

Another Sign of the Times? Drug-Resistant Superbug Spreads Globally

An antibiotic-resistant “superbug” strain of typhoid fever has spread globally, driven by a single family of the bacteria, called H58, according to the findings of a large international study.

The research, involving some 74 scientists in almost two dozen countries, is one of the most comprehensive sets of genetic data on a human infectious agent and paints a worrying scene of an “ever-increasing public health threat,” they said.

Typhoid is contracted by drinking or eating contaminated matter and symptoms include nausea, fever, abdominal pain and pink spots on the chest. Untreated, the disease can lead to complications in the gut and head, which may prove fatal in up to 20 percent of patients.

Vaccines are available—although, due to limited cost effectiveness, not widely used in poorer countries—and regular strains of the infection can be treated with antibiotic drugs. However, this study found that the H58 “superbug” version, which is resistant to multiple types of antibiotics, is now becoming dominant.

“H58 is displacing other typhoid strains, completely transforming the genetic architecture of the disease and creating a previously under appreciated and on-going epidemic,” the researchers said in a statement about their findings.

Vanessa Wong of Britain’s Wellcome Trust Sanger Institute, who was part of the international team, said that since typhoid affects around 30 million people a year, robust and detailed

good global surveillance is critical to trying to contain it.

The research team, whose work was published in the journal Nature Genetics on Monday, sequenced the genomes of 1,832 samples of Salmonella Typhi bacteria that were collected from 63 countries between 1992 and 2013.

They found 47 percent were from the H58 strain.

The team found that H58 emerged in South Asia 25 to 30 years ago and spread to Southeast Asia, Western Asia, East and South Africa and Fiji. They also found evidence of a recent and unreported wave of H58 transmission in many countries in Africa, which may represent an ongoing epidemic.

Kathryn Holt, a scientist at the University of Melbourne in Australia who worked on the study, said multidrug resistant typhoid is caused by the bacteria picking up new resistance genes as disease strains mix and pass from person to person.

Resistance “has been coming and going since the 1970s,” she said, but in the H58 strain, the resistance genes are becoming a stable part of the genome “which means multiple antibiotic resistant typhoid is here to stay.”

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