

Full details

All details held on the selected case study are shown below.

Went live on	Title	Reference
16 Feb 2010	Research crossover to understand MRSA in the environment	SID0242

Synopsis

A NERC-funded "discipline hop" looking at the human health risks posed by the widespread presence of MRSA in the environment, where it is associated with pig herds, cows' milk and faeces.

Description

A discipline hop - funded by NERC - has allowed a microbial ecologist from Warwick University to gain new insights into the application of clinical microbiological methods to study MRSA (methicillin resistant *Staphylococcus aureus*) in the environment.

In doing so, Dr Will Gaze has advanced his understanding of bacterial pathogenesis and antibiotic resistance from a clinical perspective. He has also built a wider interchange of ideas and technical approaches between microbial ecology and clinical microbiology; delivered a comprehensive review of the literature on antibiotic resistance in the environment; carried out sampling on UK dairy farms; and initiated a study on the presence of MRSA and methicillin resistant coagulase negative staphylococci (MRCONS) in agriculture.

Dr Gaze spent a year in Professor Peter Hawkey's lab in Birmingham with clinical scientists working on MRSA and other clinically important bacterial pathogens.

"I attended weekly meetings on subjects relating to infection and antibiotic resistance at Heartlands HPA, with medics and clinical scientists, which gave me insights into the clinical problems caused by bacterial pathogens in UK hospitals," says Dr Gaze.

"I was trained in isolation, typing and molecular diagnostic techniques, by specialists in their fields at Heartlands, HPA. I liaised with farmers, Defra vets, the Soil Association and food producers to enable samples to be obtained in order to study MRSA and MRCONS, which also cause human infections and are thought to be reservoirs of the transferable methicillin resistance gene carried on the staphylococcal cassette chromosome (SCCmec)."

"My time in Professor Hawkey's lab also gave me new insights into existing work at the interface of environmental and clinical microbiology. This contributed to preparation of a manuscript on antibiotic resistance in bacteria isolated from soil amended with pig slurry (Bailey-Byrne et al., 2009) and another in preparation on class 1 integrons - mobile genetic elements that carry multiple antibiotic resistance genes - in slurry amended soil," adds Dr Gaze.

For the future there is to be continued collaboration between microbial ecologists at Warwick and clinical microbiologists at Birmingham; further research on methicillin resistant staphylococci in organic and conventional dairy herds and a comprehensive literature review of MRSA in the environment.

The research has been supported by NERC's Environment and Human Health programme.

References and links

Hyperlinks

1. [NERC - Planet Earth online](#)
2. [University of Warwick - Will Gaze research details](#)

Impacts

Impact evidence

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Research and funding

Funding type

Research Programme

Date of research

June 2007 - May 2008

Researchers at Universities

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Grant reference	NE/E008054/1	
Investigator	Professor PM Hawkey	University of Birmingham, Immunity and Infection - Immunology
Co-investigator	Dr WH Gaze	University of Warwick, Biological Sciences

Classification	
Science themes	Environment, pollution and human health
Science areas	Terrestrial
Policy areas	Agriculture, food and fisheries, Pollution, Health