DIVISION OF RESEARCH CAPACITY DEVELOPMENT (RCD)

SAMRC INTRA-MURAL POSTDOCTORAL PROGRAMME

Request for Applications 2025/2026 (Replacement)

LIST OF THE PROJECTS OPEN FOR APPLICATIONS

(Please ask for more information from the Unit director and the Principal Investigator)

Project 1

Research Unit	Unit /Project Contact details	Project Title
Gender and Health Research Unit	• Prof Nwabisa Shai (UD) Tel: 012 339 8528/ Email: Nwabisa.Shai@mrc.ac.za • Prof Yandisa Sikweyiya (PI) Tel: 012 339 8619/ Email:Yandisa.sikweyiya@mrc.ac.za	Engaging young men (ages 18-30) in the process of Adapting the Stepping Stones and Self Help+ interventions to improve mental health and prevent sexual violence.

Project Background

Male-perpetrated sexual violence is a worldwide public health concern that has serious negative impacts on the women and girls who experience it. While there are several drivers of male-perpetrated sexual violence, men's masculinity/ies are key. Masculinity refers to idealised notions of what it means to be a man in any given context. Violent masculinities do not simply 'exist' but emerge out of poverty, men's own experiences of violence, poor mental health, and inequitable gender norms, including the acceptability of violence. Addressing sexual violence perpetration by creating more gender-equitable masculinities is critical for improving men's, women's, and children's health and well-being and achieving the Sustainable Development Goals. Despite this, there is little empirical evidence about the overlap between multiple forms of sexual violence (e.g., partner and non-partner rape) perpetrated by men, nor effective strategies for preventing it.

Project 2

Research Unit	Unit/Project Contact details	Project title
Gender and Health Research Unit	• Prof Nwabisa Shai Tel: 012 339 8528/ Email: Nwabisa.Shai@mrc.ac.za • Prof Naeemah Abrahams (PI) Tel: 021 939 0823/ Email:Naeemah.abrahams@mrc.ac.za	Femicide in South Africa during COVID-19

Project Background

Femicide is the most extreme form of gender-based violence (GBV) and South Africa has the highest rates of femicide in the world. Colleagues from Biostatistics, Burden of Disease Research Unit (BODRU), UCT Forensic Pathology Department, UCT Faculty of Medicine, and WITS University have conducted four national femicide studies over 22 years and, until recently, these series of surveys have been the only population data on the size

and scope of gender-based violence in the country. The broad aim of the project is to do an in-depth analysis of femicide in the country over 20 years, with a focus on better understanding the multiple risks for femicide over time. The project will entail analysis of the four surveys, and no additional active data collection is required. Each research question will be developed with the core team, and analysis plans will be agreed upon with the senior statisticians.

Project 3

Research Unit	Unit/Project Contact details	Project title
Mental Health, Alcohol, Substance Use and Tobacco Research Unit	• Prof Jason Bantjes Tel: +27 21 938 0993/ Email: jbantjes@mrc.ac.za • Prof Nadine Harker Tel: +27 21 938 0425/ Email: Nadine.harker@mrc.ac.za	National survey of university students' mental health care needs in South Africa

Project Background

This project is an extension to an existing research project (Ethics Reference #: N13/10/149), which was initiated in 2015 to investigate the mental health of university students at Stellenbosch University (SUN) and the University of Cape Town (UCT). The initial project set out to investigate the prevalence and correlates of common mental health problems, hazardous substance use and suicidality among university students at SUN and UCT to collect information needed to plan effective support services, establish priorities for intervention, and implement strategies to promote the mental health of students and reduce suicide risk. This project has been expanded to include all registered students at universities in South Africa (SA), and survey questions are compliant with the DSM-5. The project is part of the World Health Organization World Mental Health Surveys International College Student Initiative.

Project 4

Research Unit	Unit/Project Contact details	Project title
Non-Communicable Diseases Research Unit	• Prof Carmen Pheiffer (carmen.pheiffer@mrc.ac.za/+27 21 938 0292) • Prof Nasheeta Peer Tel: 031-2034882/ Email: Nasheeta.peer@mrc.ac.za	Comorbid Diabetes and Depression (CODAD) Study

Project Background

The influences on optimal glucose control in people living with type 2 diabetes mellitus (PLWD) are multifactorial. Among the key patient factors, a less examined influence on diabetes control, particularly in Africa, is co-morbid depression. This is pertinent to South Africa, where the burden of both diabetes (15%) and depression in PLWD (36-47%) is high.

