



Biennial Report SCHOOL OF CLINICAL MEDICINE

[2014/2015]

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mission

The Wits School of Clinical Medicine is committed to educating a diverse group of academically talented students, with personal attributes and accomplishments, to succeed as future leaders in medicine.

Through our innovative teaching programmes, we aim to produce specialists who will improve health through quality healthcare and education of the highest professional and ethical standards.

The School will endeavour to create a research intensive environment that enables staff and students to develop to their fullest potential.

vision

Advancing health and equality in the School through student centred programmes and research.

MESSAGE FROM THE HEAD OF SCHOOL



The SOCM is still the highest contributor to the publication output in the Faculty. There has been an increase in the number of publications during this period.

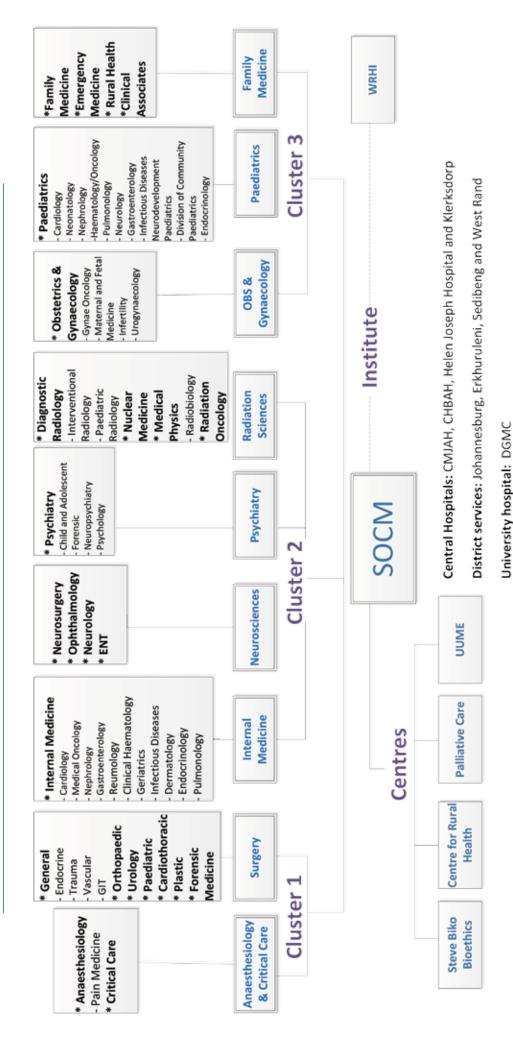
The School of Clinical Medicine (SOCM) remains the largest school in the Faculty. It hosts nine major departments (Family Medicine, Paediatrics, Surgery, Internal Medicine, Radiation Sciences, Neurosciences, Anaesthesia, Obstetrics and Gynaecology and Psychiatry) and three Centres (Steve Biko Centre for Medical Bioethics, Wits Centre for Rural Health and Centre for Palliative Care). In 2015, the Evan Stein Centre under the directorship of Professor Raal was established. 2015 also saw the recognition of the "Empilweni Service and Research Unit" under Adjunct Professor Coovadia by URC adding it to the eight research units in the School.

The service workload and teaching responsibilities remain an impediment to reaching our full publication potential. Despite the workload challenges, several members of the School have been promoted to senior lecturer, Adjunct Professor, Research Professor and Full Professor as a result of their scholarly activities. The School has had an increase of NRF rated scientists following the latest assessment. The School has seen a significant increase in the number of Masters of Medicine qualifying and is a major supplier of specialists in the country. The number of PhDs awarded from the School continues to be on an increase with younger colleagues graduating. To promote research, the School held its first research day in 2015 that was supported with several scientific presentations and posters.

Members of the School continue to source research funds from grants and contract research. The School is the major contributor to the research funds managed by the Wits Health Consortium. One of the highlights is the granting of members of the School the MRC oncology research grant. The signing of the MOA with the Gauteng Provincial Department of Health may help in consolidating protected time for research in the School.

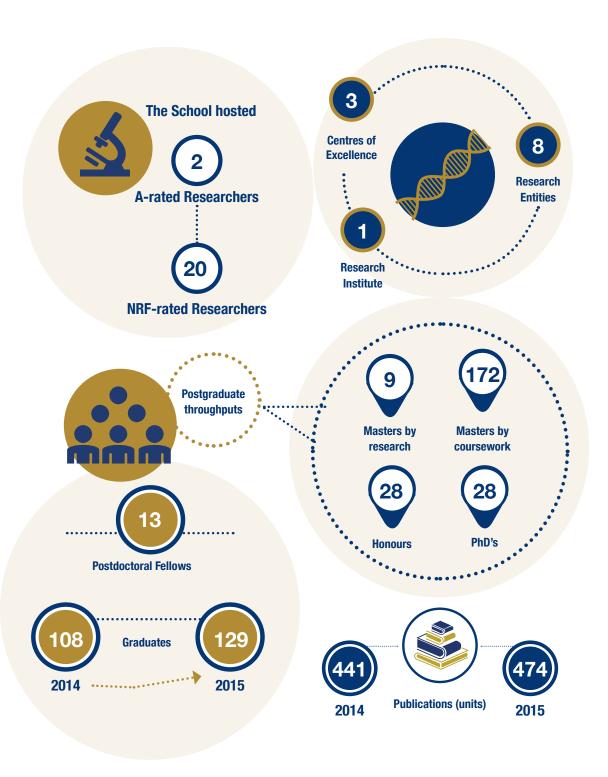
PROFESSOR MKHULULI LUKHELE HEAD: SCHOOL OF CLINICAL MEDICINE

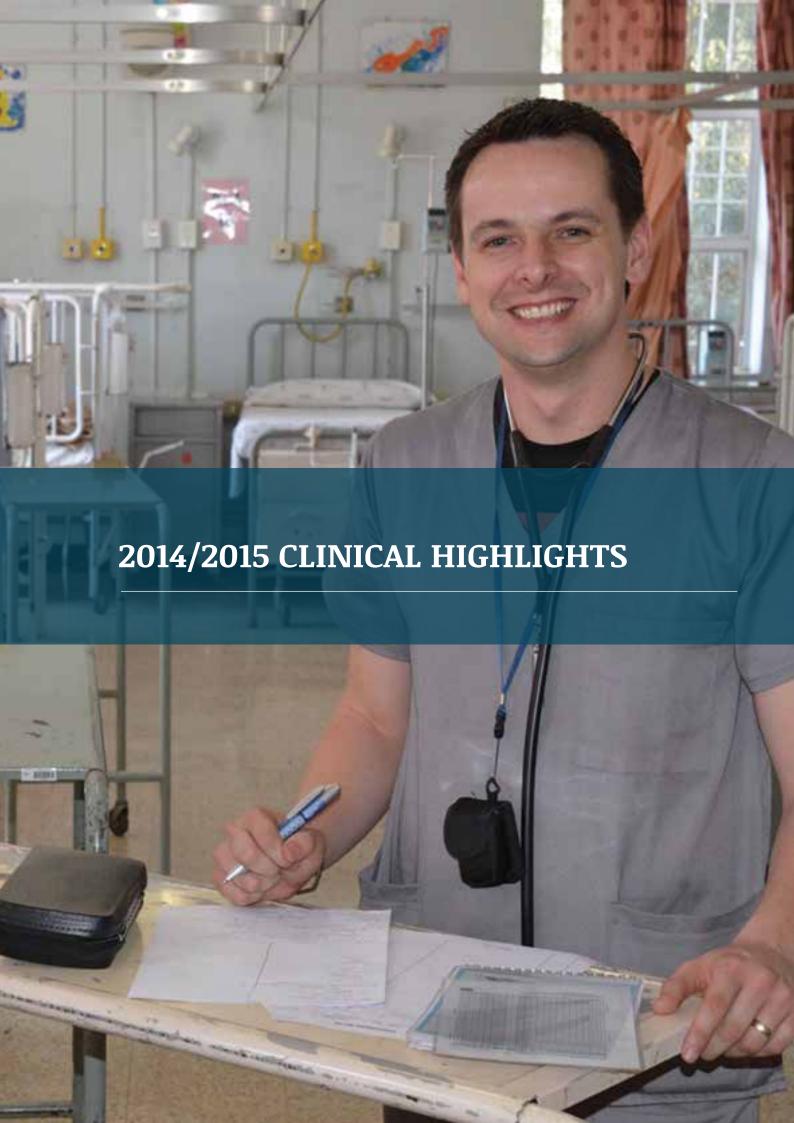
SCHOOL OF CLINICAL MEDICINE ORGANOGRAM



THE SCHOOL IN NUMBERS

2014 - 2015







ANAESTHESIOLOGY AND CRITICAL CARE

HEAD: Professor Chris Lundgren

Anaesthesiology at Wits is spread over five training sites: Chris Hani Baragwanath Academic Hospital (CHBAH), Charlotte Maxeke Johannesburg Academic Hospital (CMJAH), Helen Joseph Hospital (HJH), Rahima Moosa Mother and Child Hospital (RMMCH), and Wits Donald Gordon Medical Centre (WDGMC). We have 225 staff members, which include specialists, registrars, medical officers and two research co-ordinators.

National and International Congresses

Specialists and registrars presented workshops, papers and posters at a number of national and international congresses during the biennium.

- South African Society of Anaesthesiologists (SASA), March 2015, Durban
- PACSA 2015 (National Paediatric Anaesthesia Congress), Johannesburg
- National Perioperative Cardiovascular (JPC) Congress
- National Anaesthetic Foundation Refresher Course
- National Pain SA Congress
- Critical Care Society National Congress 2015, Sun City
- Critical Care National Refresher Course
- National FCA 1 refresher course: Wits Anaesthesiology
- FATE course through Cardiac Anaesthesia Society of SA (CASSA)
- New York State Society of Anaesthesiologists' 69th Post Graduate Assembly
- International Symposium on Intensive Care and Emergency Medicine (ISICEM) 2015
- The Neuropathic Pain SIG (NEUPSIG) Congress 2015
- European Society of Anaesthesia Congress 2015
- European Pain Congress 2015
- World Airway Management Meeting (WAMM), Dublin, 2015

MMed Students

The following registrars completed their research reports (MMeds) during this review.

MMed Student	MMed Student
Dr Chris Anamourlis	Dr Vivek Mooruth
Dr Karin-Ann Ben-Israel	Dr Kamini Naidoo
Dr Faizal Bham (With distinction)	Dr Nez Nongq
Dr Natalie Burger	Dr Mpu Nxumalo
Dr Katherine Fisher	Dr Nadav Ravid
Dr Maria Fourtounas	Dr Cara Redelinghuys
Dr Lizil Gilliland	Dr Joubert Steynberg (With distinction)
Dr Hemal Hurri	Dr Iwan v d Nest
Dr Dyuti Maharaj	Dr Nic v d Walt
Dr Yasmin Mayat	Dr Adele v d Walt
Dr Phelisa Miti	Dr Julia Wallis
Dr Carien Moller	Dr Brad Yudelowitz

Distinguished Visitor

Professor Dan Berkowitz, an ex-Witsie, Professor of Anaesthesia and Critical Care Medicine and Biomedical Engineering at John Hopkins University, visited the Department in August 2015. He delivered a faculty lecture entitled 'Missions above low earth orbit: Challenges for physiologic adaptation'. During his visit, Professor Berkowitz participated in research feedback sessions with students, met with the anaesthesiology teams at some of the teaching hospitals and interacted with developing and well-known researchers in the Department.



Professor Dan Berkowitz, Dr Desmond Lines and Professor Chris Lundgren

International Footprint

Anaesthesia's cardiac unit held its first skype-based, informative and interactive cardiothoracic anaesthesia and echocardiography meeting with an expert from the Brigham and Women's Hospital of Harvard University, Massachusetts, in January 2014. Dr Douglas Shook, an esteemed cardiac anaesthesiologist, echocardiography expert and perioperative clinician, took time out of his very busy schedule to conduct the meeting between our unit, himself and his trainees. The skype-based meeting was the first of what is going to be a monthly event of information sharing and interaction between the two units. The meeting followed the collaboration fostered between these two units over the past three years. This has already resulted in the successful hosting of the annual Johannesburg Perioperative Cardiothoracic (JPC) Congress for two years in succession.

The relationship started with a visit by Dr Palesa Motshabi, Chairperson of JPC, to the Harvard Faculty in 2010, with the encouragement and assistance of her mentor and Head of Department, Professor Chris Lundgren. Dr Motshabi, together with her colleagues Drs Ellen Kemp, Palesa Mogane, Thenjiwe Hlongwane, Motsedisi Mbeki and Desmond Klein, hosted the third annual JPC Congress in July 2014. The success of this Congress was due to the unwavering support.



Dr Douglas Shook: (above): Live echocardiography loops as seen on skype

FAMILY MEDICINE



DIVISION OF EMERGENCY MEDICINE

HEAD: Dr Richard Cooke

Emergency Medicine was established in 2005 by the late Professor Campbell MacFarlane who became the first Professor of Emergency Medicine at Wits and on the continent of Africa. At the time of his untimely death, Professor MacFarlane had three part-time consultants assisting him within the Division to train the four registrars that had been appointed and to teach the week long Emergency Medicine aspect of the GEMP III/5th year Medical Student APC block. After his demise, Professor Efraim Kramer was appointed as Adjunct Professor and Head of the Division in June 2007.

Accomplishments

- The Health Professions Council of South Africa (HPCSA) granting of 50 WR numbers for training the interest and application from Africa by medical doctors wishing to join the Division of Emergency Medicine and is limited simply by HPCSA protracted registration. An agreement has been reached between the
- - Chris Hani Baragwanath Academic Hospital ED
 Charlotte Maxeke Johannesburg Academic Hospital ED
 Helen Joseph Hospital ED
 Tambo Memorial Hospital ED
 Netcare Union Hospital Private ED

 - Natalspruit Hospital ED awaiting accreditation
 Far East Rand Hospital ED accreditation April 2015
 - Rahina Moosa Hospital ED awaiting future plans

- Discussions with the North West Provincial Department of Health for the establishment of two CSI Netcare funded registrar posts in order to start rural emergency medicine in that province and thereby expand the reach and skills of emergency medicine locally and regionally. The appointment of four adjunct professors in the Division, making it the pre-eminent emergency medicine academic training institution in South Africa and Africa.
- The full-time joint appointment of twelve specialist emergency physicians to the abovementioned emergency departments: Professor Efraim Kramer, Dr Feroza Motara, Dr Lara Goldstein, Dr Pat Saffy, Dr Sameer Carim, Dr Dee Hoffman,
 - Dr Abdulla Laher, Dr Muhammed Moola, Dr Zeyn Mohamed, Dr Fetolang Simelela, Dr Lindy-Lee Folscher and Dr Nic Dufourq.
- The appointment of part-time specialist emergency physicians and a number of other honorary lecturer positions: Dr P Anderson, Dr C Van Loggerenberg, Professor Walter Kloeck, Professor Mike Wells, Dr Jon Patricios, Dr Anita Groenewald, Mr Martin Botha, Dr Mars Goldshein and Dr Charles Meltzer.
- Registration of more than 150 MSc (Med) in Emergency Medicine postgraduate students with graduation of an increasing number annually.
- The steady increasing publication of peer reviewed journals, plus books and manuals, nationally and internationally.
- Recognition of the Division internationally in the fields of Emergency Ultrasonography and Football Emergency Medicine.
- Appointment of the Division to the international FIFA Medical Assessment and Research Center in Zurich for establishment and recognition of research and education in football emergency medicine internationally.
- Acquisition of self-funding and internationally donated undergraduate and postgraduate emergency medicine skill training equipment that allows comprehensive simulated manikin training for the ever increasing numbers of undergraduate medical students, which currently number groups of 45 students per group training session.

