WITS HEALTH CONSORTIUM

ANNUAL REVIEW

2019

CONTACT INFORMATION

WITS HEALTH CONSORTIUM

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WITS HEALTH CONSORTIUM ANNUAL REVIEW 2019

EXECUTIVE SUMMARY

The Wits Health Consortium (Pty) Ltd (WHC) is a private, wholly owned company of the University of the Witwatersrand (Wits), Johannesburg .

WHC was established as a result of an initiative proposed by the Faculty of Health Sciences, to unlock commercial opportunities that would provide additional sources of revenue for the Faculty and its Departments. Council approved the Faculty's proposal in October 1997 and the Company was registered in 1998.

All academic endeavors are directed, managed and controlled through the University structures with, WHC research active staff jointly appointed with the University, conducting research, managing donor-funded activities, clinical trials and pursuing entrepreneurial innovation in health related activities.

WHC operates a Shared Services Centre (SSC) and several key subsidiary businesses.

OUR PASSION FOR WHAT WE DO MAKES US PIONEERS IN OUR SECTOR. WE ARE THE RESULT OF OUR HARD WORK.

INTRODUCTION

The Wits Health Consortium (WHC) was formed in 1998 as an entity through which the Faculty of Health Sciences is able to undertake third stream income activities. This is done while supporting academic research and the management of donor funding for research as well as related activities in the medical and health sciences industry. We have numerous research entities that we service and they operate in South Africa, across the African continent, in the US as well as Europe.

ENABLING ENVIROMENT

We are the enabling environment for an entrepreneurial approach to academia.

We perform this role through our **Shared Services Centre (SSC)**, which employs **over 248 skilled staff**. By doing what we do well, we free up our internationally renowned academics and researchers to do what they do best, we enable them to pursue specialist research in their respective fields of expertise.

AT WHC, OUR KEY TASK IS TO PROVIDE THE GOVERNANCE, LEGAL FRAMEWORK, HUMAN RESOURCE MANAGEMENT, FINANCIAL AND GRANT MANAGEMENT TO OVER 100 RESEARCH ENTITIES, ALSO CALLED DIVISIONS, IN VARIOUS ACADEMIC DEPARTMENTS. WE PERFORM THIS ROLE THROUGH OUR SHARED SERVICES CENTRE (SSC).

OUR COMPANY

Our SSC supports research activities and also provides the following services:

WE FREE UP ACADEMICS AND RESEARCHERS TO DO WHAT THEY DO BEST AND ENABLE THEM TO PURSUE SPECIALIST RESEARCH IN THEIR RESPECTIVE FIELDS OF EXPERTISE.

1. **GOVERNANCE** a key characteristic to establish a good reputation in the academic research arena and build trusted networks with leading researchers, donors and international funders.

2. **HUMAN RESOURCE MANAGEMENT** our business is all about people and teams, effective and comprehensive HR management services are a core element of our support. Our role is both functional and strategic.

3. **PAYROLL MANAGEMENT** work closely with syndicates to take care of all their payroll and related requirements. Payroll solutions tailored to suit unique needs and to ensure compliance with plans and budgets.

4. **FINANCIAL AND GRANTS MANAGEMENT** administering grants, managing funded projects, ensuring world-class financial management, delivering trusted financial reporting and ensuring regulatory compliance.

5. **LEGAL FRAMEWORK AND RESEARCH SUPPORT** ensuring that all the necessary checks and documentation are in line with all essential requirements.

OUR SUBSIDIARIES

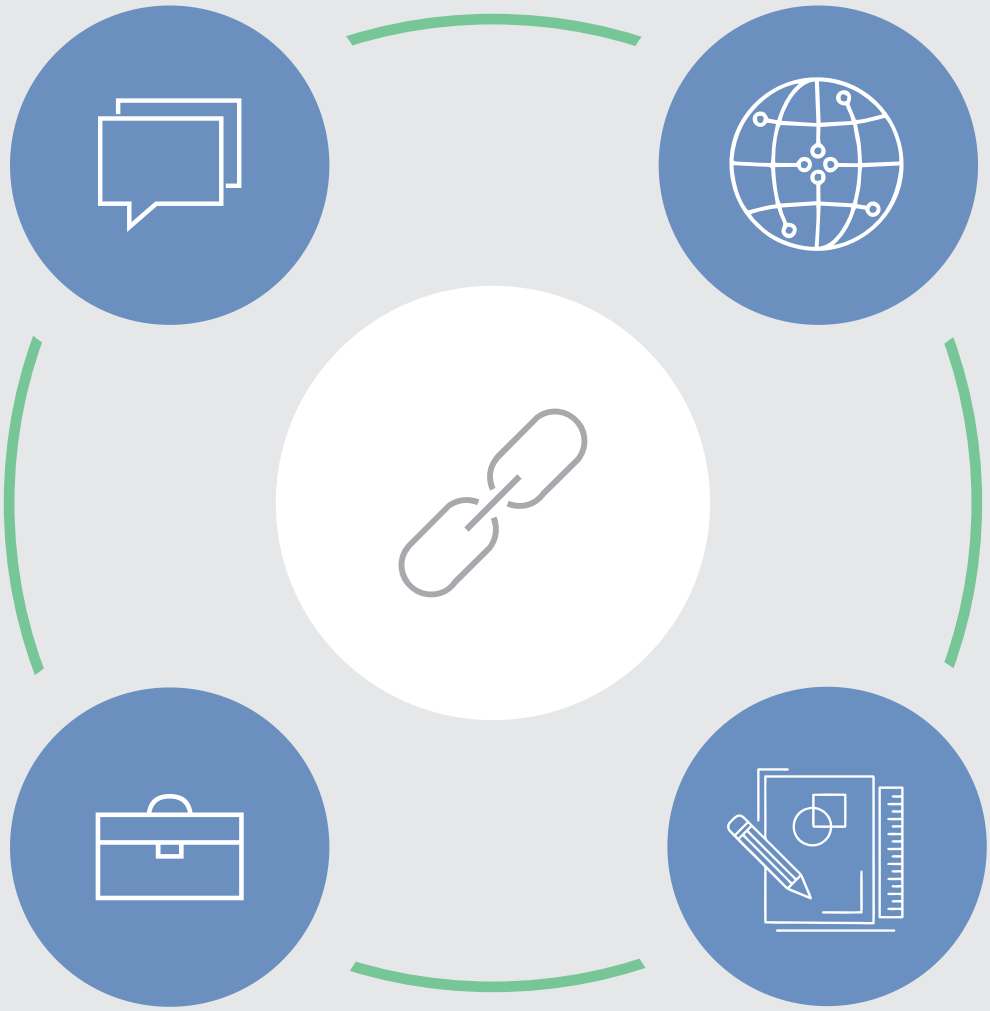
OUR SUBSIDIARY COMPANIES HAVE BEEN CREATED TO ADDRESS THE NEEDS OF OUR DIVISIONS. OUR SUBSIDIARIES ARE DYNAMIC AND VALUE-ADDING OPERATIONS THAT ALL DELIVER SERVICE EXCELLENCE AND SPECIALIST SERVICES.

ACADEMIC ADVANCE TRAINING AND DEVELOPMENT

Specialist training in the field of Clinical Research, example GCP, Human Resource Management and Critical Skills.

SPEER IT SERVICES AND SOLUTIONS

Best practice in IT systems, software, network connectivity, cloud storage and IT management solutions.



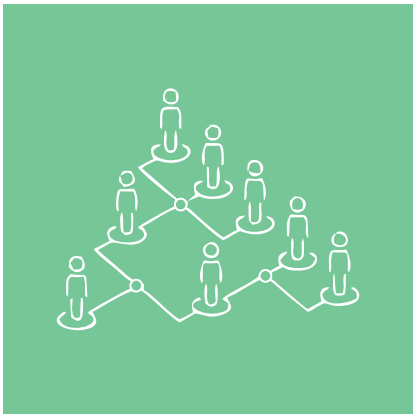
INTEGRATED HEALTH DELIVERY NETWORK

Self-funding clinical health centres and medical teaching platforms that offer affordable and quality healthcare.

UKWENZA STUDIOS DESIGN, BRANDING AND PRINT

Print media services, graphic design, multi-media productions, presentations, branding and conference packages.

OUR EXECUTIVES



- **PROFESSOR MARTIN VELLER IS THE NON-EXECUTIVE DIRECTOR AND CHAIRMAN**
- **MR ALFRED FARRELL IS THE EXECUTIVE DIRECTOR AND CHIEF EXECUTIVE OFFICER**

A SKILLED EXECUTIVE TEAM OVERSEES DAY-TO-DAY OPERATIONS OF WHC AND COMPRISES THE FOLLOWING:

MR ALFRED FARRELL	Chief Executive Officer
DR NTSIKELELO ITUMELENG FUNANI	Chief Academic Officer
MR SAGIE PILLAY	Chief Operating Officer
MRS CHRISTINE GROBLER	Deputy Chief Operating Officer
MR JEAN DU RANDT	Chief Financial Officer
MR DIAU MOSIA	Chief Commercial Officer
MR MAMATSABU MAPHIKE	Chief Risk and Compliance Officer
MR KARL BASSON	Chief Technology Officer (Speer Services)

DEAN'S STATEMENT

PROFESSOR MARTIN VELLER

MB BCh, FCS (SA), M Med (Surg)

Non - Executive Director and Chairman of WHC

The University of the Witwatersrand aims to be a leading research-intensive university, with a reputation for relevance. While we are rooted within Africa, with a strong sense of the continent's developmental challenges, our research also addresses the "grand challenges" of the world.

The Faculty of Health Sciences, in particular, is dedicated to contributing positively to the most basic of human rights: the health and well-being of people in general, but with specific focus on the most vulnerable populations in our society.

Effective delivery of appropriate healthcare interventions are the result of excellence in teaching as well as learning and we are particularly proud of our postgraduate training programmes that are helping to develop a robust research pipeline that can contribute to our knowledge economy.

CEO'S STATEMENT

MR ALFRED FARRELL

B Comm, B Compt (Honours), CA (SA)

Executive Director and Chief Executive Officer

Wits Health Consortium (WHC) is an entity which is wholly owned by the University of Witwatersrand Johannesburg operated for the benefit of its Faculty of Health Sciences. WHC is available for use by the Faculty as an entity through which it is able to undertake third-stream activities related to its academic duties.

WHC is proud that our heads of divisions have chosen WHC as the entity in which to house their divisions.

Professional teams are what you need for success in work

BOARD OF DIRECTORS

RESPONSIBLE FOR OVERSEEING ALL GOVERNANCE, INTERNAL CONTROLS, RISK MANAGEMENT, FINANCIAL MANAGEMENT AND HUMAN RESOURCE SERVICES THAT WHC PROVIDES TO ITS RESEARCH UNITS AND TO THE UNIVERSITY OF THE WITWATERSRAND.

PROFESSOR MARTIN VELLER

MB BCh, FCS (SA), M Med (Surg)

Professor Veller is Dean of the Faculty of Health Sciences at the University of the Witwatersrand and a Professor in the University's Department of Surgery. He is an expert in Vascular Surgery with extensive academic, research and teaching experience. Professor Veller also serves on the Board of Directors of the Wits Donald Gordon Medical Centre. He has trained at the University of Witwatersrand and at St. Mary's hospital at London's Imperial College.

MR ALFRED FARRELL

B Comm,
B Compt (Honours),
CA (SA)

Mr Farrell is a skilled financial and accounting manager with many years of experience in senior financial management positions at companies such as the Automobile Association of South Africa, Interleisure and the Premier Group. Prior to joining WHC in 2002, Mr Farrell held the position of Chief Financial Officer for BDFM Publishers (Pty) Ltd.

Mr Farrell has steered Wits Health Consortium (WHC) with invaluable insights gained through his successful career. Since joining Wits Health Consortium Mr Farrell has directed its portfolio of development and research programmes, managed through the Shared Service Centre, and has ensured the growth of WHC has been combined with high standards of delivery.

WHC has a highly-respected Board of Directors, selected for their internationally recognized academic excellence and management experience.

BOARD OF DIRECTORS

Mr Arnold is a highly-skilled accountant and has held numerous financial positions in some of South Africa's leading corporates. He is a past President of the South African Institute of Chartered Accountants (SAICA) and was awarded honorary life membership in recognition of his services to the accounting profession. Mr Arnold is Chairman of the WHC Audit Committee and is also a member of the WHC Risk Committee. He is also a Trustee of the Absa Pension Fund.

MR DESMOND ARNOLD

CA (SA), FCMA, AMP (Wharton)

Dr Chikwamba is responsible for strategic alliances and communication and is an expert in scientific and industrial research. Her research has focused on metabolic engineering for nutrition and pharmaceutical applications. She has studied in the US and Australia and was an Honorary Research Fellow at St George's Hospital at the University of London. She has also taught post-graduate classes at the University of Pretoria.

DR RACHEL CHIKWAMBA

MBA, PhD (Genetics)

With many years of experience and skill in senior management roles, Mr Desai supports WHC in areas such as risk, audit, strategy and investment. He is currently Chief Executive Officer at Afrifocus Securities and worked as a former Group Chief Executive and Group Finance Director at Avusa. Prior to this, he was a Non-Executive Director at M-net Supersport Ltd and at Caxton Publishers and Printers Ltd.

MR PRAKASH DESAI

B Comm, B Compt (Honours), CA (SA)

Professor Ballot is a renowned pediatrician with a subspecialty in neonatology and an NRF C2 rated researcher and Head of the School of Clinical Medicine at the University of Witwatersrand.

PROFESSOR DAYNIA BALLOT

MB BCh, FCPaeds SA, PhD

BOARD OF DIRECTORS

Professor Mahlangu is Head of the University of the Witwatersrand's School of Pathology and Head of the Haematology Diagnostic Section in the Department of Molecular Medicine and Haematology. He has peer reviewed many journal publications and international congress presentations. He also sits on the editorial boards of various haemophilia treatment guideline committees and participates in multi-national clinical trials

PROFESSOR JOHNNY MAHLANGU

MB BCh, M Med (Haem), FCPath (SA) (Haem) (Clin Haem)

Dr Motsepe is a KwaZulu-Natal and Harvard University graduate. She has worked in private medical practice locally and abroad and has developed specialist knowledge in several fields, including family health, refugee health and HIV. She was Deputy Director of the Chris Hani Baragwanath Hospital in Johannesburg and Chairperson of the Health Accreditation Committee for the Gauteng Provincial Government.

DR TSHEPO MOTSEPE

MB BCh; MA (Public Health)

Professor Papathanasopoulos is an established scientist who has built an exceptional reputation in the infectious diseases, bioinformatics, and virology fields. She has established world class laboratories that conduct innovative research on HIV-1 drug discovery, and vaccine designs that are recognised at a national, regional and international level.

PROFESSOR MARIA PAPATHANA-SOPOULOS

BSc (Hons), MSc, PhD

Professor Rees is Executive Director of the Wits Reproductive Health and HIV Institute. Her specialist area focuses on HIV and Reproductive Health and she has published extensively in these fields. She has been internationally recognised for her expertise and for her contribution both nationally and internationally to research and medical advances in these areas.

PROFESSOR HELEN REES

OBE, MB BChir, MA, MRCGP, DCH, DRCOG, MBA (Harvard)

BOARD OF DIRECTORS

PROFESSOR ZEBLON VILAKAZI

PHD (PHYSICS)

Professor Vilakazi is Deputy Vice-Chancellor of Research and Post-Graduate Affairs at the University of the Witwatersrand. His research interests include computational physics and heavy-ion collisions at high energies and his work saw him nominated as a Young Global Leader by the World Economic Forum in 2010. He is globally recognised for his expert knowledge in physics and nuclear research.

MR MAHOMED SALIM ISMAIL (MAC) GANI

Mac Gani is an independent consultant with a distinguished career in accounting and financial management. He spent two years working in London for an auditing firm and has gained valuable experience locally working his way up to being a partner in a leading accounting firm as well as a financial executive leader. He has also developed a special interest in higher education and health services.

Mission creates FOCUS.
Vision provides DIRECTION.
Values define BEHAVIOUR.

OUR VISION

To be a valued strategic partner of Faculty, recognised for the additional resources, commercial / business expertise and supplementary income we are able to make available to it.

OUR MISSION

To support the teaching, research and public health service mission of Faculty; either through the provision of commercial and administrative support for income-generating activities ancillary to the main objectives of Faculty (namely teaching, research, and the provision of medical services), or by directly engaging in teaching, research, medical service or other related activities which are complementary to the main objectives of Faculty.

OUR VALUES

Stewardship	We recognize our role as stewards of the Faculty's assets by managing our resources responsibly, effectively, and efficiently.
Employees	We are committed to the success of our employees, as they are our most valuable resource, and so provide them opportunities for development, growth and personal success.
Respect	We are courteous, conscientious and respectful in our dealings with our customers, employees, Faculty and the communities where we work.
Variety	We embrace different viewpoints and support mutually beneficial partnerships among a diverse mix of individuals, departments, institutions, and community groups.
Integrity	We conduct ourselves in a fair, ethical and honest manner. We strive to make all decisions in the best interests of our customers, employees, Faculty and the communities where we work. We are accountable and answerable for our actions.
Customer Service	We value innovative, timely, efficient, solution-oriented, and cost-effective services and systems. We are committed to achieving the highest levels of customer satisfaction achievable, given the resources at our disposal.
Entrepreneurship	We foster a culture where entrepreneurship and prudent risk taking are encouraged, where the entrepreneur is able to benefit as a partner in their venture.

