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## **UCT establishes first South African extraordinary unit to probe problems of antibiotic resistance**

A new multi-disciplinary unit has been established at the University of Cape Town (UCT) to address the origins and effects of antimicrobial resistance and to develop potential preventative strategies. It is the first South African unit dedicated to studying the origin, development and fundamental drivers of antimicrobial resistance and multidrug-resistant pathogens (bacteria, viruses, or other microorganisms that cause diseases).

The Centre for the Study of Antimicrobial Resistance (CAMRA) – funded by the South African Medical Research Council (SAMRC) and directed by UCT Director of the Lung Infection and Immunity Unit, Professor Keertan Dheda – is an extraordinary development in the internationally urgent study of antimicrobial resistance among multidrug-resistant pathogens.

Prof Dheda, who is also the Head of the Division of Pulmonology and Professor of Respiratory Medicine, says: “If the issues of antimicrobial resistance and multidrug-resistant pathogens are not addressed, we will head into a post-antibiotic era analogous to the 18th and 19th centuries. Common infections and minor injuries will once again kill people on a large scale. This is already starting to happen.”

Given the high rate of drug-resistant Tuberculosis (TB) in South Africa and because TB is a poverty-and HIV-related disease, Dheda believes the unit will place special emphasis on this area of antimicrobial resistance. TB is now the foremost infectious disease killer worldwide and the commonest cause of death in South Africa. Almost 25% of TB strains globally are resistant to at least one major TB drug and drug resistant-TB contributes heavily to TB mortality.

The work of the SAMRC Extra Mural Unit will fortify the World Health Organisation's (WHO) critical call for attention to the crisis of drug resistance – which has been prioritised alongside global warming.

“Substantial morbidity and mortality due to multidrug-resistant infections, major health cost implications, and wider impact on society and the economy will not only retard economic growth, but there are also serious risks that it will undo the gains made under the United Nations’ Sustainable Development Goals,” Dheda adds.

President of the SAMRC, Prof Glenda Gray comments: "TB drug resistance and resistance to antibiotics threatens the gains we have made in health in South Africa. Bold efforts are required to tackle drug resistance at a global level and the SAMRC is committed to funding research that will endeavour to find solutions that make global impact."

The new centre will combine the efforts of several multi-disciplinary national and international authorities in the fields of TB and antimicrobial resistance to study the movement and distribution of drugs in the body, molecular sequencing and the development of inhaled drugs.

Preventative strategies, antibiotics, vaccination, economic and psychosocial issues, and promotion of the appropriate use of antibiotics – also known as antibiotic stewardship – are among the many aspects of antimicrobial resistance that demand attention.

"A further worrying phenomenon is that there are hardly any new antibiotics entering the commercial pipeline. It is thus critical that newer and novel antibiotic classes be protected at all costs. However, this will not happen unless we understand the key drivers and pathogenesis of antibiotic resistance," says Dheda.

Dheda emphasises that they know that exposing bacteria to levels of antibiotic below what's required to be effective is a key driver of antibiotic resistance. What is not known, however, is to what extent this occurs in specific clinical contexts, how resistance evolves and how it will be possible to prevent or at least minimise the development and evolution of resistance using better strategies for dosage and administration.

The unit includes members and collaborators from the University of KwaZulu-Natal, University of Pretoria, Stellenbosch University, Walter Sisulu University, Sefako Makgatho Health Sciences University, National Institute for Communicable Diseases, London School of Hygiene and Tropical Medicine, University of Parma (Italy), and the Baylor Scott & White Research Institute in Dallas, Texas, in addition to those from UCT.

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**Issued by: UCT Communication and Marketing Department**

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