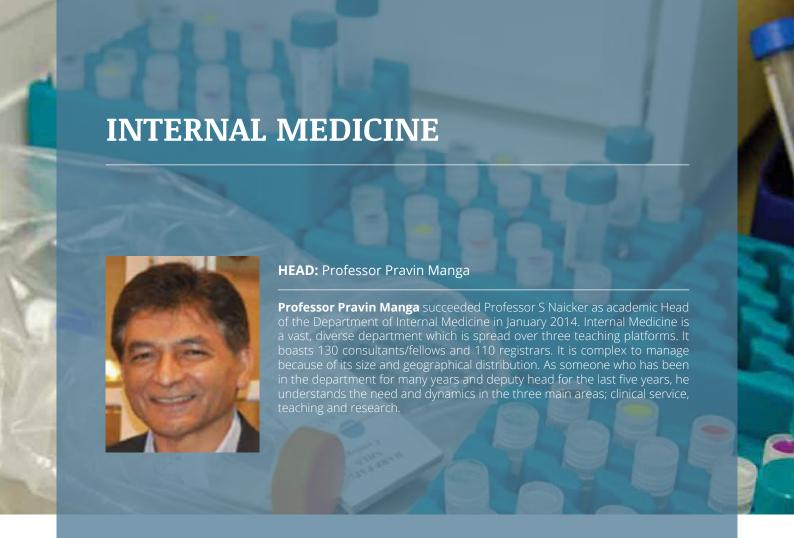
Although managing to keep the lecturer-student-manikin ratio as low as possible during simulated skills training, the Division continues to procure the necessary skills training equipment by various means whilst promoting and endorsing the development of an official Wits Medical School Skills Laboratory in the future, similar to, if not better than, that existent in other local universities.

Oman Regional Football Medicine Week 2015

Professor Efraim Kramer participated in a FIFA/Asian Football Confederation Regional Football Medicine week long training session in the Sultanate of Oman in 2015. Thirty doctors and physiotherapists from the Gulf region, including Lebanon, Jordan, Dubai, Abu Dhabi, Qatar, Saudi Arabia, Oman, Iran, Palestine, Malaysia and Bangladesh took part in the weeks proceedings. All aspects of Football Medicine, with special emphasis on Football Emergency Medicine, were covered in order to practically up-skill those on duty in the field of play regarding football emergencies. In the closing ceremony, he was presented with a commemoration plaque from His Excellency, Sayyid Badr bin Hamad bin Hamood Albusaidi, Chairman of the Oman Football Association.







Professor Manga is ready to meet the challenges which lie ahead - with student numbers on the increase and outreach services to hospitals such as Edenvale, Sebokeng and Leratong already functioning.

In terms of research output, the department already produces a significant number of publications accounting for almost a third emanating from the School of Clinical Medicine. The challenge, he says, is not only to maintain this output but to increase it. To this end, he hopes to create a culture which is research-focused. He believes he has a high calibre team in Internal Medicine that can drive this initiative at registrar and fellowship level. New registrars and fellows will be encouraged to do MMeds via the publication route. He is contemplating starting a medical journal in which papers could be published and accredited.

Professor Manga is a Witsie. He did his registrar training in Internal Medicine at Chris Hani Baragwanath Hospital. He was always attracted to Cardiology and did his subspecialty Fellowship training in Cardiology at Wits, Natal and at Tulane University in the United States.

His PhD thesis was on Mitral Stenosis, which he says was hard work but very gratifying. He has been Academic Head of the Division of Cardiology since 1996. Professor Manga thoroughly enjoys golf and plays as much as he can in his free time.

Academic and Service Platform

Internal Medicine has a broad academic and service platform. The three major institutions for academic and service activities are the CMJAH, CHBAH and HJH. The Department is the largest training institution in South Africa for Physicians and subspecialists and graduates more pysicians and physician subspecialists than any other similar department in the country. Other institutions, where registrar rotation and training takes place include the Klerksdorp/Tsepong complex, Sizwe and Edenvale hospitals. In addition, medical students are taught at Edenvale Hospital. It has a long history of excellence in clinical care, as well as in undergraduate and postgraduate education.

The strength of Internal Medicine at Wits, is its large and diverse clinical training programme allowing exposure to a vast number of patients for teaching of medical students as well as postgraduate students, the majority of whom are medical registrars. Our teaching programmes are designed to encourage excellence in clinical skills and to promote basic and clinical research. In addition, our programme is dedicated to meeting the health care needs of South Africa and is committed to developing academic opportunities for our trainee physicians.

Research is a key area in the Department and it has a number of NRF rated scientists within its ranks. It also houses four Research Entities, details of which can be found on page 80 of the report.

The unique blend between the well-developed clinical and research programmes as well as the rich clinical resources within the department create an environment that encourages a vibrant and enjoyable learning experience.

There are eleven divisions in the Department - these include:

- Cardiology
- Dermatology
- Endocrinology
- Geriatric Medicine
- Gastroenterology
- Haematology
- Infectious Diseases
- Nephrology
- Medical Oncology
- Pulmonology
- Rheumatology

Physicians Update 2015

The Annual Conference was held on 31 July and 1 August 2015. This meeting is the flagship event and was well supported by seventeen drug companies representing different sub-divisions. It was very well attended by more than 200 delegates over the two days, comprising registrars, private physicians and senior specialists from the Department of Medicine. There were twenty-seven lectures given by some of the most prominent alumni from the Department and each of the nine sub-specialities of Internal Medicine were equally represented. There were two pro-con debates, a highly entertaining lecture on the Banting diets and three quizzes. Prizes were awarded to delegates who excelled at the quizzes and dermatology slide shows.

The invited speaker, Dr Mark Sonderup from the Hepatology Department at the University of Cape Town (UCT), spoke on HIV associated liver disease (his research interests include HIV/AIDS associated liver disease, viral hepatitis, drug induced liver injuries and the porphyrias).



Dr Mark Sonderup and Professor Pravin Manga



Prof. Trevor Carmichael was appointed to the post of Head: Department of Neurosciences in 2014. The Department encompasses the disciplines of neurology, ophthalmology, neurosurgery and otorhinolaryngology in the School.

Created initially in 2002, it is working well as a cohesive force and Professor Modi was able to lever significant funding to improve the physical infrastructure of the Department, including an excellent auditorium which seats 100 people and a library, both of which are well used by staff.

Professor Carmichael will be focussing on three areas: providing a supportive environment for researchers to ensure that more of their research is published; working closely with hospital authorities to boost the clinical side of the department, particularly relating to the filling of staff vacancies and the replacing of old equipment; and to see improved facilities for staff within a larger physical space for everyone to enjoy. Professor Carmichael is a Witsie, having graduated MBBCh in 1977.

He was a registrar in Ophthalmology from 1982 to 1985, was awarded a PhD in 1991, and a MSc (Med) in Biostatistics through the School of Public Health in 2006. He was in private practice from 1986 to 1996, after which he was wooed back to Wits and appointed to the Sam and Dora Cohen Chair of Ophthalmology in 1997.

This is a relatively new Department that was formed in 2002 and which grouped together Psychiatry with Neurology, Neurosurgery, and Ophthalmology and Ear, Nose and Thoat (ENT) surgery. The idea was that there would be areas of overlapping interest and possibilities for collaborative work including research.

Since Psychiatry is a large division on its own with about 130 doctors and is regarded as a major specialty, it became necessary for them to obtain Department status during 2013 leaving the remaining four disciplines with around 120 doctors. Although we have been split by name we have retained the appropriate close ties with Psychiatry.



DIVISION OF NEUROSURGERY HEAD: Professor John R Ouma

This Division carries a large component of clinical emergencies and the unit at Chris Hani is large and extremely busy. Recently with the retirement of Professor Gopal, who worked for the Province for 40 years, there was a hiatus which has now been filled with Dr Ouma taking over. He has a substantial task in creating harmony across the teaching platform and boosting the research performance, and has introduced systems which will bring results over the next five years.

Neurosurgery continues to experience challenging, yet interesting times. The Division has maintained its position as the largest unit in the country and this is set to grow with the expansion of our footprint to peripheral hospitals. Our traditional training sites at CHBAH and CMJAH hospitals remain the areas where the bulk of teaching and clinical workload is dispensed. Having said that, both units have experienced significant challenges from a mismatch between available bed and theatre space on the one hand, and workload demands on the other.

To address this, we have vigorously pursued the creation of satellite units at the Klerksdorp and Helen Joseph hospitals. Both sites are expected to become fully functional early in the new year, and apart from diverting cases away from the overstrained central hospitals, they will also afford extra theatre time mileage for our registrars.

The anticipated opening of the Nelson Mandela Children's Hospital [NMCH] in 2016 will bring challenges and opportunities in equal measure. We remain optimistic that it will help address ICU bed, equipment and theatre time backlogs in both our hospitals and enable us to set up an excellent paediatric neurosurgical training facility.

The training programme has been strengthened in the past year. More emphasis has been given to areas identified as problematic including essay writing and short case discussions. Saturday morning examinations have been introduced to maximise time available for academic inquiry. These efforts are bearing fruit, and a strong cohort of young registrars is rising through the ranks with much more promise and confidence.

Supernumerary registrars continue to train in the Department and add to the workforce, a much needed element of our clinical situation, while at the same time adding variety to our outlook on a number of issues as well as creating possibilities for collaborative research when they return home. Needless to say, hosting supernumerary registrars does come with its own challenges, including funding issues from their governments or organisations as well as different medical and language systems.

The coming year will see a further emphasis on improving the current academic activities, with a whole new syllabus introduced specifically for newcomers who join the Department. The thinking behind this is that the basics of neurosurgical practice needs to be ingrained in the minds of the newcomers in an intensive manner so as to groom them more effectively than has been the case in the past. The more senior students will be exposed to a significantly increased cadaver dissection programme.

The South African Neurosurgery Congress was an exciting event, encompassing a joint meeting between ourselves, the Congress of Neurological Surgeons (CNS) of the USA as well as the Continental Association of African Neurosurgical Societies (CAANS). As Wits Neurosurgery, we were very well represented in the speaker line-up and showcased research and other work occurring in the Department.

Neurosurgeons excel in College exams

Six registrars have qualified as neurosurgeons during the review. In the College exams held in Bloemfontein in 2015, we accounted for half the national output of neurosurgeons at that sitting. Given the strength and focus of some of our up and coming registrars, we can only continue to shine brightly at the top end of the league of producers of neurosurgeons in the country. It is also pleasing to note that at the 2014 and 2015 annual congresses, our oral papers were very well received.

At a clinical level, we now have a fully-fledged neuro-interventional unit in tandem with the radiologists. This provides endovascular services to both hospitals, such as coiling of aneurysms, occlusion of arteriovenous malformations and taming prohibitively complex spinal vascular malformations. Services are also provided to deserving cases from as far afield as Steve Biko and Medunsa Academic hospitals. This has broadly widened the possibilities of treatment available to our patients, as well as the training experience for our doctors.

Division of Ophthalmology

Ophthalmology has units at all three academic hospitals with the largest unit at St John Eye Unit of Chris Hani Baragwanath Academic Hospital (St John), and the smallest at Helen Joseph Hospital (HJH). We interact and engage with other hospitals in the Southern Gauteng area (Leratong, Sebokeng, Natalspruit and Lenasia South) and provide a referral base for vitreo-retinal and other tertiary/quaternary procedures and treatments.

Super-specialist clinics are run at CMJAH and St John Eye Unit. These enable patients with corneal disease, glaucoma, retinal disease etc. to be dealt with by specialists in the field and also allow for appropriate training of registrars in these areas. This also facilitates research as it was more difficult when we dealt with overwhelming general clinic numbers.

The Division has the largest number of Ophthalmology registrar posts in the country (25 with 23 currently filled) and run the biggest training programme. We have the largest number of full-time consultants in the country with 20 consultants including one Chief specialist (Head of Department/Division) post and three Principal (Head of Unit) level posts. We have 13 medical officer posts.

Strengths

We have very adequate and capable staffing with consultants who are national experts in most areas of Ophthalmology. This translates to a capacity to teach a wide range of surgery and provide treatment options for patient care. Our consultant base has had a stable core for the past two decades allowing for development of our teaching and patient care systems. Equipment upgrading has been substantial and we are using state-of-the-art surgical and special investigation machines.

Our capacity to do research has grown over the past two decades and we recently graduated our first PhD in Ophthalmology. We have adequate supervision capacity for Master's level research (ten supervisors). The Master's research is now compulsory for all specialists so has become more demanding.

Ophthalmology Outreach

Ophthalmology has participated in 'Blind tours' to rural areas to provide screening and cataract surgery. We have done over 20 tours per year lasting 3-4 days. This is used as a teaching experience as a senior (consultant) goes with a junior (registrar). Currently we are involved in organising ophthalmic services at Lenasia South hospitals and sometimes at Natalspruit. We will also support the new hospital in Soweto, Jabulani, which is being developed for cataract surgery.

Undergraduate teaching - GEMP 2 and 3

The Division currently teaches a review of ocular basic sciences to the 4th years' (GEMP 2) during part of a one week period as well as the clinical skills of visual acuity testing and fundoscopy. When the students arrive in their 5th year of study, we concentrate more on diseases and examination of patients.

GEMP 3 students, divided into small groups of 4-10, spend two weeks as part of their rotation in ophthalmology. For this, they are based at CMJAH or St John Eye Hospital and the emphasis is on the clinical teaching of common eye problems based on the example of the American Academy Teaching guide for medical students. The Division has seven groups a year and each one has over 40 students over a six week period.

Registrar training

Currently, our registrars start their training with basic sciences (Primary or Part I) already completed (and sometimes also the Diploma in Ophthalmology) and with optics/refraction and ocular pathology incorporated into an intermediate examination (Part Ib), they will work toward this immediately. Registrar assessments are done annually with the registrars completing a self-assessment form then meeting with a panel of senior consultants and written feedback given. Their progress and planned progress is reviewed as well as attendance at meetings, surgical progression and progress with research. Overall percentage pass from 2010-14 was 85%. A further three ophthalmologists graduated in 2015.

The registrars enter a sequence of two month rotations through special clinics and the three hospitals during their training. The special clinics are conducted by experts and training consultants. We do not conduct a MMed examination so they all do the College of Medicine examinations where our success rate is good at 85%.

Research activities

Each registrar is allocated a supervisor when they begin their four years and then guided through the processes for completion of their MMed. They are encouraged to present this and other work at the National South African Ophthalmological Society Congress in March each year and at other meetings. We have won best paper or poster nationally on many occasions.

The consultants have often been with us as registrars so are familiar with the process and present their own work. We have several who have registered for a PhD so the prospects in this regard look good. Topics are strabismus (squint management) and tuberculosis as a cause of uveitis.

We are currently involved in slow-release device development with the Department of Pharmacology and in genetics where we have started a Genetics Research Unit under Dr Susan Williams in conjunction with Professor Michelle Ramsey of the Department of Genetics.



Above: Cataract Week



DIVISION OF OTORHINOLARYNGOLOGY

HEAD: Professor Pradip Modi

Professor Pradip Modi heads the Otorhinolaryngology Division, which consists of specialists, medical officers and fourteen Registrars who rotate equally between the three units.

Sub-speciality Development

The Division has identified that there is an urgent need for sub-specialty development in:

- Paediatric ENT and Neonatology ORL-HNS (especially with the impending readiness of Nelson Mandela's Children's Hospital (NMCH)
- Head and Neck Surgery

These are in discussion stages with ENT departments of the other universities through the Academic Sub-Committee of the SA Society of Otorhinolaryngology-Head Neck Surgery. In addition, an online two-year fellowship programme has been on offer for the past two years. There is one part-time specialist candidate in the Division who is into the 2nd year and they will complete their studies in 2016.

