

SAMRC EXTRAMURAL UNITS:

RESEARCH REPORT 2022/23

BY: DR REFILOE EUNICE ZWANE | PROF LIESL ZÜHLKE

SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

The South African Medical Research Council (SAMRC) was established in 1969 to conduct and fund health research, health innovation, development and research translation. The SAMRC focuses on the top ten causes of mortality, co-morbidities, disability and associated risk factors. The scope of research includes laboratory investigations, pre-clinical and clinical research, and public health studies.

The mandate of the SAMRC is legislated in terms of Act 58, 1991 (as amended): 'the objects of the SAMRC are, through research, development and technology transfer, to promote the improvement of the health and quality of life of the population of the Republic, and to perform such functions as maybe assigned to the SAMRC by or under this Act'.

VISION

Building a healthy nation through research, innovation and transformation.

MISSION

To advance the nation's health and quality of life and address inequity by conducting and funding relevant and responsive health research, capacity development, innovation and research translation.

SAMRC VALUES

The SAMRC is guided by the following values that form the foundation of our organisations:

Pioneering: We push the boundaries between the known and the unknown to further our knowledge of human health within the prescripts of responsible (ethical) conduct of research.

Partnering: We celebrate the capacity of collective minds towards a common goal. We build partnerships with many stakeholders at local, national, regional and international levels to exchange ideas, advances shared goals, optimize use of resources to minimise duplication, and leverage funding.

Excellence: We strive for distinction in everything we do by developing highly skilled personnel, capacity building and transformation, and conducting research of high value.

Respect: We value and respect our communities, participants, researchers and funders.

Integrity: We commit to transparency, accountability, open communication and ethical conduct.

Citizenship: We demonstrate responsibility to the community, nation and the World.

GOALS

1

Administer health research effectively and efficiently in South Africa

2

Lead the generation of new knowledge and facilitate its translation into policies and practices to improve health

3

Support innovation and technology development to improve health

4

Build capacity for the long-term sustainability of the country's health research

5

Translate new knowledge into policies and practices to improve health



ABOUT THE EXTRAMURAL UNITS

SAMRC research Units (both Intramural research Units [IMUs] and Extramural research Units [EMUs]) are the prime vehicles for delivering relevant and responsive health research outputs to address both national and international health issues. While IMUs focus their research activities on public health challenges and some of the major burdens of disease in the country, EMUs undertake research from the bench to the community in strategic research areas not covered by the IMU programme, generating new knowledge and growing the next generation of health scientists for the country. EMUs are based in higher education institutions (mainly universities) and other research-intensive organisations such as the National Health Laboratory Service. EMUs enable the SAMRC's funding to support long-term programmes of research across a range of institutions of higher education across the breadth of South Africa's Provinces and enable cutting edge research focusing on diverse health challenges to be positioned at the interface with training and developing the next generation of health professionals and scientists.

The SAMRC's EMUs are provided with a secure, discretionary, financial incentive which is approved in five-year cycles, up to a term limit of 15 years depending on satisfactory performance. It is expected that institutional support and co-funding and the other grants received by the Unit will exceed by several-fold the amount invested by the SAMRC in the Unit.

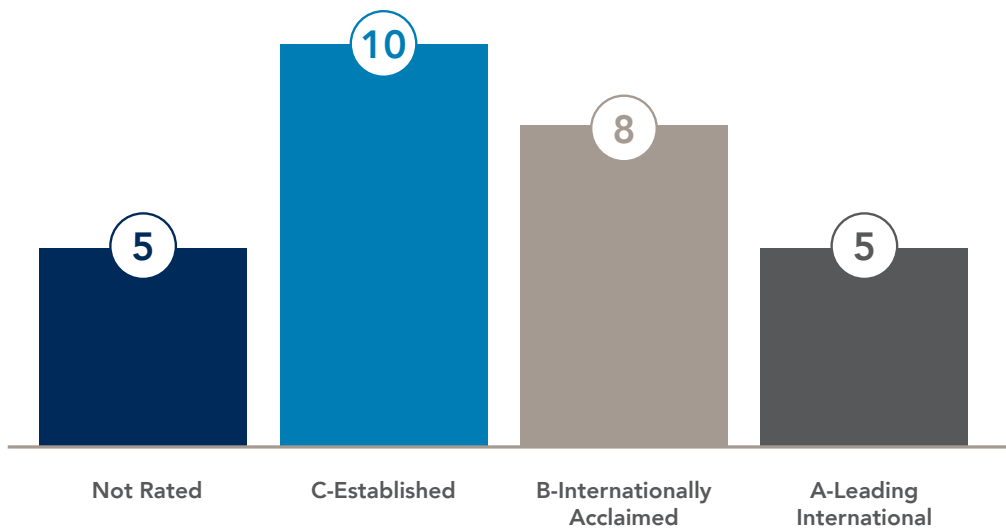
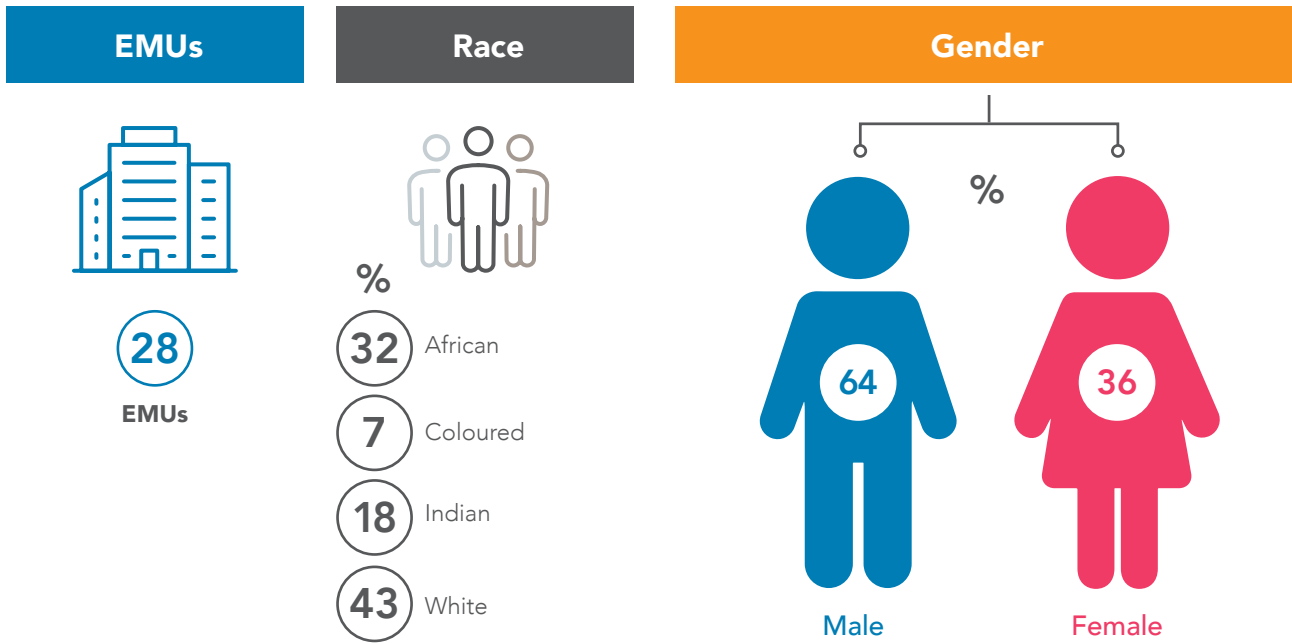
This report synthesises data from the Annual Research Reports submitted by EMUs for the 2022/23 Financial Year and presents highlights of the impact of the EMU research efforts.

