



2016

ANNUAL RESEARCH REPORT

Faculty of Health Sciences

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A) EXECUTIVE SUMMARY

The Faculty of Health Sciences is a community of exceptional teachers, innovative researchers, clinicians and students, striving to prepare tomorrow's leaders. In 2016, the Faculty was ranked 77th globally in the clinical, preclinical and Health Subject area of the Times Higher education (THE) ranking.

The Faculty is made up of seven schools – Anatomical Sciences, Clinical Medicine, Oral Health Sciences, Pathology, Physiology, Public Health and Therapeutic Sciences. Additionally, in 2016 the Faculty housed 24 recognized Research Entities, eight Department of Science and Technology/National Research Foundation South African Research initiative Chairs, three South African Medical Research Council (MRC) Research Units, as well as four centres of excellence.

The approximately 2900 faculty staff members are responsible for undergraduate and postgraduate teaching and training, conducting research, providing clinical patient care as well as informing public health policy and service delivery for South Africa. During 2016, the Faculty staff complement was comprised of full-time Wits staff (258 academic and 310 administrative support), and joint staff with either the Department of Health (approximately 2200, of which 50% are registrars) or the National Health Laboratory Services (approximately 400). Additionally, the Faculty hosted 63 postdoctoral fellows.

The Faculty of Health Sciences accomplished a successful 2016, with improved research productivity, publication output and postgraduate completions. During the reporting period, the Faculty contributed **509.51 publication units**, a 14.85% increase from 2015. A total of 478 postgraduate students completed qualifications in 2016, including **54 PhD students, 61 Masters by research, 232 Masters by coursework and research report, 41 postgraduate diploma and 90 BHSc Hons**, marking an overall increase of 22% from 2015. The NRF rated researchers in the Faculty increased from 62 in 2015 to 85 in 2016. Two of the nine A-rated scientists in the Faculty were part of a list of 3087 Highly Cited Researchers from all over the world, hailed for their groundbreaking research in their different disciplines. Research excellence of numerous staff and postgraduate students was acknowledged through various international and national awards and prizes.

The Faculty takes great pride in the excellence of its researchers, its research output and postgraduate training. The continued integration of world-class research, education and clinical expertise to address the South African healthcare challenges and contribute to the global knowledge economy will ensure the sustainability and growth of the Faculty in 2017.

B) Special achievements of the Faculty of Health Sciences

In 2016, the Faculty of Health Sciences ranked 77th globally in the clinical, preclinical and Health Subject area of the Times Higher education (THE) ranking. This is a testament to the exceptional academics and researchers.

Professor Helen Rees, Director of the Wits Reproductive Health and HIV Institute (WRHI) was awarded the **Order of the Baobab in Silver** by the President of South Africa, the Honourable Jacob Zuma. The Order of the Baobab recognises South African citizens who have contributed to community service, business and economy, science, medicine and technological innovation. Professor Rees is internationally recognized for her expertise in the field of sexual and reproductive health, HIV/AIDS and vaccines.

Professor Shabir Madhi, Director of the Respiratory and Meningeal Pathogens Research Unit (RMPRU) was awarded the **Scientific Leadership Award 2016** by the European and Developing Countries Clinical Trial Partnership (EDCTP). The EDCTP Scientific Leadership Award is bestowed upon excellent world class scientists who have made a major contribution in strengthening clinical research capacity in Africa. He was also elected as the **Fellow of the Royal Society of South Africa**. The Society recognises research excellence and initiates debates on matters of public importance which affect science or arise from its application by encouraging ground breaking research.

Five Faculty members won awards at the 2016 South African Medical Research Council (SAMRC) Scientific Merit Awards held in Cape Town on 18 October, 2016. The awards recognize the country's leading medical researchers whose work has had a monumental impact on health science in South Africa. Winners of gold awards included **Professors Gavin Norton** (School of Physiology), **Viness Pillay** (School of Therapeutic Sciences) and **Frederick Raal** (School of Clinical Medicine). Silver awards went to Professors **Cheryl Cohen** (School of Public Health) and **Sithembiso Velaphi** (School of Clinical Medicine).

Two of the nine A-rated scientists in the Faculty, Professors **Lynn Morris** and **Christopher Mathew** were part of a list of 3087 Highly Cited Researchers from all over the world, hailed for their groundbreaking research in their different disciplines.

Professor Charles Feldman, Director of the Pulmonary Infection Research Unit, **Professor Lenore Manderson** from the School of Public Health and **Professor Shane Norris**, Director of the Developmental Pathways for Health Research Unit, became **members of the Academy of Science of South Africa**.

Professor Maureen Coetzee, Co-Director of the Wits Research Institute for Malaria was one of the **finalists for the Top Woman in Science Award**. She was also presented with a **Certificate of Distinction for Outstanding Achievements** at the XXV International Congress of Entomology in September 2016.

Professor Wendy Stevens, Head of the Department of Molecular Medicine and Haematology was designated as the **co-Chair of the African Society for Laboratory Medicine (ASLM) 2016**. Professor Stevens has contributed significantly to the development of capacity for affordable, accessible HIV diagnosis and monitoring in South Africa and over 60 centers in sub-Saharan Africa.

Professor Laetitia Rispel, Head of School of Public Health, was elected as the **Vice President/President-Elect of the World Federation of Public Health Associations (WFPHA**, from May 2018 to May 2020). This is a very important milestone for the Federation as Professor Rispel is the first African woman to hold this position.

Associate Professor Witness Mudzi from the Department of Physiotherapy was elected as the **Deputy President of the South African Society of Physiotherapy (SASP)** and will be taking over as the President of the SASP in September 2017 for a period of two years.

Professor Viness Pillay was awarded the **Fellowship to the Academy of Translational Medicine Professionals**.

Professor Jennifer Smit and Dr Mags Beksinska from the Maternal, Adolescent and Child Health (MatCH) Research Unit were awarded the **DREAMS Innovation Challenge Award** by the United States Agency for International Development/Gates Foundation. DREAMS is an ambitious partnership to reduce new HIV infections among adolescent girls and young women in 10 sub-Saharan African countries.

Professor Mary Gulumian from the Department of Molecular Medicine and Haematology was awarded a **Lifetime Achievement Award** for outstanding contributions to the field of particle toxicology at the 11th International Particle Toxicology Conference held in Singapore in September 2016.

The South African Journal of Science appointed **Professor Maryna Steyn**, Head of School of Anatomical Sciences and Director of the Human Variation and Identification Research Unit as a **new associate editor** in the field of Archaeology, Anthropology and Palaeontology.

C) Performance against the Faculty Research and Postgraduate Plan

Overall, the FHS continued to produce world class research, and achieved its strategic goal of increasing its subsidy earning research and postgraduate output in 2016. Approximately 43% of the student population was registered for postgraduate degrees. Because of the complexity of the staff complement, it is difficult to determine the percentage that is research active. The faculty continues to strive to increase the number of research active staff.

Research output

The total units awarded by the Department of Higher Education and Training (DoHET) to the Faculty for the period 2013-2016, including publications from CHSE and HSRO are depicted in **Figure 1**. Additionally, **Table 1** reflects the publication units awarded to individual Schools in the Faculty for the period 2013 – 2016. The publication emphasis is on journal articles. A total of 1021 journal articles were submitted, an increase from 887 in 2015. There has been a pleasing and consistent increase in publication numbers as well as publication units in the Faculty over the last years. Each School has set minimum publication benchmarks per staff member according to ranking/grade, therefore the FHS publication outputs could be increased further if the number of research active staff increases.

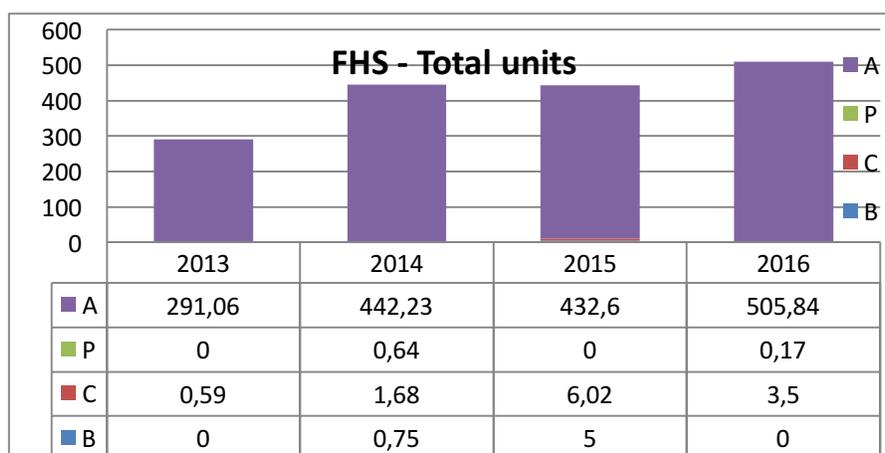


Figure 1: A comparison of the total units awarded to the Faculty of Health Sciences by DoHET for publications submitted for subsidy (2013 – 2016). A= journal articles, B=books, C= chapters and P= conference proceedings.

Table 1: A breakdown of units per School awarded to the Faculty of Health Sciences by DoHET for publications submitted for subsidy (2013 – 2016).

