert is a natural landscape. Not all of it is dangerous to humans.”

Wang Zengji, deputy head of the forestry bureau of Yanchi county in Ningxia, said combating desertification does not equate to “eradicating” deserts.

“Instead, it is the management of desertified land caused by human activities,” he said.

[Beijing suspends all coal-fired power generation](#)

The last large coal-fired power plant in Beijing has suspended its operations on March 18, meaning that the capital has become China’s first city to have all of its power plants fueled by clean energy.

“This is a historic moment, because we now bid farewell to all coal-fired power generation plants in Beijing,” said Cai Qi, the city’s mayor, as he visited the power plant owned by Huaneng Group.

“Replacing coal with clean energy not only deals with air pollution but is also a requirement of the company’s transformation,” said Cai, adding that the new power plant, which is under construction and will start operating soon, will use natural gas.

The shutdown of the plant will cut coal consumption by 1.76 million tons a year, and reduce sulfur dioxide emissions by 91 tons, oxynitride emissions by 285 tons and dust by 110 tons.

According to Beijing’s Clean Air Action Plan (2013-2017), the total coal consumption should be 13 million tons less by the end of this year, compared with 2012.

The plan also says that the city will build four gas thermal power centers

and shut down the four large coal-fueled thermal power plants during that period. Three of the four gas thermal power centers have already been built and are in operation.