FINANCIAL OVERVIEW

STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
FOR THE YEAR ENDED 31 DECEMBER 2019

INCOME	2019	2018
	R	R
Sponsored funds received	2 477 100 897	1 972 439 432
Pharmaceutical income	81 601 139	139 371 321
Sale of goods and rendering of services	37 203 376	31 636 713
Other	6 137 471	3 262 077
Gross income	**2 602 042 883**	**2 146 709 543**
Cost of sales	(9 089 336)	(8 218 858)
Surplus before operating expenses	**2 592 953 547**	**2 138 490 685**
Operating expenses	(2 627 735 684)	(2 078 128 360)
Foreign exchange gains/(losses)	15 077 509	(I 298 604)
Operating (loss)/surplus before net finance income	**(19 704 628)**	**59 063 721**
Net finance income	57 653 897	46 439 951
Finance income	62 918 479	49 901 870
Finance costs 2	(5 264 582)	(3 461 919)
Surplus before income tax	37 949 269	105 503 672
Income tax expense	(157 124)	(219 387)
Surplus for the year	**37 792 145**	**105 284 285**

TOTAL GROSS INCOME FOR THE YEAR 2019

R 2 602 042 883

TOTAL GROSS INCOME FOR THE YEAR 2018

R 2 146 709 543

FINANCIAL OVERVIEW

STATEMENT OF FINANCIAL POSITION
FOR THE YEAR ENDED 31 DECEMBER 2019

ASSETS	2019	2018
Non-current assets	R	R
Property, plant and equipment	232 855 783	225 023 490
Goodwill	485 608	485 608
Deferred tax	102 743	84 317
	233 444 134	**225 593 415**
Current assets		
Inventory	715 821	1 066 702
Trade and other receivables	340 430 767	477 231 920
Tax receivable	159 382	110 042
Cash and cash equivalents	1 088 946 030	1 063 363 996
	1 430 252 000	**1 541 772 660**
Total assets	**1 663 696 134**	**1 767 366 075**

EQUITY AND LIABILITIES	2019	2018
Equity	R	R
Share capital	100	100
Accumulated reserves	494 810 804	467 918 659
	494 810 904	**467 918 759**
Liabilities		
Non-current liabilities		
Borrowings	21 453 838	20 643 480
Lease liability	18 178 761	11 925 600
	39 632 599	**32 569 080**
Current liabilities		
Borrowings	2 127 443	2 120 954
Lease liability	9 904 645	4 079 741
Trade and other payables	269 361 645	263 993 776
Income received in advance	833 249 617	980 356 148
Unallocated receipts	14 609 281	16 327 617
	1 129 252 631	**1 266 878 236**
Total liabilities	**1 168 885 230**	**1 299 447 316**
Total equity and liabilities	**1 663 696 134**	**1 767 366 075**

FINANCIAL OVERVIEW

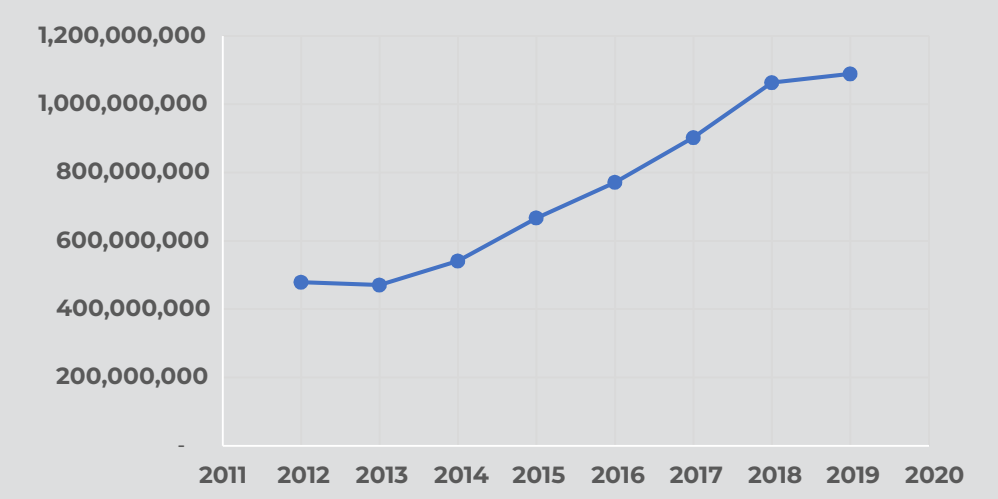
SUMMARY OF TOTAL EQUITY AND LIABILITIES
FOR THE YEAR ENDED 31 DECEMBER 2019

R 1 663 696 134
2019

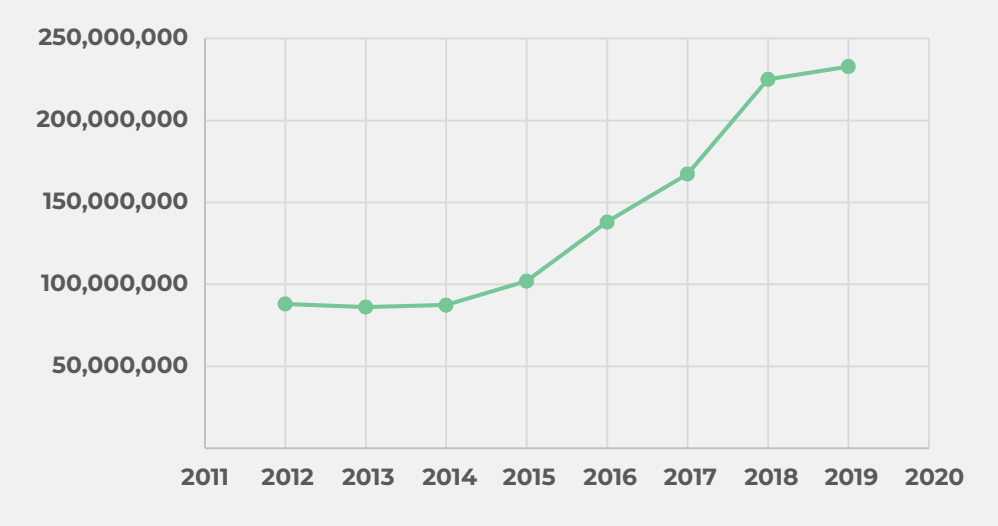
R I 767 366 075
2018

FINANCIAL OVERVIEW

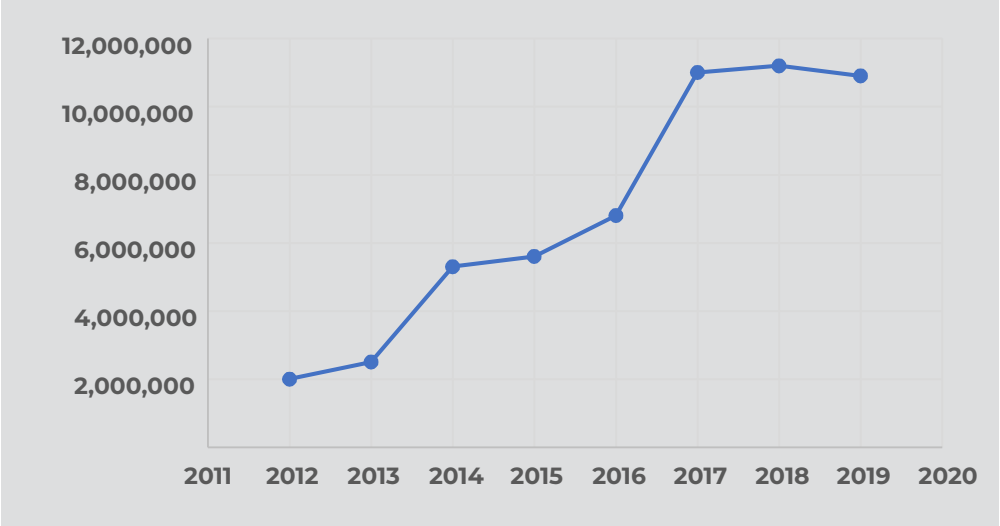
CASH BALANCES



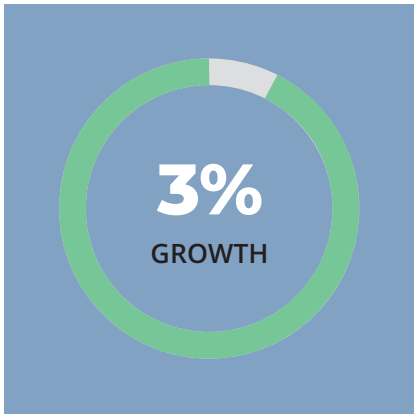
PROPERTY PLANT AND EQUIPMENT BALANCE



DIVIDEND PAYMENTS



HUMAN RESOURCE OVERVIEW

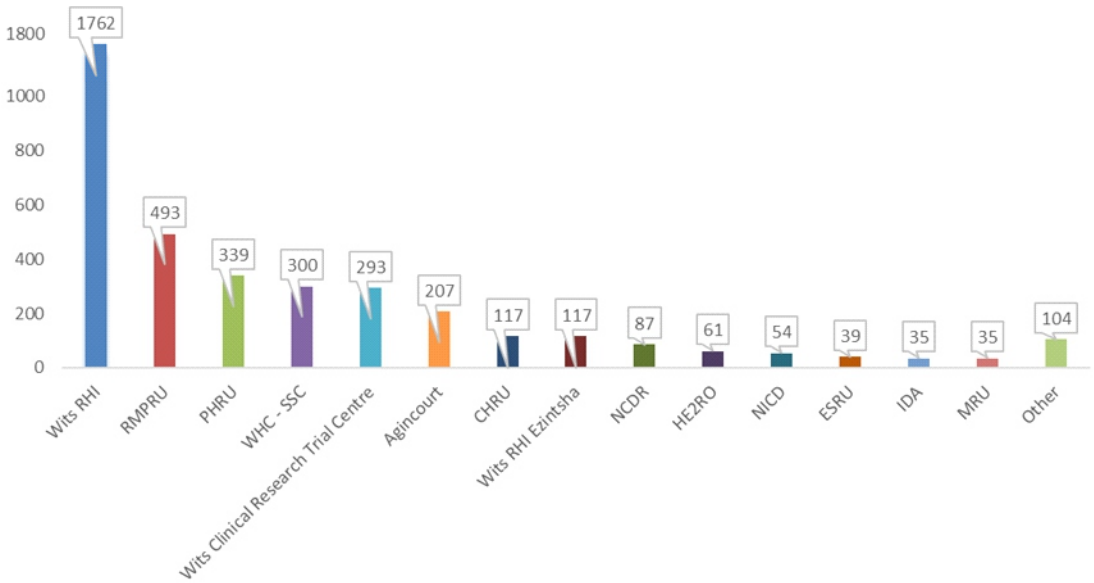


+ 3%

STAFF GROWTH

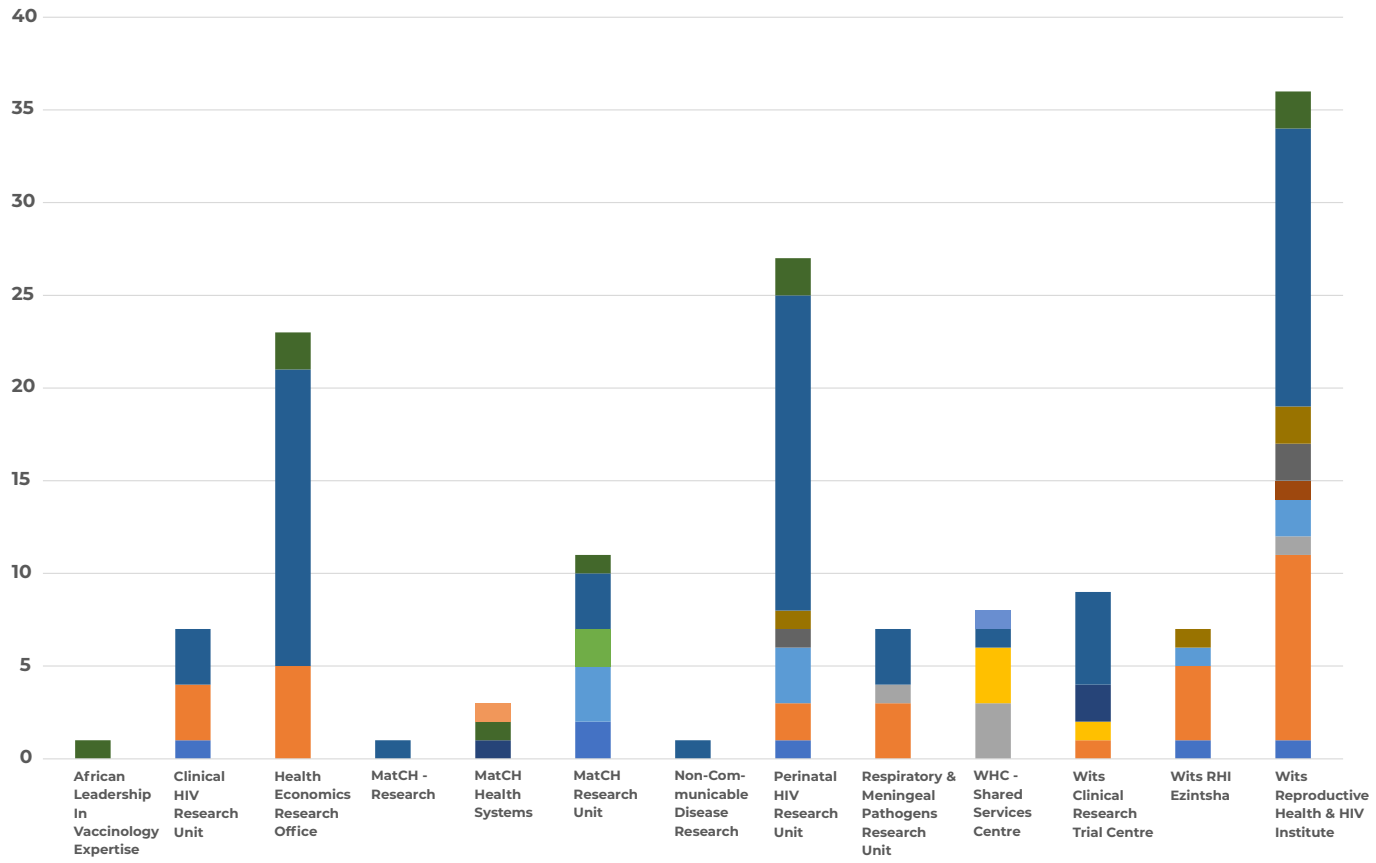
HEAD COUNT

FOR THE YEAR ENDED 31 DECEMBER 2019



HUMAN RESOURCES OVERVIEW

JOINT APPOINTMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019



- Visiting Professor
- Visiting Lecturer
- Senior Researcher
- Researcher
- Research Professor
- Reader
- Professor (Chair/Per)
- Lecturer
- Junior Associate Researcher
- Joint Researcher
- External Person (Support)
- External Contractor
- Associate Reseacher
- Associate Proffessor

141

JOINT APPOINTMENTS

OUR DIVISIONS / RESEARCH UNITS

WHC OPERATES A SHARED SERVICES CENTRE (SSC) TO SUPPORT OUR VARIOUS RESEARCH ENTITIES OR DIVISIONS THAT OPERATE WITHIN WHC. ACADEMICALLY, THESE DIVISIONS FALL UNDER THEIR RELEVANT UNIVERSITY DEPARTMENT, BUT THEY ARE VIEWED AS INDEPENDENT DIVISIONS OF THE WHC AND MANAGED ACCORDING TO STRUCTURES, PROJECT PLANS AND BUDGETS SET OUT BY THE DIVISIONAL DIRECTORS.

WITS REPRODUCTIVE HEALTH INSTITUTE

PROFESSOR HELEN REES
Executive Director

Hillbrow Health Precinct
22 Esselen Street
Hillbrow
2001

Tel: +27 11 358 5300

Email: rhicomms@wrhi.ac.za
Web: www.wrhi.ac.za

WHO WE ARE

Wits RHI is a leading African research institute that forms part of the University of the Witwatersrand's Faculty of Health Sciences. The institute has a spread of activities relevant to an African academic institution. Wits RHI is a hybrid organisation with one foot in research and the other to global health institutions. While the core focus areas we work on are HIV, SRH and VPDs, we are continuously adapting our emphasis for relevance, both in existing focus areas and in new areas of interface such as urbanisation, non-communicable diseases and climate change.

We use a multi-pronged approach to improve health outcomes at a national and global level, through research, technical assistance, advocacy, policy development, and health systems strengthening.

Wits RHI is a WHO Collaborating Centre, a UNAIDS and South African Medical Research Council (MRC) Collaborating Centre as well as a United Nations Population Fund (UNFPA) strategic partner.

Wits RHI aims to tackle Africa's health challenges through science and innovation. It is acclaimed for its pioneering research, innovating services and providing evidence-based policy development and advocacy. Our area of expertise cover human immunodeficiency virus (HIV), sexual and reproductive health (SRH) and vaccine preventable diseases (VPDs). The institute celebrates 25 years of an unparalleled track record of conducting world class research, implementing sustainable programmes and contributing to health policy.

DIVISIONS/ RESEARCH UNITS

WITS RHI'S YEAR IN REVIEW - 2019

Wits RHI was proud to be part of the Evidence for Contraceptive Options and HIV Outcomes (ECHO) clinical trial to address a long-standing question about the relationship between hormonal contraceptive use and the risk of HIV acquisition, has found no substantial difference in HIV risk among 7,829 African women who were randomly assigned to use one of three highly effective methods of contraception.

The results of this randomised clinical trial, which was conducted by a research consortium led by FHI 360, the University of Washington, Wits Wits RHI, and the World Health Organization (WHO), were announced on 13 June 2019, at the South African AIDS Conference in Durban, South Africa. This was one of the most outstanding highlights for Wits RHI's research portfolio for 2019.

RESEARCH IN 2019:

In 2019, Wits RHI published 117 research papers and successfully submitted 103 conference abstracts. We have supported post-graduate studies across the organisation producing 12 Doctoral and 32 Masters students. The Institute has secured 76 active grants, making it the largest research and academic institute at the University of the Witwatersrand and the African continent.

Wits RHI has demonstrated great dedication, expertise and knowledge different fields in health progressively qualifying to compete with international research institutes. These are the core qualities that make the institute relevant, attracting partnerships and contracts locally and globally. We identify opportunities and support innovative research to enhance public health care. Our ultimate goal is to provide sustainable health care solutions to marginalised communities.

STAFFING IN 2019:

Wits RHI continues to grow at a fast pace having increased the staff number from 1371 in 2018 to 1846 in 2019. A significant proportion of staff are female, and attention is given to transformation and ensuring development and representation of historically disadvantaged groups in leadership and management positions.

OUR KEY FOUNDERS:

The Reproductive Health Research Unit (RHRU) was founded in 1994 by Professor Helen Rees as a joint initiative between the University of the Witwatersrand (Wits) Faculty of Health Sciences and the Greater Johannesburg Metropolitan Council. RHRU is now named Wits RHI.