School	2013	2014	2015	2106
SOAS	9.71	11.9	10.06	23.01
SOCM	114.2	158.4	163.4	190.55
SOHS	15.43	18.32	12.99	20.68
SPATH	54.92	63.03	74.66	82.9
SOP	28.78	37.15	33.2	38.28
SPH	45.88	93.45	85.4	88.25
STS	21.73	61.66	60	63.5
Total	290.65	443.91	439.71	507.17

The most prolific authors in the Faculty in 2016, FHS articles published in some of the highest impact factor journals in 2016 (IF >20), as well as citations of Faculty authors over a 10 year period (2006-2016), are included in Appendix 1, 2 and 3, respectively. The excellence of research is evident by the quality of publications, as determined by the impact factor of the

journals. For example, during 2016 FHS researchers published in the Lancet (IF 44.00), Nature (IF 38.10) and Lancet Infectious Diseases (IF 21.37).

PG student enrolments and completions

Unit allocations for postgraduate students who completed qualifications in 2016 for PhD (D), Masters by dissertation (R), coursework and research report (C), as compared to previous years are shown in **Figure 2**. Moreover, the actual student numbers per school, including D, R, C, Postgraduate Diploma (X) and BHSc Hons (H) with comparative data for 2013 -2015, is shown in **Table 2**. A total of 478 postgraduate students completed qualifications in 2016, including 54 PhD students, 61 Masters by research, 232 Masters by coursework and research report, 41 postgraduate diploma and 90 BHSc Hons, marking an overall increase of 22% from 2015. A consistent increase in the number of MMed graduations in the last 10 years is shown in **Figure 3**. MDent graduations remain fairly low.

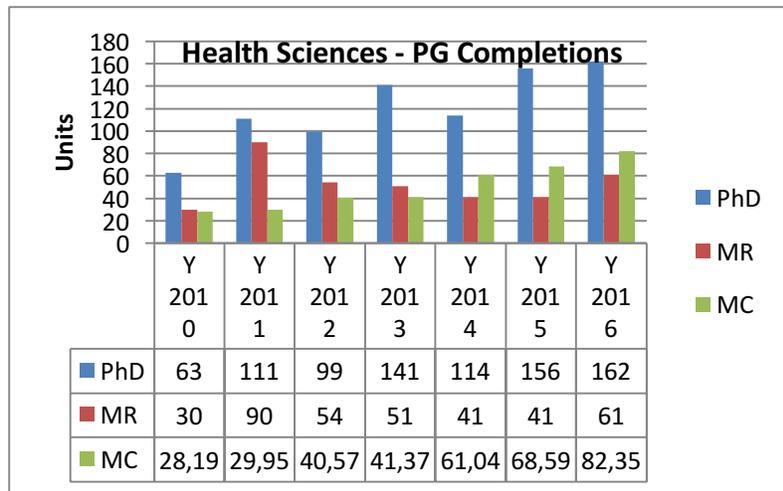


Figure 2: Total units for PhD (D), Masters by dissertation (R), coursework and research report (C) completions for the period 2010-2016 in the Faculty of Health Sciences.

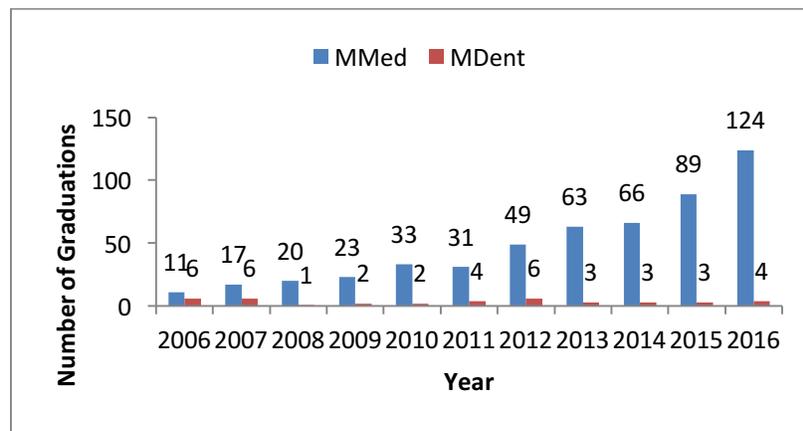


Figure 3: MMed/MDent graduations between 2006 – 2016.

Table 2: Numbers of postgraduate students graduating from each School in the Faculty of Health Sciences for the period 2013 to 2016.

Calendar Instance Year	Program Type	School of Anatomical Sciences	School of Clinical Medicine	School of Oral Health Sciences	School of Pathology	School of Physiology	School of Public Health	School of Therapeutic Sciences
2013	C		74	11	7		39	32
	D	1	10		12	8	5	8
	R	1	5		19	6	0	11
	X		1		9		31	25
	H	6			29	13		25
Total per School		8	90	11	76	27	79	106
2014	C		83	9	2		47	34
	D	1	12		10	3	4	7
	R	5	7	0	13	5	2	9
	X		6		3		0	26
	H	18	10		20	14		25
Total per School		24	128	9	48	22	53	101
2015	C		89	14	9		29	35
	D	6	16	0	14	2	7	7
	R	4	2	0	14	4	0	22
	X		22		0		27	18
	H	14	8		14	17		22
Total per School		24	137	14	51	23	63	104
2016	C		138	15	9		30	40
	D	4	14		13	3	11	9
	R	2	9		15	7	1	27
	X		27		7			7
	H	13	8		24	14		31
Total per School		19	196	15	68	24	42	114

MRC Units, Research Entities, DST/NRF South African Research Chair Initiative and Centres of Excellence

The FHS proudly hosts three MRC Units, (the Rural Public Health and Health Transition Research Unit (Prof S. Tollman), Development Pathways Research Unit (Prof S. Norris) and the Antiviral Gene Therapy Research Unit (Prof P. Arbuthnot)), 24 research entities (Appendix 4), eight DST/NRF South African Chairs (Appendix 4) and four Centres of Excellence (COE): DST/NRF COE for Biomedical Tuberculosis Research (Prof B. Kana), COE in Human Development (Prof L. Richter) , ANDI COE in Advanced Drug Delivery Technology (Prof V. Pillay) and ANDI COE for Viral Gene therapy (Prof P. Arbuthnot).

Annual Reports for each research entity are submitted to the FRC and reviewed by the FRC Research Entity review committee. Based on the annual reports most of the entities performed

exceptionally well with impressive research outputs and student training. Constructive feedback was given to the entity directors during one on one meetings with each entity director and their affiliated Heads of Departments and Schools. These meetings provide an opportunity for the entity director to raise their challenges and to clarify matters raised by the committee. This process was constructive as, in some instances, it provided solutions for efficient operation of the entity. The committee was encouraged that many of the entities addressed most of the comments and recommendations from the previous reviews in their current reports, particularly around succession planning. It was noted that several entity directors voiced concerns around research post funding, lack of permanent posts, funding for equipment and international post-doctoral fellows, limited space, publications costs and lack of research time. The annual reports are available upon request.

New Research Entity Applications during 2016

- a. Professor Maryna Steyn from the School of Anatomical Science submitted an application for a new research unit – Human Variation and Identification Research Unit (HVIRU). The application was reviewed and approved by the FRC and URC in 2016.
- b. Maternal, Adolescent and Child Health Research Unit (MATCH) under the directorship of Professor Jenny Smit was approved as an entity by the URC in 2016.
- c. An application from Prof Ballot from the school of Clinical Medicine entitled, Project for Improving Neonatal Care (PRINCE) was received for consideration as a research program. The application was approved by the FRC in 2016.

Review of Entities

The Systematic Review Initiative for Evidence based Minimum Intervention in Dentistry (SYSTEM) was due for their five year review (QQR) in 2016. However, the entity director had concerns regards sustainability of the entity and therefore, was going to reconsider a QQR.

NRF Rated Scientists 2016

The Faculty of Health Sciences had a total of 85 NRF rated researchers in 2016. Fourteen of these researchers were rated for the first time and twelve were re-rated during 2016 (Appendix 5). A list of the nine NRF A-rated scientists in the Faculty is shown in **Table 3**.

Table 3: List of NRF A-rated scientists in the Faculty of Health Sciences during 2016.

Name	School	A rating	Valid until
Mitchell, D	Physiology	A1	2017
Brouwer DH	Public Health	A2	2022
Feldman, C	Clinical Medicine	A2	2021
Gray, G	Clinical Medicine	A2	2017
Jewkes, RK (JS)	Public Health	A2	2022
Madhi, SA	Pathology	A2	2022
Manderson LH	Public Health	A2	2021
Mathew CGP	Pathology	A2	2021
Morris, L (JS)	Pathology	A2	2021

Contribution of postdoctoral fellows

Over the course of 2016, the FHS hosted a total of 63 postdoctoral fellows. A full list is provided in Appendix 6. Postdoctoral fellows are considered essential to advancing the scholarly mission of their host's research environment. In total, they contributed 60 publications, or 3.25% (16.6/509.51) units to the FHS during 2016. This is translated into an expected income of R 7 965 311.00 for the University in 2018.

The Postdoctoral and Carnegie PhD Fellow Symposium which was sponsored by the Carnegie Foundation, the Health Sciences Research office and Roche took place at the Wits Club, WITS West Campus on the 2nd October 2016. The meeting demonstrated the significant role played by Postdoctoral Research and Carnegie PhD Fellows in enriching research outputs in the Faculty and the need to nurture emerging academics.

Health Sciences Research Office (HSRO) short courses, workshops and consultations

Short Courses and Workshops run by the HSRO are aimed at strengthening research capacity of students and staff members. As shown in Appendix 7, a total of 711 candidates attended the various courses and workshops in 2016. Additionally, a total of 95 candidates attended various statistics (STATISTICA and STATA) courses and workshops, and 90 candidates attended the monthly data analysis workshops held during 2016. In order to assist students on an individual basis, the HSRO has continued to offer 'walk-in' one-on-one statistical consultations to students in the Faculty 4 days per week at the Medical School. The consultations are also offered at the Chris Hani Baragwanath Hospital but by appointment. The consultations have been supported by the School of Public Health which has been providing some of the tutors since the beginning of this activity. In 2016, more than 580 candidates attended the consultations. Financial support for this initiative is provided by the HSRO.