Sub-specialties ear marked/waiting in the wings

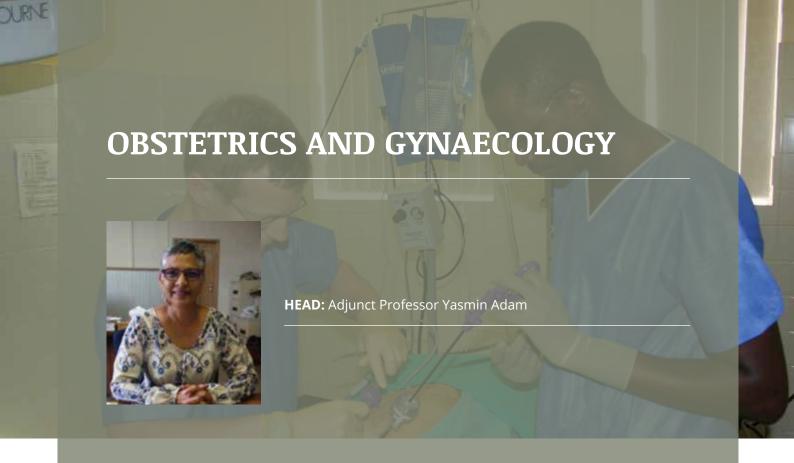
- Rhinology-Skull Base Surgery and Allergology
- Neuro-Otology and CP Angle Surgery
- Neuro-Laryngology and Voice Surgery

Division of Neurology

Units are run at all three teaching hospitals and the Division remains well staffed. Collaborative research projects have been run with Pharmacology and research has focused on traumatic spinal cord injuries and also Alzeimer's disease and the development of novel treatment methods for these conditions.

Research Output

Research output in Neurosciences, to an extent, mirrors the size of the Divisions. Future activity will focus on converting the increasing MMed throughput into publications in accredited journals.



Obstetrics and Gynaecology is pivotal in reducing maternal and early neonatal mortality in order to meet the Sustainable Development Goals by the year 2030. We also play a crucial role in providing universal reproductive health care. In order to achieve excellence in clinical care, which benefits all individuals, we aspire to provide health care to meet the needs of the community at large.

The Department comprises a talented multidisciplinary team of researchers and clinicians and we aim to accomplish these goals through teaching, research and community engagement. We use three hospitals for training undergraduates and postgraduates; CHBAH, RMMCH, and the CMJAH Sebokeng and Klerksdorp hospitals are also used as satellite training hospitals for postgraduate training.

We have a total number of thirty-three full-time specialists at the five hospitals who teach postgraduate students. There are five maternal foetal sub-specialists and about ten specialists responsible for sessions. We have seven honorary specialists within the Department, a full-time certified Gynaecology oncologist and two honorary Gynaecology oncologists.

Undergraduate Training

The Department is involved in curriculum development for medical students in Obstetrics and Gynaecology. The Graduate Entry Medical Programme (GEMP) 1 students gain clinical exposure in our wards and we are involved in teaching GEMP 2 students.

Obstetrics is taught to undergraduate students during their 5th year of training and Gynaecology during the final year of their GEMP. Each discipline has an annual six-week rotation during which the students obtain their tutorials, practical experience and assessment. Students are allocated to one of the three above-mentioned hospitals for their rotations each year.

Staff in the Department also teach Reproductive Health to the BSc students.

Registrar Training

posts with a joint appointment with the Province two of these are at Klerksdorp Hospital in the North West Province, and two are at Sebokeng Hospital. In addition, nine supernumerary registrars, from other sub-Saharan African countries are registered in our Department.

Partnerships

- We are presently collaborating with the Wits/MRC Developmental Pathways for Health Research Unit and the Respiratory and Meningeal Pathogens Research Unit.

 CHBAH is one of the sites that is recruiting women for the prevention of pre-eclampsia study.









Dr A Chrysostomou and Registrars

PAEDIATRICS AND CHILD HEALTH



HEAD: Professor Peter Cooper

Paediatrics and Child Health predominantly uses three hospitals for its clinical training: CMJAH, CHBAH and the RMMCH. Within these are a number of subspecialty divisions providing clinical services and training. In addition, Klerksdorp Hospital is a satellite hospital for registrar training.

Undergraduate Training

The Department provides significant input into the GEMP I and II programmes. GEMP III and IV students spend a six-week block in Paediatrics in each year In addition, teaching is provided to undergraduate dental students and those training in the allied medical professions.

Registrar Training

Sixty-seven registrars occupy university training posts with a joint appointment with the Province, (two are at Klerksdorp Hospital in the North West Province). In addition, a number of supernumerary registrars, from sub-Saharan African countries are registered in the Department. We receive registrars from Botswana where their Faculty, in consultation with the College of Paediatricians, requires that they do eighteen months of their training in a South African paediatric department to gain exposure to intensive care and the various sub-specialties.

Consultants

Seventy-seven specialist paediatricians are employed full-time by the hospitals. These include both general paediatricians and those registered as subspecialists. In addition, a number of paediatricians are employed on a part-time or sessional basis.

A significant shift appears to be occurring within Paediatrics as a specialty. In contrast to Internal Medicine, general paediatricians who have dominated the specialty and the sub-specialties in the teaching hospitals have not been as prominent as has been the case with specialties such as Internal Medicine. This is now beginning to change and registrars completing their training and who plan to remain in the public sector are tending to look more towards a sub-specialty rather than general paediatrics.

Subspecialties that provide clinical service and training include:

- ◆Neonatology ◆ Oncology ◆ Cardiology
- ◆Nephrology ◆ Endocrinology ◆Neurology
- Developmental Paediatrics
- ◆Gastroenterology ◆ Pulmonology ◆Infectious Diseases ◆ Rheumatology

Research Units

Two major research units fall under our Department:

- Wits/MRC Developmental Pathways for Health Research Unit (DPHRU) under Dr Shane Norris. This was previously the Bone and Mineral Metabolism Research Unit under Professor John Pettifor who is still active in this unit. It also incorporated the Birth to Twenty Study.
- Perinatal HIV Research Unit (PHRU) under Professor Glenda Gray (who is also Director of the MRC). They have done ground breaking research into HIV for over two decades and remain extremely active.

Details and activities of the Units can be found on page 80 of the report.

Nelson Mandela Children's Hospital (NMCH)

Construction of the NMCH is nearing completion after many years of planning and the hospital is expected to be commissioned at the end of 2016. It will be a tertiary/quaternary referral hospital and form an integral part of our clinical platform. It is envisaged that although additional staff will be required to staff the hospital, there will also be a rotation of staff between the existing hospitals and the NMCH at registrar, fellow and consultant levels. The hospital will provide much needed additional beds for children requiring specialised medical and/or surgical care and will help to consolidate subspecialty units.

Blooming Old!

On 21 May 2014, Professor Emeritus Solly Levin gave an informative talk to academics, registrars and students in the Department of Paediatrics entitled Blooming Old! Combining beautiful botanical examples from his garden (which also alluded to the title) to enhance the illustrations, he spoke eloquently about some rare and not-so-rare syndromes in infants which indicate heart malformations.

Ventricular Architecture and Function – New Insights

In his introduction to a talk given to the Department of Paediatrics at the CMJAH on 1 July 2015, Julien Hoffman, Professor of Paediatrics (Emeritus) and Senior Member, Cardiovascular Research Institute, University of California San Francisco, said that the

existence of spiral muscles in the myocardium were already documented 300 years ago. Their purpose had been largely ignored until recent times.

There are two major encircling spiral muscles – from left to right and right to left, intersecting at an angle of 60 degrees. They do not contract in a linear fashion, but have a torsion or twisting effect. The left ventricle also has additional circular fibres. With modern techniques, contraction and relaxation of the heart can be recorded graphically in a 3-D mode, plotting the degree of torsion and twisting. Thus, while the heart at the top is twisting in one direction the bottom of the heart twists in the opposite direction.

This motion is also correlated with the opening and closing of the heart valves. The interventricular septum is now seen as two separate layers – one is part of the left ventricle, while the other is part of the right ventricle. These muscles behave differently in conditions such as aortic stenosis and in dilated cardiomyopathy.

Professor Hoffman, a Wits graduate, has spent almost his entire lifetime fostering the advancement of paediatric cardiology and cardiac surgery. He joined the team in Paediatric Cardiology at the University of California in 1966 and the Unit has developed into a leading research division on cardiovascular disease in children in the US and, arguably, in the world, with Dr Hoffman as a co-director.



Professor Solly Levin, Dr Kathleen (Kathy) Lewis, Professors Julien Hoffman, Peter Cooper



Alumni talks in the Department of Paediatrics, 2015

- Professor Paige Kaplan, Professor Emeritus, Perelman School of Medicine at the University of Pennsylvania and Director of the Lysosomal Center at the Williams Syndrome Clinic and Connective Tissues Clinic at the Children's Hospital of Philadelphia, presented a talk entitled "Approach to diagnosing and treating inborn errors of metabolism" in which she emphasised that although individually these are relatively rare, if taken together they amount to a significant number.
- With the tests now available, all that is needed is a finger prick of blood after birth to pick these up so that treatment can commence within the first five days after birth.
- Bernard Kaplan, Professor of Pediatrics, Medicine and Urology at the Perelman School of Medicine at the University of Pennsylvania delivered a lecture entitled "The hemolytic uremic syndromes – a South African journey". Professor Kaplan has been cited in Best Doctors of America and in the Philadelphia Magazine numerous times for his clinical expertise in paediatric nephrology. A world authority on the diagnosis and management of Hemolytic-uremic syndrome (HUS), this condition produces serious injury to the kidneys of children affected.



PSYCHIATRY



HEAD: Professor Christopher Paul Szabo

Psychiatry covers a number of units comprising specialist hospitals: Sterkfontein and Tara; Acute Units in general hospitals: Chris Hani Baragwanath Academic Hospital (CHBAH), Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and Helen Joseph Hospital; Child and Family Units at CMJAH, Tara CHBAH, as well as at Rahima Moosa Mother and Child Hospital and Adolescent Units at Tara and Sterkfontein Hospital (Forensic). The Department also renders service in community at clinics in the following regions; Ekurhuleni, Sedibeng, Metro and West Rand.

The acute psychiatric admission units are high turnover multidisciplinary units which provide specialist psychiatrist cover for casualty, as well as consultation-liaison psychiatry and outpatient psychiatry clinics over and above dedicated inpatient psychiatric care in designated units.

Each of the units provide a 24-hour emergency psychiatric consultation service through the casualties. Patients urgently needing psychiatric intervention/assessment include those who are acutely suicidal, psychotic, aggressive or who need crisis intervention. It is also common for psychiatrists to be called out to give advice on the management of delirium or other acute presentations with a behavioural component. Emergency assessments are carried out on site in casualty by psychiatric medical officers or registrars under consultant supervision.

All the Units are busy service entities and Consultant Psychiatrists, registrars and Psychologists hold joint University/Province appointments. Each Unit runs an academic programme and is involved in postgraduate training of psychiatrists and psychologists and allied medical disciplines.

Undergraduate medical students do clinical rotations in most of the units as part of their training. An important feature of the Department of Psychiatry is that it promotes communication and cohesion between the units which provide a large proportion of the mental health services in Southern Gauteng. The Department Executive meets monthly with representation from all units and has academic and service matters on the agenda. The Department has an active research programme with an emphasis on the MMed degree as part of specialist training.

Carnegie/Wits Alumni Diaspora Programme

The Department hosted a Carnegie-WITS Diaspora Fellow, Professor Anthony Feinstein, during the week of 22 June 2015. Professor Feinstein obtained his MBBCh from Wits, and his Master of Philosophy and Doctorate degrees from the University of London. He completed his training in psychiatry at the Royal Free Hospital in London, and his neuropsychiatry training at the Institute of Neurology, Queen Square in London. He is a neuropsychiatrist at Sunnybrook Hospital in Toronto, Director of the Hospital's Traumatic Brain Injury Clinic, and Professor of Psychiatry at the University of Toronto. Professor Feinstein has authored six books, his most recent is "Battle Scarred: Hidden Costs of the Border War" which is an account of his national service as a medical officer during the South African Border War. In 2012, Professor Feinstein produced a film entitled: "Under Fire" which was based on his research of journalists in war zones. The documentary was shortlisted for an Academy Award and received a 2012 Peabody Award. He has published widely in peer-reviewed journals and has authored many book chapters.



Professors Christopher Szabo and Anthony Feinstein

As part of his involvement with the Department and Faculty, Professor Feinstein delivered a public lecture on 22 June 2015 entitled "Journalists under Fire: War and the Emotional Health of Journalists". His lecture included content from a series of his studies on war journalism where he sought to understand how journalists are affected emotionally by their work in zones of conflict and what motivates them to pursue such dangerous occupations.

During his stay he also met with current Carnegie Clinician PhD fellows, as well as visiting clinical sites within the Department of Psychiatry and conducting seminars directly related to psychiatry.

Research events and initiatives

The UCLA/South African Trauma Research Training Programme (PHODISO)

Adjunct Professor Ugash Subramaney has been appointed on the advisory board and as supervisor of Trisano Project Scholars on the UCLA- SA Research Training Program for Chronic Mental Disorders. This project is affiliated to the PHODISO programme and entails interviewing new fellows for post-doctoral scholarships, as well as mentoring of the fellows. Continued involvement in this programme has ensured Fogarty funding from the NIMH for another five years. Three Wits registrars were afforded the opportunity to attend the 2015 Trisano training programme due to their research projects being linked to traumatic stress (under Adjunct Professor Subramaney's supervision/co supervision).

Public Mental Health Forum

The Department of Psychiatry (in collaboration with Sanofi, the South African Society of Psychiatrists as well as the College of Psychiatrists) developed and hosted a Public Mental Health Forum which was held in Johannesburg on World Mental Health Day – being the 10th of October.

The event was attended by some 20 psychiatric specialists in training (registrars) from 7 of the 8 universities who train psychiatrists in South Africa. All attendees were in their 3rd year of training (noting that they write final exams in their 4th year) . Public Mental Health knowledge is now a specific requirement for South African psychiatrists in training and inclusion of such content in the syllabus should be seen as a significant outcome that emanates from the mental health leadership initiative developed by Prof. Christopher P. Szabo and Dr Jennifer Fine (Sanofi) that ran from 2013-2015. This educational development will no doubt impact on future generations of psychiatrists in the country and hopefully contribute to efforts to close the existing "treatment gap".

The lectures were based on the current syllabus for registrar training (College of Psychiatrists, within the Colleges of Medicine of South Africa). Following attendance there was an evaluation of speakers, and the event generally, by the attendees. The lectures were rated between 3.35 to 3.8 out of a maximum of 4 with the overall usefulness of the event rated 3.55 out of a possible 4. The next Forum is scheduled for 2017 in the Western Cape.

Mentoring and Capacity Development

The Department continued to successfully arrange its annual Research Day presentations of completed registrar research projects in June 2014 and June 2015. These annual events typically include a guest speaker and a prize for the best presentation by the local subgroup of the South African Society of Psychiatrists.

Regular writing dyads have been organised during 2014 and 2015, including protocol development, research report writing and article writing dyads. This resulted in the successful submission of more than 10 manuscripts.

Neuropsychiatry and the development of the Gauteng Neurocognitive assessment (G-NCA)

Neuropsychiatry was recently promulgated and accepted as a sub-specialty of psychiatry within the Health Professionals Council of South Africa (HPCSA) and the Colleges of Medicine South Africa (CMSA).

The University of the Witwatersrand's Department of Psychiatry partnered with the University of British Columbia's Neuropsychiatry programme to establish a teaching platform to train consultants in Neuropsychiatry and engage in research. The partnership with the University of British Columbia's Neuropsychiatry programme has been extremely beneficial. Funding was provided by the Wits Donald Gordon Medical Centre and to-date five psychiatrists, (Drs Jonsson, Pillay, Fernandes, Naicker and Bracken) have been registered as sub-specialists with the HPCSA. A Group of interested consultants, working in the field of Neuropsychiatry, and under the leadership of Prof. Hurwitz, a registered Neuropsychiatrist and Head of the Neuropsychiatry programme at the University of British Columbia in Vancouver Canada, developed the Gauteng Neurocognitve assessment tool (G-NCA).

Identified gaps within the screening neuropsychological tests and literature were identified and adapted to include a patient population with minimal or no formal education. The G-NCA was developed over a period of one year and included clinical experience from 11 consultant psychiatrists. The aim of the screening test was to exclude confounding variables like language and educational level. The British Columbia Neurocognitive assessment (B-CNA) was developed by Prof. Hurwitz in British Columbia and normed on an educated, white North American population.

The adaptation of the bedside neurocognitive assessment (B-NCA) to include adaptations for attention, remote memory, working memory, verbal memory, non verbal memory calculation and visuospatial ability was made culturally relevant, educationally relevant and language independent. The G-NCA test has been translated into Zulu and Sotho enabling administration in the patients own language.