INCOME AND SUSTAINABILITY:

Wits RHI is a donor-funded organisation and has more than 76 grants under management, totalling over R896 million per annum. Funding is sourced both internationally and locally, and includes substantive grants from the NDoH, NIH, BMGF, European Union (EU), WHO, USAID, Unitaid and PEPFAR. These projects reflect the research objectives of the organisation over the next three years.

AWARDS:

Wits RHI staff received several accolades, most noteworthy were Diantha Pillay being acknowledged with the Mail and Guardian's Top 200 Young South Africans (Health Category). She and Sphamandla Gumede also received awards at the School of Clinical Medicine- Wits Research Day, The Research Centre Lab Team, Wits Reproductive Health and HIV Institute CRS and Wits RHI Shandukani Research Centre all received awards throughout 2019 namely the MTN Lab Award, the REACHing Youth Award and the International Maternal Pediatric Adolescent AIDS Clinical Trials Network, for outstanding contribution to IMPAACT 2009, PK Component respectively.

DIVISIONS/ RESEARCH UNITS

2019 PROJECT HIGHLIGHTS:

Adolescent Friendly Services (AYFS)
The objective of Wits RHI's AYFS technical assistance is to prevent new HIV infections and reduce HIV morbidity and mortality through an improved and sustained HIV and TB continuum of care in adolescents and youth. During the first two years of the activity, Wits RHI, as a sub-awardee of BroadReach, will provide technical assistance and mentoring support to build skills, capacity, and capabilities to target, recruit, treat and support HIV-infected out-of-school youth. During the fourth quarter (July-September 2019) period, 1-day AYFS trainings were conducted in Ugu, King Cetshwayo and Nkangala Districts for approximately 1046 healthcare providers of different cadres from BroadReach, the DOH, HPCA, Care Works, NGOs, CBOs and School Health Nurses. Partnerships have been established with 57 stakeholders working with adolescents and youth. These include: LoveLife, local CBOs and NGOs to strengthen partnerships to maximize adolescent HTS referral from outreach, schools and communities as well as 56 referral partnerships providing psychosocial support to adolescents and youth. After the Youth Care Club (YCC) training, facilities were mentored and prepared to implement YCSs through AYFS file audits. To-date 413 adolescents and youth have been placed in YCCs.

Advanced Clinical Care (ACC)
Improvement of ACC will reduce mortality and optimize patient outcomes. The ACC program, therefore, aims to improve the quality of care provided to adult and paediatric patients presenting with advanced HIV disease including complicated cases requiring advanced clinical care for both HIV and TB. . The overall objective of the programme is to reduce HIV-associated mortality amongst rapid scale up of ACC activities across all BroadReach-supported KwaZulu Natal and Mpumalanga districts.

A Clinical Programme Advisor (CPA) was appointed in Mpumalanga Province to assist BroadReach in the delivery of ACC services in Nkangala and Gert Sibande Districts at 100% level of effort. 77 clinicians from the BroadReach as well as the Mpumalanga DOH were coached and mentored on ACC up to date. Tools have been developed to assist facilities in the clinical management of patients with advanced HIV disease. Four new ART trainings which included comprehensive updates on Dolutegravir rollout were conducted across the two supported districts. Three best practice sites have been established in Nkangala District, namely Bernice Samuels hospital, Middelburg hospital and Witbank hospital. As centres of excellence, these facilities are sufficiently capacitated to receive referral of complex clinical cases.

Accelerating Program Achievements to Control the Epidemic (APACE)
In 2019 APACE has successfully implemented a Hospital Antiretroviral Treatment (ART) programme strategy across the district, leading to a 2-fold increase in cases identified as HIV positive in hospitals, and a 3-fold increase in ART initiation in these sites. APACE piloted a model of community ART initiation to support linkage to same day ART for patients testing HIV positive in communities. The programme initiated index testing as a new targeted case-finding strategy within the district where there was no prior experience or expertise in this testing modality. Capacitation and DSD have entrenched this as a testing mechanism across hospitals, clinics and within communities. The number of available offsite medicine pick-up points for patients living with chronic diseases in the district doubled, ensuring coverage of at

DIVISIONS/ RESEARCH UNITS

least one pick up point for every clinic (and decongesting the overloaded DoH facilities at the same time). APACE initiated Adolescent and Youth Friendly Services in multiple clinics and requested by district to expand this support to cover all facilities.

It also established of Youth Care Clubs, a Wits RHI flagship intervention for retention and support for Adolescents Living with HIV (currently serving ~830 adolescents). Priority Clubs were established as a differentiated model of care to address specific needs of HIV positive adult patients with virological failure. In one year of implementation APACE realised an increase in the total number of patients on ART in the district by 16%.

AVIWE

In the past four years, AVIWE has had great achievements in supporting the development of several national policies, guidelines, and tools, as well as supporting provincial disseminations of the policy work completed. The program supported the National She Conquers campaign and led the development of campaign branding and communication material, assisted provinces in developing implementation plans to implement She Conquers, brought together stakeholders working in AGYW focus areas, and re-designed and launched 'Youth Zone' which encourages prioritized services and the delivery of key core packages of care to youth at public health facilities. The program also established a website and clearing house for globally disseminating evidence-based tools, reports, and articles around AGYW programming.

Since its inception in August 2016, there have been over 50,000 downloads of tools, resources, academic literature, reports, demand creation materials and more.

BAVIKILE

Child Sexual Abuse (CSA) work has mainly been performing most of its work in the Ekurhuleni district. CSA has been extensively supported by the District DoH by providing Community Activists with additional knowledge on the identification, reporting and linkage to care of victims of sexual abuse. The programme adapted the SASA! intervention and materials for local use, and in the final year began training other implementing partners to deliver the package. A major highlight of the project is that the capacity building focus of the intervention saw over 700 people trained on various CSA clinical and other technical areas over the duration of the intervention. Lessons learnt and best practices have been documented for sharing with stakeholders.

Coalition to Accelerate and Support Prevention Research (CASPR)

The purpose of this project is to support the development and sustainability of an Africa centred network dedicated to advancing advocacy, policy, regulatory, community engagement and communications efforts that help accelerate biomedical HIV prevention research. The project began on 1 October 2016 with Partners' Inception Meeting, and the project is now on the fourth year. The project has hosted two GPP Leadership courses which have brought together over 30 emerging leaders in stakeholder engagement from Belgium, India, Kenya, South Africa, Uganda, Zimbabwe, Eswatini, United States and Zambia. The project has also contributed to content development and the review of research literacy, educational and advocacy materials which is shared on Facebook page Research Connect and the Stakeholder Engagement Community of Practice (CoP).

The Evidence for Contraceptive options and HIV Outcomes (ECHO) Trial

The Wits RHI RC CRS was one of the sites extension trial of the dapivirine ring indicate

high uptake and lower than anticipated HIV-1 incidence in this high-risk population.

The Wits RHI RC CRS team is also implementing MTN-034/REACH (Reversing the Epidemic in Africa with Choices in HIV Prevention). REACH is a Phase 2a Crossover Trial Evaluating the Safety of and Adherence to a Vaginal Matrix Ring Containing participating in the ECHO trial. The ECHO trial aimed to compare the risks of HIV acquisition between women randomised to DMPA-IM, levonorgestrel (LNG) implant, and copper IUD. The trial closed to participants follow up in October 2018 and final analysis commenced thereafter. Results were released at the SA AIDS conference in June 2019 and the outcomes were published in the Lancet. The ECHO trial found no substantial difference in the risk of getting HIV among 7 829 women randomly assigned to use one of three reversible, highly effective contraceptives: DMPA-IM, copper IUDs or LNG implants. These results informed the revision of the World Health Organization's (WHO) fifth edition of the Medical eligibility criteria for contraceptive use (MEC) in that women at a high risk of HIV can use all methods of contraception without restriction. The RC CRS team was proud to be part of this landmark trial.

In terms of HIV prevention efforts, the Wits RHI RC CRS also conducted the MTN-025/HOPE study. HOPE was a Phase 3B Open-Label Follow-on Trial to Assess the Continued Safety of and Adherence to a Vaginal Ring Containing Dapivirine in Women. Results from HOPE were presented at the 10th IAS Conference on HIV Science (IAS 2019) in Mexico City on 23 July 2019 by Professor Jared Baeten. HOPE was designed to provide former participants of the MTN-020/ASPIRE Phase III study of the monthly dapivirine vaginal ring the opportunity to use the ring for one year while researchers collected additional information about its safety and how women would use it knowing it reduced the risk of HIV in ASPIRE. HOPE results indicated the ring was very well-tolerated and used persistently by women for the entire year of the study. More than 90 percent of women chose the ring at the start of the study, and the majority used it for the duration of HOPE. Overall, the results from this open-label.
Dapivirine and Oral Emtricitabine/Tenofovir Disoproxil Fumarate in an Adolescent and Young Adult Female Population The Wits RHI Research Centre CRS received activation for the MTN-034 (REACH) study on 01 April 2019. The first participant was screened on 09 April 2019 and enrolment commenced on the 25 April 2019.

Finally, the Wits RHI RC CRS was also excited to conduct its first NIH funded MSM study, MTN-035/DESIRE (Developing and Evaluating Short-acting Innovations for Rectal Use): Acceptability, Tolerability, and Adherence of Three Rectal Microbicide Placebo Formulations among HIV Seronegative Cisgender Men, Transgender Men and Transgender Women Who Engage in Receptive Anal Intercourse.

The Wits RHI Research Centre CRS received activation for the MTN-035 (DESIRE) study on 18 October 2019. The first participant was screened on 25 October 2019 and enrolment commenced on 07 November 2019.

Girls Achieve Power Year (GAP Year)
GAP Year is a programme aimed at building health, social and educational assets for empowering girls at critical time of adolescent transition. In 2019, GAP managed get 1 273 learners to complete the endline survey in Khayelitsha (Western Cape), translating to 86.5% follow up rate from baseline. GAP Year hosted four wellness events in Soweto and Tembisa with GAP Year participants and their parents, with 175 accessing HTS services. This programme successfully completed GAP two afterschool intervention in 6 schools in Gauteng, reaching 786 learners. It achieved

to collect the preliminary analysis of endline quantitative survey data from 14 schools in Khayelitsha.

GAP Year presented to key DBE stakeholders at National, Provincial and District levels. Linkage to care was strengthened through facility engagements, promoted drop in boxes and wellness events. Also, GAP Year participated in the Women and Girls at the Center of Development webinar on curriculum development.

HIV Self-Screening (HIVSS)
HIVSS contributes to the first 90 by enabling individuals to learn their HIV status. Wits RHI through the Self-Testing Africa Initiative (STAR) Initiative provided HIV self-screening test kits and technical assistance to the Mpumalanga and KwaZulu Natal BroadReach and Department of Health teams. HIV self-screening increases HIV testing uptake by enabling individuals to learn their HIV status when and where they choose, thereby contributing to an increase in the numbers of people who know their HIV status to reach 90-90-90 targets. A total of 20,000 oral self-screening kits were approved for Mpumalanga with 10,000 allocated between the 2 districts. Training was conducted for 80 BroadReach staff (Community Specialists and Linkage Officers) and DOH staff (Professional Nurses, HAST coordinators, master trainers, counsellors, WBOT team leaders and facility managers). The training covered overall objectives of HIVSS, modalities under implementation, messaging, referrals/ linkage to care, and M&E.

The STAR team has developed various approaches to monitor linkage to care for individuals who self- test. The team worked closely with BroadReach and DOH staff to adapt follow up strategies for both community and facility distribution in Mpumalanga.

HOPE (HPV One and two dose Population Effectiveness) Study
In 2019, the HOPE HPV study vaccinated 4807 grade ten female learners with one dose of the HPV vaccine. Nearly 900 females age 17-18 years were enrolled in the HOPE HPV prevalence survey in four provinces.

Laboratory testing of HPV specimens is completed, and data cleaning and analysis is underway. Learnings and preliminary findings from HOPE will be presented in two oral presentations and one poster presentation at the International Papillomavirus Conference in 2020.

HPTN 081
The HPTN 081 study has enrolled 107 women aged 18-40 years. Most of the participants (n=100) have completed the 92 weeks follow-up with high retention (overall 92%). Preliminary results are expected to be presented at the HIV R4P Conference 11-15 October 2020 in Cape Town, South Africa.

Key Populations Programme
During the first year of the 5-year USAID Award for advancing the South African HIV Response for Key Populations, Sex Workers, and Transgender individuals, the Wits RHI Key Populations intensified services at 4 existing sex worker sites and opened 4 new transgender sites. The latter provide the first USAID-funded services for the trans community in Africa. The integration of gender-affirming hormone therapy and psychosocial support within a primary health care and HIV prevention/ treatment package serves to increase uptake of services and retention in care.

In its first 6 months of operation, the transgender programme reached 1,566 individuals, achieving a 57% PrEP uptake rate among those who tested HIV, a 25% HIV+ testing yield, and 68% linkage to ART. The sex worker sites provided outreach services to 33,149 female sex workers nationally, achieved a 38% PrEP uptake rate,

a 19% HIV testing yield, an 89% linkage to antiretroviral therapy, and reached a 92% viral load suppression rate among the sex worker ART cohort. The transgender programme launch held in Cape Town in December 2019 was attended by the Head of Ministry, Western Cape Ministry of Health and the U.S. Consul General.

Optimizing Prevention Technology Introduction ON Schedule (OPTIONS)
OPTIONS is a programmatic platform that optimizes the portfolio mix of ARV-based prevention and related products to meet local needs and achieve global prevention goals in the most cost-effective way possible. Their highlights for 2019 is that nearly 250 tools and resources are developed and available on PrEPWatch in support of PrEP rollout. PrEP Learning Network was launched, including six webinars and one face-to-face workshop reaching 502 unique participants from 39 countries. The regional face-to-face workshop was held in Blantyre, Malawi, bringing together nearly 130 participants from 18 countries.

OPTIONS successfully launched the PrEP4Youth videos, which reached between 29 437 and 57 742 people, of which there were between 9 791 and 18 021 views using the Facebook platform. The SA PrEP website became a success, as of Dec 2019, based on Facebook and Google analytics. The website had a total of 61 291 unique users with 275 482-page views (card and landing pages), with 12.7% returning users. OPTIONS launched and piloted testing of HIV Prevention Ambassador Training in 3 provinces, having trained over 100 young people to be ambassadors for Sexual and Reproductive Health and Rights (SRHR). OPTIONS got acceptance of ACCESS study manuscript to Plos One.

PAVING
A major highlight of the project is the surpassing of the allocated target of 7 800 individuals completing the prescribed SASA! 10-hour dose intervention in the second year of the intervention. The program adapted the SASA! intervention and materials for local use and in the final year began training other implementing partners to deliver the package. The first year of the project was spent largely on start-up activities and building the capacity of the CA's to enable them to roll out the SASA! intervention in the selected priority wards. Lessons learned and best practices have been documented for sharing with stakeholders.

Project PrEP
As of November 2019, the number of individuals reached through direct engagement stands at 42 025 total – 58% of this number is AGYW. Multimedia, online or global reach has moved up to more than 3000 000 individuals reached through social media and websites – more than 75% of this reach accounts for women within the project's target age range. The total number of clients (both male and female) initiated on PrEP is 6014. AGYW account for 3 182 or 52,9% of those initiations, with the remainder being initiations in other age groups including men. With a target of 6 640 AGYW initiations over a 3-year period, 47,9% of the target was achieved in just 13 months of implementation. Project PrEP hosted 3 satellite sessions at local and international conferences including SAAIDS, IAS and International Conference on AIDS and Sexually Transmitted Infections in Africa (ICASA). A total of 683 people including nurses, lay counsellors, pharmacists, doctors, peer navigators/educators, data capturers, field workers, security guards, general assistants and demand creation agents received different trainings. Project PrEP developed the www.myprep.co.za website on behalf of NDoH who manages hosting, content and metrics The project launched the PrEP mobile app and PrEP chatbot on 1 Feb 2020 in support of national scale-up of PrEP. It

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also developed the MyPrEP social media platforms and manages on behalf of NDoH.

Siyakha

Multisectoral (DBE and DOH) provincial and district implementation plans were developed (8 plans developed). A number of tools and resources to facilitate programming were established- for example a rapid risk assessment to identify adolescents at risk, community validation checklist to assess quality and validity of services offered to ensure successful linkages, facilitation guide for a violence awareness and prevention intervention, parent and School Governing Body (SGB) sensitization dialogue guide, community PrEP standard operating procedure (SOP), IEC materials to increase awareness of protective behaviours and sexual reproductive health (SRH). Siyakha developed unique branding for the schools' programme aligned to the DOH youth zone strategy.

The Department of Social Development in the provision of SRH and HIV services started in all 4 provinces. Between November and December, in collaboration with the DoE and DoH, hosted World AIDS Day and 16 Days of Activism Against GBV events across 4 provinces with 210 HIV tests performed (mostly adolescents) 21 PrEP initiations. The project implemented a rapid risk assessment to facilitate identification of and linkage into care for adolescents at risk – 246 learners assessed, with a 93% linkage for those reporting immediate need for linkage (poor mental health and exposure to violence). Finally, 251 learners with a violence prevention intervention were reached.

Vision

Tackling Africa's health challenges through science and innovation.

Mission

As a renowned African institute in a world-class African university, Wits RHI addresses some of the greatest public health concerns affecting our region, including HIV and its related problems, sexual and reproductive health, and vaccinology.

EZINTSHA

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WHO WE ARE

Ezintsha is a team of about 100 South African academics and health professionals. We were set up in May 2019 as a sub-division of Wits Reproductive Health & HIV Institute. Our approach to improving population health is to collaborate broadly, harnessing our networks and working closely with global and local partners and alongside public and private sector role players, including government. We place emphasis on actively building skills and capabilities, using our experiences and leveraging the knowledge of our academic partners to build our teams' capacity and aid transformation.

Ezintsha works to improve aspects of health care in the public sector, with a particular focus on treatment optimisation, drug access and medical technologies in the areas of HIV and non-communicable diseases (NCDs). Based on our experience, expertise and success, we want to find ways to move the needle on global health. As a result, what we learn informs public health policy and practice in South Africa, the Southern African region, and in other parts of the world.