D) Self-assessment of Schools' and research entities' contributions

The breakdown of the units across publication types and Schools from 2013-2016 is depicted in **Figure 4**. The School of Clinical Medicine recorded the highest number of units, followed by Public Health and Pathology. All Schools had an increase in publication units from 2015. It is interesting to note that the Schools of Anatomical Sciences, Oral Health Sciences, Clinical Medicine and Pathology show an upward trend. By contrast, the Schools of Physiology, Therapeutic Sciences and Public Health seem to have reached a plateau in the last 3 years. The reasons for this will be interrogated further. Each School submits an annual report to the Faculty. The full reports are available upon request.



Figure 4: Publication units for each of the seven schools in the Faculty of Health Sciences for the period 2013-2016.

The publication unit contribution of research entities to each school during 2016 is shown in **Figure 5**.

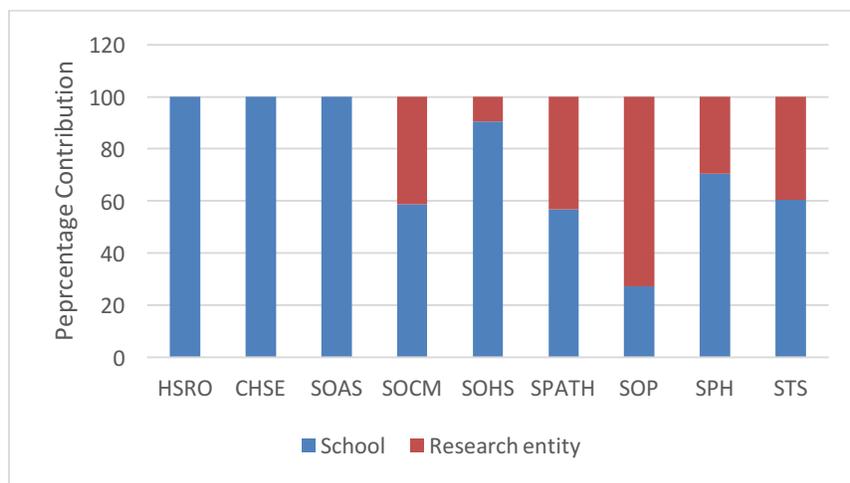


Figure 5: Analysis of the percentage contribution of publications by research entities to Schools (2016 accredited journal articles).

The contribution of each School to postgraduate throughput is outlined in **Table 2**. Of particular interest, the number of staff with a PhD (204), and Postdoctoral fellows (35) in each School as at the end of 2016, as compared to the number of PhD students (54) graduating from each School in 2016 is shown in **Figure 6**. Although staff members are also supervising BHSc Hons, MSc, MMed/MDent students, there is definitely scope to increase the PhD throughputs in the Faculty.

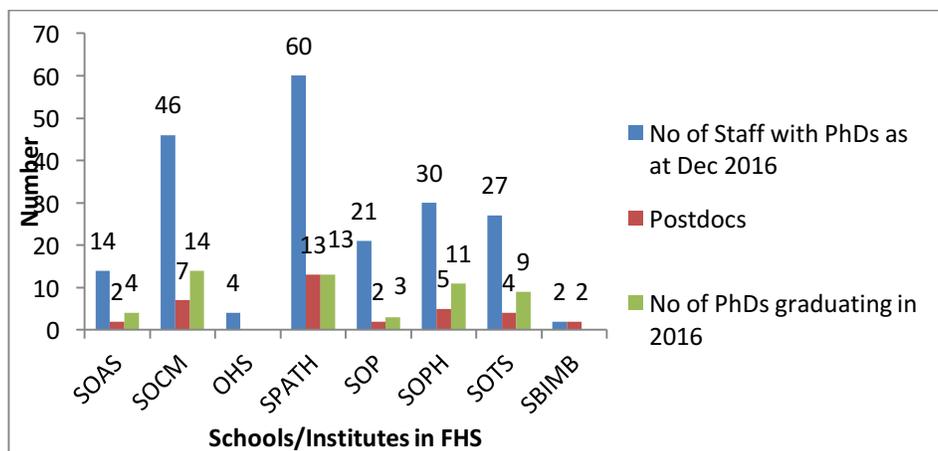


Figure 6: Comparison of the number of staff with PhDs and postdocs to the number of PhD graduations in each School in the faculty of Health Sciences as at the end of 2016.

E) Financial reporting

Research Funding

The Faculty of Health Sciences received a total of **R 927 135 528** in external income for research purposes during 2016. This was comprised of R 131 171 655 administered through the University, and R 795 963 873 (excluding development aid work) administered through the Wits Health Consortium (WHC, **Table 4**).

Table 4: Major research grants administered by the Wits Health Consortium in 2016.

Funder	Amount
USA National Institutes of Health	250 072 728
Bill and Melinda Gates Foundation	155 235 238
Global Funds	132 862 734
Other	257 793 173
Total	795 963 873

The FHS budget received from the FRC was R 14 137 647, of which R 11 021 200 was allocated towards RINC payouts (R 8 304 600 for publications and R 2 716 600 for postgraduate throughputs; R 9400.00 per Unit). The WHC dividend allocated to the FRC for strategic projects was 1.7 million in 2016.

How the FRC and WHC dividend budget was utilized

The RINC component of the FRC budget was allocated to all authors and postgraduate supervisors. The remainder, R 3 116 447 was allocated to FRC capped posts. There was a shortfall of R 469 174 towards the FRC capped posts, which had to be covered by the WHC dividend. An additional R 400 000.00 of the WHC dividend was allocated to FRC individual grants (**Table 5**). **Table 6** shows the breakdown of the remainder WHC dividend that was used to support strategic projects in the Faculty for 2016. Recipients of the start-up funds and seed funding are shown in **Tables 7 and 8**, respectively. Details of successful recipients of funding for minor equipment, writing retreats, travel and publication incentives can be provided upon request.

Table 5: The FRC Individual Research Grants amounts that have been disbursed over the last 6 years.

Funds	2011	2012	2013	2014	2015	2016
FRC	500 000	500 000	500 000	500 000	300 000	-
MFREF	362 513	335 024	333 763	333 406	355 884	368 640
WHC Dividend					500 000	400 000
I Hodges CVS						
I Hodges Stress	157 486	185 000	200 000	220 000	220 000	300 000
MMed/MDent	200 000	-	-	-	-	-
Total:	1 219 999	1 020 024	1 033 763	1 053 406	1 375 884	1 068 640
# applicants	146	176	194	205	168	128

Table 6: Wits Health Consortium dividend breakdown for 2016.

Activity	Budget allocated	Actual Spend
Minor equipment grant	R 350 000,00	R 341 122,07
Start-up funds for new staff	R 200 000,00	R 202 000,00
Seed funding for new projects	R 300 000,00	R 237 338,52
Staff writing retreats	R 100 000,00	R 91 702,00
Postdoc publication incentives	R 140 000,00	R 140 000,00
Prestigious research lectures	R 80 000,00	R 105 966,03
STATA upgrade	R 165 126,00	R 142 357,50
Postgraduate travel awards	R 150 000,00	R 200 000,00
Biennial Research Day	R 200 000,00	R 198 354,72
TOTAL	R 1 685 126,00	R 1 658 840,84

Table 7: List of recipients of Start-up funding for new staff members in the Faculty of Health Sciences for 2016.

Name	Position	School	Proposed Study	Amount awarded
Dr Aijaz Ahmad	Senior researcher	Pathology	Identification of secreted and surface immunodominant antigens of pathogenic yeast	R 25 000
Dr Nanette Briers	Senior Lecturer	Anatomy	Improving methods for personal identification	R 20 000
Dr Nadia Carsten	Researcher	Pathology		R 25 000
Dr Janine Donaldson	Lecturer	Physiology	Investigation of the use of a flavonoid, commonly found in fruits and vegetables, known as quercetin, in the prevention of the metabolic syndrome	R 20 000
Dr Ann George	Lecturer	Clinical Medicine	Evaluating paediatric teaching videos and Tracking of health science graduates from 2009-2016	R 20 000
Dr Samantha Kerr	Lecturer	Physiology	Physical activity, sleep disturbances and their effects on neurological disorders	R 20 000
Mr Luther Moreng	Lecturer	Therapeutic Sciences	Occupational therapists' role in facilitating entrepreneurship and self-employment in people living with disabilities in South Africa	R 10 000
Dr Gavin Owen	Lecturer	Pathology	Fine Mapping the Epitope: Defining the nature, dynamics, and structure of the protective HIV-1 Env-CD4 complex epitopes	R 25 000
Mrs Diana Pillay	Lecturer	Anatomy	The effect of maternal intrauterine alcohol exposure on postnatal skeletal development in Sprague Dawley rats	R 20 000

Mr Kganetso Sekome	Lecturer	Therapeutic Sciences	Exploring the perceptions and attitudes of Physiotherapists, Occupational therapists and Speech & Language therapists employed at primary health care institutions on stroke clinical guidelines.	R 17 000
			TOTAL	R202 000

Table 8: List of recipients of Seed funding for new projects in the Faculty of Health Sciences for 2016.

