

# MRSA superbug spreads from big city hospitals to regional health centers, study suggests

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Hospitals in large cities act as breeding grounds for the superbug MRSA prior to it spreading to smaller hospitals, a study suggests.

Researchers found evidence that shows for the first time how the [superbug](#) spreads between different hospitals throughout the country.

The University of Edinburgh study involved looking at the genetic make-up of more than 80 variants of a major clone of [MRSA](#) found in hospitals.

Scientists were able to determine the entire [genetic code](#) of MRSA bacteria taken from infected patients.

They then identified [mutations](#) in the bug which led to their emergence of new MRSA variants and traced their spread around the country

Dr Ross Fitzgerald, of The Roslin Institute at the University of Edinburgh, who led the study said: "We found that variants of MRSA circulating in regional hospitals probably originated in large city hospitals. The high levels of patient traffic in large hospitals means they act as a hub for transmission between patients, who may then be transferred or treated in regional hospitals."

MRSA – methicillin-resistant *Staphylococcus aureus* – first started to

appear around 50 years ago following the introduction of antibiotics, to which the bacteria has become increasingly resistant.

Paul McAdam, of The Roslin Institute and first author of the paper, said: "Our findings suggest that the referral of patients to different hospitals is a major cause of MRSA transmission around the country. This knowledge could help in finding ways to prevent the spread of infections.

The paper published in the journal PNAS, also found that the MRSA strain studied evolved from antibiotic-sensitive bacteria that existed more than 100 years ago.

**More information:** "Molecular tracing of the emergence, adaptation, and transmission of hospital-associated methicillin-resistant *Staphylococcus aureus*," by Paul R. McAdam et al. *PNAS*, 2012.

Provided by University of Edinburgh

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