SAMRC Extramural Research Units as at 1 April 2022

(listed alphabetically)

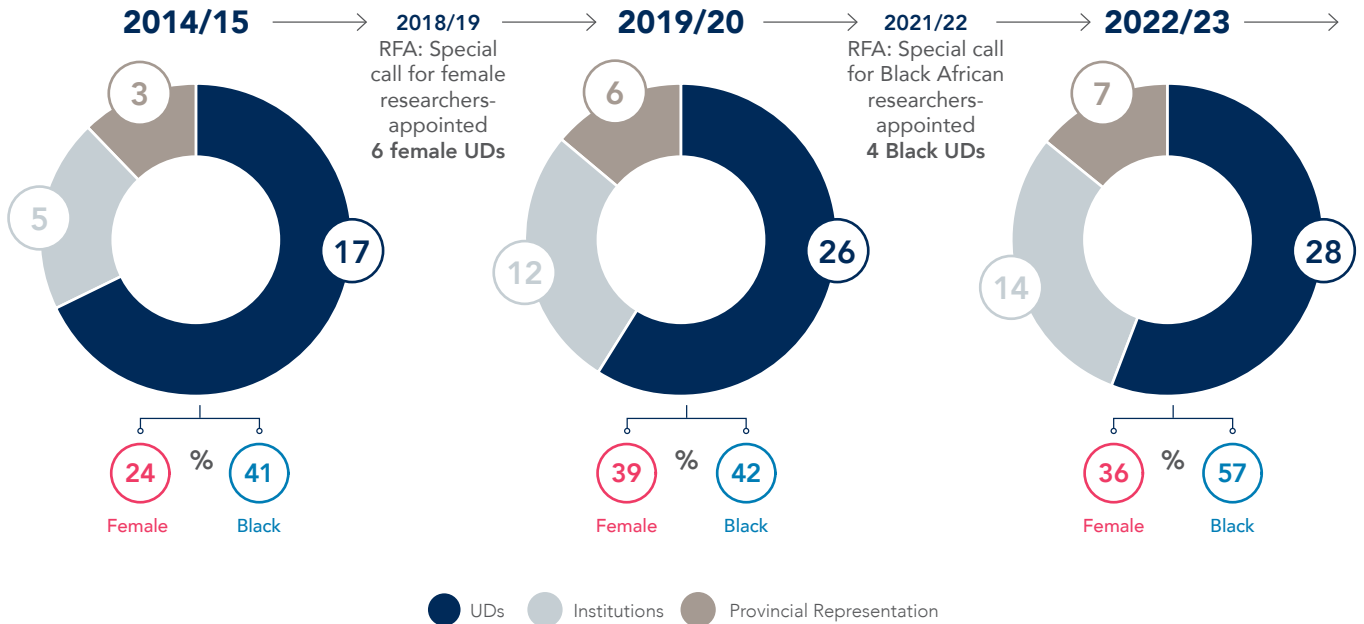
SAMRC EXTRAMURAL UNITS	UNIT DIRECTOR	INSTITUTION	DATE OF ESTABLISHMENT
Antibody Immunity	Prof Penny Moore	University of the Witwatersrand	2019
Antimicrobial Resistance and Global Health	Prof Pascal Bessong	University of Venda	2022
Antiviral Gene Therapy	Prof Patrick Arbuthnot	University of the Witwatersrand	2015
Bioinformatics Capacity Development	Prof Alan Christoffels	South African National Biodiversity Institute	2001
Cardiometabolic Health	Prof Tandi Matsha	Cape Peninsula University of Technology	2019
Centre for the Study of Antimicrobial Resistance	Prof Keertan Dheda	University of Cape Town	2018
Centre for Health Economics and Decision Science	Prof Karen Hofman	University of the Witwatersrand	2019
Child and Adolescent Lung Health	Prof Heather Zar	University of Cape Town	2015
Development Pathways for Health	Prof Shane Norris	University of the Witwatersrand	2010
Drug Discovery and Development	Prof Kelly Chibale	University of Cape Town	2009
Genomics of Brain Disorders	Prof Soraya Seedat	Stellenbosch University	2019
Health Services to Systems	Prof Helen Schneider	University of Western Cape	2015
Herbal Drugs	Prof Alvaro Viljoen	Tshwane University of Technology	2015
HIV-TB Pathogens and Treatment	Prof Salim Abdool Karim	CAPRISA	2015
Hypertension and Cardiovascular Disease	Prof Marlien Pieters	North West University	2015
Intersection of Non-communicable Disease and Infectious Disease	Prof Ntobeko Ntusi	University of Cape Town	2022
Masculinity and Health	Prof Ashley van Niekerk	University of South Africa	2019
Maternal and Infant Health Care Strategies	Prof Robert Pattinson	University of Pretoria	1998
Microbial Water Quality Monitoring	Prof Anthony Okoh	University of Fort Hare	2015
Pan African Centre for Epidemics	Prof Nancy Phaswana-Mafuya	University of Johannesburg	2022
Platform for Pharmacogenomics Research & Translation	Prof Collet Dandara	University of Cape Town	2022
Precision Oncology	Prof Zodwa Dlamini	University of Pretoria	2019
Risk and Resilience in Mental Disorders	Prof Dan Stein	University of Cape Town	2017
Rural Public Health and Health Transition	Prof Stephen Tollman	University of the Witwatersrand	2003
Stem Cell Research and Therapy	Prof Michael Pepper	University of Pretoria	2015
Unit for Precision and Genomic Medicine	Prof Rajkumar Ramesar	University of Cape Town	2018
Vaccine and Infectious Analytics	Prof Shabir Madhi	University of the Witwatersrand	2020
Wound and Keloid Scarring Translational	Prof Nonhlanhla Khumalo	University of Cape Town	2019