Name	School	Title of project	Amount awarded
Dr Gavin Owen	School of Pathology	Fine Mapping the Epitope: Defining the nature, dynamics, and structure of the protective HIV-1 Env-CD4 complex epitopes	R 50 000
Dr Pascaline Fonteh	School of Clinical Medicine	Characterisation of immune cells implicated in acute pancreatitis to identify predictors of severity and outcome that translate into clinical practice	R 50 000
Dr Reubina Wadee	School of Pathology	Endometrial Carcinoma: Microsatellite instability and suspected Lynch syndrome in the greater Johannesburg area (2009-2015)	R 17 338,52
Dr Sugshnee Pather	School of Pathology	Prognostic influence of MYC aberrations and other clinicopathological factors of high grade B-cell non-Hodgkin lymphomas in adult and paediatric patients	R 20 000
Ms Thulile Khanyile	School of Pathology	HIV-1 sequential Env-based prime-boost vaccine strategies to elicit CAP256-VRC26-like broadly neutralizing antibodies	R 50 000
Prof Lisa du Toit	School of Therapeutic Sciences	A bioactive 3D printed device for wound healing and tissue engineering	R 50 000

F) Challenges

There are several major concerns that impact on progress and optimal functioning of all emergent researchers, research active staff and related structures/systems in the Faculty of Health Sciences.

Financial sustainability

The proportion of funding that the URC allocates to the Faculty of Health Sciences FRC is decreasing annually. The annual dividend received from the WHC is also uncertain. This funding provides critical core support to emergent researchers to initiate new research projects. Funding also provides a level of stability to the largely grant funded research entities. Additionally, publication costs are becoming prohibitively expensive, and increasingly our researchers cannot cover these costs.

Shortage of staff in key support posts

a. Human Research Ethics Committee (HREC)

The office that supports the HREC is understaffed, and is struggling to meet the needs of the University and the Faculty. They have to process applications for all clinical trials conducted in our affiliated hospitals, and postgraduate students. The Faculty has approximately 2500 registered postgraduate students. All postgraduate students must apply for either human ethics, a human ethics waiver or animal ethics. The shortage of staff has resulted in considerable time delays, which increases the time postgraduate students are registered, which has implications for the subsidy received. Additionally, Faculty researchers had lost large grant funding due to delays in getting ethics. The hard work of the HREC and the HREC chairs is gratefully acknowledged.

b. Postgraduate Office

Shortage of staff in the postgraduate office in 2016 has placed a huge burden on the Faculty Registrar, the Assistant Dean: Research and Postgraduate Support and the remaining administrative staff of the postgraduate office. Despite the lack of staff, postgraduate registrations and completions increased in 2016. The hard work of the Faculty Registrar and the Postgraduate Office Administrative staff in keeping the Postgraduate Office functional over this period is gratefully acknowledged. In addition, the Graduate Studies Committee, the EXCO of this committee, all MSc and PhD assessors and supervisors and the various internal examiners must be thanked for the role they all play in keeping the quality of our postgraduate students so high and for the huge number of additional hours they spend on tasks associated with postgraduate throughput in the Faculty.

Infrastructure issues

a. School of Oral Health Sciences

The staff in the School of Oral Health Sciences work under extremely difficult circumstances. Aside from the heavy clinical burden placed on the staff, they work in an environment with crumbling infrastructure. The School requires a new building. Despite these challenges, the School members remain committed to research.

b. Central Animal Services (CAS) in the FHS

The CAS is a University Core Facility, providing research support to predominantly the Faculty of Health Sciences and the Faculty of Science. These facilities require major upgrades and maintenance.

Service commitments versus research time

The joint staff in the Faculty are employed by the Department of Health in the Schools of Clinical Medicine and Oral Health Sciences, or the National Health Laboratory Services in the School of Pathology. Joint staff are allocated a percentage of their time to devote to research, but in reality this is not happening. This is attributed to several reasons such as the huge clinical and teaching burden placed on individuals, leaving little to no time for research. Despite these challenges, there are several examples of successful research clinicians who have been major contributors to the international standing of the Faculty.

G) Other important information

Health Sciences Research Office (HSRO)

Remit of the HSRO: The aim of the HSRO is to operationalise the strategic goals of the Faculty. The strategic research and postgraduate goals centre around increased outputs of publications, increased quality of publications (ISI journals) increased throughput and quality of postgraduate students and support (financial where possible, strategic collaborations and courses) for all researchers.

Faculty Research Committee (FRC) and Task Groups

The FRC met every two months during 2016 under the Chairmanship of Professor B Kramer. Minutes of the meetings can be provided upon request.

Reports from Task Groups

The Chairman of the FRC Committee extends her gratitude to the Chairmen of the Task Groups and their committee members for the hard work undertaken on behalf of the Faculty in 2016.

In 2016, the Task Groups and their Chairpersons were as follows:

Research Entities: **Dr B Gordhan**

Individual Research Grants: **Professor J.M Pettifor**

Conference Travel: **Professor T Coetzer**

Faculty Research Prize: **Professor T Coetzer**

Faculty Research Day: **Professor W Mudzi**

Faculty Research Budget: **Professor B Kramer**

Research Adjusted Index: **Professor A Rothberg**

FRC Advisory Board: **Professor B Kramer**

FRC Equipment: **Professor B Kramer**

FRC Research Entity Forum: **Professor B Kramer**

FHS Biennial Research Day

The Biennial Wits University Faculty of Health Sciences Research Day (RD) and Postgraduate Expo (PE) was held on the 1st of September 2016 at the Wits Faculty of Health Sciences. Once again, the RD and PE proved to be a resounding success with over 1000 delegates attending. The theme for this year was **#Research for Health**. The RD and PE provided a platform for researchers and students in the Faculty to share and enrich audiences from within and without the Faculty through round table discussions and oral and poster presentations.

The programme comprised of 90 oral and 170 poster presentations, across five thematic areas: Clinical Sciences and Therapeutics for Health; Education Policy Systems; Infectious Diseases; Diseases of Lifestyle; and Molecular and Comparative Biosciences covering the full spectrum of research in the Faculty. In addition, three round table discussions took place along the following themes: i) Targeting behaviour change in diseases of lifestyle ii) Are winning/losing the fight in managing mental health issue in the country? and iii) Conflict between research and health sciences education in 2016.

The event started on Wednesday the 31st of August with the REDCap workshop. The REDCap plenary lecture was given by Professor Paul Harris who spoke on “Introduction to data management: best practises and the role of electronic data capture systems”. This year’s event also coincided with the gathering of the Faculty of Health Sciences Alumni who participated through round table discussions and research presentation adjudications. The Research Day continued on the 1st of September with the second Phillip V. Tobias Plenary Lecture which was given by Professor Keith Klugman. Prof Klugman spoke on “Research to prevent pneumonia deaths in children”. Professor Keith Klugman is the Director of Pneumonia at the Bill and Melinda Gates Foundation in Seattle WA, USA.

Prestigious Research lectures (PRL)

In 2016, the Faculty of Health Sciences Research Office hosted two successful Prestigious Research Lectures. The 13th Prestigious Research Lecture entitled, “Unlocking access to global HIV and TB care through molecular diagnostics” was presented by **Professor Wendy Stevens** (Head of the Department of Molecular Medicine and Haematology, School of Pathology) and **Professor Lesley Scott** (Head of Research and Development for the National Priority Programme). **Dr Yogan Pillay** (Deputy Director-General at the South African National Department of Health) acted as the commentator.

The 14th Prestigious Research Lecture entitled, “ART: Do or die” took place in November 2016 and was presented by **Professor Ian Sanne** (Director of the Clinical HIV Research Unit and the Chief Executive Office of Right to Care) and **Professor Francois Venter** (Deputy Executive Director of the Wits Reproductive Health and HIV Institute). **Ms Qedani Mahlangu** (Gauteng MEC for Health) and **Mr Anele Yawa** (General Secretary of the Treatment Action Campaign) acted as commentators.

Research Awards Dinner

The Health Sciences Research Awards event hosted by the Dean and the Assistant Dean: Research and Postgraduate Support took place on the 19 August at the Automobile Club in Killarney. Dr Linda Hlabangana, from the Department of Radiology co-hosted the citations with Professor Bev Kramer. The annual event celebrates the outstanding achievements of researchers and Research Entities in the Faculty during the previous year. As August was Women’s month, it was auspicious that 65% of the awardees were women.

The Faculty salutes its exceptional researchers, and is very proud of their continued successes.

The Carnegie Clinician Scientist PhD Fellowship Programme

The Carnegie Corporation of New York provided the University of the Witwatersrand with funding from 2010-2016 to attract, train, develop and retain clinicians to pursue an academic and research based career in Medicine. The Programme’s major objective was to allow young specialists the opportunity to obtain PhDs through a structured fulltime programme over two years during which they could take unpaid leave from their clinical positions within the Provincial Health services and were provided with a tax-free stipend for the period. To date 10 fellows have successfully completed their PhDs.

Overall it is believed that the programme has been uniquely successful and is at the forefront of national efforts to address the long standing decline in clinical research that has been occurring over many years in South Africa. The Faculty has been successful in partnering with the SAMRC to continue the programme in a slightly different format, and is also very grateful for the support from Cassandra Miller-Butterworth, who has provided funding for a further fellowship with support for a stipend for three years, running costs and travel to conferences and laboratories.