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IRESEARCH HIGHLIGHTS IN 2019:

In 2019 Ezintsha finalised the primary 48-week analysis of its ADVANCE study. The study, conducted in inner-city Johannesburg, enrolled 1053 participants into three treatment arms in order to investigate better options for first-line treatment for people living with HIV, and specifically analysed the (at the time) standard treatment regimen of tenofovir disoproxil fumarate (TDF), emtricitabine (FTC) and efavirenz (EFV), also known as TEE, to two newer antiretrovirals, namely dolutegravir (DTG), which replaces EFV, and tenofovir alafenamide (TAF), which replaces TDF. The newer regimens have been shown in other studies to have side effect and resistance benefits, but had not been studied in an African population.

In July 2019 the 48-week outcome results were presented at the international AIDS conference held in Mexico City, and at the same time was published in the prestigious New England Journal of Medicine (NEJM). This treatment optimisation study showed that dolutegravir-containing antiretroviral treatment (ART) perform as well as the efavirenz-containing regimens, with the dolutegravir arms achieving rapid suppression of the virus. The study findings informed the recommended ART guidelines update released by the World Health Organization (WHO) also released during the conference in Mexico City, and also the South African ART Clinical Guidelines released in November 2019.

One of the findings that received the most attention during the conference was that the newer antiretrovirals DTG and TAF, especially when used in combination, cause weight gain, especially among African women. Based on this finding, discussions started in late 2019 with one of the funders of the study, Unitaid, to extend the study from 96 weeks to 192 weeks in order to gather additional data.

We have also undertaken a long-term portfolio of work relating to self-care, and the use of medical technologies and diagnostics. We have continued to lead the South African initiative in HIV self-testing ensuring that tests on the market in South Africa are well regulated, user-friendly and of appropriate quality. Representation on the technical working groups of the WHO and NDOH for HIV Self-testing has meant Ezintsha researchers are at the coal-face of shaping national and global regulation and policy. Digital Health (or mHealth) tools have been the cornerstone of the innovation within the unit and have been central to the optimisation of these medical technologies. Recently, our expertise in HIV self-testing has led to a proliferation of projects in Hepatitis C Virus self-testing, and aims to follow a similar pathway to realising equity and access to this much needed testing.

OUR FOUNDER:

Professor WD Francois Venter, MD, FCP, PhD is the Head of Ezintsha at Wits, where he received most of his training. He has an active interest in public sector access to HIV services. His work involves health systems research that directly translates into national programmes, most recently involving the antiretrovirals, dolutegravir and TAF. He leads multiple antiretroviral treatment optimisation studies, and is currently working on new first and second line options, as well as patient linkage-to-care interventions and self-testing projects. He has led large PEPFAR-funded HIV programmes in South Africa, focusing on men, women, children, young people, truckers, sex workers and LGBTI communities. He has been an advisor to

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bodies such as the South African government, UNAIDS and WHO, contributing to international, regional and national HIV guidelines, for over 20 years. He has been involved in several HIV-related human rights cases within the Southern African region, and has an active interest in medical ethics. He supervises a large number of Masters and PhD projects.

In 2019, Professor Venter was awarded the Most Prestigious PhD of the Faculty of Health Sciences, University of the Witwatersrand, for his work on treatment optimisation.

PUBLICATIONS IN 2019:

Ezintsha published 27 papers in 2019, contributed to by 19 different Ezintsha team members. The bulk of this work related to treatment optimisation, diagnostics, and NCDs and chronic conditions. A number of publications were published in high impact journals such as the New England Journal of Medicine and The Lancet.

We will achieve our outcomes through:

Collaboration

We will harness our networks and work closely with global partners and local and government role players to improve population health and extend capacity building and transformation opportunities.

Capability Building

We will build on our existing skills and actively develop and extend them, sharing skills internally and using our international academic links to build capability and aid transformation.

RESPIRATORY AND MENINGEAL PATHOGENS RESEARCH UNIT

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WITS VIDA
UNIVERSITY OF THE WITWATERSRAND
VACCINES & INFECTIOUS DISEASES ANALYTICS

WHO WE ARE

The VPD/RMPRU was established in 1997, with an original research mandate to investigate pneumococcal diseases at the molecular, epidemiological, clinical and pharmacological levels.

Over time, the Unit has evolved to include investigating the clinical and molecular epidemiology of other bacteria and respiratory viruses that are associated with pneumonia and meningitis. The Unit has established itself as a premier clinical vaccine trial facility and training platform and has undertaken pivotal studies on the pneumococcal conjugate and rotavirus vaccines, which have helped inform the utilization of these vaccines in low-to-middle-income countries.

Note that the RMPRU has rebranded to the Wits VIDA (Vaccines and Infectious Diseases Analytics) Research Unit in 2020.

The Wits MRC Respiratory & Meningeal Pathogens Research Unit (RMPRU) aims to conduct epidemiological, clinical and basic science research into respiratory and meningeal infections. The unit seeks to improve the diagnosis, management and prevention of these diseases.

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RESEARCHERS IN 2019

A major highlight in 2019, was the completion and reporting on the first study globally, which demonstrated that severe respiratory syncytial virus (RSV) lower respiratory tract infection (LRTI), was preventable by vaccination of pregnant women with a RSV vaccine. The Chair led the clinical development of the RSV vaccine in South Africa, and his Unit contributed the largest number of participants to this multi-national study. This study is of relevance, as RSV is responsible for approximately one-third of all LRTI hospitalizations, with the highest burden in low middle-income countries. Also, the Chair was pivotally involved in the clinical development of a long-acting RSV monoclonal antibody, administered as a single dose which was shown to reduce RSV hospitalization by 70% in prematurely born infants. The results from both these studies are currently under review at the New England Journal of Medicine, with the Chair leading the write-up of the RSV vaccine in pregnant women, and playing a role in co-authoring the manuscript on the monoclonal antibody.

Also concluded in 2019, was the evaluation of alternate rationalised dosing schedules of pneumococcal conjugate vaccine, where the Chair demonstrated that the post-booster dose immune responses following a single primary dose was similar (and sometimes better) compared to a two-dose primary series. These results are leading to a re-think of the PCV schedule in South Africa and has the potential to reduce the cost of vaccine procurement by R200 million per annum in South Africa.

Furthermore, Prof Madhi was successful in competing for a Grand Exploration (phase I) grant from the Bill and Melinda Gates Foundation, which will provide the capabilities to undertake whole genome sequencing in the Unit. This provides new opportunities for research.

African Leadership in Vaccinology Expertise (ALIVE):
Another highlight in 2019, was the establishment of the Masters Course in Vaccinology at the University of the Witwatersrand, by the African Leadership in Vaccinology Expertise (ALIVE), which the Prof Madhi is a co-director of.

PUBLICATIONS IN 2019
The Chair was involved in co-authoring 55 peer-reviewed publications, all in international peer reviewed journals. This included two articles in the Lancet group of journals (IF 22) and seventeen in Clinical Infectious Diseases (IF 9). Key publications included the most extensive biological investigation of the causes of stillbirths (a globally neglected medical condition), as well as foundational studies proving the utility of minimal invasive tissue sampling in providing a specific and granular understanding of the causes of neonatal and under-5 childhood deaths. The latter highlighted the largely under-recognised contribution of hospital acquired infection in causing more than 50% of all neonatal deaths in a hospital. These studies, also contributed to the Bill and Melinda Gates Foundation establishing a global network of sites where similar investigation of deaths are occurring, which will be pivotal to inform future interventions to reduce under-5 childhood deaths. The research on causes of death, has allowed the Chair to re-assess his research agenda, including developing a specific focus on drug-resistant bacteria, and particularly Klebsiella pneumonia as a new research-focus area.

GLOBAL LEADERSHIP:
RMPRU is internationally recognized for the role it has played in the clinical development of lifesaving vaccines such as the rotavirus vaccine and pneumococcal conjugate vaccine. Furthermore, it has been at the forefront of vaccine studies aimed at pregnant women, including reporting on the first placebo- controlled randomized trial of

the influenza vaccine in pregnant women. It has also undertaken the first studies of an investigational multi-component Group B Streptococcus conjugate vaccine in pregnant women; a portfolio of research that is ongoing- including discovery research on other potential GBS vaccine epitopes. This is pertinent to Africa and South Africa, which reported the highest incidence of invasive GBS disease globally. The unit also does important work on vaccines and their impact on Vaccine preventable Diseases (VPDs).

AIMS AND OBJECTIVES

In 2019, RMPRU focused on the following key areas of research:

- Group B streptococcus (GBS) disease: Clinical and molecular epidemiology and vaccine development.
- Maternal influenza vaccination for prevention of poor birth outcomes, hospitalization among their young infants.
- Epidemiology and risk factors, including impact of the vaginal microbiome, on foetal outcome and neonatal morbidity and mortality.
- Epidemiology and prevention of pneumococcal disease.
- Child Health and Mortality Program on Surveillance
- Epidemiology and prevention of pneumonia morbidity and sequelae in children.
- Immunity in HIV-exposed uninfected children and immunogenicity, safety, and persistence of protection of vaccines in HIV-infected, HIV-exposed-uninfected, and HIV-uninfected children.
- Tuberculosis

GRANT AWARDS IN 2019

The Unit was the recipient of many grants during the year under review. Substantial grants came from the following foundations and organizations.

Grant funded research

- The Bill and Melinda Gates Foundation
- Emory University
- National Institute of Health
- Medical Research Council – SA
- European and Developing Countries
- Clinical Trials Partnership
- CDC Foundation
- The University of Virginia
- National Department of Health
- University College London
- Imperial College London
- Liverpool School of Tropical Medicine

Industry funded research

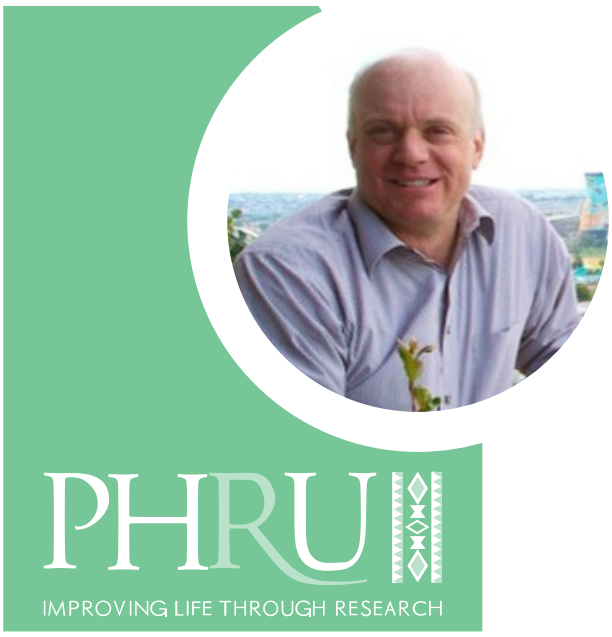
- Pfizer

The overall amount of grant funds, excluding the SARCHI Chair, in 2019 procured by the Chair was R85 million.

Mission

The VPD/RMPRU is at the forefront of epidemiological, translational and laboratory research in the prevention of major vaccine preventable diseases causing severe disease and death in young children; i.e. pneumonia, diarrheal disease and neonatal sepsis. The Unit also focuses on the development and evaluation of vaccines targeted at pregnant women, aimed to protect the mother, her fetus and young infant from vaccine preventable diseases.

PERINATAL HIV RESEARCH INSTITUTE



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WHO WE ARE

Perinatal HIV Research Institute (PHRU) is a clinical research organisation, with capacity to conduct high quality individually- and cluster-randomised trials and observational studies. Although we target critical problems in HIV and TB, we have conducted research in other disease areas: diabetes, malignancies and other infectious diseases.

A key success factor of the PHRU is the broad collaborative network that ensures we remain relevant and cutting edge. Our collaborators are from We have established clinical research sites in four provinces of South Africa, capable of immediately implementing complex clinical trials with support from in house research pharmacists and a PHRU regulatory office. With a staff of over 400 most of whom are GCP trained and certified with experience in conducting clinical research , the site has the human resource.

The Perinatal HIV Research Unit (PHRU), improves life through research. PHRU's research scope spans HIV and TB prevention and treatment and has an emerging focus on mental and cognitive disorders, cancer and diabetes.

DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019:

Researchers from the PHRU were responsible for 80 peer reviewed publications in 2019. Many of these research papers contributed major scientific advances. These publications covered a variety of topics: HIV prevention, novel short-course TB preventive treatment and vaccines against TB, treatment of HIV-infected children, and the economic benefits of antiretroviral therapy. The papers reflect the broad collaborative network that PHRU has both locally and internationally. Our Clinical Trials Unit continued to be at the forefront of HIV vaccine testing, testing novel drugs to prevent HIV acquisition, and testing novel antiretroviral regimens in adults and children. Moreover, PHRU researchers in Matlosana have recruited participants to trials of new drugs to combat MDR and XDR TB. We also have completed innovative mHealth research.

OUR KEY FOUNDERS

PHRU is funded solely through research grants from the NIH. The DAIDS Clinical Trials Unit is a major contributor to income at PHRU. OVerall income in 2019 was ˜ZAR220m. The Bill and Melinda Gates Foundation, Viiv Healthcare, the South African Medical Research Council (SAMRC) funded projects at PHRU in 2019.

MENTORSHIPS IN 2019

PHRU staffers succesfully mentored and supervised several internal medicine registrars who have to graduate with an MMed. Multiple PHRU staffers were registered for post graduate degrees, the fees of which are paid for by PHRU.

STAFFING IN 2019:

We have a staff complement of close to 400 individuals, all fo whom that have participant contact are GCP-trained and certified. We now have four sites around South Africa (Soweto in Gauteng; Matlosana in North West; Botshabelo in Free State, and Vhembe and Waterberg in Limpopo.)

External Mission

To conduct community-partnered, ethical, innovative and multi-disciplinary research that influences knowledge and policy.

Internal Mission

To develop passionate, caring and empowered researchers to work in the health development sector.

CLINICAL HIV RESEARCH UNIT

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The Wits Clinical HIV Research Unit (CHRU) and the Health Economics and Epidemiology Research Office (HE2RO) aim to deliver excellence and quality clinical epidemiological and health economics research, services and support. CHRU is based in Johannesburg at the Helen Joseph Hospital and HE2RO's headquarters are in Parktown, Johannesburg. CHRU Satellite sites operate at the Sizwe Hospital in Sandringham in Johannesburg and in Durban at the King Dinuzulu Hospital Complex and the HE2RO satellite sites are based in Gyani and Tzaneen.

DIVISIONS/ RESEARCH UNITS

WHO WE ARE:

Since its inception in 1999, the projects of the Clinical HIV Research Unit (CHRU) has facilitated scientific based evidence which has expedited novel treatment and improved combination of existing regimens for people living with HIV, TB and its comorbidities on a global scale. The positive impact on standard of care of treatment at national health level of countries has broadened the base of access and equity to healthcare.

Two decades later, the CHRU has expanded its infectious disease agenda and continues with innovatory implementation science on the global health platform. In collaboration with its major grant funders the US NIH DAIDS, USAID, EDCTP and BMBF (German Federal Ministry of Education and Research), the phase I, II, III interventional and observational clinical trials conducted at multi-centred international sites are relevant and responds to the WHO's fourth generic health research objective i.e. developing solutions or interventions that will help to prevent or mitigate the health problem.

The CHRU takes pride of its inclusive community engagement program with workshops which empowers members of the community to contribute to the relevant and scientific requirements specific to their community. Grant funders and protocol sponsors enables this process.

ACADEMIC AFFILIATION

The CHRU is affiliated to the Department of Internal Medicine at the School of Clinical Medicine of the Faculty of Health Sciences of the University of the Witwatersrand. All Principal Investigators are joint appointed staff members. An excess of 30 peer reviewed articles were published in 2019.

2019 PROJECT HIGHLIGHTS

Professor Ian Sanne, the Divisional Head continued in his role as the US NIH ACTG Network's International Vice-Chair in 2019. In March 2019, the results of the STREAM study conducted at three (of four South African sites) CHRU sites, the world's first multi-country randomized phase III clinical trial to test the efficacy, safety and economic impact of shortened MDR-TB treatment regimens showed that the 9-11-month multidrug-resistant tuberculosis (MDR-TB) treatment regimen being tested is non-inferior to the 20-24-month regimen recommended in the 2011 WHO guidelines, in terms of efficacy.

The safety and efficacy data results of the Nix-TB TB Alliance clinical trial was presented to the US FDA Advisory Committee in June 2019 CHRU, the study was conducted at two of the CHRU Durban and Sizwe Tropical Disease hospital satellite sites, Director Dr Francesca Conradie joined the NDoH's Dr Norbert Ndjeka on this South African panel. The study outcome provides a novel injection free, all-oral, affordable and shortened XDR-TB treatment regimen.

Research outcomes at the CHRU Sizwe satellite site played an integral role in the registration of drug-resistant tuberculosis drug Pretomanid and caused international media focus which resulted in an extensive feature about the site in a New York Times editorial in 2019.

2019 NEW PROJECTS

The scientific focus of ART clinical studies included a pharmacokinetic study to overcome drug to drug interactions of combination regimen; an observational study to assess therapeutic efficacy and emerging HIV drug resistance of the increased use of TLD (Tenofovir disoproxil fumarate/lamivudine/dolutegravir) in HIV treatment.

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The TB, MDR TB and XDR TB scientific research agenda of this year included an interventional study on MDR-TB prevention treatment, an observational study to describe the quality of patient experience on the quality of TB treatment. A pharmacokinetic study on the safety and tolerability of combination regimen for MDR TB in children (HIV-infected and HIV-uninfected) with MDR TB.

Clinical trials on available medical tests included a study on the development and evaluation of rapid test kits for STIs and a second study assessed the performance of the Xpert MTB/XDR Assay for INH and Secondline Resistance Detection.

ART CLINICAL STUDIES

Pharmacokinetic Study to Evaluate Double-Dose Levonorgestrel Emergency Contraception in Combination With Efavirenz-Based Antiretroviral Therapy or Rifampicin-Containing Anti-Tuberculosis Therapy (A5375)

The purpose of this pharmacokinetic (PK) study is to evaluate if a double dose (3 mg) of levonorgestrel (LNG) emergency contraception (EC) overcomes known drug-drug interactions (DDIs) with efavirenz (EFV)-based antiretroviral therapy (ART) or rifampicin (RIF)-containing tuberculosis (TB) therapy. The safety of double-dose (3.0 mg) LNG EC versus standard-dose (1.5 mg) will also be compared.

