

# New study targets “serious worldwide threat to public health”

BSMS researchers are tackling antibiotic resistance in a new pilot study. The Wellcome Trust Brighton and Sussex Centre for Global Health Research is working with local and international partners to discover more about antibiotic resistance in hospital-acquired infections in low- and middle-income countries (LMIC). The Centre was awarded a University of Sussex Research Development Fund grant of £21,000 in December 2014.

Identified last year by the World Health Organization as a ‘serious worldwide threat to public health’, antibiotic resistance has been increasing dramatically worldwide, with a significant impact on the treatment options for patients in need of antibiotics.

“While antibiotic resistance is certainly an emerging global threat, it has largely been underestimated and under-researched in LMIC,” says Melanie Newport, Centre Director and BSMS Professor in Infectious Diseases and Global Health. “Our study aims to investigate the epidemiology of hospital-acquired infections and the associated antibiotic resistance in these countries.”

African partners in the project include the Armauer Hansen Research Institute in Ethiopia, the University of Khartoum in Sudan and the University of Buea in Cameroon. At each of these centres a researcher (PhD student) will be trained in molecular microbiological techniques, and will be responsible for sample and data collection, sending copies back to the UK for further analysis. By studying this data, researchers hope to identify the underlying genetic mechanisms of antibiotic resistance in bacteria that are emerging threats in hospitals worldwide.

The Centre is also collaborating on the study with the School of Life Sciences and the Genome Centre at the University of Sussex, the University of Brighton, and the NHS, bringing together a range and depth of expertise in the fields of infectious diseases, molecular microbiology and global health.

“Not only will we support our African partners in building capacity among epidemiological researchers, but the research should provide valuable data to support future large collaborative grant applications,” says Professor Newport. “The study will give us a greater insight into the mechanisms of antibiotic resistance present in Africa, and enable us to then develop more specific research on locally relevant emerging threats.”

The pilot study will be complemented by two other projects on antibiotic resistance. The Centre for Global Health Research is also working with the University of Khartoum to investigate the emerging threat of a specific mechanism of antibiotic resistance known as  $\beta$ -lactam resistance in Gram-negative bacteria.

In March, postdoctoral research fellow at BSMS Dr Leena Al-Hassan received a Rising Stars award from the University of Brighton to investigate mobile genetic elements in bacteria that are important for the transmission of antibiotic resistance genes.

Dr Leena Al-Hassan