Carnegie-WITS Alumni Diaspora Programme

The Wits Alumni Diaspora Programme has since 2010, created collaborative research networks between Health Sciences Alumni worldwide and their peers at Wits. Since 2013, the programme has grown into a comprehensive collaborative network with funding from the Carnegie Corporation of New York. In 2016, the programme hosted eight diaspora alumni and enabled two faculty researchers to engage with global alumni at their institutions abroad. A detailed report can be provided upon request. Details of visits are shown in **Table 9**.

Table 9: List of Alumni Diaspora fellows visiting Wits FHS during 2016

Alumni Diaspora Fellow	Affiliations	Wits Host	Visit Date
Professor Caron Strahlendorf	Division Head and Associate Clinical Professor in the Department of Paediatrics, at the University of British Columbia, Canada and co-Chair of the research ethics committee.	Dr Jennifer Geel, Division of Paediatric Oncologist, School of Clinical Medicine	March 2016
Professor Brynn Levy	Professor of Pathology and Cell Biology at Columbia University, and Director of the Clinical Cytogenetics Laboratory at the New York Presbyterian Hospital, New York.	Professor Amanda Krause, Division of Human Genetics, School of Pathology	4 -18 June
Professor David Metz	Professor of Medicine and Associate Chief for Clinical Affairs in the Division of Gastroenterology at the University of Pennsylvania, Philadelphia	Professor Martin Smith, Division of Gastroenterology, School of Clinical Medicine	23 June to 1 July
Dr Nalini Pather	Senior Lecturer in Anatomy, University of New South Wales, Australia	Dr Carol Hartmann, School of Anatomical Sciences	23 June to 8 July

Mrs Roshni Khatri	Senior Lecturer in Occupational Therapy, University of Northampton, United Kingdom	Professor Daleen Casteleijn, Division of Occupational Therapy, School of Therapeutic Sciences	11-14 July
Professor Roy Zent	Vice Chair of Research in the Department of Medicine, Vanderbilt University School of Medicine, Tennessee	Professor Beverley Kramer, Assistant Dean: Research and Postgraduate Support	25-30 July
Professor Kokila Lakhoo	Consultant Paediatric Surgeon, Children's Hospital in Oxford, United Kingdom	Professor Jerome Loveland, Division of Paediatric Surgery, School of Clinical Medicine	28-31 August
Dr Robert Jacobson	Affiliate Professor of Clinical Biomedical Science, Florida Atlantic University College of Medicine, Florida	Professor Johnny Mahlangu, Head of School, School of Pathology	5-9 September

Other

1. The **Faculty's Prestigious Research Prize for 2016** was awarded to **Dr Melissa Chengalroyen** from the School of Pathology for her research entitled; "Detection and Quantification of Differentially Culturable Tubercle Bacteria in Sputum from Patients with Tuberculosis" published in the leading publication American Journal of Respiratory and Critical Care Medicine. Dr Chengalroyen's research was supervised by Professor Bavesh Kana.
2. In March 2016 the School of Physiology awarded the second **Helen Laburn Research Prize** to **Professor Gavin Norton** for his remarkable ongoing cardiovascular research. The award is in honour of the late Professor Helen Laburn who was once the Deputy Vice Chancellor (Research) and the Dean of the Faculty of Health Sciences.
3. Congratulations to **Professor Frederick Raal** (Director of the Carbohydrate and Lipid Metabolism Research Unit) who received an award for the **most cited researcher over two years in the Faculty of Health Sciences**, at the Research celebration hosted by the University in April 2016. Professor Raal is a co-author of the article entitled "Efficacy and safety of alirocumab in reducing lipids and cardiovascular events" which was published in the New England Journal of Medicine. The citation count for the article was 119.
4. Postgraduate supervisor, **Professor Caroline Tiemessen** received an **award for Excellence in Postgraduate Supervision** at the recent Research celebration hosted by the University. Professor Tiemessen is Head of Cell Biology at the National Institute for Communicable Diseases, and holds the DST/NRF Chair of HIV Vaccine Translational Research in the University.

Major Grants

1. **Professor Karen Hofman**, Director of a project called Priority Cost Effective Lessons for System Strengthening (PRICELESS SA) based at the School of Public Health, on being awarded **US\$12.8 million by the Bill & Melinda Gates Foundation** in January 2016 as part of an international collaborative project. The project, which is called the international Decision Support Initiative (iDSI) is made up of PRICELESS SA, NICE International based in the UK, Health Interventions and Technology Assessment Program based in Thailand and Center for Global Development based in the USA.

2. The **South African Medical Research Council** announced the **Perinatal HIV Research Unit (PHRU)** as one of the successful applicants for new funding grants that will focus on TB research. Together with its UK counterpart (UK Medical Research Council), the R70 million funding provided by the Newton Fund, will support TB control implementation science over three years. PHRU will be conducting a research project entitled “A household cluster randomised trial of active case finding for HIV and TB, preventive treatment against TB, and ART initiation to prevent TB disease and transmission (The HomeACF Study)”. Dr Neil Martinson, the study Principal Investigator, and his team will assess whether an intensified household intervention for contacts of adults and children with TB prevents TB infection and disease.

3. **Professor Sharon Fonn**, co-Director of the Consortium for Advanced Research Training in Africa (CARTA+) received a **grant from the Wellcome Trust** to consolidate and extend the achievements that have already been made in CARTA+. The Consortium for Advanced Research Training in Africa which comprises nine African universities, four African Research Centres and selected northern partners enrolled its first cohort of PhD fellows in 2010 and to date has a total of 140 PhD fellows, 24 of whom have graduated. Of these, graduates are either postdoctoral fellows or have received re-entry grants to allow them to do research when they return to their jobs at universities who are members of CARTA+ in Africa. The Wellcome Trust grant will allow the CARTA+ team to secure the future for their PhD graduates through re-entry grants, postdoc awards and professional writing retreats to support fellows to write competitive grants. Currently CARTA+ fellows have collectively authored 332 papers in peer reviewed journals and have raised more than \$1.5 million to support their PhD research in addition to their CARTA+ awards. There will be a call funded by this grant, for institutionalisation of CARTA+ innovations at consortium institutions

4. Researchers from the **Maternal, Adolescent and Child Health Research Unit** Professor Jennifer Smit, Dr Mags Beksinska, Ms Zonke Mabude and Ms Cecilia Milford will conduct research on a new device that can be used to reduce the rate of preterm births and improve pregnancy outcomes. The study is being funded by the University of California- San Francisco (UCSF), through a grant from the Bill and Melinda Gates Foundation.

5. Congratulations to **Professor Jaya George** from the Department of Chemical Pathology together with **Professors Tracy Snyman, Nigel Crowther, Steve Tollman, Michele Ramsay, Shane Norris, John Pettifor, Penny Moore, Gayle Sherman, and Dr Melinda Suchard** who acquired a **grant for new equipment**. The key goal of the Department of Chemical Pathology is

to set up a core mass spectrometry (MS) laboratory which will provide a research platform and necessary training for scientists based at the University of the Witwatersrand and other institutions. The equipment to be purchased is an ion trap- triple quadrupole hybrid mass spectrometer, the AB Sciex 5500QTRAP. The instrument will support the generation of biomarker data from several existing longitudinal cohorts from which blood and urine samples have already been collected. Plans to collect further samples, both in South Africa and across the continent are in place.

6. Congratulations to **Dr Mark Collinson** from the Rural Public Health and Health Transitions Research Unit on being awarded a SARIR grant to the value of **R99 million from the Department of Science and Technology**. The aim of the grant is to strengthen national research infrastructure. It is envisaged that the grant would address the critical need for an improved, science-based information system, and related research platform, to direct development-oriented decision-making, investments and intervention.

7. **Dr Mark Collinson**, and the MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt) team, in the School of Public Health, have been awarded a **R01 research grant from the National Institutes of Health, USA**, to fund a five-year study on migration, urbanisation and health in South Africa. The project is in collaboration with the Population Studies and Training Center of Brown University, under the leadership of, Professor Michael White. This project builds on long-standing relationships and successful research endeavours between scientific personnel at the two institutions.

8. **Professor Viness Pillay** was awarded an **NRF Research Equipment Grant** under the “National Equipment Program”, for a ElastoSens BIO2 System for R 1,873,060. He was also awarded the **Technology Innovation Agency (TIA) of South Africa Seed Funding Grant** for the “Commercialization of a Wound Healing Device of the WADDP” for R 499,757.

Report prepared by Prof M. A. Papathanasopoulos and HSRO staff

On behalf of the Faculty of Health Sciences, July 2017

Appendix 1: List of top publishing authors for the Faculty of Health Sciences, 2016. (List is incomplete – data obtained from PubMed; data could not be extracted from ROCS system).

Authors	School	No. of papers
Madhi SA	Pathology	44
Norris SA	Clinical Medicine	31
Pillay V	Therapeutics Sciences	26
Kumar P	Therapeutics Sciences	26
Choonara YE	Therapeutics Sciences	26
Du Toit LC	Therapeutics Sciences	23
Kahn K	Public Health	25
Gray GE	Clinical Medicine	17
Tollman SM	Public Health	17
Feldman C	Clinical Medicine	16
Delany-Moretlwe AS	Clinical Medicine	16
Martinson N	Clinical Medicine	15
Manger P	Anatomical Sciences	13
Morris L	Pathology	13
Raal F	Clinical Medicine	13
Norton GR	Physiology	13
Woodiwiss AJ	Physiology	13
Stevens WS	pathology	12
Cohen C	Pathology	11
Pettifor JM	Clinical Medicine	10
Churchyard GJ	Public Health	10
Von Gottberg AM	Pathology	9
Mahlangu J	Pathology	8
Chirwa T	Public Health	8
Richter LM	Clinical Medicine	7
Ramsay M	Pathology	6
Variava E	Clinical Medicine	6
Hofman KJ	Public Health	6
Modi G	Clinical Medicine	6
Rispel L	Public Health	5
Van Vuuren S	Therapeutics Sciences	5
Groome MJ	Pathology	5

Appendix 2: Most cited publications in the FHS based on the ISI Web of Knowledge and Scopus in a 10-year period (2006 –2016).