PROFILE OF UNIT DIRECTORS



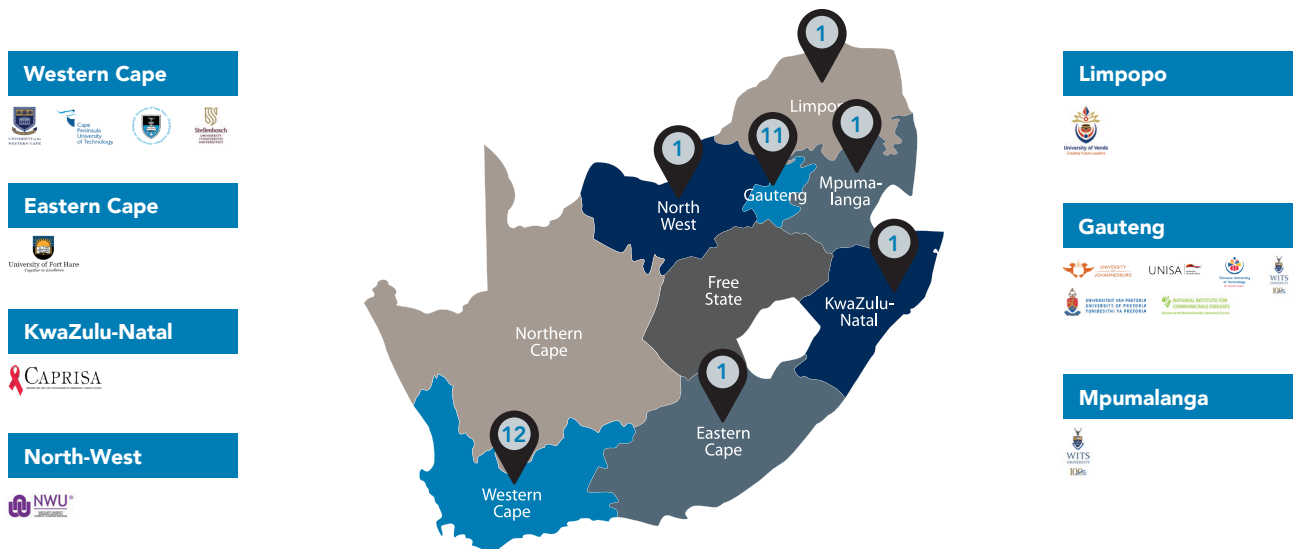
TRANSFORMATION & DIVERSITY

EMU portfolio needed transformation and diversity



PROFILE OF HOSTING INSTITUTIONS

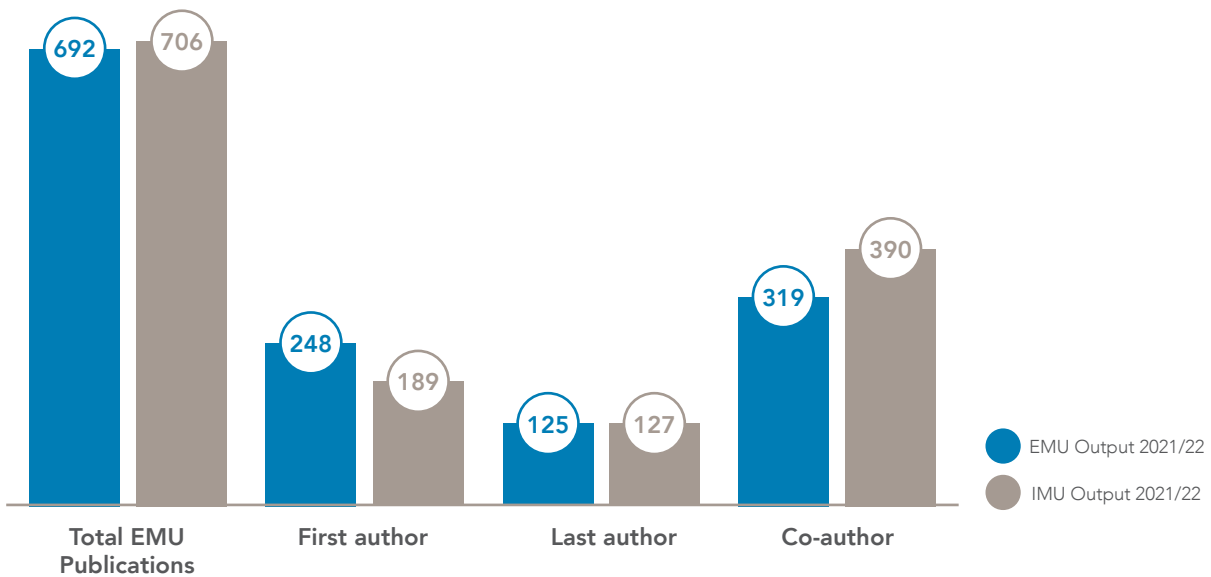
The SAMRC has Units in 14 institutions and is committed to the capacity development of HDIs; of the 14 institutions, 5 are HDIs.