As no definition of minimal or no formal education exists, the evaluation of the G-NCA's validity, uniquely constructed with the aim of limiting cultural bias, was needed and a cut off for the term minimal formal education needed to be established.

With funding from the British Columbia's Neuropsychiatry programme, we embarked on a study to ultimately validate this new and unique tool. The research project has commenced and to date we have tested 120 children from Grades 1 to 10. The initial aim is to determine at what level of education is needed to make the G-NCA invalid and abandoned

in favour of the B-NCA. This educational cut-off will permit the valid use of the G-NCA in adults with minimal or no formal education. The second part of the project will then be to validate the test in various populations with various disease entities. This has commenced with the use of the G-NCA in the 'West Side Hotel Study' in Vancouver, Canada. The Neuropsychiatry team includes consultants from the University of the Witwatersrand and the University of Pretoria.



Back row: Dr Y Nel (Sterkfontein Psychiatric Hospital), Dr C Bracken (Helen Joseph Hospital), Dr C Kotze (Weskoppies Psychiatric Hospital), Dr R Brummerhoff (Sterkfontein Psychiatric Hospital), Prof. T Hurwitz (Neuropsychiatrist, Head British Columbia's Neuropsychiatry programme), Dr G Jonsson (Chris Hani Baragwanath Academic Hospital, Neuropsychiatry course coordinator). **Front Row:** Dr S Fernandez (Tara Hospital, The H Moross Centre), Dr J Buckley (Chris Hani Baragwanath Academic Hospital), Dr A Pillay (Charlotte Maxeke Johannesburg Academic Hospital) and Dr P Naicker (Tara Hospital, The H Moross Centre)

RADIATION SCIENCES



HEAD: Professor Mboyo-Di-Tamba Vangu

Professor Mboyo-Di-Tamba Vangu is a Chief Specialist and Head of Nuclear Medicine at Wits for the Charlotte Maxeke and Chris Hani Baragwanath Academic Hospitals. He is also the Head of the Department for Radiation Sciences at Wits.

The Department of Radiation Sciences comprises three clinical and one medical physics division.



DIAGNOSTIC RADIOLOGY

HEAD: Professor Victor Mngomezulu

The Division of Radiology (Diagnostic) services the x-ray units of the CMJAH, CHBH, the HJH and the RMMCH.

A staff compliment of between thirty Radiologists and over fifty-eight registrars run a comprehensive, 24-hour imaging service at all four hospitals. Magnetic Resonance Imaging (MRI) is available at both the CMJAH and the CHBH. Radiology interacts with most of the other medical divisions by holding weekly x-ray consultations.

Our staff hold tutorials and present lectures to the MBBCh undergraduate programme and are involved in their 4th and 5th year Elective Periods. The department is also actively involved in research.

Opening of the Wits Radiology Research Laboratory

Diagnostic Radiology and Investec were proud to launch the opening of the new Research Lab located in the CMJAH in January 2015.

Although the Department has only been actively involved in research activities for the past four years, a dedicated team of research coordinators has helped steer the department to becoming a "research-intensive" unit. The Research Laboratory, which is located in the old X-ray film library, has the capacity to comfortably host eighteen students.

Investec proudly sponsored the contents and décor of the room which was fitted with a central 57 inch monitor for presentations, new Apple iMac computers, tables and chairs, blinds and flooring.

Since then we have:

- · Become a top publishing Department
- Graduated multiple MMeds
- · A number of registered PhDs
- · Generated money for the Department

The Division supports the MMed research activities for fifty-four registrars and the PhD studies of a further five candidates. To achieve its research and publication objectives, Diagnostic Radiology has employed a research coordinator, a research administration assistant, provided protected time for registrars and supplied research infrastructure through a research laboratory. The success of these initiatives is evident in the publishing of over 100 journal articles of which 43 have been Medline indexed.



Professor Victor Mngomezulu, Dr Tebogo Hlabangana and Radiology Registrars

Among the VIPs who were present at the launch were Professor Victor Mngomezulu, Academic HOD of the Department of Diagnostic Radiology, Professor Sawas Andronikou, Head Research Coordinator, Dr Tebogo Hlabangana, HOD at CHBAH, Research Co-coordinator and Mr Dion Katz, Head of Private Banking at Investec. This prestigious event was supported by Faculty of Health Sciences with the attendance of Professor Beverley Kramer, the Assistant Dean: Research and Postgraduate Support, Professor Mac Lukhele, Head of the School, and the Investec Marketing and Management team.

Doctor raises the flag on Mt Kilimanjaro

Professor Tebogo Hlabangana, Chief Specialist and Head of the Radiology Department at the CHBAH climbed Mount Kilimanjaro from 23-29 October 2015 to raise funds for breast cancer awareness.

As part of the nine member "One step at a time" team, she took on the grueling Machame Route to achieve a goal that had been on her bucket list for the past 18 years.

Faced with weather extremes, muscle aches and lack of oxygen, Professor Hlabangana found herself walking nine hours a day, often in rain or sleet, scaling cliffs and crossing streams. The seven-day climb was both a mental and physical challenge.



With determination, focus and great team support she managed to reach the summit, which was both a humbling and exhilarating experience. She says: "As a radiologist I have realised that education is the first step in increasing early detection of breast cancer. Raising funds to achieve this has been a phenomenal experience ...

I conquered Kili so that more South African women can have the chance to win the fight against breast cancer. Professor Tebogo Hlabangana



RADIATION ONCOLOGY HEAD: Professor Vinay Sharma

The discipline of Radiation Oncology is a field of medicine which is concerned with the treatment of cancer using ionising radiation. The Johannesburg

Hospital division of Radiation Oncology which falls under the Department of Radiation Sciences is one of the largest in the country. It is chaired by Professor Vinay Sharma who heads a staff of ten consultants, fifteen registrars, therapy radiographers, oncology nurses and support staff. The division of medical physics provides invaluable support to the division in the delivery of high quality and accurate treatment.

The mission of the division is to provide expert and compassionate care in the treatment of all patients with cancer who are referred for radiation therapy.

In order to achieve this goal, a multidisciplinary approach which includes the involvement of oncology surgeons, gynaecologists, medical oncologists and allied medical disciplines such as physiotherapists, speech therapists, and social workers is essential. A number of multidisciplinary clinics are well established including a head and neck clinic, gynaecology clinic, breast clinic, sarcoma clinic and skin clinic. The division is committed to the holistic care of the patient with cancer. In addition, the division is involved in both postgraduate and to a lesser degree undergraduate training.

Registrars are exposed to a wide variety of cancers and receive training in all the modern techniques of radiation therapy delivery and in basic cancer chemotherapy. The division has been identified by the International Atomic Energy Agency as an important resource for the training of doctors throughout Africa and is currently training radiation oncology specialists as far afield as Ethiopia, Zambia, Kenya and Tanzania.

A new department has been built at Johannesburg Hospital and all treatment and consultations are done at that venue. Doctors' offices and outpatient clinics are at Johannesburg Hospital area 348.

NUCLEAR MEDICINE

The department has seven dedicated and passionate consultants for teaching and training the postgraduate registrars. There are three additional honorary consultants with vast experience in nuclear medicine, one an Emeritus Professor for Wits, one being a visiting professor from UCT and the other a senior specialist from private practice. Three junior registrars wrote their Part 1 examination in 2015 and successfully passed whereas five senior registrars were invited for the oral component of the Part 2 examination and four passed.

In this era of personalised medicine one may say that Nuclear Medicine with its vision of embracing a multidisciplinary way in the approach of patients that are referred for diagnostic functional imaging would become a vital key to the management of patients. With the explosion of the many molecular drivers in diagnosis and treatment it becomes essential that we all understand the potentials of molecular imaging and targeted therapy that may be available in Nuclear Medicine.

While the cost may become an issue for the low and middle income countries to remain on par with the "developing world' in the continuing revolution of medicine that we experience today, those who know how to strategise better with the concept of personalised medicine will undoubtedly be the ones that will reap the benefit of better outcomes. The optimisation of the use of Nuclear Medicine thus is the only way to go if personalised medicine should be put at the forefront of patients' diagnostic modalities and therapeutic approaches in our environment with limited resources. Let us work together and engage in continuous communication and discussion to consolidate a multidisciplinary vision and therefore minimise mistake in our global approach to diagnostic and therapeutic procedures.

Focus on two projects

 Nuclear Medicine (Professor Vangu) is currently collaborating with the Aurum Institute in an project titled: "F18 FDG PET for the Evaluation of Lung Inflammation in Tuberculosis/HIV: Part of the "The Lung Impairment after TB-IRIS (LIFT-IRIS) Study: A Longitudinal Evaluation of Immune Restoration and Lung Function in HIV/TR"

 Collaborative work with the University of Ghana on a PhD work by Francis Hasford and Professor Vangu as a co-supervisor. The PhD project titled: 'Ultrasound and PET/CT image fusion for prostate brachytherapy image guidance' has been defended at the University of Ghana with success and three papers have been accepted for publication (Fig1 below).





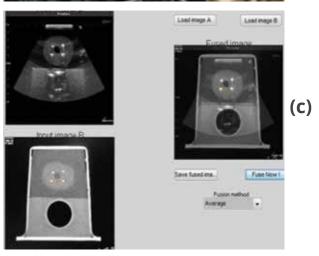
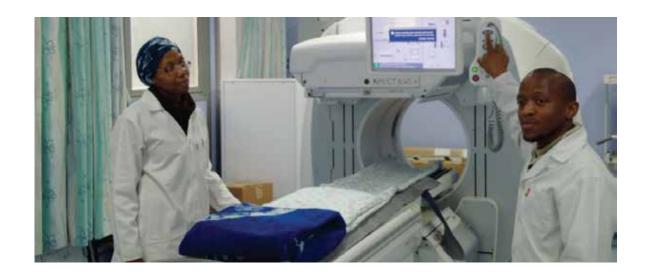


Fig1: (a) Prostate phantom under PET-CT scanning; (b) Prostate phantom under US scanning; (c) Developed MATLAB algorithm showing fused US-PET-CT image



MEDICAL PHYSICS

Medical Physics is a dynamic profession and services are rendered to the clinical disciplines that use radiological sources, i.e. Radiology, Nuclear Medicine, Radiation Oncology and other disciplines like Trauma and Cardiology. Medical physicists are responsible for the physical, technical and dosimetry aspects of applying radiation to medicine, as well as radiation safety and protection of workers, the public and patients. Medical physicists are categorised by the HPCSA as medical scientists, and are registered and regulated under the Medical and Dental Board. The Department is situated at the CMJAH.

At Wits, a few programmes are offered to support national and regional education:

- Internship programmes for clinical training of South African nationals.
- Academic programmes to provide students with the pre-requisite courses in Medical Physics through WITS Enterprise. Most interns have graduate degrees in pure Physics and Medical Physics is offered at a postgraduate level.
- Masters of Science in Physics in the field of Medical Physics by coursework and research report for the development of specialised Medical Physics and Metrology expertise
- Masters by research dissertation
- PhD
- Supernumerary fellowships that are tailored to the needs of a particular student. To date we have received fellows from Namibia, Zambia, Zimbabwe, Botswana, Sudan, Uganda, Kenya, United Republic of Tanzania, Ethiopia, Eritrea, Ghana, Nigeria and Libya.

The Department has unconditional HPCSA accreditation to offer training in Medical Physics at the CMJAH. We are proud of the fact that our students are exposed to the widest range of technology and techniques available in any one facility in the region. As a result of this, we are also collaborating in the supplementary training of interns from other centres and provinces. We hope to expand our internship programme owing to demand.

Our fields of research range from nanodosimetry and small field dosimetry to therapeutic nuclear medicine techniques and the interrogation of quality control and auditing in radiotherapy. Our major collaborators are the Dosimetry section of the National Metrology Institute of South Africa, the Physikalisch-Technische Bundesanstalt (PTB) and the International Atomic Energy Agency (IAEA).

The Division is staffed by seven full time medical physicists with experience ranging from 1-25 years. Imaging medical physics services are also rendered to the CHBAH and HJH.



Professor Van Der Merwe (HOD) with Afghan counterparts

Professor Van Der Merwe and staff



Oncology Registrars

SURGERY



HEAD: Adjunct Professor Martin Smith

Martin Smith is currently the Chairman and Academic Head of the Department of Surgery at Wits. He also serves as the Chief Surgeon and Head of General Surgery at the Chris Hani Baragwanath Academic Hospital in Soweto South Africa. It is here that he established the HPB unit in 2001 which has grown to be one of the major training HPB units in South Africa. His own interests include pancreatic surgery especially for Chronic Pancreatitis. He is a Johannesburger and graduated from Wits in 1983.

Professor Martin Smith was the inaugural President of the Hepato Pancreatico Biliary Association of South Africa established in 2005, and currently serves as the Treasurer for the Association. He is also President of the European-African HPBA.

Surgery has progressed over the last five years. There was a change in leadership over the last two years with Professor Veller stepping down after being appointed the Dean of the Faculty of Health Sciences. Adjunct Professor Martin Smith assumed the headship in March 2013. Professor Ramokgopa was appointed Academic Head of Orthopaedic Surgery, and Professor Loveland was appointed Academic Head of Paediatric Surgery, and Professor E Ndobe Head of Plastic Surgery. Subspecialty divisions include General Surgery. Orthopaedic Surgery, Neurology, Plastic Surgery and Cardiothoracic Surgery. The Department of Surgery is part of the cluster which includes Surgery, Anaesthesia, Critical Care and Forensic Medicine. This cluster is managed by the HOD of General Surgery, Adjunct Professor Martin Smith.

GENERAL SURGERY

Over the last five years, the teaching of undergraduates has stabilised and the overall results and throughput remains constant.



The number of students has increased during the clinical years and this has impacted on the teaching platform. This increase in numbers has threatened the concept of small group teaching and the average size of groups has increased from the ideal number of eight students to 16 or more students per group.

New strategies have been developed to cope with these numbers by dividing the groups and focusing on clinical activities with greater emphasis on inservice training. We support the School's approach to address an expanded teaching platform as a matter of urgency.

We reviewed our curriculum in 2014 and have updated the core competencies. The assessment process has been enhanced by the development of an assessment group who are tasked with improving the MCQ question bank in Surgery. In 2014, we established an undergraduate committee in the Department of General Surgery. This committee is represented at all levels and deals with content, delivery and assessment issues.

The registrar numbers have continued to grow with the current group at 64 registrars. This group has transformed itself dramatically over the last five years with more than half the registrars being female and approximately an equal number being black South Africans. The entry criteria have remained constant. All registrars are required to write the College of Surgeons exit exam which includes the intermediate exam and the final fellowship exam. The throughput at the intermediate level has been very good. The throughput at the exit level has been mixed but we have graduated fifty-eight Surgeons over the last five years. The College of Surgeons has required a research component since 2011 and as such the registrar MMed process has improved dramatically. The department has excellent support structures to assist with research methodology training and has now introduced mandatory research supervision courses. Registrars will also be required to attend a teaching course as a compulsory requirement. The MMed throughput over the last five years stands at twenty-eight graduates.

There is a significant volunteer registrar component in the department which ranges from between 8–12 registrars. The department is well prepared to incorporate these trainees who make a significant contribution to service delivery and allow them enhanced protected academic time. These registrars are predominantly from Africa.

Registrars now rotate through two regional hospitals (Leratong and Sebokeng Hospitals), and the stability of these platforms varies with the available staff establishments.

When these ratios have been under threat, the department has rotated consultant staff to these hospitals to ensure ongoing supervision. Training is conducted in the Klerksdorp-Tsepong complex in the North West Province and registrars rotate there routinely. We also teach in two District Hospitals and have registrars rotating to Edenvale Hospital, and registrars who visit Jabulani Hospital, a new district hospital recently opened in Soweto.

Postgraduate fellowship training is well established and we have fellows in all the registered fellowships; including Vascular Surgery, Trauma and GIT surgery. Throughput has been excellent especially in Trauma, vascular and GIT over the last few years. The teaching programmes include the private sector, with Milpark and Union Hospital active in Trauma training and the WDGMC providing an extensive platform for GIT training. The Liver Transplant Unit situated at the WDGMC also contributes to training.