Authors	Title	Year	Source title	Cited by
Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, Hakim JG, Kumwenda J, Grinsztejn B, Pilotto JHS, Godbole SV, Mehendale S, Chariyalertsak S, Santos BR, Mayer KH, Hoffman IF, Eshleman SH, Piwowar-Manning E, Wang L, Makhema J, Mills LA, De Bruyn G, Sanne I , Eron J, Gallant J, Havlir D, Swindells S, Ribaudo H, Elharrar , Burns D, Taha TE, Nielsen-Saines K, Celentano D, Essex M, Fleming TR	Prevention of HIV-1 infection with early antiretroviral therapy	2011	New England Journal of Medicine 365 (6): 493-505	2904
Bonner JA, Harari PM, Giralt J, Azarnia N, Shin DM, Cohen RB, Jones CU, Sur R , Raben D, Jassem J, Ove, R.a, Kies, MS, Baselga J, Youssoufian H, Amellal N, Rowinsky EK, Ang KK	Radiotherapy plus cetuximab for squamous-cell carcinoma of the head and neck	2006	New England Journal of Medicine 354 (6): 567-578	2828
Van Cutsem E, Köhne CH, Hitre E, Zaluski J, Chien CR, Makhson A, D'Haens G, Pintér T, Lim R, Bodoky G, Roh JK, Folprecht G, Ruff P , Stroh C, Tejpar S, Schlichting M, Nippgen J, Rougier P	Cetuximab and chemotherapy as initial treatment for metastatic colorectal cancer	2009	New England Journal of Medicine 360 (14): 1408-1417	2107
Bhatt S Gething PW, Brady OJ, Messina JP, Farlow AW, Moyes CL, Drake JM, Brownstein JS, Hoen AG, Sankoh O , Myers MF, George DB, Jaenisch T, William Wint GR, Simmons CP, Scott TW, Farrar JJ, Hay SI	The global distribution and burden of dengue	2013	Nature 496 (7446): 504-507	1901
Baeten JM, Donnell D, Ndase P, Mugo NR, Campbell JD, Wangisi J, Tappero JW, Bukusi EA, Cohen CR, Katabira E, Ronald A, Tumwesigye E, Were E, Fife KH, Kiari J, Farquhar C, John-Stewart G, Kania A, Odoyo J, Mucunguzi A, Nakku-Joloba E, Twesigye R, Ngure K, Apaka C, Tamooh H, Gabona F, Mujugira A, Panteleeff D, Thomas KK, Kidoguchi L, Krows M, Revall J, Morrison S, Haugen H, Emmanuel-Ogier M, Ondrejcek L, Coombs RW, Frenkel L, Hendrix C, Bumpus N, Bangsberg D, Haberer JE, Stevens WS , Lingappa JR, Celum C	Antiretroviral prophylaxis for HIV prevention in heterosexual men and women	2012	New England Journal of Medicine 367 (5): 399-410	911
Büller HR, Prins MH, Lensing AWA, Decousus H, Jacobson BF , Minar E, Chlumsky J, Verhamme P, Wells P, Agnelli G, Cohen A, Berkowitz SD, Bounameaux H, Davidson BL, Misselwitz F, Gallus AS, Raskob GE, Schellong S, Segers A	Oral rivaroxaban for the treatment of symptomatic pulmonary embolism	2012	New England Journal of Medicine 366 (14):1287-1297	861
Nair H, Nokes DJ, Gessner BD, Dherani M, Madhi, SA , Singleton RJ, O'Brien KL, Roca A, Wright PF, Bruce N, Chandran A, Theodoratou E, Sutanto A, Sedyaningsih ER, Ngama M, Munywoki PK, Kartasasmita C, Simões EA, Rudan I, Weber MW, Campbell, H	Global burden of acute lower respiratory infections due to respiratory syncytial virus in young children: a systematic review and meta-analysis	2010	The Lancet 375 (9725): 1545-1555	830

Violari A , Cotton MF, Gibb DM, Babiker AG, Steyn J, Madhi SA , Jean-Philippe P, McIntyre JA	Early antiretroviral therapy and mortality among HIV-infected infants	2008	New England Journal of Medicine 359 (21): 2233-2244	674
Douillard JY , Oliner KS, Siena S, Tabernero J, Burkes R, Barugel M, Humblet Y, Bodoky G, Cunningham D, Jassem J, Rivera F, Kocákova I, Ruff, P , Błasińska-Morawiec M, Šmakal M, Canon JL, Rother M, Williams R, Rong A, Wiezorek J, Sidhu R, Patterson SD	Panitumumab-FOLFOX4 treatment and RAS mutations in colorectal cancer	2013	New England Journal of Medicine 369 (11): 1023-1034	642
Donnell D, Baeten JM, Kiarie J, Thomas KK, Stevens W , Cohen Ci, McIntyre J, Lingappa J, Celum C et al	Heterosexual HIV-1 transmission after initiation of antiretroviral therapy: a prospective cohort analysis	2010	The Lancet 375 (9731): 2092-2098	552
Feigin VL, Forouzanfar MH, Krishnamurthi R, Mensah GA, Connor, M , Bennett DA, Moran AE, Sacco RL, Anderson L, Truelsen, TI, O'Donnell M, Venketasubramanian N, Barker-Collo S, Lawes CMM, Wang W, Shinohara Y, Witt E, Ezzati M, Naghavi M	Global and regional burden of stroke during 1990-2010: Findings from the Global Burden of Disease Study 2010	2014	The Lancet 383 (9913): 245-255	511
Giuliano AR, Palefsky J.M, Goldstone S, Moreira J, Penny ME, Aranda C, Vardas E , Moi H, Jessen H, Hillman R, Chang YH, Ferris D, Rouleau D, Bryan J, Marshall JB, Vuocolo S, Barr E, Radley D, Haupt RM, Guris D	Efficacy of quadrivalent HPV vaccine against HPV infection and disease in males	2011	New England Journal of Medicine 364 (5): 401-411	456
Vos T, Barber RM, Bell B, Bertozzi-Villa A, Biryukov S, Bolliger I, Charlson F, Davis A, Degenhardt, L, Dicker D, Duan LI, Erskine H, Feigin VL, Ferrari AJ, Fitzmaurice C, Fleming T, Higashi H, Kassebaum N, Kyu H, Laurie E, Liang XI, Lofgren K, Lozano R, MacIntyre MF, Moradi-Lakeh M, Naghavi M, Nguyen G, Odell S, Ortblad K, Roberts DA, Roth GA, Sandar L, Serina PT, Stanaway JD, Steiner C, Thomas B, Vollset SE, Whiteford H, Wolock TM, Petzold M et al	Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: A systematic analysis for the Global Burden of Disease Study 2013	2015	The Lancet 386 (9995): 743-800	452
Raal FJ , Santos RD, Blom DJ, Marais AD, Charng M-J, Cromwell WC, Lachmann RH, Gaudet D, Tan J, Chasan-Taber S, Tribble DL, Flaim JD, Crooke ST	Mipomersen, an apolipoprotein B synthesis inhibitor, for lowering of LDL cholesterol concentrations in patients with homozygous familial hypercholesterolaemia: a randomised, double-blind, placebo-controlled trial	2010	The Lancet 375 (9719): 998-1006	438
Jha V , Garcia-Garcia G, Iseki K, Li Z, Naicker S. , Plattner B, Saran R, Wang AYM, Yang CW	Chronic kidney disease: Global dimension and perspectives	2013	The Lancet 382 (9888), pp. 260-272	435
Madhi SA , Cunliffe NA , Steele D, Witte D, Kirsten M, Louw C, Ngwira B, Victor JC, Gillard PH, Chevart BB, Han HH, Neuzil KM	Effect of human rotavirus vaccine on severe diarrhea in African infants	2010	New England Journal of Medicine 362 (4): 289-298	434