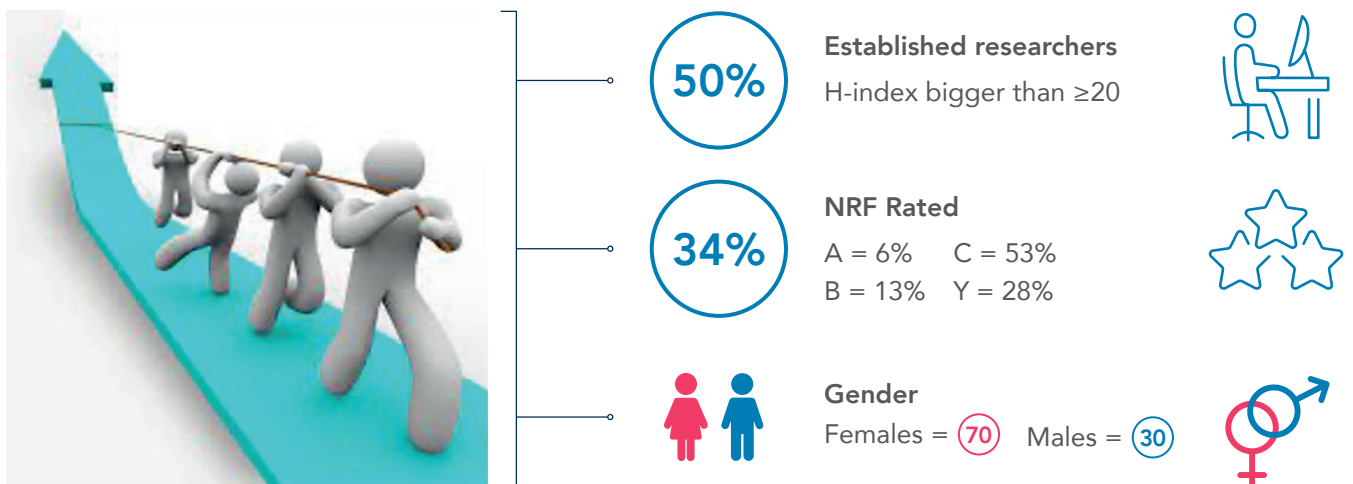
RESEARCH OUTPUTS

EMUs produced **692** peer-reviewed **publications** in **2021/22**; **~49.6%** of the total SAMRC research output.

Of the **692** peer-reviewed publications from the EMUs, **54%** were first/last authored by researchers from the EMUs.



OVERVIEW OF THE STAFF COMPLIMENT

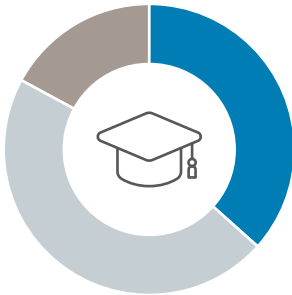


KEY FINDINGS FROM EMU RESEARCH

- The **Antibody Immunity Research Unit** served as an end-point lab for humoral assays, which enabled the identification of a protective titer to be determined for the HVTN 703/704 AMP trial. The Unit also led the phenotypic characterization of breakthrough viruses and made continued contributions to understanding how broadly neutralizing antibodies develop during infection, to apply as a template for HIV vaccine design.
- The **Bioinformatics Capacity Development Research Unit** identified a methylation CpG signature capable of predicting the amplification of MYCN, a predictor of poor prognosis, in the early stages of neuroblastoma. This achievement has the benefit of helping clinicians design better treatment for patients with MYCN amplification.
- In collaboration with Stellenbosch University, the **Cardiometabolic Health Research Unit** showed that several biochemical markers could predict the severity of Covid 19.
- The **Centre for Health Economics and Decision Science Research Unit** provided inputs to the South African pregnancy grant which is an extension of the child support grant. The Unit demonstrated the feasibility of the grant by showing its cost effectivity in reducing healthcare costs and improving infant mortality rates, while addressing multidimensional poverty among pregnant mothers during the first 1000 days of life.
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- The **Intersection of Noncommunicable Diseases and Infectious Diseases Research Unit** contributed to the largest study of the epidemiology and outcomes of cardiovascular disease in individuals with COVID-19. This research was conducted under the auspices of the World Heart Federation.
- The **Maternal and Infant Health Care Strategies Research Unit** has put together a training manual (Training materials and guidelines for anthropometric assessment in the National Dietary Intake Survey 2022 (NDIS-2022)). This manual includes all anthropometric measurement protocols, guidelines for trainers and guidelines for post-training testing and standardisation.
- In a series of publications, the **Platform for Pharmacogenomics Research and Translational Unit** clearly showed that African populations carry some African specific variants, that are important determinants of drug response, particularly warfarin & hypertension.
- Urbach-Weithe disease is a rare condition, in which there is damage to the basolateral amygdala. In a paper published in PNAS, one of the world's leading scientific journals, the **Risk & Resilience in Mental Disorders Research Unit** showed that basolateral amygdala damage leads to changes in the way moral judgments are made – a key finding for work on the neurocircuitry of ethical decision-making.
- The **Rural Public Health and Health Transitions Research Unit** launched a new, community-based Data Sciences and Innovation Hub based in Mpumalanga (Agincourt village).
- The **Genomic and Precision Medicine Research Unit** led the first clinical trial that included a South African cohort of colorectal cancer patients, who were chosen since they already had their disease-causing mutation identified. The findings show that the application of simple aspirin and starch delays the onset of colorectal cancer significantly in these high-risk individuals (by more than 10 years).
- The **Vaccines and Infectious Diseases Analytics Research Unit** has made significant contributions to new generation COVID vaccines including evaluating the safety, immunogenicity, efficacy, and effectiveness of COVID-19 vaccines. That body of work included a Phase 1 SARS-CoV-2 vaccine study to assess the safety and tolerability of a vaccine candidate administered in healthy adult participants and people living with HIV; a phase 1/2 open-label study assessing the safety, reactogenicity, and immunogenicity of saRNA COVID-19 boost vaccines in participants that have been previously vaccinated against or previously infected with COVID-19, and a phase 1/2 study to evaluate the safety, reactogenicity and immunogenicity of three investigational vaccines developed to address the SARS-CoV-2 virus and all developed on the same RNA manufacturing platform.