Assess Therapeutic Efficacy and Emergence of HIV Drug Resistance Following Initiation of TLD

Tenofovir disoproxil fumarate/ lamivudine/ dolutegravir (TLD) is being used more widely across the world to treat HIV. This is an observational study (a type of study in which participants are observed and certain outcomes are measured). The aim of this study is to observe how successful TLD is at treating HIV, in the following groups of people:

People switching to TLD, after taking anti-HIV medication that contains a nonnucleoside reverse transcriptase inhibitor (NNRTI) drug (such as Efavirenz or Nevirapine) (Group 1).

People switching to TLD, after taking anti-HIV medication that contains a boosted protease inhibitor (PI) drug (such as Lopinavir or Atazanavir) (Group 2).

People taking TLD and receiving medication for TB that includes the drug rifampicin (RIF) (Group 3). These people must be starting one or both of these medications when they enter the study.

People starting TLD who have not taken anti-HIV medication before (Group 4).
Another goal of this study is to use genetic testing of the virus (HIV) to see how often HIV is resistant to TLD. Genetic testing of the virus is one way to see if the TLD medication is not working to treat a person's HIV infection.

TB, MDR TB and XDR TB

Protecting Households On Exposure to Newly Diagnosed Index Multidrug-Resistant Tuberculosis Patients (PHOENIx MDR-TB)

The purpose of this study is to compare the efficacy and safety of 26 weeks of delamanid (DLM) versus 26 weeks of isoniazid (INH) for preventing confirmed or probable active tuberculosis (TB) during 96 weeks of follow-up among high-risk household contacts (HHCs) of adults with multidrug-resistant tuberculosis (MDR-TB) (index cases). High-risk HHCs are those with HIV or non-HIV immunosuppression, latent TB infection, and young children below the age of 5 years.

Patient-reported Experiences and Quality of Life Outcomes in the TB-PRACTECAL Clinical Trial (PRACTECAL PRO)

Tolerability of drugs for TB is a complex and dynamic course for patients with drug resistance and can be affected by many different factors. A deeper understanding of the perspectives and experience of men and

women participating in novel TB treatment trials will add to the understanding of the safety and efficacy of treatment.
TB-PRACTECAL is a multicentre, open label, phase 2-3 randomised controlled trial evaluating exclusively oral 6 months regimens containing bedaquiline, pretomanid, linezolid +/- moxifloxacin or clofazimine for the treatment of microbiologically confirmed pulmonary M/XDR-TB. It is registered with the ClinicalTrials.gov with identifier number NCT02589782. The trial aims to recruit 630 adults from two sites in Uzbekistan (Nukus and Tashkent) and one site each from Belarus and South Africa.

The TB-PRACTECAL trial assumes that even if the investigational arms would have non-inferior efficacy and safety compared to the standard of care outcomes, patients would prefer a shorter, exclusively oral regimen with a lower pill count. This study therefore aims to describe patient experiences (i.e. the quality of the treatment experience as opposed to the quantity of treatment or the amount of time spent on it).

The PRACTECAL-PRO sub-study aims to answer the question: "What are the perceptions, expectations and experiences of novel TB treatment for adult patients participating in a six-month regimen clinical trial in Uzbekistan, South Africa and Belarus?"

The objectives for the analysis are:
To compare baseline scores between trial patients (all interventional arm patients plus standard of care patients) with healthy controls.
To assess changes in scores over time in patients on the intervention arms and patients on the standard of care arm.
To assess the utility of the SF 12 and SGRQ in a TB clinical trial.

Evaluating the Pharmacokinetics, Safety, and Tolerability of Delamanid in Combination with Optimized Multidrug Background Regimen (OBR) for Multidrug-Resistant Tuberculosis (MDR-TB) in HIV-Infected and HIV-Uninfected Children with MDR-TB
The purpose of this study is to evaluate the pharmacokinetics, safety, and tolerability of the anti-TB drug DLM in combination with OBR for MDR-TB in HIV-infected and HIV-uninfected children with MDR-TB. Participants will be enrolled in one of four age cohorts: 12 to less than 18 years, 6 to less.

MEDICAL TESTS CLINICAL TRIALS

Chlamydia Study
Sample Collection for the Development and Evaluation of Rapid Tests for Chlamydia trachomatis, Neisseria Gonorrhoea, Trichomonas vaginalis and Mycoplasma genitalium.

FIND Xpert
XDR Phase II: Multicentre Clinical Study to Assess the Performance of the Xpert MTB/XDR Assay for INH- and Secondline Resistance Detection

2019 ONGOING PROJECTS

ART Clinical Studies

D2EFT
A phase IIIB/IV randomised open-label trial to compare dolutegravir + pharmaco-enhanced darunavir versus recommended standard of care antiretroviral regimens in patients with HIV infection who have failed recommended first line therapy.

MK1439A-021
Comparison of MK-1439A and ATRIPLA™ in Treatment-Naive Human Immunodeficiency Virus (HIV)-Infected Participants (MK-1439A-021).

200204 - GLAXO
A Phase 3b, randomised, open-label study of

the antiviral activity and safety of dolutegravir compared to Lopinavir/Ritonovir both administered with duel nucleoside reverse transcriptase inhibitor therapy in HIV-1 infected adult subjects with treatment failure on first line therapy.

MK1439A-028
Effects of Switching From ATRIPLA^TM (Efavirenz, Tenofovir, Emtricitabine) to MK-1439A (Doravirine, Tenofovir, Lamivudine) in Virologically-Suppressed Participants (MK-1439A-028).

TB, MDR TB and XDR TB
BCAP
Sizwe Bedaquiline access Rx program for pre-XDR -TB and XDR-TB pts

BEAT TB
Building Evidence for Advancing new Treatment for Drug Resistant TB) Open-label, Single-Arm Stepped Study to Assess the Efficacy, Safety and Tolerability of Bedaquiline (BDQ), Delamanid (DLM), Linezolid (LNZ) and Clofazamine (CLZ), 6 to 9 month Regimen for the Treatment of Pulmonary Tuberculosis in Patients pre/XDR and MDR TB (USAID APPLICATION).

HDT TB
Host-directed therapies for tuberculosis. The aim of the Project is to examine if adding host-directed therapy to standard antimicrobial treatment could result in a shorter and improved treatment of TB.

NC007 - ZeNIX
A Phase 3 partially-blinded, randomized trial assessing the safety and efficacy of various doses and treatment durations of linezolid plus bedaquiline and pretomanid in participants with pulmonary infection of either extensively drug-resistant tuberculosis (XDRTB), pre-XDR-TB or treatment intolerant or non-responsive multidrug resistant tuberculosis (MDR-TB).

Nc008
An Open-Label, Partially Randomized Trial to Evaluate the Efficacy, Safety and Tolerability of a 4-month Treatment of Bedaquiline plus Pretomanid plus Moxifloxacin plus Pyrazinamide (BPaMZ) Compared to a 6-month Treatment of HRZEIHR (Control) in Adult Participants with Drug-Sensitive Smear-Positive Pulmonary Tuberculosis (OS-TB) and a 6-month Treatment of BPaMZ in Adult Participants with Drug Resistant, Smear-Positive Pulmonary Tuberculosis (DR-TB).

NIX-TB
A Phase 3 randomized, open-label trial assessing the safety and efficacy of bedaquiline plus PA-824 plus linezolid in Subjects with pulmonary infection of either extensively drug-resistant tuberculosis (XDR-TB), or treatment intolerant / non-responsive multi-drug resistant tuberculosis (MDR-TB).

P1108
A Phase I/II, Open-Label, Single Arm Study to Evaluate the Pharmacokinetics, Safety and Tolerability of Bedaquiline (BDQ) in Combination with Optimized Individualized Multidrug-Resistant Tuberculosis (MDR-TB) Therapy in HIV-Infected and HIV-Uninfected Infants, Children and Adolescents with MDR-TB Disease.

STREAM II
The evaluation of a standard treatment regimen of anti-tuberculosis drugs for patients with MDR-TB

TB SEQUEL
Pathogenesis and risk factors of long-term sequelae of pulmonary TB defining individual outcomes and public health impact.

TB HDT
A Phase 2, Randomized, Open-Label Trial to Evaluate the Safety, Preliminary Efficacy, and Biomarker Response of Host Directed Therapies added to Rifabutin-modified Standard Antimicrobial Therapy in Adult

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Patients with Drug-Sensitive Smear-Positive Pulmonary Tuberculosis.

COMORBIDITY STUDIES

AMGEN
A Double Blind, Randomized, Placebo Controlled, Multicenter Study to Evaluate Safety, Tolerability, and Efficacy on LDL-C of Evolocumab (AMG 145) in Subjects with HIV and with Hyperlipidemia and/or Mixed Dyslipidemia. The aim of the study is to evaluate the effect of 24 weeks of subcutaneous (SC) evolocumab administered every month (QM) compared with placebo QM on percent change from baseline in low-density lipoprotein cholesterol (LDL-C) in human immunodeficiency virus (HIV)-positive subjects with hyperlipidemia or mixed dyslipidemia.

A5324
A Randomized, Double-Blinded, Placebo-Controlled Trial Comparing Antiretroviral Intensification with Maraviroc and Dolutegravir with no Intensification or Intensification with Dolutegravir alone for the Treatment of Cognitive Impairment in HIV.

A5332
Randomized Trial to Prevent Vascular Events in HIV – REPRIEVE.

A5360
A Single-arm Study to Evaluate the Feasibility and Efficacy of a Minimal Monitoring Strategy to Deliver Pan-genotypic Ribavirin-free HCV Therapy to Chronically Infected HCV Treatment Naïve Populations Globally: The MINMON Study.

Other
A5243
Plan For Obtaining Human Biological Samples At Non - U.S. Clinical Research Sites For Currently.

Mission

To deliver Excellence and Quality Clinical Research, Services and Support in Johannesburg. To further ensure that this information is invested at the operational level for the prevention, treatment and management of HIV and associated diseases.

HEALTH ECONOMICS AND EPIDEMIOLOGY RESEARCH OFFICE

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WHO WE ARE

The Health Economics Research Office (HE²RO) is part of the University of the Witswatersrand's Faculty of Health Sciences.

As internationally recognised research and technical assistance unit, HE²RO delivers clinical, epidemiologic and health economic research services.

The unit also ensures that research information is invested at operational level for the prevention, treatment and management of HIV and associated diseases

The Health Economics and Epidemiology Research Office (HE2RO) aims to deliver excellence and quality clinical epidemiological and healtheconomics research, services and support.

HE²RO's headquarters are in Parktown, Johannesburg with sites based in Gyani and Tzaneen.

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2019 PROJECT HIGHLIGHTS

In 2019, HE²RO continued to expand its research and evaluation projects in South Africa and neighbouring countries. By the end of the year, HE²RO had 17 grants for research projects and associated studies underway, with 3 of the grants awarded late in the year. HE2RO published 37 peer-reviewed journal articles, 4 policy briefs and working papers and 4 reports in 2019. Highlights of research undertaken by HE2RO in 2019 are described below.

EVIDENCE (Evaluations to Inform Decisions using Economics and Epidemiology)
EVIDENCE is a 5-year cooperative agreement with USAID. EVIDENCE is a follow-on from the INROADS award to continue with a long-standing collaboration between the University of Witwatersrand (Wits Health Consortium) and the Boston University's Department of Global Health which has, and continues to, facilitate the development of local public health research capacity, in particular in the areas of health economics and epidemiology. It has also allowed HE²RO to continue to partner with the Centre for Economic Governance and Accountability in Africa (CEGAA) to support the budget and finance functions related to the public sector HIV service provision in South Africa.

The EVIDENCE project is a program of applied research and evaluation, including cost and cost effectiveness analysis, cost modelling, and epidemiological analysis, aimed at assisting the Government of South Africa (GoSA) to achieve the goals of its National Strategic Plan on HIV, TB and STIs 2017-2022 (NSP), national and international 90-90-90 targets, the HIV Treatment Surge objectives and PEPFAR COP objectives.

Within this activity, HE2RO conducted 30 different studies and projects in 2019. Outputs included 21 publications in peer-reviewed journals with 6 others accepted, 2 HE2RO policy briefs, 11 posters and 14 oral presentations at key conferences both local (e.g. SA AIDS 2019, PHASA 2019) and international conferences and symposiums (e.g. CROI 2019, AIDS IMPACT, post-TB symposium, iHEA 2019, INTEREST 2019).

Some of the highlights of the EVIDENCE studies include:

CHoiCE: preferences for SRH services amongst high school learners
The CHoiCE study used a discrete choice experiment (DCE) design to explore the preferences of high-school learners for HIV and contraceptive services. The initial study was expanded on request by the Gauteng Department of Education to include additional schools across all wealth quintiles in Gauteng. The total number of all DCE participants across all ten schools was 805. Final results confirmed that, above all else, learners prefer private and confidential services being received from friendly healthcare staff in facilities that operate at convenient times and that provide additional value-added services. These results have been presented to all key stakeholders (Gauteng Department of Education, School Principals and the Integrated School Health Programme Team including the National Departments of Basic Education, Health and Social Development) and their subsequent recommendations for a way forward are all collated into a report being finalised for both internal and external dissemination.

MDR-TB costing of bedaquiline
Recent evidence supports the replacement of IA with well-tolerated oral bedaquiline (BDQ) and a shortened 9–12-month regimen. To determine affordability of a switch in the MDR/RR-TB regimen for the South African Government, we compared the budgetary impact of the use of BDQ in the current MDR/RR-TB regimen or in the shortened regimen. We analyzed the 5- year budgetary impact and cost per successful treatment

outcome of four regimens: 1) IA long-course, 2) oral long-course, 3) IA short-course, and 4) oral short-course using a Markov model with data from the South African MDR/RR-TB case register (2013–2015) to assess treatment outcomes for the standard long-course. Data on the improvement in outcomes for BDQ-based regimens were based on the literature. Our analysis showed that by 2023, the cost/successful outcome for the four regimens was respectively 1) US$7374, 2) US$7860, 3) US$5149, and 4) US$4922. The annual total cost of each regimen was US$37 million, US$43 million, US$26 million, and US$28 million. Despite the high cost of BDQ, a BDQ based shortened regimen for the treatment of MDR/RRTB will result in improved treatment outcomes and cost savings for South Africa.

District-level HIV estimates

Together with colleagues from the University of Cape Town, HE2RO researchers supported a team at Imperial College London with the development of a geospatial model of HIV in South Africa that can estimate HIV incidence, prevalence and service coverage at the district and sub-district level. Taking into account available data from large national data sources such as the District Health Information System, the HSRC HIV household surveys, the ANC surveys and the NHLS' National HIV Cohort, the model (termed NAOMI) produces estimates of the number of people living with HIV, on ART, and those who have been circumcised that in turn are being used by the National Department of Health, UNAIDS and USAID to set targets and track progress by district.

Adolescent HIV treatment in South Africa's national HIV programme: a retrospective cohort study.

A collaboration between the NHLS, Boston University and HE2RO saw the 2019 release of a manuscript in Lancet HIV describing a unique national adolescent treatment cohort. The study team used routinely collected laboratory data from South Africa's national HIV programme to estimate the total number of children and adolescents (aged 1-19 years) entering HIV care during the period 2005 - 2016. The key finding was a 10-fold increase in the number of adolescents aged 15-19 years on antiretroviral therapy between 2013 and 2016 compared with 2005-2008. Despite this growth there are still large gaps in successful linkage to treatment. Only 50% of those aged 15-19 successfully initiated antiretroviral therapy through to viral load testing. The findings garnered much media attention through television and radio interviews as well as online media reports.

Optimal HIV testing strategies for South Africa

Optimal HIV testing strategies are required to reach the UNAIDS target of 95% of HIV-positive adults diagnosed by 2030. We compared the impact and cost effectiveness of several potential new testing strategies in South Africa using a mathematical model to evaluate the potential impact of home-based testing, mobile testing, assisted partner notification, testing in schools and workplaces, and testing of female sex workers (FSWs), men who have sex with men (MSM), family planning clinic attenders and partners of pregnant women. In the absence of new testing strategies, the diagnosed fraction is expected to increase from 90.6% in 2020 to 93.8% by 2030. Home-based testing combined with self-testing would have the greatest impact, increasing the fraction diagnosed to 96.5% by 2030, and would be highly cost-effective compared to currently funded HIV interventions, with a cost per life year saved (LYS) of $394. Testing in FSWs and assisted partner notification would be cost-saving; the cost per LYS would also be low in the case of testing MSM ($20/LYS) and self-testing by partners of pregnant women ($130/LYS).

Although USAID remains HE2RO's primary

funding source, grant funding has diversified considerably. Highlights of studies awarded under other donors include the following;

SLATE I and II

Speeding up the process of HIV treatment initiation is essential for achieving the "second 90" (90% of patients who know their HIV status are on ART). The SLATE I trial evaluated a simple algorithm to allow nurses and other clinical staff to initiate ART on the day a patient tests HIV-positive, an approach known as "same-day initiation" (SDI). The follow-on study, SLATE II enrolled and randomized to either the intervention arm or the standard of care arm 593 adult South Africans not yet on ART from three public clinics in Gauteng Province. Like its predecessor, SLATE II used a simple clinical algorithm to determine if a patient was eligible for SDI or not, but unlike SLATE I, in SLATE II patients with milder TB symptoms were investigated immediately and most were eligible to start ART that day. During 2019, patient follow up under the SLATE II study was completed and a manuscript describing the study's primary outcomes was drafted. The results showed that the SLATE II algorithm improved initiation of ART within 7 days increased from 68% to 91%, and within 28 days from 82% to 94%. Retention in care 8 months after study enrolment climbed from 55% to 70%. More than 85% of intervention arm patients were eligible for SDI, and 98% said they preferred SDI.

