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Pregnancy, obesity and HIV explored in new UCT study

A new birth cohort study to examine obesity in pregnant women living with HIV, as well as their children, has secured the University of Cape Town's (UCT) Division of Epidemiology and Biostatistics a R120 million grant from the United States (US) National Institutes of Health. UCT joins an international consortium which includes Columbia University and Northwestern University in the US.

Obesity is commonplace worldwide, with increasing prevalence in South Africa and other countries in sub-Saharan Africa. This study has been positioned in South Africa because of the high burden of both HIV and obesity, including during pregnancy.

"This condition links together many non-communicable diseases, such as diabetes, hypertension and heart disease. Levels of obesity in adults and children in South Africa are increasing, presenting a major threat to public health over future decades," said Professor Landon Myer, the head of the [School of Public Health and Family Medicine \(SPHFM\)](#) at UCT's Faculty of Health Sciences. This month, Myer is also one of four Faculty of Health Sciences academic staff to be recognised through the university's annual College of Fellows merit acknowledgement process.

In many parts of South Africa, more than 20% of pregnant women are obese. Meanwhile, HIV's burden on the country places it at the centre of that global epidemic, with a record 7.7 million people living with the virus. The prevalence of HIV in South Africa sits at 20.4% among people between 15 and 49 years old, according to a 2018 [UNAIDS](#) report.

The double threat of HIV and obesity facing many South African women is why UCT is collaborating on the obesogenic origins of maternal and child metabolic health involving dolutegravir (ORCHID) study, which will follow approximately 1 800 women from early pregnancy through to their child's second birthday. ORCHID seeks to investigate the drivers behind obesity in pregnant women living with HIV, as well as how the two conditions interact during pregnancy and through the postpartum period.

Follow-up visits will be conducted with the children as they grow up, to understand the impact on their health of in-utero exposure to obesity. "Given the growing recognition of how a mother's health shapes the health of her children, this topic is of major public health importance," said Myer, the principal investigator on the study.

In recent years there has been increased interest in the overlaps between non-communicable and infectious diseases in sub-Saharan Africa. According to Myer, who is also an affiliate member at the Faculty of Health Sciences' Institute of Infectious Disease and Molecular Medicine (IDM), this intersection is a massive concern, challenging many of the traditional paradigms of public health; even so, pregnant women and children are still neglected.

It is these considerations that necessitated the research focus on "the intersection of non-communicable diseases and infectious diseases in pregnant women and their children", he said of the study, the first of its kind globally.

Deputy Vice-Chancellor for Research and Internationalisation Professor Sue Harrison added: "Research focused on large scale, community-focused studies generating data that bring together interacting factors in the health of mother and child is increasingly important to contribute to improved public health. Here we see this happening through the bringing together of expertise across disease families."

The focus of ORCHID will be on Cape Town's Klipfontein-Mitchells Plain sub-district, building on the longstanding collaborations there between the SPHFM and the Western Cape Department of Health. "We have been working with colleagues in Gugulethu, Mitchells Plain and nearby communities for more than a decade on maternal and child health research, and this work will build on that partnership," said Myer.

Dr Hlengiwe Madlala, a co-investigator and ORCHID project manager, recently documented the high levels of obesity in pregnant women in Cape Town. Researchers found that while there is a high prevalence of HIV in pregnancy, the risk of obesity is not affected by HIV infection. This gives rise to critical and complicated questions around the implications of obesity and HIV when combined during pregnancy.

In addressing this, Madlala highlights the interdisciplinary nature of the work: "Our holistic approach – involving scientists from SPHFM, Human Biology, Paediatrics and Child Health and Obstetrics and Gynaecology at UCT – was necessary for this project, as it aims to tackle complex health issues facing pregnant women and their children in our setting through research."

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