Diacon AH, Pym A, Grobusch M , Patientia R, Rustomjee R, Page-Shipp L, Pistorius, C.e, Krause R, Bogoshi M, Churchyard G, Venter A, Allen J, Palomino J, De Marez T, Van Heeswijk, RP, Lounis N, Meyvisch P, Verbeeck J, Parys W, De Beule K, Andries K, Mc Neeley DF	The diarylquinoline TMC207 for multidrug-resistant tuberculosis	2009	New England Journal of Medicine 360 (23): 2397-2405	431
Nordestgaard BG, Chapman MJ, Humphries S, Ginsberg HN, Masana L, Descamps OS, Wiklund O, Hegele RA, Raal FJ , Defesche JC, Wiegman A, Santos RD, Watts GFI, Parhofer KG, Hovingh GK, Kovanen PT, Boileau C, Averna M, Borén J, Bruckert E, Catapano AL, Kuivenhoven JA, Pajukanta P, Ray K, Stalenhoef AFH, Stroes E, Taskinen MR, Tybjærg-Hansen A	Familial hypercholesterolaemia is underdiagnosed and undertreated in the general population: Guidance for clinicians to prevent coronary heart disease	2013	European Heart Journal 34 (45): 3478-3490a	413
Nordestgaard BG, Chapman MJ, Humphries SE, Ginsberg HN, Masana L, Descamps OS, Wiklund O, Hegele RA, Raal FJ , Defesche JC, Wiegman A, Santos RD, Watts GF, Parhofer KG, Hovingh GK, Kovanen PT, Boileau C, Averna M, Borén J, Bruckert E, Catapano AL, Kuivenhoven JA, Pajukanta P, Ray K, Stalenhoef AFH, Stroes E, Taskinen MR, Tybjærg-Hansen A	Familial hypercholesterolaemia is underdiagnosed and undertreated in the general population: Guidance for clinicians to prevent coronary heart disease	2013	European Heart Journal 34 (45): 3478-3490a	413
Robinson JG, Farnier M, Krempf M, Bergeron J, Luc G, Averna M, Stroes ES, Langslet G, Raal FJ , El Shahawy M, Koren MJ, Lepor NE, Lorenzato C, Pordy R, Chaudhari U, Kastelein JJP	Efficacy and safety of alirocumab in reducing lipids and cardiovascular events	2015	New England Journal of Medicine 372 (16): 1489-1499	385
Pronyk PM, Hargreaves JR, Kim JC , Morison LA, Phetla G, Watts C, Busza J, Porter JD	Effect of a structural intervention for the prevention of intimate-partner violence and HIV in rural South Africa: a cluster randomised trial	2006	Lancet 368 (9551): 1973-1983	371
Jewkes, RK , Dunkle K, Nduna M , Shai N	Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study	2010	The Lancet 376 (9734): 41-48	359
Celum C, Wald A, Lingappa JR, Magaret AS, Wang RS, Mugo N, Mujugira A, Baeten JM, Mullins JI, Hughes JP, Bukusi EA, Cohen CR, Katabira E, Ronald A, Kiarie J, Farquhar, C, Stewart GJ, Makhema J, Essex M, Were E, Fife KH, De Bruyn G, Gray GE, McIntyre JA, Manongi R, Kapiga S, Coetzee D, Allen S, Inambao M, Kayitenkore K, Karita E, Kanweka W, Delany S, Rees H , Vwalika B, Stevens W et al	Acyclovir and transmission of HIV-1 from persons infected with HIV-1 and HSV-2	2010	New England Journal of Medicine 362 (5): 427-439	330
Walker UA, Tyndall A, Cziráková L, Denton C, Farge-Bancel D, Kowal-Bielecka O, Müller-Ladner U, Bocelli-Tyndall C, Matucci-Cerinic M, Riemekasten G, Brückner C, Airo P, Tartaglia N, Lomater C, Balbir-Gurman A, Braun-Moscovici Y, Bambara LM, Caramaschi P, Valentini G, Ruocco L, Comina DP, Lo Monaco A, La Corte R, Hachulla E, Launah D, Distler O, Ciurea A, Sierakowski S, Mitchell H, Silver RM, Krasowska D, Michalska-Jakubus, M, Tikly, M, Aboo N	Clinical risk assessment of organ manifestations in systemic sclerosis: A report from the EULAR Scleroderma Trials and Research group database	2007	Annals of the Rheumatic Diseases 66 (6): 754-763	327
Srivastava A, Brewer AK, Mauser-Bunschoten EP, Key NS, Kitchen S, Llinas A, Ludlam CA, Mahlangu JN , Mulder K, Poon MC, Street A	Guidelines for the management of hemophilia	2013	Haemophilia 19 (1): e1-e47	298

Raal F, Scott R, Somaratne R, Bridges I, Li G, Wasserman S, Stein EA	Low-density lipoprotein cholesterol-lowering effects of AMG 145, a monoclonal antibody to proprotein convertase subtilisin/kexin type 9 serine protease in patients with heterozygous familial hypercholesterolemia: The reduction of LDL-C with PCSK9 inhibition in heterozygous familial hypercholesterolemia disorder (RUTHERFORD) randomized trial	2012	Circulation 126 (20): 2408-2417	292
Fox MP, Rosen S	Patient retention in antiretroviral therapy programs up to three years on treatment in sub-Saharan Africa, 2007-2009: Systematic review	2010	Tropical Medicine and International Health 15:1-15	279
Tyndall AJ, Bannert B Vonk M, Airò P, Cozzi F, Carreira PE, Bancel DF, Allanore Y, Müller-Ladner U, Distler O, Iannone F, Pellerito R, Pileckyte M, Miniati I, Ananieva L, Gurman AB, Damjanov N, Mueller A, Valentini G, Riemekasten G, Tikly M et al.	Causes and risk factors for death in systemic sclerosis: A study from the EULAR Scleroderma Trials and Research (EUSTAR) database	2010	Annals of the Rheumatic Diseases 69 (10): 1809-1815	243
Heffron R, Donnell D, Rees H, Celum C, Mugo N, Were E, de Bruyn G, Nakku-Joloba E, Ngure K, Kiarie J, Coombs RW, Baetem JM	Use of hormonal contraceptives and risk of HIV-1 transmission: A prospective cohort study	2012	The Lancet Infectious Diseases 12 (1): 19-26	223
Nair H , Brooks W, Katz M, Roca A, Berkley JA, Madhi SA, Simmerman JM, Gordon A, Sato M, Howie S, Krishnan A, Ope M, Lindblade KA, Carosone-Link P, Lucero M, Ochieng W, Kamimoto L, Dueger E, Bhat N, Harris E, Evans V, Katayose M, Gaur B, O'Callaghan-Gordo C, Goswami D, Arvelo W, Venter M, Briese T, Tokarz R, Widdowson MA, Mounts AW, Breiman RF, Feikin DR, Klugman KP, Olsen SJ, Gessner BD, Wright PF, Rudan I, Broor S, Simões EA, Campbell H	Global burden of respiratory infections due to seasonal influenza in young children: A systematic review and meta-analysis	2011	The Lancet 378 (9807): 1917-1930	217
Finnerup NB, Attal N, Haroutounian S, McNicol E, Baron R, Dworkin RH, Gilron I, Haanpää M, Hansson P, Jensen TS, Kamerman PR, Lund K, Moore A, Raja SN, Rice ASC, Rowbotham M, Sena E, Siddall P, Smith BH, Wallace M	Pharmacotherapy for neuropathic pain in adults: A systematic review and meta-analysis	2015	The Lancet Neurology 14 (2): 162-173	209
Sinka ME, Bangs MJ, Manguin S, Coetzee M, Mbogo CM, Hemingway J, Patil AP, Temperley WH, Gething PW, Kabaria CW, Okara RM, Van Boeckel T, Godfray HCJ, Harbach RE, Hay SI	The dominant Anopheles vectors of human malaria in Africa, Europe and the Middle East: Occurrence data, distribution maps and bionomic précis	2010	Parasites and Vectors 3 (1), 117	208

Cooper DAa, Heera J ,Goodrich J, Tawadrous M, Saag M, DeJesus E, Clumeck N, Walmsley S, Ting N, Coakley E, Reeves JD, Reyes-Teran G, Westby M, Van Ryst ED, Lve P, Mohapi L , Mingrone H, Horban AI, Hackman F, Sullivan J, Mayer H	Maraviroc versus efavirenz, both in combination with zidovudine-lamivudine, for the treatment of antiretroviral-naive subjects with CCR5-tropic HIV-1 infection	2010	Journal of Infectious Diseases 201 (6): 803-813	208
Sliwa K , Blauwet L, Tibazarwa K , Libhaber E , Smedema JP, Becker A , McMurray J, Yamac H, Labidi S, Struhman I, Hilfiker-Kleiner D	Evaluation of bromocriptine in the treatment of acute severe peripartum cardiomyopathy: A proof-of-concept pilot study	2010	Circulation 121 (13): 1465-1473	206
Sliwa K , Wilkinson D , Hansen C, Ntyintyane L , Tibazarwa K , Becker A , Stewart S	Spectrum of heart disease and risk factors in a black urban population in South Africa (the Heart of Soweto Study): a cohort study	2008	The Lancet 371 (9616): 915-922	201

Appendix 3: Faculty of Health Sciences articles published in some of the highest impact factors journals in 2016. Information derived from ISI Web of Knowledge (with cutoff of IF 20 and above).

Authors	Title	Year	Source title	Impact factor
Hosseinipour MC, Bisson GP, Miyahara S, Sun X, Moses A, Riviere C, Kirui FK, Badal-Faesen S, Lagat D, Mohapi Lerato et al	Empirical Tuberculosis therapy versus isoniazid in adult outpatients with advanced HIV initiating antiretroviral therapy (REMEMBER): a multicountry open-label randomised controlled trial.	2016	Lancet, 387 (10024) pp. 1198 - 1209.	44.00
De Jager P	Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015	2016	Lancet, 388 pp. 1459 - 1544	44.00
Grant A	Cost-effectiveness and resource implications of aggressive action on tuberculosis in China, India, and South Africa: a combined analysis of nine models	2016	Lancet, 4 pp. 1 - 11.	44.00
Grant A	Feasibility of achieving the 2025 WHO global tuberculosis targets in South Africa, China, and India: a combined analysis of 11 mathematical models	2016	Lancet, 4 pp. 1 - 10.	44.00
Franke Martin, Ibrahim Daniel M, Andrey Guillaume, Schwarzer Wibke, Heinrich Verena, Schöpflin Robert, Kraft Katerina, Kempfer Rieke, Lambie Lindsay , et al	Formation of new chromatin domains determines pathogenicity of genomic duplications	2016	<i>NATURE</i> , 2016, 538 pp. 265 - 267	38.13
Inzaule Seth C, Ondoa P, Peter T, Mugenyi P N, Stevens W , de Wit R Tobias F, Hamers RL	Affordable HIV drug-resistance testing for monitoring of antiretroviral therapy in Sub-Saharan Africa	2016	Lancet Infectious Diseases, 16 pp. 1 - 9.	21.37
Madhi S, Koen A, Cutland C, Jose L , Heyderman R French N, Ngwira B, Kayambo D, Mboizi R	Group B streptococcus vaccination in pregnant women with or without HIV in Africa: a non-randomised phase 2, open-label, multicentre trial	2016	Lancet Infectious Diseases, 16 pp. 546 - 555.	21.37

Appendix 4: Faculty of Health Sciences new NRF Ratings and re-ratings, effective from the 1st January 2016.