Research output has increased in the Department. This is based on the research requirement of the HPCSA and we have strengthened research support to enable this. Registrars have a dedicated research block in the senior rotation. We have also enhanced the research scientist group which is headed by Professor Geoffrey Candy. He is assisted by three full-time scientists (two with PhD's) and one, an expert in flow cytometry. Two postdocs have been appointed and there are a number of PhD students and MSc students.

In 2013, it was decided to focus all research on diseases of the pancreas. This group has rapidly evolved and while the publication output is slow, many studies have been initiated and are reaching maturity and we expect a significant publication output in the next two years. The Department is part of the MRC Endothelial Cancers Collaboration Centre that has recently been awarded a large MRC grant. This complements a very large individual NRF grant awarded to Martin Brand in 2014.



Units of Excellence

- Breast surgery
- Hepato Pancreatic Biliary surgery including the WDGMC training platform
- Liver transplant at the WDGMC
- Trauma at all hospitals including the dedicated burns unit at CHBAH
- Vascular surgery
- Evolving areas include endocrine surgery

There are three important Benefactors in the Department

- The Miller Foundation continues to provide excellent support for improving surgical skills and we award a senior and junior travelling award annually. There are registrar awards made for academic and clinical excellence.
- The Norwich Travelling fellowship is awarded annually to allow a young consultant to travel overseas to improve their clinical or research skills.
- 3. The Anthropos Fund was hosted in the Surgical Research Society for a number of years but we are negotiating with the board to return the award into the Department of Surgery.

Staff members of the Department continue to hold national and international positions in the colleges and professional associations. A comprehensive list is available on page 47 of this report. It is through these endeavours that the Wits Surgery Department continues to have a significant national and international footprint in surgery.

24th Wits Biennial Surgical Symposium

General Surgery held its 24th Biennial Surgical Symposium from 6-9 July 2014. This is the oldest departmental based surgery symposium in the country and continues to be an important educational opportunity which is now hosted in University facilities and remains a sought after meeting by the national surgical profession.

The symposium supports the ongoing education and learning of the surgical community by providing them with an academic programme that is relevant to their practice of surgery and up-to-date with respect to the current surgical literature. This year's programme focused on the prevention and management of complications. We hosted two international experts in the field of enhanced recovery after surgery. With over three hundred delegates and twenty sponsors and exhibitors, this year's biennial was a resounding success. Early feedback has reflected that the performance by the Surgery Department has ensured that the biennial remains the premier surgical meeting on the national calendar.

Outreach work and Community Engagement inclusive of hospitals and clinics

General Surgery has responded to the need to train more General Surgeons by extending the teaching platform to include Sebokeng (Vanderbilt Park), Klerksdorp Tshepong Hospital Complex (Northwest Province) and Leratong (Krugersdorp). Consultants from the central hospitals visit the satellite hospitals regularly to teach the Registrars.

Farewell to Mrs Susan Parkes

A farewell luncheon for Mrs Susan Parkes was held in the Adler Museum of Medicine on 28 November 2014. Several speakers from the Department of Surgery spoke at the function and paid moving tributes to Sue who has been associated with the Department for twenty six years! Sue Parkes started working for the University in 1986 in the Department of Medicine and two years later was appointed as Senior Secretary in the Department of Surgery. For her efforts on various committees, her efforts in coordinating activities and her supervisory roles, she was awarded the Exceptional Service Medal by the Faculty in 2002.

Sue served the discipline of surgery at a national level as an editor for the South African Journal of Surgery. She provided administrative support to a number of individual surgical societies and has provided significant administrative support to the combined Association of Surgeons of South Africa and the Federation of South African Surgeons. Sue's remarkable knowledge of university systems and dedication to the Department of Surgery will be sorely missed. She is retiring to spend more time with grandchildren, the Arts (movies, books, painting and sculpture) and will still be involved with ASSA and FoSAS.



Professor Martin Smith, Mrs Susan Parkes

UROLOGY

Stone Week Pilot Project at Helen Joseph Hospital

A new record was established in June 2015 at Helen Joseph Hospital - the first week was dedicated entirely to patients with kidney stones. The Head of Urology at the hospital, Dr Ahmed Adam, noted that the hospital had an unacceptable backlog of patients requiring surgery for kidney stones.

Dr Adam responded to this need by arranging for national experts in the field of stone surgery to travel to Helen Joseph to perform this specialised surgery - percutaneous nephrolithotomy (PCNL). Dr Haroun Patel took time from his busy practice in Durban to operate the entire week. Dr Dionne Celliers, another expert in the field, joined the team from the Urology Hospital in Pretoria with his specialist, Sister Thembi. The week was not only beneficial to the patients but also the Urology Registrars (including Dr Kalli Spencer and Dr Preena Sivsankar) and theatre nursing staff at the hospital who were able to improve their skills and learn from these experts. Numerous sponsors from the private sector offered their services and equipment not available in the public sector, emphasising how important public - private partnerships are. The project was endorsed by the hospital CEO, Dr Bila and surgical superintendant, Dr Hlongwane.

The week was a great success allowing the patients to return to their occupations with an improved quality of life. It also provided important preparation for an even bigger and better dedicated kidney stone week in the near future.



Kalli Spencer, Ahmed Adam, Onica Mesolo, Haroun Patel, Dionne Cilliers, Sister Thembi



CARDIO THORACIC SURGERY (CT) SHORT COURSES

The Division of Cardio Thoracic Surgery was reaccredited by the Health Professions Council of South Africa (HPCSA) in 2014.

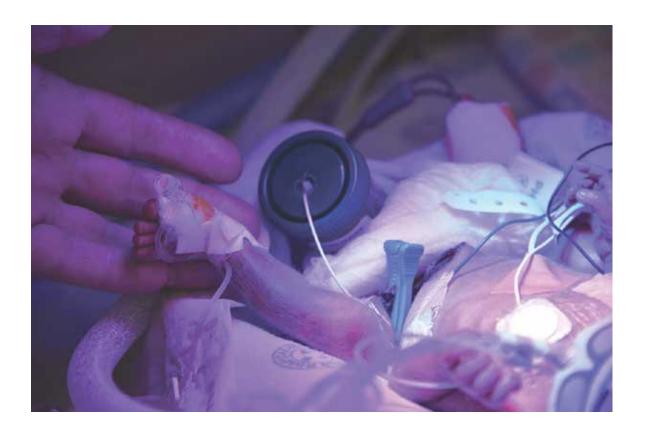
PAEDIATRIC SURGERY

South African Paediatric Orthopaedic Society Instructional Course lecture (ICL)

Over seventy orthopaedic surgeons gathered from around the country to participate in the ICL meeting held from 11-12 April 2014. We hosted two international guest speakers: Dr Colin Moseley from Los Angeles (USA) and Dr Markus Michel from Bern (Austria). Both are world renowned leaders in their fields. Dr Moseley gave an honorary lecture at CHBAH on 10 April 2014 which was attended by over fifty local Orthopaedic Registrars. He then saw patients and went on a ward round.

The ICL meeting focused on the Paediatric Hip and lectures were given by both the guest speakers and local faculty from around the country. The topics included developmental hip dysplasia, slipped capital femoral epiphysis, Perthes disease, septic arthritis and idiopathic chondrolysis. Special thanks to the sponsors Stratmed, Orthopediatrics, Synthes and Macromed for their support. We look forward to the next ICL in two years time.

- Basic Surgical Skills Course Introduced in 1998 by Professor D Bizos. It is run in centres around the country and is compulsory for all surgeons to complete successfully should they wish to write primary exams. This course led to the development of the skills lab which teaches open surgery and laparoscopy skills and Laparoscopy courses such as cholecystectomy and laparoscopic suturing course. Number of participants in total was 994, of which 482 are from Wits Faculty of Health Sciences.
- Laparoscopy Course presented two to three times per annum, teaches skills of Laparoscopy.
- Train the trainers presented intermittently trains local consultants as well as other University learners on adult education and how to present and run courses.
- **Supervisors course** Teaches Supervisors how to supervise candidates. Discusses responsibilities of a supervisor.
- Research Methodology Research methods is aimed at the MMeds. Describes how they should set out their protocol. It gives them an overview of the process from an administrative point of view and includes setting out the methods, ethics and variable descriptions. The course runs over four afternoons in a month, once annually.



- Stats Course facilitated by Professor Geoffrey Candy and is a hands on course using real data and basic statistics.
- Advanced Trauma Life Support ATLS is a Public Benefit Organisation, not for profit, and is run under the auspices of The Trauma Society of South Africa. Association with the Department of Surgery is logical as Trauma is a Division of Surgery. The course aims to improve the level of care of trauma victims in South Africa. The course runs over two and a half days and incorporates both theoretical aspects in the form of interactive lectures and practical stations where candidates have hands on practice with the various practical skills associated with treating trauma patients. Surgical skills such as surgical airway and chest drain insertion are also practiced. The course is very intensive and detailed pre-course preparation and study from the ATLS Student Course manual is imperative.

There is a pre-test for which candidates must obtain >80% for before being admitted onto a course. Assessment at the end of the course consists of a written MCQ exam and practical assessment of the candidates' proficiency in the initial assessment and treatment of a simulated trauma patient. Once successful, the candidate will receive an ATLS provider card which is valid for four years. Wits Region is the busiest in the country and runs about 18 courses a year. More information can be obtained from the ATLS website: www.atls.co.za

FORENSIC MEDICINE AND PATHOLOGY



HEAD: Adjunct Professor Jeanine Vellema

Forensic Medicine and Pathology at Wits is tasked with the medicolegal investigation of unnatural deaths in their broadest sense, with its service platform extending across eight Medicolegal Forensic Pathology Service Facilities in the southern cluster of Gauteng, dealing with ±17.5% of all the unnatural death investigations in South Africa.

The academic seat of the Department is based at the Johannesburg Forensic Pathology Service (FPS) Medicolegal Mortuary, where the primary focus prior to 2012 had been service responsibilities and training of Registrars specialising in Forensic Medicine and Pathology. The Registrar training platform extends to three of the eight FPS Medicolegal Mortuaries in Southern Gauteng, viz Germiston, Diepkloof and Roodepoort.

The academic programme within the division has, since 2012, expanded to offering a Bachelor of Health Sciences Honours in Forensic Science (modular based) and Master of Science (MSc) and PhD by research programmes. The contributions made through these research endeavours have been contributing significantly towards South African specific forensic investigative issues. With the support of our grant-funded Wits staff, we have been able to expand research opportunities for postgraduate students in Forensic Sciences.

- Twenty BHSc students graduated in 2014/2015.
- One MSc student graduated in 2014.
- One PhD submitted her research report at the end of 2015.

FPS Gauteng Southern Cluster

During 2014-15, the FPS Gauteng Southern Cluster was responsible for the performance of medicolegal investigations of unnatural deaths in 12 159 cases, with a total full-time forensic medical staff complement of twenty-five doctors, of whom only eleven were Specialists and eight were Registrars. This means that on average, 486 medicolegal death investigations were being performed per doctor (including full-time Registrars, M/O's and Specialists). These are unacceptably high ratios and not aligned with international norms. The ten sessional doctors employed in our FPS did provide some caseload relief for the full-time doctors, reducing the caseload per doctor to around 366 cases per annum per full-time doctor.



Blowflies reared from maggots collected from a decomposed body. These are early colonisers useful in estimating the post mortem interval.

There are currently only sixty-two Specialist Forensic Pathologists employed in active public service by the FPS throughout South Africa, with \pm 70 000 non-natural deaths annually requiring medicolegal death investigations. A Gauteng Norms [Report 1997] determined that Gauteng alone requires at least forty-two Specialist Forensic Pathologists. The more recent CMSA Specialist Survey Interim Report (2010) concurred with this number. (The "pragmatic" number for Gauteng would be forty specialist posts, whereas the "ideal" number for Gauteng would be fifty-five specialist posts).

Undergraduate and Postgraduate Training

The Department has the largest Forensic Pathology Registrar training programme capacity in South Africa. The entire Southern Cluster's postgraduate and undergraduate academic training programmes (including the two satellite HPCSA approved Training Mortuaries, viz Diepkloof & Germiston) are organised and administered through the Johannesburg FPS.

In addition, the Johannesburg FPS teaches roughly two hundred and ninety-five Wits GEMP III medical students and one hundred and sixteen Wits Law (LLB) students annually at our facility. They also train at least two hundred SAPS, EMS, Forensic Science and DoJ students per year, on medicolegal death investigation processes and autopsies.

Partnerships

- An ongoing partnership with the National Health Laboratory Service (NHLS) – National Institute of Occupational Health (NIOH) to work on ongoing forensic toxicology related project. This entails the joint supervision of students and access to laboratory instrumentation and facilities for teaching and training purposes.
- Collaborative efforts exist with the National Horse Forensic Laboratory (HFL) focusing on areas of novel and new psychoactive drugs. They also allow access for testing of specimens involved in research projects.
- Involvement with private companies such as Microsep, Leco and Chemetrix who offer their services, professional training and facilities to allow teaching and training of postgraduate students.

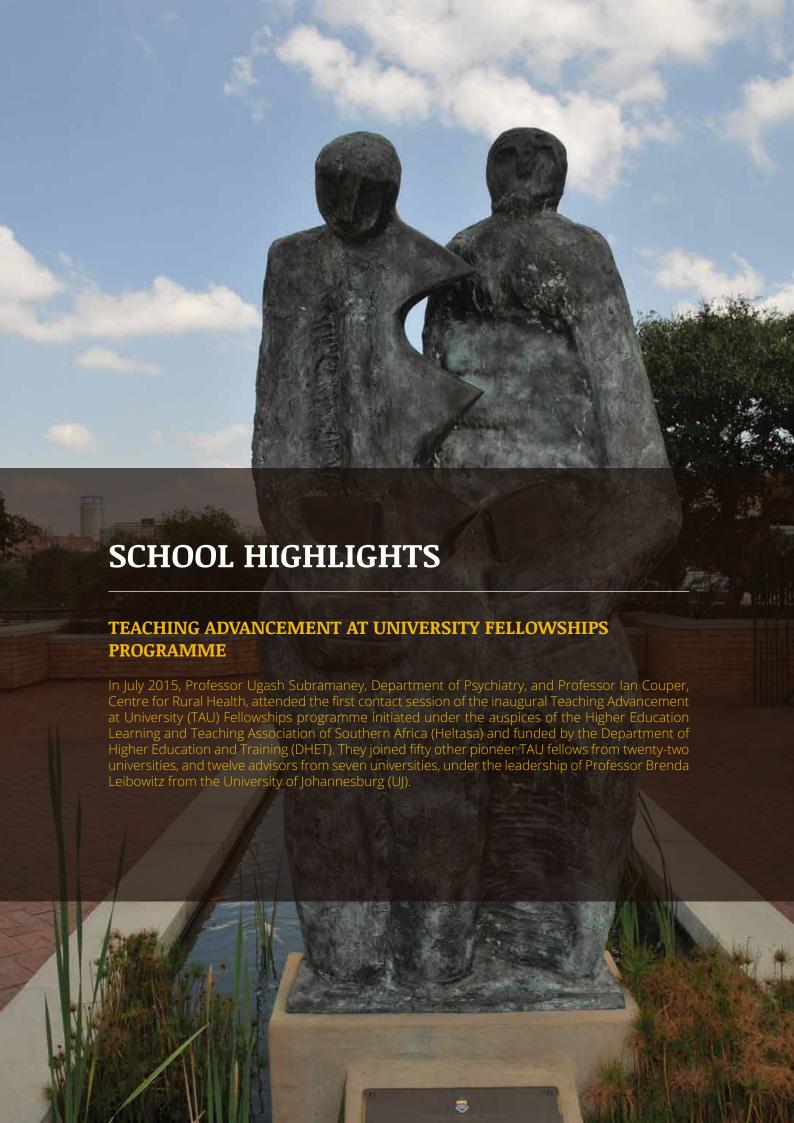
Forensic Anthropology Training and Practical Case work

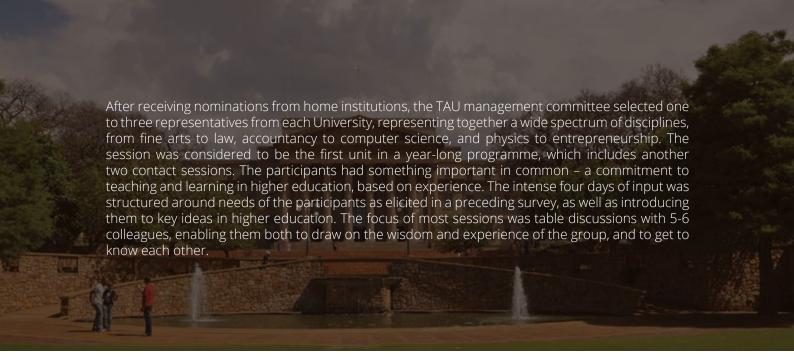
As part of the training for postgraduate Forensic Science students studying towards Honours, Master and PhD's gain practical case work experience on active skeletal cases. This includes training on maceration/skeletal preparation (removal of tissue through physical cutting, boiling of remains and scraping off of remaining tissue). The 3 images below provide examples of parts of a prepared skeleton. All parts of the skeleton are important for trauma analyses as well as estimation of the osteodemographic profile (estimation of age at death, sex, population affinity and life history).