CONTRIBUTION TO CAPACITY DEVELOPMENT

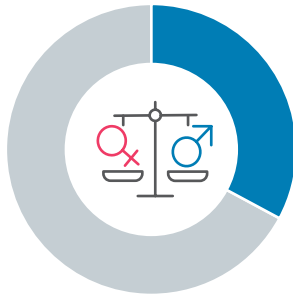
698 Students
Registered within
the EMUs



● MSc ● PhD
● Postdoc

EMU capacity development
prioritises the training of
future research leaders

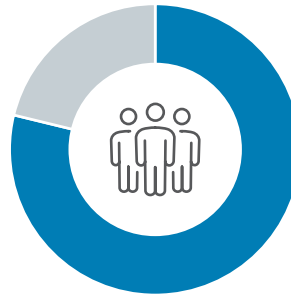
Gender Representation



● Male ● Female

More Females are being
trained within the EMUs

Race



● SA ● Other

More Black students
are being trained within
the EMUs

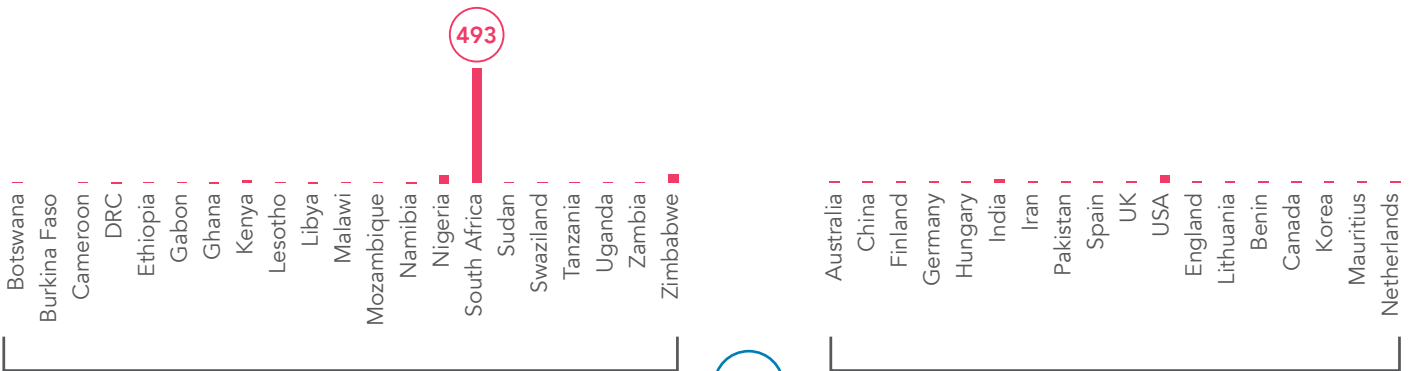
100 Students were
funded from the SAMRC
Funding pockets (EMU
baseline, SHIP, RCD ect)



● White ● Black

More South African
students were funded

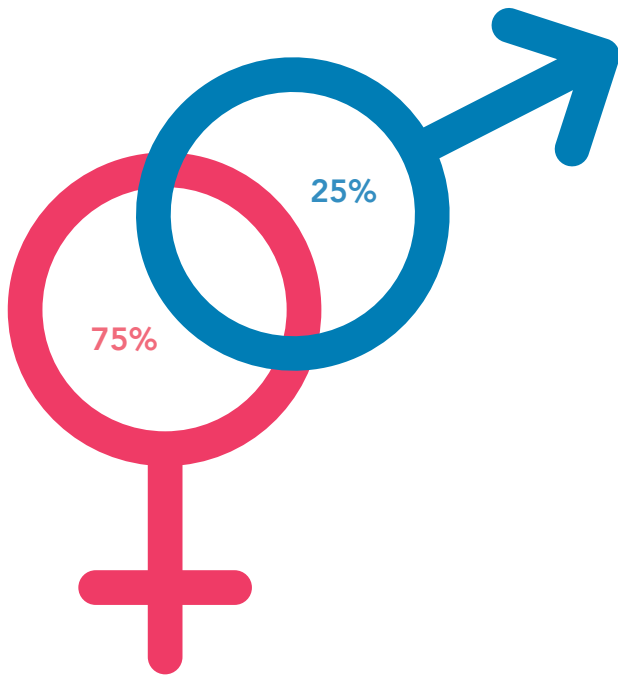
Training South African students takes priority in EMUs, however the SAMRC brand also attracts students from other African countries and elsewhere in the globe.