AMBIT

AMBIT (Alternative Models of ART Delivery: Optimizing the Benefits) is a research and evaluation project to understand the scope and impact of "differentiated service delivery" (DSD) models for HIV treatment. It was launched in September 2018 with support from the Bill & Melinda Gates Foundation. It is being implemented by the Boston University School of Public Health in the US, HE2RO in South Africa, and the Clinton Health Access Initiative (CHAI) in Malawi and Zambia. The project uses existing and newly-generated data to describe DSD model coverage, benefits, and costs and to model an optimal scale-up strategy for DSD models. During 2019, the AMBIT study team completed a systematic literature review of the published and grey literature and produced four reports that summarise results of the review. Several posters were also presented at the 3rd Annual CQUIN Learning Network (Partnering to Advance Differentiated Service Delivery) meeting in Johannesburg in November 2019. AMBIT has now received ethical approval for the GREAT (Gathering Records to Evaluate Antiretroviral Treatment) data collection protocol to access and analyze existing medical record data and other data from completed, ongoing or new evaluations, trials and observational studies of DSD models. Work also began on a mathematical model, known as ADAPT (Alternative Delivery of ART oPTimization), to help guide DSD model mix and maximize the potential benefits of DSD expansion while minimizing costs.

HIV Self-testing

In 2019, HE2RO researchers worked in collaboration with the STAR Consortium, LSHTM and Ezintsha to analyse the cost and impact of different distribution methods for HIV self-tests (HIVST). 1.6 million self-test kits have been distributed in South Africa in 2018 and 2019, through community channels (including transport hubs such as taxi ranks), workplaces, facilities and key population programmes. Under a separate grant from the Bill and Melinda Gates Foundation, HE2RO has analysed the cost and cost-effectiveness of each channel in order to be able to advise government on which channels to implement as part of a national self-testing strategy.

Integrating a package of home-based early childhood interventions into existing

community health worker protocols
This is a cluster-randomized trial funded by the SA-MRC and the Bill & Melinda Gates Foundation – Grand Challenges South Africa: All Children Thriving program, and designed to evaluate the impact and scalability of an innovative package of home-based interventions designed to improve early childhood health and development. Over 500 community healthcare workers (CHW) and over 1,000 caregiver/child pairs from Greater Tzaneen and Greater Giyani, Limpopo Province have been enrolled and children have been evaluated from birth. The team is currently evaluating the impact of the intervention as the children reach 27 months old. In 2019, HE2RO received a sub-award from Boston University to examine the relationship between undernutrition and systemic inflammation, and the relationship between systemic inflammation and cognitive development. This study is nested within the ongoing prospective cohort study, and will use repeated measures and longitudinal methods.

Neurocognitive development in young children
HE2RO together with investigators from Boston University and the University of Tampere are working on a study in Limpopo Province to assess neurocognitive development in young children using electroencephalography (EEG) and eye-tracking. The purpose of the study is to better understand the development of children's thinking and learning. The neurocognitive study is a sub-study of the larger intervention study and is also funded by the SA-MRC and Gates Foundation – Grand Challenges South Africa: All Children Thriving program. Over 310 infants in Greater Tzaneen have been enrolled and observed at 7 and 17 months. The quality of assessment data is higher than was anticipated and we will have usable observations from more than 250 children. A final round of EEG and eye-tracking assessments will be conducted when the children are 27 months of age (mid-2020).

EQUIP Health Project
HE2RO also continued its collaboration with Right to Care and other organisations under the EQUIP Health Project funded by USAID. Highlights from these studies included Geospatial model created for laboratory optimization in Zambia: this model was developed for Zambia in order to assist government and partners scale up the Zambian viral load program. This analysis built on previous work of the optimization of sample transport networks to include the cost and outcomes of a switch from plasma specimens for viral load testing to dried blood spot or plasma separation cards for viral load testing. The analysis demonstrated that a hybrid approach- plasma at high volume facilities, dried specimen at low volume facilities- would result in both increased access and the highest number of correct test results generated. This work was published in Clinical Infectious Diseases in 2019.

Economic evaluations of differentiated care in Zambia and Lesotho: economic evaluations were conducted of routine differentiated service delivery (DSD) in Zambia, and of a DSD trial in Lesotho. In Zambia, community-based DSD models were expected to be costlier than the standard of care (3 month dispensing, at the time of the analysis), though two of the five models were expected to result in improved patient retention. In Lesotho, all arms (DSD and standard of care) were found to be cost-equivalent in terms of cost per patient served and cost per patient retained. Both studies were completed in 2019, were presented to local government, and are now being submitted for publication.

Costs and outcomes of differentiated service delivery models (DSDM) in Uganda: this two-year study showed that Ugandan

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DSDMs displayed similar outcomes and average annual costs per client. Differences between the models were explained largely by their clients' ARV mix and their spending on Opportunistic Infection prevention and treatment. DSDMs can therefore be an effective strategy for managing clients and appear to achieve good treatment outcomes, retention and adherence, but large reductions in their program costs should not be expected, and cuts in their budgets might affect their longer-term performance outcomes. These results were presented to the Ugandan Ministry of Health and stakeholders.

OTHER HIGHLIGHTS:

MENTORSHIPS IN 2019:
Senior researchers from HE2RO supervised 5 PhD students and 3 Master's students from local and international universities in 2019. In addition, we hosted 4 Fogarty fellows as an international research site of the HBNU Fogarty Global Health Training program. Nicole Moyo graduated with her Master's degree in Business Management from Wits.

STAFFING IN 2019:
Researchers from HE2RO continue to play active roles in national think tanks and working groups including the National TB Patient Cost Survey Technical Advisory Group (Denise Evans), National TB Think Tank - Optimizing TB Treatment Outcomes and TB Epidemiology Modelling and Health Economics Task Team (Denise Evans), Differentiated Models of Care Technical Working Groups (Sophie Pascoe), HIV Think Tanks (Gesine Meyer-Rath, Joshua Murphy, Lise Jamieson, Caroline Govasthon and Amy Huber , Council for Medicals Schemes Costing Committee PMB Review (Jacqui Miot), National Medicines Pricing Committee (Jacqui Miot) and others.

Dr Denise Evans, Principal Researcher at HERO received her NRF C2 rating (2019 – 2024), and was selected as a “Rising Star scientist (a diverse set of emerging leaders from across the continent)” at the 2019 Grand Challenges Annual Meeting, Addis Ababa, Ethiopia, 27-30 October 2019.

HE2RO KEY FUNDERS:
USAID remains HE2RO's key funder both through the EVIDENCE award as well as under the EQUIP Health Project. In addition, the Bill and Melinda Gates Foundation has provided funding for 2 studies, including the launch of a behavioural economics unit in collaboration with the University of Pennsylvania for 2020.

Aim

To understanding the economic and epidemiological consequences of the HIV and TB epidemics and the effectiveness, benefits, and costs of interventions. It responds directly to requests for information and technical assistance from the National Department of Health, National Health Laboratory Service, provincial departments of health, PEPFAR partners, and healthcare providers, answering questions of immediate practical relevance to these stakeholders.

HEALTH SYSTEMS ENABLEMENT AND INNOVATION UNIT

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WHO WE ARE

HSEi offers a highly specialized service, leveraging off the cumulative experience and expertise of the specialists in the unit. We are not just researchers and scientists but reliable partners, experts and activists uniting behind the restoration of dignity and care of marginalized populations.

We are innovators of healthcare systems that prioritize the support of national health systems to achieve their goals. We explore alternative healthcare delivery models to promote access to equitable quality health care in particular for underserved populations. We are always keen on the alternative solution and ensure long term value for our clients.

Health Systems Enablement & Innovation (HSEi), a syndicate under the Wits Health Consortium, supports national health systems in South Africa and across the African continent through research, professional advice, service and healthcare delivery systems redesign. We study enablement amongst individual patients, patient populations, health services and health systems with a focus on underserved and vulnerable populations. We harness ideas and initiative and test alternatives as the health systems prepare for universal health coverage.

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WHERE WE OPERATE
In addition to our head office operations in Gauteng, South Africa, HSEi operates in Kwa-Zulu Natal, Eastern Cape, Gauteng and Mpumalanga.

OUR APPROACH
HSEi works with partners to produce innovative healthcare delivery solutions. We do not just produce knowledge, we document each alternative approach. We endeavor to become the bridge between the privileged and the underserved. We understand that healthcare systems are in need of transformative and sustainable solutions. We acknowledge potential and have created enabling specialist structures and strategies in place to ensure that health systems realise their true potential. We care about our patients and have a deliberate focus on vulnerable populations.

OUR FOUNDERS
HSEi is led by two dynamic health practitioners and thought leaders, Dr Itumeleng Funani and Dr Wezile Chitha. Together, they desire for HSEI to remain synonymous with excellence in transforming health systems. Dr Funani has served as a technical advisor for the HIV, AIDS, STI and TB cluster and as technical advisor to the office of Director General, National Department of Health. Dr Chitha has served in several capacities in the public health sector, academic health governance, clinical governance and health systems management. The vision of HSEi is supported and translated by a multidisciplinary team of project staff, researchers and clinical specialists.

OUR PROGRAMMES
HSEi runs three programmes, namely the clinical service programme, research programme and capacity building, health systems strengthening & technical support programme.

CLINICAL SERVICE PROGRAMME
Ethekwini Oncology Service
KZN Department of Health has experienced challenges in three Oncology centres, namely Inkosi Albert Luthuli Central Hospital, Addington Hospital and Grey's Tertiary Hospital. All three centres are supposed to offer a comprehensive package of both chemo and radiation therapy but rapidly growing demand for the services and shortage of oncologists left the Department with critical backlogs of patients requiring access to the oncology services.

The HSEi, in partnership with the KZN Department of Health, provided Oncologists to provide specialist cancer services in Inkosi Albert Luthuli Central Hospital, Addington Hospital and Grey's Hospital since 2018. The mandate focused on clinical support, providing oncologists, and providing project management and administration support.

The services commenced from April 2018 to October 2020. Oncologists were allocated at Inkosi Albert Luthuli Central Hospital and Addington Hospital as an intervention in response to a crisis precipitated by the collapse of cancer services in the region since 2016/7. Following HSEi intervention, services were stabilized, all relevant oncology clinics became fully operational and continued to manage to improve the lives of many patients that were affected by oncology service failure and disruptions in the KZN Province. Through the HSEi, the dire situation was turned around to assist the KZN DoH to achieve its mandate and mission to develop and implement a sustainable, coordinated, integrated comprehensive cancer care to the people of KZN.

Mpumalanga Oncology Initiative
The project aims to provide comprehensive oncology services to Mpumalanga's population of more than 4 million. We have started at Rob Ferreira Hospital. Prior to 1

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August 2019, patients diagnosed with cancer had to be all referred to Pretoria, Steve Biko Academic Hospital (SBAH) for further care. The patient morbidity was further exacerbated by transporting these sick patients from early hours of the morning from Mpumalanga to Gauteng province. It is against this background that Mpumalanga department of health pursued this project as an urgent intervention to find expertise and provide the much-needed oncology services to the province. The HSEi took the challenge of introducing expertise to the project and setting up a tertiary oncology service from scratch. The service is an outpatient chemotherapy service and meets all minimum requirement. Staff appointed included 4 oncology trained nurses including operational manager, the 2 professional nurses, 2 medical officers and 2 oncology consultants daily. For admin support 4 clerical support with administrative duties, patient appointment bookings and follow-up dates scheduling. Fifteen months since its inception, the unit started seeing 27 patients on the first month in August 2019, to 294 patients in August 2020, and that has escalated to 382 patients seen per month as in November 2020. There is a teaching of medical officers and nurses by oncologists to fast track skills transfer to the team. We are now working with province to develop the radiation, provide access to quality palliative care and decentralize cancer care to Witbank Hospital and district health services.

Decentralised Cancer Care Programme
Comprehensive oncology care services in the Eastern Cape were only limited to the western and the central regions of the province, namely Port Elizabeth with their hospital in Livingstone and East London in Frere Hospital respectively. The eastern region of the Eastern Cape comprises of the former rural Transkei, which is characterized by poverty, poor infrastructure and low illiteracy, is serviced by the Nelson Mandela Academic Hospital with no comprehensive oncology department. This hospital services a population of almost 3,5 million and has a drainage of 24 referring hospitals (district and regional). Prior to the implementation of the programme, patients used to receive only chemotherapy service from oncology trained nurses based on a prescription that was done in East London, 250km away. The goal of initiating the cancer care programme in April 2018 was to establish a centre of excellence in oncology care that will address earlier detection of lung and other cancers, provide more accurate diagnosis, provide better palliative treatments and improve morbidity and mortality rates. The funder, Bristol Myers and Squibb foundation (BMSF) aimed to support access to much needed oncology care. Prior to the initiation of the project all patients diagnosed with cancer would travel to East London, 250km away to Frere hospital to seek oncology care and treatment.

The project has appointed 1 oncology specialist, with 5 medical officers, 6 chemotherapy trained nurses, 2 allocated pharmacists that were trained in pharmacy oncology, an appointed social worker, a psychology counsellor, nurse navigators for the patients, as well as data capturers. At the start of the project, in April 2018, 50 patients were seen per month. In 2020, the clinic services 369 patients per month. Chemotherapy is offered to 94 patients a month. Five referring hospitals, namely Mthatha General Hospital, St Barnabas Hospital, St Elizabeth Hospitals, Madzikane kaZulu Hospital and St Patrick's Hospital are being capacitated (with equipment, ICT and staff) to provide decentralized cancer services including follow-up chemotherapy and palliative care. Outreach services including screening campaigns, counselling services and follow-up psychosocial support have been implemented to promote awareness, early diagnosis and provide psychosocial support to patients and their

families. The common cancers seen include the breast, cervix, prostate, Kaposi sarcoma and esophagus and lung cancer.

Mpumalanga Radiology Service
Owing to the lack of radiologists in Mpumalanga, the provincial department of health resolved to explore alternative ways to provide a radiologist led clinical service to support its health services. This resulted in the partnership with HSEi for the provision of radiology services in two tertiary hospitals (Rob Ferreira Hospital and Witbank Hospital) and two regional hospitals (Ermelo Hospital and Themba Hospital). This prompted the DOH to source out radiology services from the private sector. The scope of work was as follows: Take responsibility for imaging radiology services, administration of day-to-day operations of radiology departments, analysis, review and evaluation of hospital need, implement workflows to ensure safe and efficient operations and ensure delivery of world class radiology services by providing on ongoing training of staff and review protocols.

Since its inception in March 2020, the project can account the following achievements: registration of radiology equipment with Radiation board of South Africa, set up of teleradiology services that connect the Ermelo, Witbank, Rob Ferreira and Themba hospitals , the placement of radiologists in all 4 hospitals daily, afterhours radiologist coverage including weekends and public holidays, accessibility of radiologists clinical consultations (clinicians can interact with radiologists during working hours and afterhours), transversal training of radiographers and professional leadership and support. The province now provides a 24-hour radiologist service for its tertiary and regional hospitals. We are now working with the province to expand the radiology service to Mapulaneng Regional Hospital.

Capacity building, Health systems strengthening & Technical support (CHEST) Programme
The HSEi played a critical role in strengthening the capacity of the provincial health platforms to provide tertiary and regional hospital services and support development of district health services. Our support is provided on request, in support of the development of Centres of Clinical Excellence and strengthening of the health service delivery platform. For example, at the request of the province, we have documented a case study of the provincial response to the COVID-19 in Mpumalanga. As a value-add to the development of Centres of Clinical Excellence in Oncology and Radiology, we have implemented a focused Clinical Governance Development and Support programme for oncology (both Mpumalanga and Eastern Cape) and radiology (Mpumalanga).

In order to strengthen the capacity quality cancer care, we have implemented an Oncology Clinician Training Programme for Healthcare Providers in Mpumalanga (Rob Ferreira Hospital and its drainage area) and Eastern Cape (Nelson Mandela Academic Hospital and its drainage area) through the support of BMSF. This included palliative care training, breast cancer training and cervical cancer training.

In order to prepare for the strengthening of oral health services in Mpumalanga, HSEi worked together with the School of Oral Health Sciences to conduct the Oral Health Audit and initiated Maxillo-facial Specialist Outreach to Rob Ferreira Hospital. We are now working with the province on oral health priorities and development of implementable action plans from the audit.

RESEARCH PROGRAMME
(i)Public hospitals, clinical management systems and universal health coverage
The primary purpose of the proposed

research is to generate knowledge and build capacity in public hospitals, clinical management systems, hospital services and governance in health as the country prepares itself for the national health insurance. This project locates itself in two rural provinces with a high degree of under-development and marginalization, namely Eastern Cape (Nelson Mandela Academic and St Elizabeth Hospitals) and Mpumalanga Provinces (Witbank and Themba Hospitals). The HSEI in collaboration with the South African Medical Research Council (SAMRC) intends to conduct research in public hospitals, clinical management systems and universal health coverage. The Research Programme includes four pillars, namely, Hospital administration, clinical management systems, hospital services strengthening and hospital governance.

(ii) The Hospital as a learning organisation
This project, a collaboration between HSEi and Knowledge Management for Health Research Unit (KM4HRU), seeks to explore the understanding of learning organisations in the hospital context. It looks at what systems are there to enable the learning of healthcare professionals within the hospital. For example, healthcare delivery relies heavily on knowledge and evidence-based medicine, the delivery of care relies on the cooperation of several partners that need to exchange their knowledge in order to provide quality care and that exchange of knowledge can only happen in a learning organisation where people are willing to share knowledge. This study is envisaged that it will contribute toward providing rich knowledge on the learning practices of health professionals, and to create hospitals that are learning organisations in the South Africa context. Practically, we expect that the findings will provide guidance for development of guidelines and policies on learning hospitals.

(iii) Information behaviour of health professionals in the hospital setting
This is a collaborative research project between HSEi and KM4HRU that seeks to explore and understand the information behaviour of health professionals in the hospital setting. The study is motivated by the “Health Information for all by 2015” under the aegis of Global Healthcare Information Network. Moreover, the South African health information policy advocates for access to reliable health information for health professionals. The researchers believe that understanding information behaviour of health professionals will assist in the provision of relevant information for them. Additionally, the understanding of information behaviour of health professionals will also contribute to the governments preparations for the enrolment of the national health insurance which will require a national health system that produces quality health outcomes. It is also envisaged that knowledge on information behaviour of health professionals will assist information providers such as health science libraries and health resource centres to re-engineer their services to suit information seeking behaviour of health professionals.

(iv)Cancer Health Economics, Analysis of Policy & Evaluation Research (CHEAPER) Programme
The HSEi, in partnership with the Bristol Myers Squib Foundation (BMSF), intends to undertake health economics, analysis of policy & evaluation research in the area of cancer. CHEAPER will focus on building capacity, conducting research and producing local knowledge on cancer focusing on health policy, financing, economic evaluations and care delivery systems. The partnership with BMSF intends on promoting health equity and improving the health outcomes of underserved populations in the African continent through the application of health economics

analyses, systems and tools on cancer. CHEAPER draws inspiration from BMSF global efforts including, amongst others, The Secure the Future Initiative and The Bridging Cancer Care Initiative.