Some highlights of the week included sessions on engaging with transformation in Higher Education in South Africa (SA), supporting academic staff development, the issue of language in higher education, enhancing student learning and success, and a presentation on burning issues in SA Higher Education by Professor Ihron Rensburg, Vice-Chancellor of the University of Johannesburg.

One of the requirements of the Fellowship was for each participant to undertake an individual project. After submitting proposals, everyone was divided into enquiry groups with members having projects along a similar theme; each enquiry group, supported by a faculty advisor, will assist its members to complete their project and deliver a joint poster on their theme at the closing session in July 2016. Professor Subramaney's will look at resilience training and curriculum development, and Professor Couper's will focus on the most effective ways to develop self-directed learning amongst health science students.

The long-term vision, if funding is secured, is for a regular intake into the TAU programme, with some of the current fellows becoming advisors in the future.

Alumni in the News! - American Board of Plastic Surgery

Two alumni from the Department of Surgery, currently serve as directors on the American Board of Plastic Surgery: Donald Mackay (BDS 1976, MBBCh 1980) and David Netscher (BSc, MBBCh 1977). The American Boards of Medical Specialty (ABMS) give the specialty examinations and certify specialists after completion of their specialty training. Election to a Board is an enormous honour. It is very unusual to have any foreign medical graduates serve on one of these Boards and to have two foreigners serving on a Board at the same time is unheard of!

Wits Doctors fly the flag at the Run Cycle Discovery Duathlon!

On 25 October 2015, three teams of public sector doctors from the School participated in the DiscoveryDuathlon RunCycleRun event. This initiative was to promote public sector doctors and they were sponsored by Discovery.

The event consists of a running leg which transitions into a cycling leg, and then to a final running leg. The race provided an inner city experience of Sandton and aimed at team building and team work participation. The School congratulates all the doctors who participated in this event.

10km Run	40km Cycle	5km Run
Mkhululi Lukhele	Susan van Deventer	Ashraf Coovadia
Victor Mngome- zulu	Tony Robertson	Lesley Robertson
Michael Klipin	Gwyn Dickinson	Judy Rothberg



PROFESSIONAL EXCELLENCE AND LEADERSHIP

PROFESSOR YASMIN ADAM contributed to the National Guidelines for cervical cancer prevention in 2015 (Obstetrics and Gynaecology).

DR LYNDA ALBERTYN was elected to the Council of the College of Psychiatrists (CMSA), (Psychiatry).

PROFESSOR REID ALLY was appointed President of South African Gastroenterology Society (SAGES) and President elect of AMAGE (*Gastroenterology*).

DR SHARLA BADAL-FAESEN was a member of the ARTS subcommitte (*Gastroenterology*).

DR COREEN BARKER was a member of the Pharmacy Subcommittee of the SMCCC (Site Management and Clinical Care Committee), (Clinical HIV Research Unit).

DR JENNY COETZEE was awarded a scholarship from the National Health Scholarship Programme (2014-2018), (PHRU)

PROFESSOR ECKHART BUCHMANN was elected

- Chairperson of the Priorities in Perinatal Care Association of South Africa (2003- 2016)
- Chairperson of the FCOG Part I subcommittee of the Council of the College of Obstetrics and Gynaecology of the Colleges of Medicine of South Africa 2006- 2016
- Master Trainer for ESMOE (Essential Steps in Managing Obstetric Emergencies). He assists the ESMOE Board and provincial health departments with training Master Trainers in ESMOE, which is a programme designed to improve the quality of emergency obstetric care in South Africa, and thus to reduce maternal and perinatal deaths.
- A Member of Council, College of Obstetrics and Gynaecology, Colleges of Medicine of South Africa (elected in 2005), (Obstetrics and Gynaecology).

DR ADMIRE CHIKANDIWA was Programme Manager for HPV Research, and was one of five researchers under 35 to be honoured by the Society for AIDS in Africa in 2014 (WRHI).

DR FRANCESCA CONRADIE was appointed

- President of the Southern African HIV Clinicians Society
- Member of the board of the Southern African Medical Research Council
- SAHCS National Conference Chair panelist and session moderator
- Member on the Third Line Antiretroviral Review Committee.
- Member on the Clinical Advisory Committee for Bedaquiline
- Member of the SMC, TB TSG and MDR TB Working Group
- Member of the Working Group for the National HIV drug resistance strategy
- Member of the TB Transformative Science Group (TSG) of the Aids Clinical Trial Group (ACTG), (Clinical HIV Research Unit).

PROFESSOR PETER COOPER was a Past President of the Union of National African Pediatric Societies and Association, current Treasurer and Executive Member of the International Pediatric Association and served as a member of the National Ministerial Perinatal Morbidity and Mortality Committee (*Paediatrics*).

PROFESSOR ASHRAF COOVADIA was a member of the South African National AIDS Council and Course Director on the Advanced Paediatric Life Support programme (*Paediatrics*).

PROFESSOR IAN COUPER was awarded one of seven Special Awards for Outstanding Health Professional Educators. The awards were presented at the Prince Mahidol Award Conference (PMAC) held in Pattaya, Thailand in January 2014. The annual conference focuses on health issues of global significance in order to inspire positive policy reform. PMAC 2014 explored Transformative Learning for Health Equity and consisted of many outstanding presentations by world leaders in fields relevant to implementing The Lancet Commission's recommendations for instructional and institutional reforms. Professor Couper was one of only two awardees from Africa. He was nominated for the award for visionary leadership in rural medical education nationally and internationally and for his commitment to delivering training in rural and remote areas and developing innovative approaches to health professions education (Rural Health).

PROFESSOR V DAVIES was President of the United South African Neonatal Association and is the Secretary of the College of Paediatricians of South Africa (*Paediatrics*).

DR JANAN DIETRICH was appointed co-chair of HIV Vaccine Trials Network (HVTN) Southern African Socio-Behavioural working group in 2014 (PHRU).

DR GS DEMETRIOU was Chairperson of the South African Oncology Consortium (SAOC) 2014 and Chairperson-Elect of Breast Interest Group of South Africa (BIGOSA) 2015-date (Medical Oncology).

PROFESSOR AMES DHAI was invited to visit Vanderbilt University (VU) in March 2015 to discuss biobanking

- Head: South African Unit of the UNESCO International Network in Bioethics since 2013
- Head: African Division of the UNESCO International Network in Bioethics since 2015
- Member: Pfizer Inc's Bioethics Advisory Panel, Pfizer Worldwide Headquarters, New York since 2012
- Member: African Advisory Committee for Health Research Development, World Health Organisation since 2011
- On World Medical Association Working Group for Ethical Considerations on Human Databases and Biobanks since 2014. Chairperson: 4th Committee of Preliminary Enquiry (Perverse Incentive Committee) of the HPCSA from 2006 2015
- Member: Medical and Dental Board of the Health Professions Council of South Africa from 2004-2015 Member: Subcommittee for Examinations of HPCSA from 2010 - 2015
- Member: Executive Committee of HPCSA from 2010 –2014

- Member: Human Rights, Ethics and Professional Practice Committee of the Health Professions Council from 2005 – 2015
- Deputy Chair of the newly constituted Advisory Board for the Nano-Health, Safety and Environment (HSE) Risk Research Platform, Department of Science and Technology from 2015
- President of the South African Medical Association (SAMA) between 10/2013 to 10/2014
- Chair: Human Rights Law and Ethics Committee, SAMA since 2014
- Member: Ministerial Advisory Committee for Unrelated Organ Transplants since 2014.
- Member: Ministerial Task Team for Medical Litigation since 2015
- Chair: Research Ethics Committee of the Hospice Palliative Care Association of South Africa since 2010
- Member: Academy of Science of South Africa (ASSAf) Panel for the consensus study on: Ethical, Legal and Social Issues related to Human Genetics and Genomics in South Africa
- Editor-in-chief of the South African Journal of Bioethics and Law (Steve Biko Centre for Bioethics).

PROFESSOR CHARLES FELDMAN

- Began his second three-year term on the Board of the Medical Research Council (SA) in 2014
- Was honoured by the European Respiratory Society (ERS) in 2014. For the first time the ERS has created Fellows of the ERS. Professor Charles Feldman was one of the 125 Foundation Fellows who was elected in recognition of his sustained contribution to research in the respiratory field The award was made in September 2014 at a congress in Munich which is one of the largest respiratory congresses in the world and attracted over 20 000 delegates
- Was elected to a Fellowship of the European Thoracic Society in recognition of excellence in scientific and/or educational contributions to respiratory medicine over many years
- Continues to act on the Board of the Medical Research Council of South Africa
- Was invited onto the Steering Committee for the ETHICUS II study which is a multicentre international study that began in 2015
- Was appointed on to the Board of the Medical Research Council of South Africa in 2010 for a three year period and re-elected on to the Board in 2014 for a second three year term (Internal Medicine/Pulmonology).

PROFESSOR CINDY FIRNHABER was appointed:

- (WHISC and WHISCSTR Chair), AMH Working Group and SASC representative
- Received an NRF C2 Rating
- Vice-Chair of ACTG Studies A5282 and A5295, 2014
- Member of the COIMAL Sub Committee in 2014
- Chair of the TB/WHISC in 2014 Chair of the Women's Health Inter-Network Scientific Committee (WHISC), 2014
- Member of the WHISC/FDA Task Force Committee, 2014
- Member on the Pink ribbon Red ribbon committee GW Bush Presidential center initiative to improve Cervical and Breast cancer screening in Africa January 2011 – present
- Member on the NHLS HPV advisory board for South Africa March 2011 – present

- An Aids Malignancy Consortium HPV committee member January 2011 – present
- Member of the Scientific Committee for the 1st & 2nd International Workshop on HIV & Women, "HIV across the life cycle" Fairmont Hotel Washington DC, 10 – 11 January 2011, 2014
- Member of the FDA /WHISC Collaboration Committee Chair, June 2009 – present
- Member on the South African HIV Clinician Society 1998-2000, 2004 – present
- Member of the South African Medical and Dental Council Education Registration – Education - University of Witwatersrand- 2005-to present (Clinical HIV Research Unit).

PROFESSOR GLENDA GRAY was appointed as the South African Medical Research Council (MRC) President in 2015. Professor Gray is a NRF A-rated scientist and internationally acclaimed researcher. Over the years she has contributed extensively to research into mother-to-child transmission and into HIV Vaccine research (*Perinatal HIV Research Unit*).

DR TINA INGRATTA was on the committee to decide on the award of four scholarships for a course run in the USA for training teachers to set up online courses for their disciplines in 2015 (Internal Medicine).

DR FATIMA LAHER was appointed Co-Chair of the HIV Vaccines Trials Network Training and Education Committee in 2014 (*Internal Medicine*).

ADJUNCT PROFESSOR MKHULULI LUKHELE was:

- President of the South African Orthopaedics Association for the year 2014/2015
- President of the Southern African Spinal Cord Association
- Chair of the Board for Health and Medical Publication Group (HMPG).

DR TEBOGO HLABANGANA was appointed Communications Officer of the African Society of Paediatric Imaging (AISPI) in 2015 (Soweto Cardiovascular Research Unit).

ASSOCIATE PROFESSOR BERNARD JANSE VAN RENSBURG was appointed:

- Member of the World Psychiatric Association (WPA) Chair of the Local Organizing
- Secretary of the WPA Section for Religion, Spirituality and Psychiatry (2014-2017)
- Member of the South African Society of Psychiatrists (SASOP) – President-Elect and member of SASOP Board of Directors (2014-2016)
- Member of the Colleges of Medicine of South Africa (CMSA) Senate – Member (2014-2017), (Psychiatry).

DR VUYOKAZI JEZILE was a member of the Site Operations Sub-committee and the Data Management Committee (*Clinical HIV Research Unit*).

PROFESSOR U KALA was the councillor who represented South Africa and Africa on the International Pediatric Nephrology Association and on the Executive Committees of both the South African Renal Society and the African Pediatric Renal Association (*Paediatrics*).

PROFESSOR ANNA KRAMVIS was:

- Re-elected to serve on the Hepatitis Transformative Science Group (TSG) as a Virologist from December 2015 to November 2017
- Nominated at the 2015 International Meeting on Molecular Biology of Hepatitis B Virus held in Bad Nauheim, Germany, to co-organize the 2017 international meeting to be held in the USA
- Selected as a member of the Hepatitis Transformative Science Group (TSG) of the AIDS Clinical Trials Group (ACTG) in 2014. She was nominated by Professor Ian Sanne, international vice-chair of the ACTG. The ACTG, established in 1987, supports the largest network of expert clinical and translational investigators and therapeutic clinical trials units in the world, including sites in resource-limited countries. Its mission is to develop and conduct scientifically rigorous translational research and therapeutic clinical trials in the United States and internationally (Hepatitis Virus Diversity Research Unit).

DR L LOUW was Chair of the South African Association of Nuclear Physicians (SA ANP) and an executive member of the South African Society of Nuclear Medicine (SASNM) (Nuclear Medicine).

DR N MALAN was secretary of the SA ANP (Nuclear Medicine).

DR NASREEN MAHOMED was a reviewer of Pediatric Radiology, South African Journal of Radiology (SAJR) and South African Journal of Child Health (SAJCh) in 2015 (Soweto Cardiovascular Research Unit).

PROFESSOR NEIL MARTINSON was CEO of PHRU in 2014 and re-appointed to the DAIDS's TB Transformational Science Group (TSG) in 2014 (*PHRU*).

DR LAWRENCE MASHIMBYE, Researcher, featured in the Mail & Guardian's 200 Young South Africans 2014 (WRHI).

PROFESSOR WILLIAM MACLEOD was appointed to the Data Safety and Monitoring Board for the STRIVE (Sierra Leone, Trial to Introduce a Vaccine Against Ebola) Study. (Clinical HIV Research Unit)

PROFESSOR MERVYN MER was the President of the Critical Care Society of Southern Africa (*Pulmonology*).

DR NOLUTHANDO MWELASE was a member of the Data Management Committee (*Clinical HIV Research Unit*).

DR LISA MICKLESFIELD received NRF C2 Rating in 2015 and was awarded the Academy of Medical Sciences Newtown Advanced Fellowship in 2015. Dr Micklesfield will collaborate with Dr Soren Brage from the University of Cambridge on a research project entitled "Physical activity and components of body composition and growth in cohorts of black South African participants at different stages in the life course" (Developmental Pathways for Health Research Unit).

PROFESSOR A MOHAMED won the John Milne Service Award (*Gastroenterology*).

DR NASREEN MAHOMED was appointed:

- A reviewer of Pediatric Radiology in 2015
- A reviewer of South African Journal of Radiology (SAJR)
- A reviewer of the South African Journal of Child Health (SAJCh). (Radiation Oncology)

DR THANDO MWELASE was appointed International CTU/CRS Coordinator (SMCCC) in 2014 and a member of the ACTG Data Management Committee in 2014 (ESRU).