Project 5

Research Unit	Unit/Project Contact details	Project title
Cochrane South Africa	• Prof Mark Engel Tel: 021 938 0307/ Email: Mark.engel@mrc.ac.za • Dr Duduzile Ndwandwe Tel: 021 938 0222 Email: Duduzile.Ndwandwe@mrc.ac.za	Strengthening Africa's Pandemic Readiness: A Systematic Review of Preparedness Plans with Actionable Improvements and Impact Evaluation

Project Background:

The global threat of emerging and re-emerging infectious diseases with pandemic potential underscores the urgent need for effective pandemic preparedness plans, particularly in Africa's low- and middle-income countries (LMICs). These nations face unique challenges, such as inadequate healthcare infrastructure, economic disparities, and socio-political factors, which can hinder their response to outbreaks. Tailored pandemic preparedness plans ensure rapid and effective public health responses to future pandemics. This systematic SAMRC INTRAMURAL POSTDOCTORAL PROGRAMME |2 review will thoroughly assess the existing pandemic preparedness plans in African nations, identifying strengths, weaknesses, and areas for improvement.

Project 6

Research Unit	Unit/Project Contact details	Project title
Cochrane South Africa	• Prof Mark Engel Tel: 021 938 0307/ Email: Mark.engel@mrc.ac.za • Prof Sara Cooper Tel: 0219380340/ Email: Sara.cooper@mrc.ac.za	Enhancing Healthcare Insights: Building Qualitative Evidence Synthesis in South Africa and Beyond

Project Background:

Qualitative Evidence Synthesis (QES) is increasingly being used in healthcare decision-making processes, including global guideline development and policy formulation. However, to date, most QES outputs and methodological tools have emerged from the Global North. The knowledge, skills, and competencies required to analyse and apply qualitative evidence in decision-making processes are scarce in South Africa and other African countries. Over the past decade, there has been growing recognition of the potential contribution of qualitative evidence to global healthcare decision-making. Those working in these arenas increasingly seek evidence beyond the effects of interventions to wider questions about local norms and preferences, equity and human rights issues, acceptability and feasibility of interventions, implementation processes, and the impact of socio-political and cultural contexts. Qualitative research and reviews of qualitative evidence are increasingly seen to offer important insights for answering this broader range of questions. 'Qualitative evidence syntheses' (QES) - or systematic reviews of qualitative evidence – is a term for the broad group of methods for systematically synthesising the findings from multiple primary qualitative studies. QES has recently become an important method for incorporating qualitative research into healthcare decision-making processes, including guideline development and policy formulation.

Project 7

Research Unit	Unit/Project Contact details	Project title
Biomedical Research and Innovation Platform	Prof Rabia Johnson Tel: 0219380866/ Email: rabia.johnson@mrc.ac.za	Wastewater microbiome for monitoring viral pathogens in Sewage: Being Pandemic Ready

Project Background:

The incumbent will be working on two projects with the following aims:

a) To use wastewater-based epidemiology methodology to investigate spatial and temporal trends of seasonal and emerging viral pathogens and provide an early warning system for outbreaks in the Western Cape.
b) To use genomics to functionally characterise susceptibility genes identified in RNA-seq studies of hypertensive populations using the Zebrafish model.

- The COVID-19 pandemic has emphasised the importance of early detection and monitoring of pathogens in urban wastewater systems using wastewater-based epidemiology (WBE). Pathogens transmitted via the faecal–oral route are often excreted in large numbers in faeces, and infections can result in pathogen shedding in wastewater before community-level outbreaks occur. Early detection of viral RNA allows timely public health interventions to prevent potential epidemics. As such, monitoring seasonal and

emerging viral pathogens, including SARS-CoV-2, Rotavirus, Norovirus, Hepatitis viruses, and Influenza, is critical to ensure pandemic preparedness and rapid outbreak response in regions such as the Western Cape, South Africa.

- Hypertension is a major contributor to global cardiovascular morbidity and mortality, affecting an estimated 1.3 billion individuals worldwide (Zhou et al., 2021). Despite advances in treatment, the molecular mechanisms underlying hypertension remain incompletely understood. Transcriptomic approaches, particularly RNA sequencing (RNA-seq), have revealed numerous differentially expressed genes (DEGs) and susceptibility loci associated with hypertension (Adua et al., 2023). These genes are often involved in vascular tone regulation, the renin–angiotensin–aldosterone system (RAAS), oxidative stress, ion transport, and endothelial function. However, functional validation of these candidate genes in tractable in vivo systems remains limited. Zebrafish (Danio rerio) have emerged as a powerful model for cardiovascular research due to their rapid development, optical transparency, conserved cardiovascular physiology, and amenability to genetic manipulation (Howe et al., 2014). More than 80% of human disease-associated genes have zebrafish orthologs, including hypertension-related susceptibility genes. Hypertension-like states can be induced in zebrafish through pharmacological or dietary interventions, such as angiotensin II exposure, nitric oxide synthase inhibition, or high-salt feeding (Faucherre et al., 2014; Santoro, 2022). This project proposes to establish a zebrafish model of hypertension and use it to functionally interrogate susceptibility genes identified in RNA-seq datasets, combining transcriptomic insights with in vivo functional genomics to elucidate conserved pathways driving hypertension and identify translationally relevant targets.