The initial focus of this research programme will be to: partner with BMSF and focus on lung cancer health economics, policy and systems research; build capacity (skills, systems and tools) for conducting cancer health economics & policy research; establish baseline and create a common understanding of the national cancer plans, cancer services, and cancer care delivery systems and strategies; determine current funding strategies, sources and arrangements for cancer care; conduct costing studies for lung cancer care and compare to costs associated with common cancers; conduct a prospective analysis of provider costs and out-of-pocket costs associated with cancer care and conduct research and/or document cancer care delivery systems and their contribution to health systems strengthening.

(v)Decentralized Cancer Care

The Mpumalanga and Eastern Cape Provinces are confronted by the similar challenges. They lack the infrastructure, resources and expertise to provide quality, safe and accessible radiotherapy, chemotherapy, palliative care services and surgical cancer services. Patients from rural communities, who generally cannot afford private health care and are dependent on state health services for cancer care, are compelled to travel long distances to the urban-based tertiary cancer care centres to access cancer care. Patients, their caregivers and/or the state incur high costs in pursuit of access to cancer care. There is a need to look at alternative models of cancer service delivery that will, amongst others, make use of technologies, task-shifting, mobile healthcare delivery solutions and community-based care delivery to strengthen health systems, improve access to high-quality cancer care, reduce costs of accessing cancer care and improve health outcomes. The study seeks to conduct a baseline assessment of the demographic, epidemiological and clinical profile of various cancers, describe existing model of delivery of cancer care and explore the feasibility, implications, essential strategies and outcomes of decentralizing cancer care delivery in the Eastern Cape and Mpumalanga Provinces.

Our Motto

"Dignity Through Healthcare!"

MEDICAL ENTOMOLOGY RESEARCH GROUP

WHO WE ARE

The Medical Entomology Research Group consists of researchers specializing in medical entomology and especially those insect species that transmit disease-causing pathogens to humans.

Our team is made up of leading international researchers, professors and up-coming scientists.

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The Wits Medical Entomology Research Group (MERG) investigates the transmission and control of malaria in African mosquito populations and is affiliated to the Wits Research Institute for Malaria and the National Institute for Communicable Diseases.

DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019 :

During 2019 the Medical Entomology Research Group (MERG) published 18 scientific papers in peer reviewed international journals, and contributed to three policy documents for the World Health Organization and National Department of Health. Various research projects were successfully initiated or completed under the leadership of senior scientists. MERG supervise 26 post-graduate students during this reporting period.

Transmission blocking studies to identify new target drugs for malaria (Prof Lizette Koekemoer):
The Drug Discovery and Development Centre (H3D) at the University of Cape Town (UCT), in collaboration with the Medicines for Malaria Venture (MMV), and the South African Malaria Transmission-Blocking Consortium (SAMTC), has had a successful track record, over the last several years, of delivering lead compounds for potential treatment of malaria. The MERG provided vital support in evaluating the reduction in transmisison to main African malaria vector species through a standard membrane feeding assay. The South African Malaria Drug Discovery (SAMDD) project aims to identify antimalarial compounds that have asexual blood stage (TCP1) and transmission-blocking (TCP5) activity against Plasmodium sexual stages and the mosquito.

Challenges with colonization of the major African malaria vector species, An. funestus (Prof Lizette Koekemoer)
Anopheles funestus is a major malaria vector in Africa, yet it tends to be refractory to colonisation, limiting research on this species. MERG collaborated with the Ifikara Health Institute in Tanzania on a Bill & Melinda Gates funded project.

Molecular identification of malaria vectors from Burindi, Mozambique and Namibia (Prof Lizette Koekemoer, Dr Yael Dahan and Ms Biance E Silva)
Malaria vector species are often morphologically similar and molecular identification is emparitive to distinguish between vector and non-vector species. Most African countries lack the facilities to conduct these assays and the MERG is therefore vital in providing support for vector incrimination to guide country-specific vector control programs.

Insecticide resistance analysis in Zambia (Prof Maureen Coetzee)
International Centre of Excellence in Malaria Research (ICEMR): lead by the Johns Hopkins Malaria Research Institute (USA), carrying out surveillance for insecticide resistance in Zambia (2017-2023).

Advance studies of the sterile insect technique to control outdoor biting malaria vectors (Dr Givemore Munhenga)
This is a multi-instituitional funded long-term project to test the feasibility of using the Sterile Insect Technique (SIT) against mosquito malaria vectors in the local context. Current activities include studies to optimise adult sterile male mosquito rearing in preparation of a small-scale pilot field demonstration. This will address technical and operational applicability of the technology under a South African setting. These optimisations included validation of mass-rearing equipment, sex separation strategies, and bulk irradiation protocols. Furthermore, the team developed a quality assurance system to be used during mosquito mass production. Conditions suitable for handling, transport and release of sterile males are also under investigation. An extensive community engagement to prepare the community for pending sterile male releases was also carried out during 2019. International Atomic Energy Agency, Department of Science and Innovation, National Research Foundation and University of Glasgow jointly fund these activities.

DIVISIONS/ RESEARCH UNITS

Vector studies in South Africa and Zimbabwe (Dr Givemore Munhenga)
This project is a multi-county research initiative sponsored by Bill and Melinda Gates Foundation. The research activities include investigating genetic variability in relation to anthropophilic behaviour of An. arabiensis populations from South Africa and Zimbabwe.

Mosquito sampling techniques evaluation (Dr Givemore Munhenga)
This is an operational research project in Mpumalanga comparing novel mosquoto sampling methods against traditional sampling techniques in a field setting. The project is sponsored by the National Health Laboratory Research Trust.

Identifying the entomological drivers of malaria transmission in South Africa (Prof Basil Brooke)
NHLS Research Trust sponsored project designed to use surveillance techniques to better understand the dynamics of malaria transmission in South Africa.

WHO multi-centre study on determination of insecticide discriminating concentrations for monitoring of resistance in mosquitoes (Prof Basil Brooke)
Sponsored by WHO, this project aims to design discriminating dosages for the assessment of insecticide resistance in pathogen transmitting mosquitoes.

The effect environmental conditions on members of the Anopheles gambiae complex (Dr Shune Oliver)
The effects of various environmental stressors on members of the An. gambiae complex found in South Africa are being investigated including how this changes the epigenetic landscape of these mosquitoes. The role of gut bacteria and impact on insecticide resistance is also under investigation.

LIST OF FUNDERS
B&M Gates Foundation
International Atomic Energy Agency
Department of Science and Technology
National Institute of Health
National Research Foundation
South African Medical Research Foundation
National Health Laboratory Service Research Trust
World Health Organization.

OUR KEY FOUNDERS
Prof Maureen Coetzee is the founder of the Medical Entomology Research Group and was the 1st syndicate head.

MENTORSHIPS IN 2019
In 2019 MERG actively supported post graduate emerging researchers. Several PhD and MSc candidates were provided with mentorship during their studies.

STAFFING IN 2019
MERG consists of three scientists with international standing, four scientist with significant national standing and a number of upcoming junior scientists and research assistants/technicians.

MYCOLOGY

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WHO WE ARE

The Mycology Division was established in 2016 and is affiliated to the School of Pathology in the Faculty of Health Sciences, University of the Witwatersrand and to the Centre for Healthcare - Associated Infections, Antimicrobial Resistance and Mycoses (https://www.nicd.ac.za/centres/centre-for-healthcare-associated-infections-antimicrobial-resistance-and-mycoses/) at the National Institute for Communicable Diseases.

The Division was initially established to support grant-funded investigator and student-led projects.

The Mycology Division aims to improve the outcomes of people affected by serious, life-threatening fungal diseases and other infections caused by antimicrobial-resistant pathogens in South Africa and the African region through public health-focused epidemiological, clinical and basic science research and innvovation.

DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019:

CAST-NET: The CAST-NET study is a multi-year observational programmatic study that seeks to evaluate the effectiveness of South Africa's national cryptococcal antigen screening and pre-emptive treatment programme, in order to improve HIV care and survival of persons living with advanced HIV disease.

In Part 1, we have conducted a retrospective cohort study of approximately 4600 cryptococcal antigen (CRAG)-positive participants (screened positive in 2017-2019 in 27 sub-districts) and used retrospective record review and several other routine data sources to document the clinical care of participants and their 6-month outcomes.The division partnered with Epicentre Health Research to collect data at facilities.

Part 2 of the CAST-NET study (to be implemented in 2021) will be a pragmatic cluster-randomized trial, with the aim to assess whether a health systems intervention at healthcare facility level could improve initiation of pre-emptive fluconazole therapy among newly-diagnosed persons with antigenaemia. We will also compare 6-month cryptococcal meningitis-free survival among people with antigenaemia at intervention versus control facilities.

Baby GERMS: Baby GERMS is a neonatal infection surveillance programme that was set up in the latter half of 2019. The aim is to provide a baseline description of the aetiology, antimicrobial susceptibility profile and clinical characteristics of culture-confirmed neonatal bloodstream infections and meningitis in South Africa. Baby GERMS is the first population-based surveillance programme on neonatal sepsis in Africa. Neonatal deaths account for almost half of deaths in children under 5 years, with infections being the third largest contributor after prematurity and intrapartum complications. Through this surveillance programme, we hope to identify modifiable risk factors which could be targeted to reduce neonatal morbidity and mortality in South Africa. Baby GERMS has been acknowledged as a major new source of strategic data by the National Neonatal Task Force, which was launched in September 2019 to provide technical advice and guidance on surveillance for neonatal sepsis, infection prevention and control, neonatal infection case management, antimicrobial stewardship and containment of neonatal unit outbreaks.

Cryptococcal Antigenaemia in HIV: Screening strategies, Clinical Consequences, Immunological Correlates and Implications for Management:
This PhD project investigated the relationship between cryptococcal antigenaemia and death, identified causes of this association, and explored strategies that might improve outcomes in those at risk of cryptococcal-related death.
Part 1 investigated the accuracy of point-of-care CrAg screening and its impact on clinical outcomes when delivered in a low-resource primary care setting.
Part 2 established the prevalence of subclinical cryptococcal meningitis in patients with antigenaemia, and the predictive value of a blood CrAg titre for identifying those most at risk.
Part 3 investigated causes of morbidity and mortality among CrAg-positive and CrAg-negative patients following screening.
Part 4 is currently investigating the immunological implications of cryptococcal antigenaemia to establish if a pre-existing or resultant defect in memory CD4 cytokine production might explain increased

susceptibility to Cryptococcus and other opportunistic pathogens

KEY FUNDERS IN 2019:
US National Institutes of Health
Bill and Melinda Gates Foundation
US CDC Foundation
UK Meningitis Research Foundation

MENTORSHIPS IN 2019:
The Division supported several post-graduate students in 2019. Dr Rachel Wake, an honorary research fellow, was awarded a PhD in Clinical Epidemiology in 2019 by St George's, University of London for work that she conducted through the Division.

STAFFING IN 2019:

CAST-NET: In 2019, ten staff members were supported by the project: project manager/ epidemiologist, project administrator, research assistant, field project coordinator, epidemiologists x2, medical epidemiologist, medical officer, medical scientist, medical technologist. Each of the team members play a significant role in ensuring that the project meets its objectives and goals.

Baby GERMS: The programme is nested within the GERMS-SA surveillance programme at the NICD. Through the division, we hired research assistants to collect data at sentinel hospital sites and a project administator, epidemiologist, medical scientist and medical officer.

CLINICAL LABORATORY SERVICES

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WHO WE ARE

Located in Johannesburg, South Africa, Clinical Laboratory Services (CLS) is a division of the Wits Health Consortium (WHC), the research arm of the University of Witwatersrand. It is managed through the Department of Molecular Medicine and Haematology under the helm of Professor Wendy Stevens.

The unit leverages on the significant infrastructure of the department and its pathologists.It was established in July 2000 to support the teaching and research activities of the School of Pathology through the provision of laboratory services, diagnostic and research advice and data management support in accordance with the standards of Good Laboratory Clinical Practice (GCLP).

The Wits Pathology and Clinical Laboratory Services' (CLS's) vision is to be the leading provider of clinical pathology services globally.

MISSION

To deliver expert clinical trial services through cutting-edge laboratory technology while promoting lasting relationships with clients and academia.

CARBOHYDRATE & LIPID METABOLISM RESEARCH UNIT

PROFESSOR FREDERICK RAAL
Unit Director

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WHO WE ARE

The focus of Carbohydrate & Lipid Metabolism Research Unit includes the epidemiological, clinical and biochemical aspects of common diseases affecting lipid, and glucose metabolism in the different ethnic groups of Southern Africa.

These include familial hypercholesterolaemia and other dyslipidaemias, insulin resistance, diabetes mellitus as well as other related metabolic disorders.

The Unit is essentially a one man show with little contribution from members of the Division of Endocrinology. No funding is received from the University and all is sourced from Clinical Trials and the Evan Stein FH Centre.

DIVISIONS/ RESEARCH UNITS

The Unit is well recognized both nationally and internationally for their work on familial hypercholesterolaemia, and has one of the largest cohorts, if not the largest cohort, of homozygous FH patients in the world. The Unit has contributed, and continues to contribute to the management of these unfortunate patients.

The Unit publishes over 15 articles per year many in high impact journals. This year 3 articles have been published in the New England Journal of Medicine with Professor Raal as first author of two of the manuscripts. Professor Raal has supervised over 30 MMEDS and 7 PhDs.

CHALLENGES

The Unit is essentially a one man show with little contribution from members of the Division of Endocrinology. No funding is received from the University and all is sourced from Clinical Trials and the Evan Stein FH Centre.

SPECIAL ACHIEVEMENTS DURING 2019

Professor Raal has been the most cited researcher in the Faculty of Health Sciences, University of the Witwatersrand for the past 4 years. He was listed as one of the most highly cited researchers who have produced papers ranking in the top 1% of citations in their field worldwide by the Web of Science Group for 2019.

ANTIMICROBIAL RESISTANCE

ASSOCIATE PROFESSOR OLGA PEROVIC

Principal Pathologist and the Antimicrobial Resistance Lead from the Centre for Healthcare-associated Infections, Antimicrobial Resistance and Mycoses within the National Institute for Communicable Diseases

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WHO WE ARE

AMR division is established at CHARM. CHARM hosts two national reference laboratories and is supported by an epidemiology section. The Centre was designated as a World Health Organization (WHO) Collaborating Centre for antimicrobial resistance (AMR) [WHO SOA-43] in June 2017. Senior members of the Centre represent NICD on the Ministerial Advisory Committee (MAC) for AMR and the WHO Strategic and Technical Advisory Group (STAG) for AMR.

Healthcare-associated infections (HAIs) are among the commonest complications of hospital admission, are costly for the patient and the overall healthcare system and may lead to patient deaths. This is an important new focus area for the Centre. AMR is estimated to be associated with over 700 000 deaths every year, a number which could rise as high as 10 million in 2050.

AMR division at the Centre for Healthcare-Associated Infections, Antimicrobial Resistance and Mycoses (CHARM) aims to conduct surveillance and public health research to support the development of standard treatment guidelines and improve access to essential medicines and quality diagnostics.

DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019

CHARM leads the national effort to conduct surveillance for AMR infections through the establishment of a national diagnostic laboratory surveillance network. Several approaches are currently used for laboratory-based surveillance:

- National or sentinel surveys: bacterial and fungal isolates cultured from patients with bloodstream infections are submitted to CHARM's reference laboratories for identification, antimicrobial susceptibility testing and genotyping;
- Enhanced surveillance: detailed clinical information is collected from patients admitted to sentinel hospitals who meet the surveillance case definitions throughout GERMS programme with aims to improve neonatal and child health by gaining a deeper understanding of the burden and aetiological factors of neonatal sepsis in urban and rural sub-Saharan Africa through the development of a two-tiered surveillance programme, with a focus on neonatal sepsis occurring at secondary-level institutions.
- Electronic surveillance: data from public- and private-sector diagnostic laboratory information systems are compiled annually and reported as tables and resistance maps.

Our projects include

- i) Antimicrobial resistance prevalence and transmission between animal feed and humans,

- ii) Fleming Fund Regional Grants I l — Grant 1: External Quality Assessment (EQA) Africa.

i) Our study entitled **"Antimicrobial resistance prevalence and transmission between animal feed and humans"** aim to determine the prevalence of AMR, measure the association between antimicrobial usage and the emergence of AMR, as well as to determine the risk of transmission of AMR genes between the farm environment, farm employees and animals in pig farms in South Africa.

The objectives of the study are:

1. To describe and quantify antimicrobial usage at selected farms according to antimicrobial class and their indication for use (therapeutic, prophylactic or growth promotion) to ultimately define the selective pressure.

2. To culture and identify Campylobacter species (spp.), Enterococcus spp., Escherichia coli and non-typhoid Salmonella spp. from pig faecal droppings and self-collected human rectal swabs. Antimicrobial susceptibility testing will be performed and the mechanism of resistance will be defined according to medically important antimicrobials.

3. To use molecular methods to directly detect antibiotic resistance genes from pig faecal droppings and self-collected human rectal swabs.

4. To compare the genes found in the crude, uncultured sample to the laboratory isolated organisms, which will provide information on the extent of resistance reservoirs.

5. To type indicator organisms of human and animal origin to determine strain diversity and molecular epidemiology.

6. To test retail meat (i.e. pork chops) for the presence of indicator organisms [i.e. Campylobacter spp., Enterococcus spp., Escherichia coli and non-typhoid Salmonella spp.], their susceptibility and antibiotic residues.

ii) **Fleming Fund Regional Grants I l — Grant 1: External Quality Assessment (EQA) Africa**

(A)The Fleming Fund represents the UK Government's investment into improving laboratory capacity for diagnosis and surveillance of anti-microbial resistance (AMR) in low-income countries where AMR has a disproportionate impact (the "Fleming Fund").

The Fleming Fund will do this through support to implementation of AMR National Action Plans by making investments in:

- building laboratory capacity;
- collecting drug resistance data;
- enabling the sharing of drug resistance data locally, regionally and internationally;
- collating and analysing data on the sale and use of antimicrobials medicines, particularly antibiotics;
- advocating the application of these data to promote the rational use of antimicrobials for human health, animal health and agriculture; and shaping a sustainable system for AMR surveillance and data sharing.

