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 example 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.