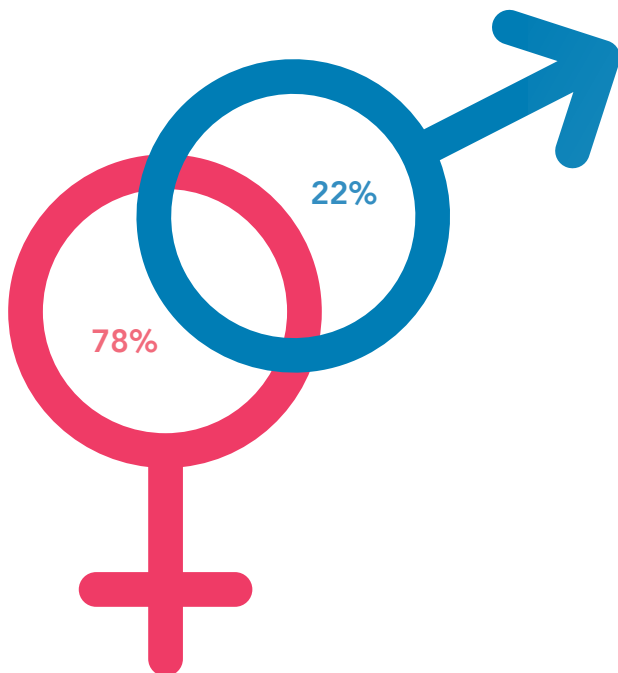
OUTPUT OF CAPACITY DEVELOPMENT

110 students graduated in 2022/23.

56 MSc students graduated



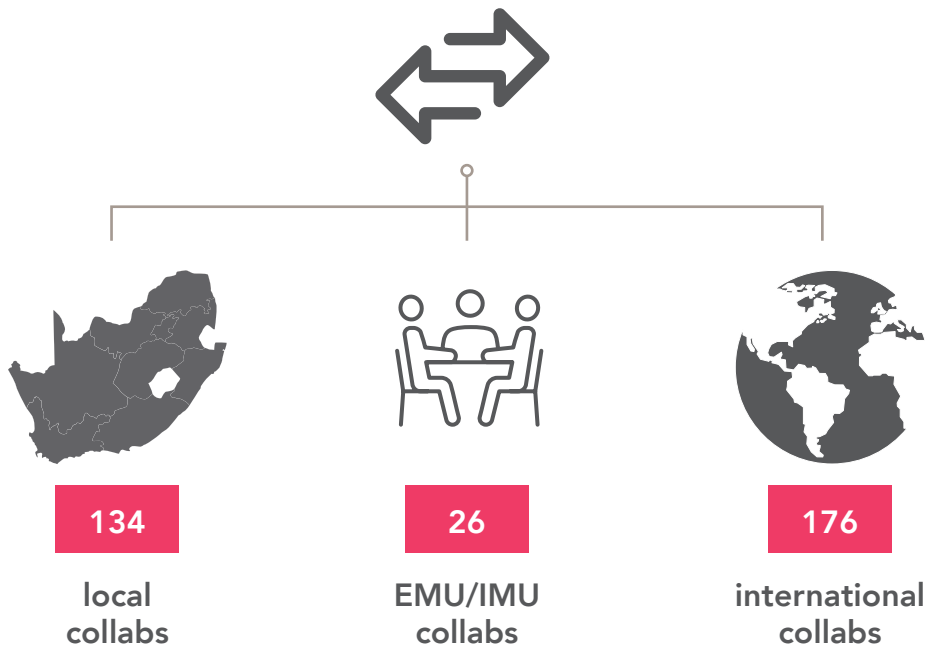
54 PhD students graduated



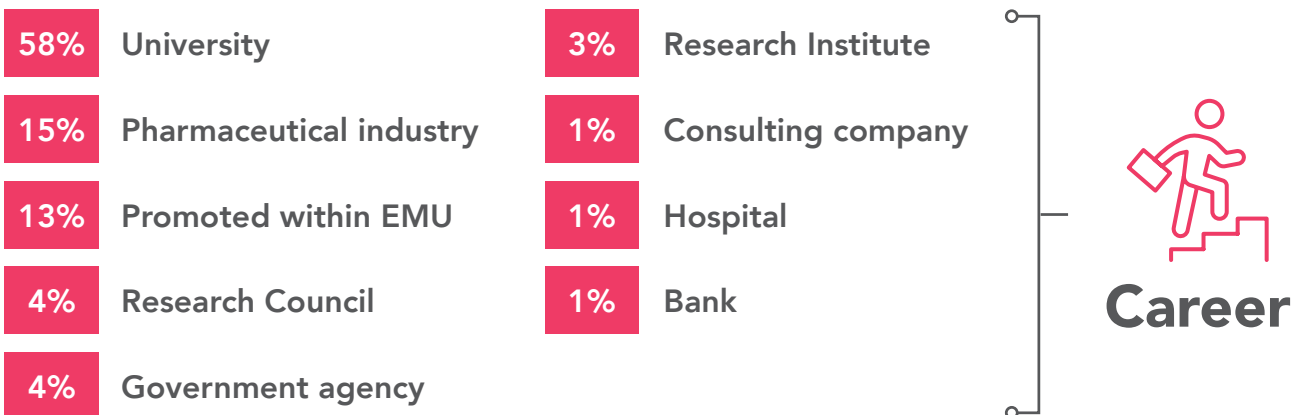
PARTNERSHIPS

Partnerships and collaborations are mechanisms by which capacity is built and research skills are exchanged. In ensuring that projects have the desired outcomes and contribute to the enhancement of national priorities, EMUs form partnerships that drive our country's research agenda and our efforts to generate knowledge to address the country's health problems.