DR JAISHREE NAIDOO was:

- Vice Secretary of the World Federation of Paediatric Imaging, Chairperson of SASPI, and President of AfSP)
- Chairperson of SASPI in 2015
- President of AfSPI in 2015 (Radiation Oncology)

A CHRU Community Advisory Board (CAB) member, Mr Ben Ndomunang, was a Global CAB Member and Ms Pamela Tshandu was a CASS Member. (Clinical HIV Research Unit)

PROFESSOR FREDERICK RAAL was:

- Member of the European Atherosclerosis Society Consensus Panel which has developed new guidelines on the management of heterozygous and homozygous familial hypercholesterolaemia as well as statin intolerance for Europe. Professor Raal was invited to give several keynote lectures on the management of familial hypercholesterolaemia at international congresses in 2015
- Elected as Fellow of the Southern African Society of Thrombosis and Haemostasis in October 2015
- An ongoing active member of the Endocrine Society in recognition of achievements in clinical practice, research and education in the field of Endocrinology
- Member of the European Atherosclerosis Society Consensus Panel which has developed new guidelines on the management of heterozygous and homozygous familial hypercholesterolaemia as well as statin intolerance for Europe in 2014 (Endocrinology).

DR GESINE MEYER RATH was a member of the Tertiary and Quaternary Expert Review Committee of National Essential Medicine List Committee (*Clinical HIV Research Unit*).

PROFESSOR HELEN REES was

- Chairperson of the Medicines Control Council (MCC). The appointment was made by the Minister of National Health, Dr Aaron Motsoaledi in terms of the Medicines and Related Substances Act. The MCC is a statutory body responsible for regulating the performance of clinical trials and the registration of medicines and medical devices for use in specific diseases. It also ensures that all clinical trials of both non-registered medicines and new indications of registered medicines comply with the necessary safety, quality and efficacy standards. Professor Rees' term of office is effective from 1 February 2015 to 31 January 2020.
- Chairperson of the WHO's African Regional Advisory Committee on Immunisation in 2014 (WRHI)
- An Honorary Fellow of the Murray Edwards College.

PROFESSORS UGO RIPAMONTI AND GEOFFREY CANDY were awarded the Blue Skies NRF grant for 2015 respectively. Professor Ripamonti received the grant for his research entitled "Transfiguration of neoplastic tumoral masses into bone for superior surgical debridement". Professor Candy was awarded the grant to determine whether the ulcer causing bacterium, *Helicobacter pylori*, produces cardiotonic steroid-substances known to affect blood pressure.

PROFESSOR PAUL RUFF was

- Member of American Society of Clinical Oncology International Affairs Committee (ASCO IAC) 2013-2016
- Member of Medicines Control Council (MCC) 2010-2020
- Member of Ministerial Advisory Committee on Cancer Control and Prevention (MACC) 2013–2016
- Member of the ASCO (International Affairs Committee (one of only two African representatives) since 2013
- Editor of South African Edition of Journal of Clinical Oncology (ASCO Journal) 2015-2016, the Journal of the American Society of Clinical Oncology which is the leading Academic Oncology Society in the world. (ASCO) (Medical Oncology).

PROFESSOR HAROON SALOOJEE was on the Executive Committee of the International Pediatric Academic Leaders Association, Deputy Chair of the National Ministerial Committee on Mortality and Morbidity in Children, served as a member of several World Health Organization Technical Groups, is the Chair of the Data Safety Monitoring Board of the Division of AIDS African Data of the National Institute of Health, is a Senator on the Colleges of Medicine of South Africa and is the Deputy Chair of the South African Paediatric Association (*Paediatrics*)

ADJUNCT PROFESSOR U SUBRAMANEY was elected to Council of the College of Psychiatrists (CMSA) in 2014 (Psychiatry).

PROFESSOR IAN SANNE was

- Appointed the ACTG Vice-Chair, ACTG Executive Committee, Leadership Steering Committee, International Vice-Chair for Scientific Agenda Steering Committee and a consultant on the TB Prevention Working Group TSG (TBTSG). In addition. he chairs the International Scientific Officer Working Group which coordinates the activities of all ACTG sites based outside the US
- Elected Vice-Chair of the US Government National Institute of Allergy and Infectious Diseases – AIDS Clinical Trials Group (ACTG) Network, Leadership Steering Committee – International PI in 2014
- The International Principal Investigator WITS HIV Research Group Clinical Trial Unit (WHRG CTU) in 2014
- Appointed International Scientific Officer (ACTG Executive Committee Member) in 2014
- Member of the Scientific Agenda Steering Committee (SASC) – 2014
- Member of the Data and Safety Monitoring Board, 2014
- Member of the Tuberculosis Working Group of the OpMAN in 2014

- On the HIV/AIDS Network Coordination (HANC) Committee in 2014
- Member of the SA HIV Clinicians' Society (SAHCS) Executive Committee member, in 2014
- Appointed Protocol Vice-Chair, ACTG 5255 in 2014
- Appointed Protocol Team Member: ACTG 5279, ACTG 5295 in 2014
- Member of the National Department of Health, WITS Ebola Project Steering Committee, NICD HIV Drug Resistance Meeting, THRIP Advisory Panelist, TB Vaccine Consortium, Mylan Advisory Capacity and SAHCS National conference panelist and session moderator - 2014 (CHRU).

PROFESSOR IAN SANNE received an NRF B2 rating in 2015 (CHRU)

PROFESSOR KAREN SLIWA was elected President of the South African Heart Association in 2015 (HVDRU).

MS W SLEMMING served on National DoH Working Groups on Breastfeeding and the Road to Health Booklet and was an Executive Member of the Child Health Priorities Association (*Paediatrics*).

Two investigators from ESRU, **DRS RENATE STREHLAU** and **FRANCOISE PINILLOS** were awarded the Australia Awards Fellowship (Round 14) through the Burnet Institute, Melbourne Australia (7–16 July 2014), *(ESRU)*.

PROFESSOR CP SZABO was

- Appointed to Council of the College of Psychiatrists (CMSA) in 2015
- Member of the World Psychiatric Association (WPA)
 Operational Committee on Scientific Publications in 2015
 (Psychiatry).

PROFESSOR MBOYO-DI-TAMBA VANGU was

- Appointed a member of the experts' panel for the development of the "Prostate Cancer Guidelines South Africa, 2015"
- Elected Chair of the Medical Advisory committee (MAC) of the CM Johannesburg Academic hospital
- On the expert panel for an international multicenter studies on standardizing the Evaluation of Myocardial Perfusion Imaging (MPI) by the International Atomic Energy Agency (IAEA), (Nuclear Medicine)

PROFESSOR S VELAPHI has served as Chair of the National Ministerial Perinatal Morbidity and Mortality Committee and is a Member of the Neonatal Division of the International Liaison Committee on Resuscitation (*Paediatrics*).

DR PAULINE VUNANDLALA was a member on the Outreach Recruitment and Retention Committee (Clinical HIV Research Unit).

AWARDS, ACCOLADES AND PRIZES

DR R BERHANU started a 1-year ID course at University of North Carolina in 2015 (*Internal Medicine*).

DR NOMATHEMBA CHANDIWANA was named one of 200 Outstanding Young South Africans by the Mail and Guardian (WRHI).

CHRU's Principal Investigator, **DR FRANCESCA CONRADIE**, was awarded with the Best Laboratory Champion Clinician Award: Honourable Mention, African Society of Laboratory Medicine (ASLM).

PROFESSOR IAN COUPER was the winner of the 2014 South African Association of Health Educationalists (SAAHE) Distinguished Educator award 'in recognition of his tireless efforts and significant contribution to health professions education in South Africa and abroad' (*Rural Health*).

DR JANAN DIETRICH was the recipient of the First Time innovator Award, Wits Enterprise, University of the Witwatersrand in 2014 (*PHRU*).

DR RAQUEL DUARTE was awarded the TH Bothwell Research Prize in 2015. This is the premiere research award within the Department of Internal Medicine (Internal Medicine).

DR GARETH FERNANDES won the National Medal for Ophthalmology in 2014 (Ophthalmology).

DR ABIGAIL HATCHER was runner up for the Young Researcher Presentation Award: 2015, SVRI Conference (WRHI).

FHS Honours Awards - The following were listed as Special Achievers in the Faculty of Health Sciences in 2015: MS ABIGAIL HATCHER, DR EUGENE SICKLE, DR LEE FAIRLIE, DR NOMATHEMBA CHANDIWANA, DR SAIQA MULLICK, DR THESLA PALANEE-PHILLIPS, MS KRISHNAVENI REDDY, MS MARIETTE SLABBERT, MR MOHAMMED MAJAM, PROFESSOR FRANCOIS VENTER, PROFESSOR HELEN REES AND PROFESSOR SINEAD DELANY-MORETLWE

ASSOCIATE PROFESSOR BERNARD JANSE VAN RENSBURG received the College of Medicine of South Africa (CMSA) 2015 RWS Cheetham award for the best cross-culturally relevant manuscript in Psychiatry (Published in 2014) (*Psychiatry*).

PROFESSORS ANNA KRAMVIS, CHARLES FELDMAN, GLENDA GRAY, HELEN REES, IAN SANNE AND SHANE NORRIS were awarded a certificate for their outstanding achievements at the 6th Annual Faculty Awards Dinner held in August 2014.

PROFESSOR ANNA KRAMVIS received the 2015 Paediatric Virology Award (*Hepatitis Virus Diversity Research Unit*).

DRS APOLLINAIRE KATUMBA, ELIZABETH REJI AND PROFESSOR CINDY FIRNHABER were awarded the Poster Merit Award at the World Organization of Family Doctors, Asia Pacific Regional Conference 2014 (Clinical HIV Research Unit).

DR SU LUCAS AND DR TEBOGO HLANBANGANA were invited to visit the John Hopkins Institute in the US in 2014 (*Diagnostic Radiology*).

ASSOCIATE PROFESSOR COLIN MENEZES, (CHBAH) was awarded the TH Bothwell Research Prize in 2014. This is the premiere research award within the Department of Internal Medicine (Internal Medicine).

ASSOCIATE PROFESSOR COLIN MENEZES was the recipient of the Claude Leon Foundation merit award in 2015. The Merit Award provides young lecturers with the opportunity to present at prestigious international conferences abroad (Internal Medicine).

PROFESSOR SHANE NORRIS received a grant from the World Diabetes Foundation to examine gestational diabetes in Soweto women in 2014 (*DPHRU*).

MS HELEN PERRIE AND MRS JUAN SCRIBANTE were the recipients of the Faculty of Health Sciences Supervisors Award in 2015 (Anaesthesiology).

PROFESSOR FREDERICK RAAL was:

- Given the Hatter Award for the advancement of Cardiovascular Science at the "At the Limits" meeting held in London, UK from 24-27 April 2014
- Awarded the Vice-Chancellor's Research Award jointly with Professor Chris Henshilwood for 2015 (Endocrinology).

PROFESSOR FREDERICK RAAL received a NRF B2 rating in 2015 (Endocrinology) .

The prestigious FJ Milne Department of Internal Medicine Teaching and Service award for distinguished service and teaching in the Department of Medicine was awarded to **PROFESSOR FREDERICK RAAL** (postgraduate level of teaching) and **DR M TSITSI** (undergraduate level of teaching) at the 40TH Faculty Prize Giving Ceremony held in April 2014 (Endocrinology).

DR SUNDEEP RUDER was awarded the 2014 Pfizer LASSA Lipid Research Grant as well as the prestigious Novo Nordisk Travel Grant at the SEMDSA/LASSA Congress 2014 (*Endocrinology*).

PROFESSOR HELEN REES was:

- Winner of the 2014/15 National Sciences and Technology Forum (NSTF) award in the category Contribution over a Lifetime by an Individual
- Awarded the Faculty of Health Sciences Recognition of Dedication and Achievement in Research Award in 2014
- The recipient of the prestigious Harry Oppenheimer Fellowship Award for 2014. This award is granted to scholars of the highest calibre who are engaged in cutting-edge, internationally significant work that has particular application to the advancement of knowledge, teaching, research and development in South Africa. Professor Rees is the 15th recipient of the award since its inception and the fourth from Wits. The Oppenheimer Award will be used to further explore the relationship between hormonal contraceptives and HIV and other sexually transmitted infections among young women (*Wits RHI*).

The following staff received the Faculty of Health Sciences Honours Award in 2015:

PROFESSOR HELEN REES, DR NOMATHEMBA CHANDIWANA, ABIGAIL HATCHER, PROFESSOR FRANCOIS VENTER, MR EUGENE SICKLE, MOHAMMED MAJAM, DR SINEAD DELANY-MORETLWE, LEE FAIRLIE, SAIQA MULLICK, MARIETTE SLABBERT, THESLA PALANEE-PHILLIPS AND KRISHNAVENI REDDY (WRHI).

DR K ROBERG won a position at the Arthur Ashe Endowment HIV Course in New York in 2015 (*Internal Medicine*).

PROFESSOR PAUL RUFF received an award from the Deputy Vice-Chancellor: Research, Professor Zeblon Vilakazi at the annual DVC celebration of research excellence held in 2015, for his highly cited paper entitled "Panitumumab-FOLFOX4 Treatment and RAS Mutations in Colorectal Cancer" published in the New England Journal of Medicine (Medical Oncology).

DR SHOBNA SAWRY won the L'Oréal-UNESCO for Women in Science Sub-Saharan Africa research fellowship (*WRHI*).

PROFESSOR KAREN SLIWA received the Distinguished Award for Outstanding Contribution to the Field of Pregnancy and Heart Disease' at the Cardiac Problems in Pregnancy Conference, Venice, Italy 2014. This distinguished award was in recognition of her outstanding contribution in the field of pregnancy and heart disease. (*Soweto Cardiovascular Research Unit*).

Two investigators from ESRU, **DRS RENATE STREHLAU** and **FRANCOISE PINILLOS** were awarded the Australia Awards Fellowship (Round 14) through the Burnet Institute, Melbourne Australia (7–16 July 2014), (ESRU).

ADJUNCT PROFESSOR UGASH SUBRAMANEY was winner of the 2015 Departmental Research Prize (*Psychiatry*) .

ADJUNCT PROFESSOR UGASH SUBRAMANEY received the prize for best oral presentation entitled "Womb raiders – Women referred for observation in terms of the Criminal Procedures Act charged with foetal abduction and murder" at the 2015 Biological Psychiatry Congress, Somerset West 24-27 Sep (*Psychiatry*).

DR M TSITSI was appointed Head of Medicine at CHBH and won a Medicine Department award for service (*Internal Medicine*).

ASSOCIATE PROFESSOR BERNARD J VAN RENSBURG received the RWS Cheetham Award 2015, awarded by the College of Psychiatrists, Colleges of Medicine of South Africa (CMSA), for best publication/s related to cross-cultural psychiatry (*Psychiatry*).

ASSOCIATE PROFESSOR BERNARD J VAN RENSBURG was awarded an C2 NRF rating in October 2015 (*Psychiatry*).

DR YOGESWAREN received a prize for his poster presentation at the PACSA 2015 (National Paediatric Anaesthesia Congress), Johannesburg (*Anaesthesiology*).

STAFF PROMOTIONS

Congratulations to the following staff who were promoted in the biennium.

- **DR A AIDEN** was promoted to Adjunct Professor. (Surgery)
- PROFESSOR AMES DAI was promoted to Pesonal Professor (Steve Biko Centre of Bioethics).
- **DR T HLABANGANA** was appointed Communications Officer of AfSPI- (African Society of Paediatric Imaging), 2014 2015 (on going), (*Radiation Oncology*).
- DR C ICKINGER was appointed Senior Clinical Lecturer. (Internal Medicine).
- ASSOCIATE PROFESSOR B JANSE VAN RENSBURG was promoted to Associate Professor in April 2014 (Psychiatry).
- PROFESSOR J LOVELAND was promoted to Associate Professor (Surgery).
- DR. S MAGOBOTHA was promoted to Adjunct Professor. (Surgery).
- DR M MAKDA was appointed Grade 3 Medical Specialist (Internal Medicine).
- ASSOCIATE PROFESSOR COLIN MENEZES was awarded an Associate Professorship (Internal Medicine).
- DRS P MOORE was promoted to Associate Professor and Reader (Internal Medicine).
- DR R NETHONONDA was promoted to Associate Professor (Internal Medicine).
- PROFESSOR SHANE NORRIS was promoted to Research Professor in 2014 (DPHRU).
- **PROFESSOR PAGET** was appointed the new academic Head and Clinical Head of CMIAH (*Internal Medicine*).
- PROFESSOR A PRENTICE (UK Medical Research Council Human Nutrition Research) was appointed as Honorary Professor at DPHRU in 2014 (DPHRU).
- ASSOCIATE PROFESSOR GUY RICHARDS was appointed to the newly created post of Academic Head: Division of Critical Care Unit which falls under the surgical cluster in the School along with surgery and anaesthesia (Critical Care).
- DR A SOLOMON was appointed a Principal Specialist at CMJAH (Internal Medicine).
- DR L L WINCHHOW, DR K MAKAN, DR A BAITON were promoted to Consultant.