Title	Name	Initials	Surname	School	Rating	Status
Prof	Charles	C	Feldman	Clinical Medicine	A2	Rerated
Prof	Lenore	LH	Manderson	Public Health	A2	First time
Prof	Lynn	L	Morris	Pathology	A2	First time
Prof	Chris	CGP	Mathew	Pathology	B1	First time
Prof	Frederick	F	Raal	Clinical Medicine	B2	Rerated
Prof	Angela	AJ	Woodiwiss	Physiology	B2	Rerated
Dr	Basil	BD	Brooke	Pathology	B3	First time
Prof	Andrea	A	Fuller	Physiology	B3	Rerated
Prof	Bavesh	B	Kana	Pathology	B3	Rerated
Prof	Saraladevi	S	Naicker	Clinical Medicine	B3	Rerated
Dr	Kevin	KG	Behrens	Clinical Medicine	C1	First time
Prof	Maria	M	Papathanasopoulos	Pathology	C1	Rerated
Prof	Daynia	DE	Ballot	Clinical Medicine	C2	Rerated
Prof	Albert	ABR	Janse van Rensburg	Clinical Medicine	C2	First time
Prof	Elena	EN	Libhaber	Clinical Medicine	C2	Rerated
Dr	Lisa	L	Micklesfield	Clinical Medicine	C2	Rerated
Prof	Hellen	H	Myezwa	Therapeutic Sciences	C2	First time
Prof	Joanne	JL	Potterton	Therapeutic Sciences	C2	Rerated
Prof	Richard	RL	Brooksbank	Physiology	C3	First time
Prof	Kennedy	KD	Erlwanger	Physiology	C3	Rerated
Prof	Amadi	A	Ihunwo	Anatomical Sciences	C3	First time
Dr	Lisa	LC	Du Toit	Therapeutic Sciences	Y1	First time
Dr	Abdullah	A	Ely	Pathology	Y2	First time
Dr	Sharon	SGKM	Moeno	Oral Biological Sciences	Y2	First time
Dr	Eustasius	E	Musenge	Public Health	Y2	First time
Dr	Petrus	P	Jansen van Vuren	Pathology	Y	First time

Appendix 5:

DST/NRF South African Research Chairs Initiative (SARChI chairs) in the Faculty of Health Sciences in 2016.

Grant-holder	Department	Short Title
Coetzee, M	Wits Research Institute for Malaria	Medical Entomology and Vector Control
Eyles, JD	Public Health	Health Policy and Systems
Madhi, SA	National Institute for Communicable Diseases	Vaccine Preventable Diseases
Moore, PL	National Institute for Communicable Diseases	Virus-Host Dynamics for Public Health
Pillay, V	Pharmacy and Pharmacology	Pharmaceutical Biomaterials and Polymer-Engineered Drug Delivery Technologies
Ramsay, M	Human Genetics and Pathology	Bioinformatics of African Populations
Rispel, LC	Public Health	Research on the Health Workforce 4 Equity and Quality

Appendix 6: List of postdoctoral fellows in the Faculty of Health Sciences during 2016.

	Postdoctoral Research Fellow	School/Dept/Unit	Supported/Funded by:
1	Dr Francisco Yago Camina Ceballos	Pathology	National Research Foundation
2	Dr Hendrik Le Roux Booysen	Physiology	Cardiovascular Pathophysiology and Genomics Research Unit & University Research Council
3	Dr Rachel Carmen Ceasar	Public Health	Public Health
4	Dr Aadilah Omar	Clinical Medicine	NRF scarce skills scholarship, FRC grant
5	Dr Adam Fusheini	Public Health	Sarchi centre for health Policy & University Research Council
6	Dr Alane Emiko Izu	Pathology	Respiratory & Meningeal Pathogens Research Unit
7	Dr Alessandra Prioreshi	Clinical Medicine	Claude Leon Foundation and CoE in Human Development
8	Dr Alistair Shayne Loubser	Pathology	Medical Research Council
9	Dr Amber Khan	Clinical Medicine	Claude Leon Foundation
10	Dr Ananyo Choudhury	Human Genetics	Human Genetics
11	Dr Anthony Raphael Mwakikunga	Anatomical Sciences	University Research Council
12	Dr Avirup Chakraborty	Wits Advanced Drug Delivery Platform	National Research Foundation
13	Dr Bianca Da Costa Dias	Pathology	National Research Foundation SARChI, Department of Virology and University Research Council
14	Dr Brooke Bocast	Public Health	Self-funded
15	Dr Buhle Moyo	Pathology	National Research Foundation
16	Dr Byron Reeve	Pathology	Antiviral gene Therapy Research Unit and University Research Council
17	Dr Christopher Ealand	Pathology	Early Career Award from the Medical Research Council, Department of Science and Technology, National Research Foundation F and Howard Hughes Medical Institute
18	Dr Chukwuedozie K. Ajaero	Public Health / Demography and Population Studies	University Research Council

		Programme	
19	Dr Constance N. Wose Kinge	Clinical Medicine	University Research Council & Hepatitis Virus Diversity Research Programme
20	Dr Dhriti Sengupta	SBIMB	NRF
21	Dr Divya Rani	Wits Advanced Drug Delivery Platform	Prestigious SPARC
22	Dr Do Nascimento Coimbra	Anatomical Sciences	University Research Council
23	Dr Edward Snelling	Brain Function Research Group	Claude Leon Foundation
24	Dr Emmanuel Cohen	DPHRU	CoE in Human Development
25	Dr Evanson Zondani Sambala	Public Health	Public Health
26	Dr Fiona Eugenie Kebirungi Baine-Savanhu	Pathology	Claude Leon Foundation
27	Dr Francisco Yago Camina Ceballos	Pathology	National Research Foundation
28	Dr Gaurav Kwatra	Respiratory & Meningeal Pathogens Research Unit	Respiratory & Meningeal Pathogens Research Unit
29	Dr Givemore Muhenga	Pathology	National Research Foundation freestanding Postdoc Fellowship
30	Dr Heather A. Hong	Pathology	Medical Research Council
31	Dr Herbert Hudson Thulasoni Longwe	Pathology	Department of Science and technology/National Research Foundation
32	Dr Hope Serepa	Pathology	Sydney Brenner
33	Dr Huguete Gaelle Ngassa Mbenda	Physiology	University Research Council and Brain Function Research Group
34	Dr Jessica Sharon Ruthven	Public Health	University Research Council
35	Dr Jeyalakshmi Kandhavelu	Clinical Medicine	Wits Health Consortium, Department of Internal Medicine & University Research Council
36	Dr Kim Lamont	Clinical Medicine	National Research foundation
37	Dr Kristie Michelle Bloom	Pathology	Medical Research Council
38	Dr Kumar Subramanian	Clinical Medicine	Claude Leon Foundation
39	Dr Lorraine Mutsvunguma	Pathology	Wits Health Consortium & Medical Research Council
40	Dr Maria Magdalena Lassauniere	Pathology	Medical Research Council
41	Dr Martha A. Kaddumukasa	Wits Research Institute for Malaria	National Research Foundation/The World Academy of Sciences
42	Dr Melissa Dalcina Chengalroyen	Pathology	University Research Council

43	Dr Mershen Govender	Wits Advanced Drug Delivery Platform	National Research Foundation
44	Dr Moji Musa	Clinical Medicine	Medical Research Council & Cambridge
45	Dr Nelusha Shunmoogam-Gounden	Therapeutic Sciences	National Research Foundation
46	Dr Nigel Aminake Makoah	Pathology	NRF Innovation
47	Dr Nimisha Harshadrai Bhoola	Clinical Medicine	Hepatitis Virus Diversity Research Unit
48	Dr Priyamvada Pradeep	Therapeutic Sciences	University Research Council
49	Dr Rachel Carmen Ceasar	Public Health	Public Health
50	Dr Ravindra V Badhe	Therapeutic Sciences	National Research Foundation & University Research Council
51	Dr Rihlat Mohamed	Clinical Medicine	Cambridge, UK
52	Dr Ruari McBride	Public Health	Public Health
53	Dr Sabelle Jallow	Pathology	Wits Health Consortium & National Research Foundation
54	Dr Saritha Prasannakumari Viswan	Public Health	Public Health
55	Dr Sithembile Olga Makina	Pathology	NRF
56	Dr Stanford Kwenda	WHC	WHC
57	Dr Sunaina Indermun	Therapeutic Sciences	National Research Foundation
58	Dr Tobias Houlton	Anatomical Sciences	University Research Council
59	Dr Trevor Bell	Clinical Medicine	National Research Foundation
60	Dr Yashini Govender	Pathology	Medical Research Council Flagship
61	Dr Yu-Hwei Tseng	Public Health	Ministry of Science and Technology, Taiwan
62	Dr Zanele Ditse	Pathology	Hillel Friedland Fellowship
63	Dr Zena Kimaro	Pathology	National Research Foundation

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