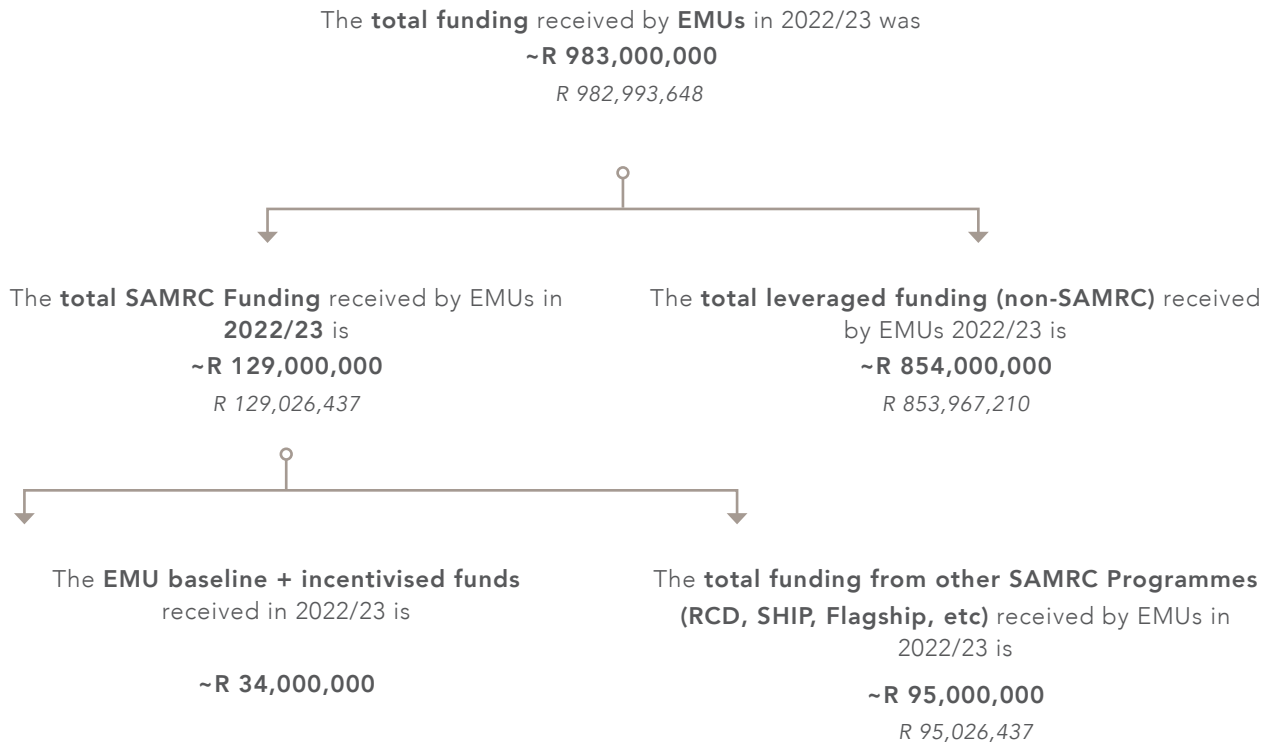
There are currently **336 EMU Collaborations** for the **2022/23 FY**; indicative of mechanisms by which **research skills** and **practice knowledge** is exchanged, developed and enhanced.



STAFF/STUDENT MOVEMENT

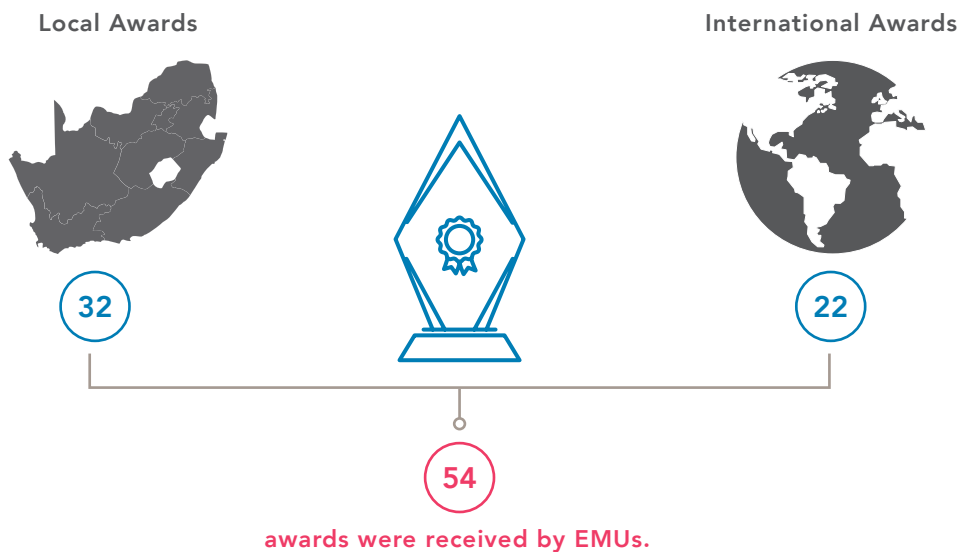


FUNDING RAISED BY THE EMUS



AWARDS RECEIVED BY EMU STAFF

The number of **local and international awards** is a reflection of the **national and global stature** of the EMU research.



FEATURED HEADLINES OF SELECTED EMUS

'Passage of mental health bill not enough for Nigerians'

by **Sade Oguntola** — November 17, 2022 in Health Reading Time: 2 mins read



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Prof Karen Hofman Professor at Wits speaks to Lester Kiewit about the energy drinks flooding the market.