The Project will use a "One Health" approach which encompasses work in human, animal (agriculture) and environmental health. This approach recognises that the nature of drug resistant infections and their spread often involved pathogens which spread to and from animals (for example, pigs and poultry) to humans; and that environmental exposure to antimicrobial agents is a key factor in driving the emergence and spread of drug resistant infections.

(B)The African Society for Laboratory Medicine (ASLM) and its consortium partners, have been awarded a Fleming Fund Grant for the provision of activities to improve the quality of laboratory bacteriology diagnostics for AMR with EQA for pathogen identification and antibiotic susceptibility. ASLM as the lead grantee has entered into an Agreement with Mott MacDonald (the “Mott MacDonald”) acting on behalf of the Secretary of State for Health Services of the United Kingdom (the “Authority”) dated the 9th September 2019 for the provision of these activities, which includes ASLM entering into this agreement with the Wits Health Consortium (Pty) Ltd (WHC) and AMR division at CHARM in relation to the allocation of the Fleming Fund.

OUR KEY FOUNDERS

CHARM is receiving a wide distribution of grant awards that includes, MRC, Bill and Milinda Gates foundation, UK Fleming Fund, WHO and the NHLS.

MENTORSHIPS IN 2019

One PhD registration and number of projects prepared for publication.

STAFFING IN 2019

We have a multi- disciplinary group consisting of technicians, technologists, scientists, pathologists and epidemiologists.

PRIORITY COST EFFECTIVE LESSONS FOR SYSTEM STRENGTHENING SOUTH AFRICA

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WHO WE ARE

Established in the School of Public Health in 2009, PRICELESS SA (Priority Cost Effective Lessons for System Strengthening South Africa) produces health economics tools and information for determining how South Africa can make better decisions about prioritizing public health interventions and allocating scarce resources.

In 2019 the unit was awarded Extra mural status by the SAMRC and renamed to the SAMRC Centre for Health Economics and Decision Science – PRICELESS SA.

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DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019:

In 2019 PRICELESS published 10 peer reviewed articles on a range of topics from health economic methodology, cost of non-communicable diseases (NCD), costs and economic modelling relating to immunisation and mother and child care, as well as fiscal policy issues relating to prevention of NCDs.

OUR KEY FOUNDERS

The PRICELESS research unit was founded in 2009 by Prof Hofman and was nested in the MRC/WITS Agincourt unit until 2013. In 2019, Prof Hofman was one of six (out of 150 applicants) to be be awarded extramural SA MRC unit status, led by a woman. We are now known as the SA MRC Centre for Health Economics and Decsion Science, PRICELESS SA

MENTORSHIPS IN 2019

In 2018, the Wits MPH Health Economics was started in partnership with the Centre for Health Policy. The students started their projects, and X masters students were being mentored by PRICELESS staff. IN addition 2 doctoral students are being mentored by PRICELESS staff.

STAFFING IN 2019

In 2019 PRICELESS engaged Prof S Goldstein as Deputy Director and Mark Kumwenda as FInance Manager. Aarika Sing was promoted to Office Manager. With three support staff, there are seven researchers and senior researchers, and four research assistants. In 2019 PRICELESS hired its first public health lawyer, Safura Abduul Karim. Dr Ijeoma Edoka continued as research director, Prof Hofman continued as Director.

AFRICAN NETWORK FOR IMPROVED DIAGNOSTICS, EPIDEMIOLOGY AND MANAGEMENT OF COMMON INFECTIOUS AGENTS

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WHO WE ARE

The South African partners of the ANDEMIA project, funded by the German Federal Ministry of Education and Research (BMBF), are the Centre for Enteric Diseases at the National Institute for Communicable Diseases (NICD) and the Centre of Viral Zoonosis, Department of Medical Virology, University of Pretoria.

The Centre for Enteric Diseases focusses on diarrhoeal disease surveillance, public health orientated research, outbreak investigation and response, reference laboratory services, regional technical and laboratory testing assistance, delivered by a small team of specialists with extensive experience in enteric diseases.

Africa has a disproportionally high morbidity and mortality related to infectious diseases. While traditional vertical programmes funded by international organizations tend to focus on HIV, TB and malaria, they rarely support programmes on common infectious diseases. These common infectious diseases include acute respiratory tract (RTI) and gastrointestinal (GI) infections and acute febrile disease of unknown cause (AFDUC), including antimicrobial resistant (AMR) pathogens. The ANDEMIA project aims to address some of these gaps and has hospital-based sentinel sites in Cote d'Ivoire, Burkina Faso, Democratic Republic of Congo and South Africa with German collaborators.

DIVISIONS/ RESEARCH UNITS

The Centre of Viral Zoonosis conducts research on emerging neurological arboviruses and respiratory diseases affecting humans and animals. The main research themes include defining the epidemiology, pathogenesis and control mechanisms to emerging and zoonotic viruses, virus discovery, development of diagnostic tools and molecular epidemiological studies in clinical cases in humans and animals.

RESEARCH IN 2019 :

Sentinel surveillance was established at Kalafong, Matikwana and Mapulaneng hospitals in July 2018 and is ongoing. After consent, patients meeting the case definitions are enrolled and appropriate specimens (nasopharyngeal/ oropharyngeal swab, stool and blood) are taken along with completion of a standardized case investigation form.

During 2019, 1503 cases were enrolled onto the study with the majority (54%; 812/1503) enrolled from Kalafong Hospital and the remainder from Mapulaneng (24%; 361/1503) and Matikwana (22%; 330/1503) hospitals. Respiratory cases made up most of the disease burden (43%; 658/1503) with AFDUC (28%; 426/1503) and GTI (28%; 419/1503) found at lower levels. The study will continue until the end of 2021 with controls enrolled during 2021.

OUR KEY FOUNDERS:

Nicola Page is a principal scientist (BSc(Agric) Microbiology cum laude, BSc(Agric) Hons Microbiology, MMed (Medical Virology), MPH (Field Epidemiology) cum laude, PhD (Medical Virology)), at the Centre for Enteric Diseases. She also holds an extra-ordinary professor position within the Department of Medical Virology at the University of Pretoria.

Marietjie Venter is a professor (BSc Molecular Biology cum laude, BSc Hons Genetics cum laude, MSc Genetics, PhD Medical Virology) at the University of Pretoria.

MENTORSHIPS IN 2019:

In 2019, the project mentored four students - two PhD and two MSc candidates. Sarah Gallichan completed her MSc project “Snapshot of South African Salmonella: Development of a sensitive tool to investigate the distribution of Salmonella Enteritidis clades in 2012 and 2013” in 2019. The PhD candidates, Siobhan Johnstone and Kathleen Subramoney, obtained approvals for their project protocols and a new MSc candidate was recruited (Richard Madimabe) for 2020.

In addition, a molecular training course was offered to partner ANDEMIA students and scientists, held at the NICD from 27th May to 7th June 2019. The course provided hands-on laboratory training, lectures on diarrhoeal diseases, respiratory diseases, good laboratory practise, real-time PCR concepts and an introduction to biosafety and biosecurity. The students who successfully completed the course included Adjaratou Traore (University of Bouaké, Cote d'Ivoire), Alama Nicoles (Institut National de Recherche Biomédicale, Democratic Republic of Congo), Arsene Zongo (Center Muraz, Burkina Faso), Eddy Kiganda Lusamaki (Institut National de Recherche Biomédicale, Democratic Republic of Congo), Safiatou Karidoula (University of Bouaké, Cote d'Ivoire) and Yacouba Sawadogo (Center Muraz, Burkina Faso).

STAFFING IN 2019:

The project currently employs the project principal investigator, three surveillance officers located at each of the sentinel site hospitals, two data clerks and a laboratory assistant All posts were filled in 2019.

MatCH RESEARCH UNIT

PROFESSOR JENI SMIT
Executive Director

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WHO WE ARE

MRU is affiliated to the University of the Witwatersrand's Faculty of Health Sciences, the School of Clinical Medicine and to the Department of Obstetrics and Gynaecology. MRU is based in Durban and our research is carried out at our site, in the surroundings communities and in health facilities depending on the project.

Using a range of methodologies, we conduct behavioural, operations and clinical research, actively partnering and involving communities and local structures. We also provide technical assistance, partnering with various stakeholders including the Department of Health and other NGOs to affect policy change and enhance best practice. We work with diverse partners, collaborators and donors, including local and internationally based universities and research centres. MRU published 20 articles in peer- reviewed journals and attended and presented our work at a range of international conferences and meetings.

MRU (Maternal, Adolescent and Child Health Research Unit) aims to answer priority questions that will translate into improving sexual and reproductive health outcomes through expanding access to appropriate and acceptable contraceptive, HIV prevention and related health technologies and services.

Our core research areas are contraception including barrier methods, HIV prevention, safer conception, menstrual management, postpartum depression and other areas of sexual and reproductive health. MRU engages in pivotal research conducted with vulnerable populations, including youth, sex workers and residents of informal settlements.

DIVISIONS/ RESEARCH UNITS

RESEARCH IN 2019:

In 2019, we continued our programme of work in Pre-exposure prophylaxis (PrEP) for HIV Prevention. One of these ground breaking studies at MRU which continued recruiting in 2019 is being carried out in collaboration with the University of Alabamha. This five-year NIH grant was awarded for the Zivikele ngaphambi kokukhulelwa (ZINK): Protecting yourself before pregnancy study which is offering PrEP as part of a safer conception package. A second NIH funded study - Siyaphanta, Siyavimba explored female sex workers' (FSW) knowledge, attitudes, and experiences with pre-exposure prophylaxis (PrEP) and treatment as prevention (TasP), and other prevention options. This study was completed in 2019 and is being analysed.

The ECHO Trial (The Evidence for Contraceptive options and HIV Outcomes): A Multi-Center, Open-Label, Randomised Clinical Trial Comparing HIV Incidence and Contraceptive Benefits in Women using Depot Medroxyprogesterone Acetate (DMPA), Levonorgestrel (LNG) Implant, and Copper Intrauterine Devices (IUDs). This trial compared the risks of HIV acquisition between women randomised to Depot Medroxyprogesterone Acetate (DMPA), Levonorgestrel (LNG) implant, and copper IUDs. The results of the ECHO trial were widely disseminated in 2019 and presented at global conferences, meetings and locally to participants and government departments. A Lancet Global Health publication was published in July 2019. At the end of 2019 we completed The Women's Health, Injectable Contraception and HIV (WHICH) study: A randomized comparison of immunological, hormonal, physiological, psychological and behavioural effects of NET-EN versus DMPA contraception. This study was a collaboration with ECRU (Effective Care Research Unit) of the University of the Witwatersrand and the Department of Molecular and Cell Biology of the University of Cape Town and funded through a collaboration with the SAMRC. Data are currently being analysed.

In our contraceptive research programme we also completed a study that aimed to explore the reasons for requesting removal of Implanon implants, and patterns of contraceptive use in women presenting to an urban reproductive health clinic. During 2019, our microbicide research trials were completed at the MRU Edendale Research Site with final participants exiting the IPM 032, a Phase IIIb follow-on trial to IPM 027. IPM 032 designed as an open-label clinical trial to collect additional safety data and to establish adherence to ring use. This study used the Dapivirine Vaginal Ring in healthy, HIV-negative women who were enrolled in the Phase III Dapivirine ring trial IPM 027. Complementary socio-behavioural data collection was undertaken to collect information around adherence in microbicide trials.

We continued enrolling in our NIH funded study - PEPEHC (Evaluation of Postpartum Engagement in HIV Care) which aims to estimate the rate of attrition from HIV care and to identify factors associated with attrition from and retention in HIV care during the postpartum period. Enrolment is due to be completed in 2020 aiming to enrol 500 pregnant women, living with HIV and currently pregnant. Participants will be followed up over a period of two years.

Our menstrual management programme continued through 2019, with a menstrual cup education and distribution project in eThekwini schools and an evaluation of

DIVISIONS/ RESEARCH UNITS

menstrual health management in female learners in KwaZulu-Natal, Eastern Cape and Gauteng.

DEPARTMENT OF HEALTH INITIATIVES IN 2018: MRU continued to provide support to the Provincial and National Departments of Health (DoH) (SRH) in policy and programme issues in the area of sexual and reproductive health. In line with this, Mags Beksinska, Jenni Smit and Zonke Mabude supported DoH staff to present abstracts at the DoH research day held in Durban.

OUR KEY FOUNDERS

Prof Jenni Smit, Prof Mags Beksinska and Ms Zonke Mabude.

STAFFING

Our team consists of highly skilled research, clinical, laboratory, community, data and administrative staff from a wide range of backgrounds including clinical, behavioural and social sciences.

MENTORSHIPS

MRU focused on capacity building and training of researchers locally, regionally and internationally during 2019, with three PhD students (one in Uganda), and one Masters study being supervised by MRU researchers. Cecilia Milford completed her PhD in 2019.

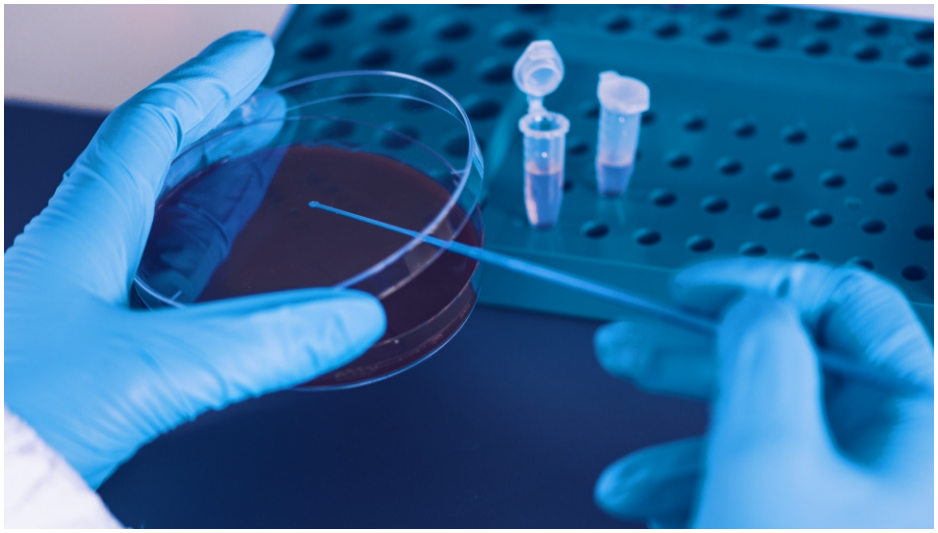
During 2019, One Peace Corps volunteer completed her residency and three local interns were hosted from University of KwaZulu-Natal and UNISA. Two students from Simon Fraser University completed their summer projects with MRU. During their time with MRU, students and interns worked on higher degree projects and to gain hands on research experience.

Vision

We aim to achieve the following:

- Conduct innovative research that informs policy and programmes.
- Conduct research that supports the development of
- new technologies on sexual and reproductive health,
- HIV and related diseases.
- Engage the community in informing research and improving service delivery.

OTHER RESEARCH UNITS



BATHO PELE BREAST UNIT

The Batho Pele Breast Unit operates from the Chris Hani Baragwanath Hospital in Soweto. This unit is dedicated to the treatment of all breast-related diseases, especially cancer. We have no waiting list and we offer the following services:

- **A specialist consultant-driven service**
- **Prompt assessment and diagnostic procedures**
- **A multidiscipline approach to ensure the best care for all patients**
- **Specialised expertise in oncoplastic breast conserving surgery**
- **Personalised follow up**
- **Commitment to training of both undergraduate and post-graduate doctors and nursing staff**
- **We do epidemiology, health system strengthening and molecular biology grant funded research**

www.bathopelebreastunit.co.za
(011)933 0341/ 8052/ 8804

OTHER RESEARCH UNITS

WDGMC TRANSPLANT UNIT

The Wits Donald Gordon Medical Centre's (WDGMC's) Transplant Unit is a leading centre in liver, kidney and simultaneous kidney-pancreas transplantation. Professor Jean Botha leads the unit and has performed many pioneering transplant surgeries. The unit seeks to transform the South African organ transplant landscape.

Currently, this is the only Transplant Unit doing living donor liver transplantation and pancreatic transplantation in Southern Africa. In striving to promote and develop the discipline of organ transplantation in South Africa, the Unit is able to successfully transplant solid organs in both children and adults.

The unit is affiliated to the School of Clinical Medicine and the Department Internal Medicine- Hepatology.


www.dgmc.co.za/highly-specialised-unit/transplant
+27 11 356 6488

WITS ENTERPRISE

WITS Enterprise is a private company, owned by the University of the Witwatersrand, mandated to market and commercialise the University's intellectual capital.

WITS Enterprise comprises four units, which each provide dedicated and strategic services that are aligned with the objective to optimise the University's impact on society. These include Innovation Support, Research Support, The Entrepreneurial Wayz and Short Courses. Wits Enterprise offices are situated in the PDH on East Campus.


www.wits-enterprise.co.za
+27 11 717 9370

OTHER RESEARCH UNITS

RURAL HEALTH ADVOCACY PROJECT

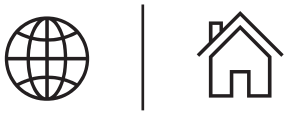
The Rural Health Advocacy Project (RHAP) is affiliated to the Wits Centre for Rural Health in the Department of Family Medicine. The Project advocates for equitable access to quality healthcare for rural communities across South Africa.

Informed by the voices of rural healthcare workers and communities on the ground, partner organisations, stakeholders and researchers, RHAP uses its urban-based access to decision-makers to conduct advocacy, generate debate, monitor implementation of health policies in rural areas, support pro-equity government interventions, and influence decision-making that is in tune with rural realities.

While small in size, RHAP is large in reach through its innovative programmes and strategic partnerships and networks across the country.

The RHAP focuses primarily on issues affecting access and equity within the primary healthcare context, ranging from access to healthcare workers in rural areas to adequate budgets and rural-friendly policies.

The RHAP was founded in 2009 by the Wits Centre for Rural Health and the Rural Doctors Association of Southern Africa, who remain among RHAP's core partner organisations to date.



www.rhap.org.za
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WITS HEALTH CONSORTIUM