The Morning Review with Lester Kiewit
00:00 / 07:10

Leading the soft drink market - a health expert weighs in

- Health economics researcher Prof Karen Hofman says companies like Coca-Cola are flooding Sub-Saharan Africa with energy drinks
- Hofman says the companies promote the drinks 'as a magic elixir to enhance performance' which she says they are not
- Aggressive advertising and marketing campaigns are hooking people at a younger age she adds

THE LANCET
Child & Adolescent Health

ARTICLES | VOLUME 7, ISSUE 2, P127-135, FEBRUARY 2022

Early childhood wheezing phenotypes and determinants in a South African birth cohort: longitudinal analysis of the Drakenstein Child Health Study

Caitlye McCready, MSc, Sada Hader, PhD, Prof Francesca Little, PhD, Prof Mark P. Nicol, PhD, Lesley Workman, MPH, Diane M Gray, PhD, Requel Gravel, PhD, Prof Dan J. Stein, PhD, Prof Adnan Qusayib, PhD, Prof Heather L Zar, PhD & Prof Ian M. Hall, PhD

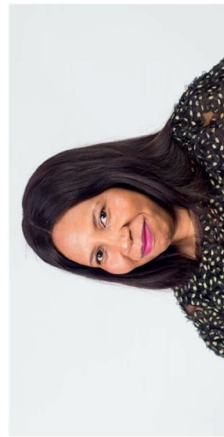
Open Access • Published: November 23, 2022 • DOI: [https://doi.org/10.1016/S2232-4642\(22\)00364-2](https://doi.org/10.1016/S2232-4642(22)00364-2)

Check for updates

UJ to host its first ever SAMRC Extramural Research Unit

7 APR 2022 SAVE | EMAIL | PRINT | PDF

The University of Johannesburg will host the newly established South African Medical Research Council (SAMRC) Extramural Research Unit, known as the Pan African Centre for Epidemics Research Unit (PACER).



UCT's Kelly Chibale listed among Africa's top 25 public health leaders

29 JUNE 2022 50PM | HEALTH | PHOENIX | PHOTO: ZENITH LAY | READ TIME: 5 MIN



Prof Kelly Chibale, former deputy 'honorary' public health investigator, top 25 public health leaders in Africa

The University of Cape Town's UCT Professor Kelly Chibale has been named among *Global Public Health Magazine's* top 25 public health leaders in Africa. These 'standout roles' include scientists, public health advocates and policy experts. Professor Chibale took on her newly made Chair in African Development Centre for Epidemics Research Unit (PACER) in 2019 following a period of development centre. He responded to questions from UCT News.

UCT News: Science

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Japan to honour SA's spouse scientists for HIV and Covid-19 work

02 August 2022 - 11:58



Subhendra Govender
SENIOR RESEARCHER

The Japanese government will award the prestigious fourth Hideoyo Noguchi African Prize to renowned couple professors Salim Abdool Karim and his wife Quarraisha Abdool Karim for their rigorous work on HIV and COVID-19.

They will be honoured in the medical research category, while The Carter Center in the US will receive recognition in the medical services category for its work in the guinea worm eradication programme.



THE LANCET

content provided by South African Medical Research Council

Ntobeko Ntusi: valuing a culture of inclusivity and reciprocity

Udani Samarasakera

Published: December 10, 2022 • DOI: [https://doi.org/10.1016/S0140-6736\(22\)02489-0](https://doi.org/10.1016/S0140-6736(22)02489-0) • Check for updates



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John Maytham speaks to the dean of the Faculty of Health Sciences at the University of the Witwatersrand, Prof Shabir Madhi, about the concerns of the Centaurus COVID-19 sub-variant.

The World Health Organization (WHO) has warned countries across the world of a new and highly mutated COVID-19 sub-variant called Centaurus.

The variant has been identified as BA.2.75 and is part of the Omicron lineage.

It has been identified in 10 countries such as India, Australia, New Zealand, Japan, United States of America, United Kingdom, and Germany.

CapeTalk's John Maytham speaks to the University of the Witwatersrand's dean of health sciences, Professor Shabir Madhi, about the newly discovered variant.

Madhi added that despite the Centaurus sub-variant not being detected in South Africa, people are advised to get vaccinated to protect themselves against the variant.

How do you know if you may be depressed? Here's what happens to your body – and other tell-tale signs

Zakiyah Ebrahim **news24**



Comments

Bookmark

Shabir A. Madhi

Dean Faculty of Health Sciences and Professor of Vaccinology at University of the Witwatersrand, and Director of the SAMRC Vaccines and Infectious Diseases Analytics Research Unit, University of the Witwatersrand

Profile Articles Activity

Shabir Madhi is Dean of Faculty of Health Sciences and Professor of Vaccinology at the University of the Witwatersrand, Johannesburg, South Africa; and co-founder and co-Director of the African Leadership Initiative for Vaccinology Expertise (ALIVE), Professor Madhi completed his undergraduate and postgraduate training at the University of the Witwatersrand, qualifying as a paediatrician in 1996 and obtaining his PhD in 2003.

He currently also holds the positions of Director of the South African Medical Research Council Vaccines and Infectious Diseases Analytics Research Unit. He served as the immediate-past Director of the National Institute for Communicable Diseases (2011-2017), and currently serves on the South African National Advisory Group on Immunisation and is member of the World Health Organisation Strategic Advisory Group of Experts on Immunization (SAGE) since 2019.

Obesity's heavy price: Scientists and activists want more prevention in place



WAIST DEEP: South Africa has the highest rate of obesity in sub-Saharan Africa. File image. Published Mar 4, 2023

UCT researchers recognised as highly cited

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Emeritus Professor William Bond, Professor Estelle (Vicki) Lambert and Professor Dan Stein from the University of Cape Town (UCT) are some of the world's most cited scholars, according to the Highly Cited Researchers 2022 list published by data analytics firm Clarivate.

Cancer researcher calls for more targeted treatment approach

Jonathan Bell

Created: Feb 13, 2023 07:54 AM

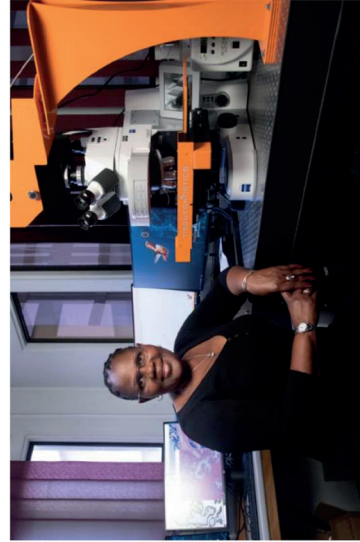
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