DEPARTMENT AND RESEARCH ENTITY AWARDS

- The Endocrinology Unit received the 2014 Society for Endocrinology, Metabolism and Diabetes of South Africa (SEMDSA) Endocrinology award for the best publication in the field of Endocrinology in South Africa published in the preceding year.
- The Effective Care Research Unit (ECRU) was reaccredited as a World Health Organisation (WHO) Collaborating Centre in Reproductive Health Research synthesis in 2014.
- PROFESSOR PAUL RUFF (Head of the Division of Medical Oncology at the University and the CMJAH) was awarded a MRC Cancer Collaborating Centre - MRC/Wits Common Epithelial Cancer Research Centre. The Centre will be involved in breast, colorectal and pancreatic cancer research.
- Following a generous donation to the value of R16 000000.00 from Evan Stein, a Wits graduate, the Evan Stein Centre for Familial Hypercholesterolaemia (FH) has been established to promote awareness and to assist with the identification of subjects with familial hypercholesterolaemia in South Africa. This centre will become operational in 2016.
- The Perinatal HIV Research Unit (PHRU) was awarded MRC Collaborating Centre for TB and HIV. The funded centre – known as the Wits MRC Matisana Centre for HIV AIDS and Tuberculosis (SoMCHAT) – is a group of leading HIV and TB researchers from both Wits and John Hopkins University and will include both adult and paediatric patients at the Chris Hani Baragwanath Hospital and the Klerksdorp Tshepong Hospital Complex in Matlosana.
- The Pulmonary Infections Research Unit, Clinical HIV Research Unit, Department of Paediatrics and Child Health were honoured for their marked increases in research output measured by their DHET publishing units at the Annual Research Awards Dinner held in 2014.

Wits initiative for Rural Health Education (WIRHE) wins a MacJannet Prize

The WIRHE scholarship programme in the Centre for Rural Health led by Professor Ian Couper were awarded 3rd place in the annual international MacJannet Prize for Global Citizenship in 2014. This was established to recognise exceptional student community engagement initiatives at Talloires Network member universities (such as Wits). WIRHE, founded in 2003 aims to recruit disadvantaged students from rural areas into health science programmes and support them to become health professionals. The programme was piloted with nine students and now includes over fifty students with funding provided by the provincial government. The North West Provincial Department of Health provides funding for twelve new students every year, while continuing to support those students already in the programme. While based at Wits, the programme also supports students at the University of Pretoria and the University of Limpopo (Medunsa).

Students in the programme are required to sign a commitment that upon completion of their training, they will return to their communities. They are also required to participate in community engagement activities in their home communities during vacations. The hope is that through this connection with the community, a culture of service is nurtured so that the contracts become unnecessary. With the support of the WIRHE programme, the pass rate of students in the programme is around 90%, which is much higher than the average for students from similar backgrounds without this level of support. The programme has produced thirty-seven graduates todate, many of whom are now professionals working in rural public hospitals in their districts of origin. WIRHE was awarded third place after the Rec and Read Mentorship Program, University of Manitoba, Canada and the Legal Services Clinic, National Law School of India University, India

The **Wits Reproductive Health and HIV Institute (WHRI)** under the directorship of Professor Helen Rees was recognised for its significant achievements at the Annual Research Awards Dinner held in 2014.



The School continues to build strategic research links with other universities and institutions from South Africa, Africa, and abroad. Currently, the School is collaborating with 42 countries. In South Africa, the School works with other universities such as the Universities of Cape Town, Fort Hare, Johannesburg, Pretoria, Stellenbosch and KwaZulu-Natal; sciences councils including the Medical Research Council, NICD, NHLS, the Human Sciences Research Council and many others; government at national, provincial and local levels including the Department of Health in Gauteng, the North West Department of Health, the City of Johannesburg, City of Tshwane; all major hospitals and other non-governmental and professional institutions.

ANGOLA
ARGENTINA
AUSTRIA
AUSTRALIA
BOTSWANA
BRAZIL

BURKINA FASO CAMEROON CANADA CHINA

CUBA DENMARK ETHIOPIA

FINLAND FRANCE GHANA GERMANY KENYA INDIA IRELAND ISRAEL ITALY

MADAGASCAR MEXICO MOZAMBIQUE NAMIBIA

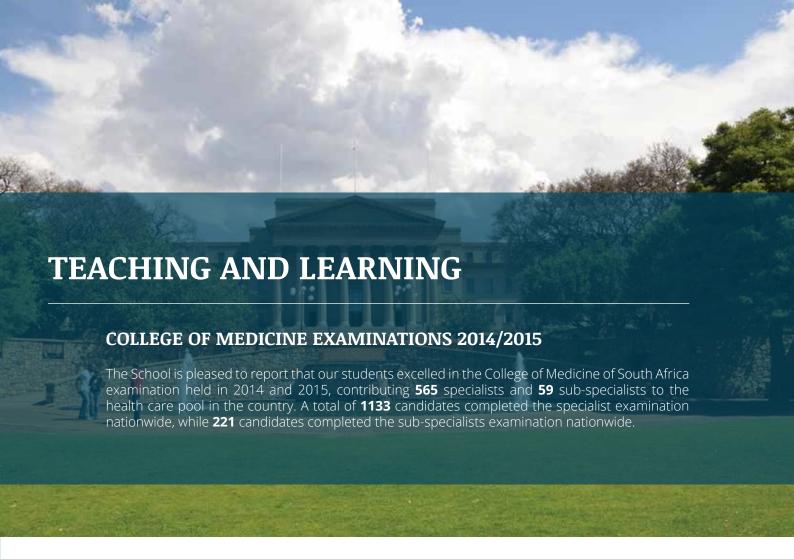
NIGERIA NETHERLANDS SCOTLAND SOUTH AFRICA SPAIN SUDAN SWEDEN

SWITZERLAND TANZANIA

THAILAND TURKEY UGANDA

UNITED KINGDOM

USA ZAMBIA ZIMBABWE



This makes Wits' contribution 49.9% of specialists and 26.7% of sub-specialists in South Africa. Candidates were successful in many specialties, including internal medicine, general surgery, radiology, ophthalmology, orthopaedic surgery, paediatrics, radiation oncology, neurology, obstetrics and gynaecology, dermatology and emergency medicine.

Postdoctoral Research Fellows

The School hosted 13 Postdoctoral Research Fellows during the period under review.

	Postdoctoral Research Fellow	School/Dept/Unit
1	Dr Trevor Bell	Hepatitis Virus Diversity Research Programme
2	Dr Aurelie Deroubaix	Hepatitis Virus Diversity Research Programme
3	Dr Jeyalakshmi Kandhavelu	Internal Medicine
4	Dr Amber Khan	Clinical Medicine
5	Dr Roland Klar	Internal Medicine
6	Dr Kim Lamont	Soweto Cardiovascular Research Unit
7	Dr Constance N. Wose Kinge	Hepatitis Virus Diversity Research Programme
8	Dr Nasreen Mahomed	Soweto Cardiovascular Research Unit
9	Dr Rihlat Mohamed	Developmental Pathways for Health Research Unit
10	Dr Dike Ojji	Soweto Cardiovascular Research Unit
11	Dr Alessandra Prioreschi	Developmental Pathways for Health Research Unit
12	Dr Yandiswa Yolanda Yako	Clinical Medicine
13	Dr Mukhlid Yousif	Hepatitis Virus Diversity

Postgraduate Programme

The School remains a popular choice for specialist training. The biennium has seen a steady increase in the number of postgraduate students qualifying in the various degrees.

Programme Type	2014 to 2015 Qualified Students		
	2014	2015	
D - PhD	12	16	
C - Masters by course work	83	89	
R - Masters by Research	7	2	
X - Honours and Postgraduate Diplomas	6	22	



STUDENT ACTIVITIES

AWARDS, ACCOLADES AND RECOGNITION

- Dr Mairi Bassingthwaite won the Prestigous MMed Award at the Faculty Prizegiving in 2014 for her research project entitled "Outcomes of babies born before arrival at a tertiary hospital in South Africa". She was supervised by Professor Daynia Ballot. (Paediatrics)
- Dr Ziyaad Dangor won the most prestigious PhD award at the Faculty Prizegiving ceremony in 2015 for her research which focused on "Clinical Immunological Epidemiology of Group B Streptococcus (GBS)". Supervisor: Professor Shabir Madhi and Dr Sanjay Lala. (Internal Medicine)
- **Dr Maria Fortounas** received the Gaisford Harrison prize for the best original research paper at the South African Society of Anaesthesiologists (SASA) Congress held in Durban in March 2015. (Anaesthesiology)
- Dr Carla Jardine received the most Prestigious MMed Award at the Faculty Prizegiving ceremony in 2015 for her research entitled "The use of Nasal CPAP at Charlotte Maxeke Johannesburg Academic Hospital". Supervisor: Professor Daynia Ballot (Internal Medicine)
- Dr Kerry-Leigh Jury (Registrar) was the joint recipient of the best oral presentation "The attitudes of doctors in South African teaching hospitals towards mental illness and Psychiatry" at the Biennial National SASOP Congress in 2014. (Psychiatry)
- Dr Kim Laxton (Registrar) shared the prize for best poster "Perceptions about adolescent body image and eating behaviour" at the 2015 Biological Psychiatry Congress held in 2015. (Psychiatry)

- **Dr Marthinet Niemandt** won the Registrar Communication prize for her oral presentation at the South African Society of Anaesthesiologists (SASA), held in Durban in March 2015. (Anaesthesiology)
- The following prizes were awarded at the SCM Research Day held in 2015. **Dr John Thomson** won the Undergraduate/Master in Medicine prize; Postgraduate Masters by Dissertation/Phd went to **Dr Justor Banda**; Postgraduate Fellow/consultant to **Dr Nadine Harran** and one prize for the Best Poster to **Bonita Do Nascimento**.
- Dr Firdous Variava Immune Thrombocytopenia at Chris Hani Baragwanath Academic Hospital, was awarded a MMed with distinction in 2014. (Supervised by Moosa Patel). (Internal Medicine)
- **Dr Jay Yogeswaran** was the recipient of the Paediatric Anaesthesia Community of South Africa (PACSA) best poster prize in 2015. (Anaesthesiology)



Students' Surgical Society launch Kilimanjaro Challenge 2014

On 29 April 2014, the Wits Students' Surgical Society (WSSS) launched a daring quest in aid of charity: they attempted to summit Mount Kilimanjaro. Dubbed the Kilimanjaro Challenge 2014, the WSSS tackled the adventure from 21- 29 November 2014, in aid of the Smile Foundation. The selected students accompanied world renowned explorer Sean Disney to Africa's highest peak. All money raised through this initiative benefitted The Smile Foundation. The Smile Foundation with the country's academic hospitals work together to put the smile back onto childrens' faces with free corrective facial reconstructive surgery and treatments.

True Witsie: Dr Michael Oluwaseyi Mojeed

Dr Michael Oluwaseyi Mojeed (32), who graduated in medicine in his home country of Nigeria, made his way to South Africa determined to gain as much knowledge and experience as he could in Emergency Medicine. Accepted into the Master of Science in Medicine in Emergency Medicine programme at Wits, he completed his degree with diligence and determination, graduating ahead of the rest of his class. Not able to be employed in South Africa due to visa restrictions that were being processed, he decided to pursue his passion for emergency medicine and joined the humanitarian organisation Doctors without Borders/Médecins Sans Frontières (MSF), Southern Africa. Dr Mojeed spent a tour of duty as an emergency doctor in Somalia, then in the Helmand Province in Afghanistan, and once completed, volunteered for another tour of humanitarian duty in the Ad-Dhale'e district, Yemen where he is currently stationed. Speaking to the Destiny Man magazine, he says:

"Working in Yemen has been the most challenging experience I've ever had. It's a very volatile environment where I worked on the frontline of a potential battle zone. Regardless of the situation and conflict around us though, there were people with medical needs that had to be met. Since fighting and bombings escalated in Yemen at the end of March, moving around the country has become dangerous. Ongoing fighting, the closure of airports and restrictions on seaports are hampering the delivery of humanitarian assistance to people in need of medical care."

As a graduate of our Division of Emergency Medicine, we are truly proud of this Witsie who has gone beyond comfort and safety, in very difficult circumstances, to assist with the treatment of the acutely ill and injured because of his concern, compassion, care and love of his fellow human beings. He has set a wonderful example for many to follow and we are proud of his courage and conviction.





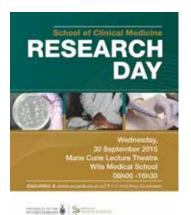




Professor Elena Libhaber

CHAIR OF THE ORGANISING COMMITTEE OF THE SCHOOL OF CLINICAL MEDICINE

School of Clinical Medicine Research Day



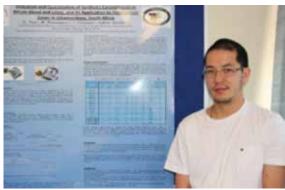
In 2015, the School hosted a very successful Research Day at the Wits Medical School.

This event gave academic staff, researchers, postgraduate and undergraduate students the opportunity to showcase their research and engage in fruitful debates. Over one hundred and nineteen submissions were received, of which forty were oral presentations in the categories Health Systems, Education and Bioinformatics; General (disciplines such as paediatrics, obstetrics, neurology, radiology and ophthalmology); Renal and Cardiology; and Anesthesia and Surgery. A further seventy-nine posters contributed to the success of the Research Day, displaying the breadth of research being conducted in the School.

Professor Mkhululi Lukhele welcomed the attendees present. The opening lecture was presented by two Carnegie Fellows and Clinical Medical Scientists at Wits, Dr Nimmisha Govind and Dr Susan Williams. Professor Martin Veller, Dean of the Faculty of Health Sciences, awarded four major prizes in the following categories: Undergraduate/Master in Medicine to Dr John Thomson; Postgraduate Masters by dissertation/PhD to Dr Justor Banda; Postgraduate Fellow/consultant to Dr Nadine Harran and one prize for the Best Poster to Bonita Do Nascimento.



Dr Candice Hansmeyer Poster: Near-body drugs of abuse testing in a post-mortem medico-legal population in South Africa: A pilot study.



Dr Dale Pon Poster: Detection and Quantitation of Synthetic Cannabinoids in whole Blood and Urine, and its application to Postmortem Cases.

FACULTY PRESTIGIOUS RESEARCH LECTURE SERIES

The School participated in three faculty prestigious research lectures in the biennium.

Superbugs! Are the bugs winning the War? - June 2014

The 10th Prestigious Research Lecture entitled "SUPERBUGS: are the bugs winning the war?" was presented by Professor Guy Richards, Head of the Division of Critical Care, School of Clinical Medicine, and Professor Adriano Dusé, Head of Department of Clinical Microbiology and Infectious Diseases, School of Pathology, on the 30 June 2014. Professor Mark Cotton, Head of the Division of Paediatric Infectious Diseases and Director of the Children's Infectious Diseases Clinical Research Unit (KID-CRU) at Tygerberg Children's Hospital, Faculty of Health Sciences, Stellenbosch University, acted as the expert commentator. Professor Richards presented information on the therapeutic, infection prevention and control challenges of bacterial pathogens. Professor Dusé focused on similar challenges posed by agents which cause viral hemorrhagic fevers such as the deadly Ebola and Marburg viruses.

Beyond Superbugs: Critical lessons in life and medicine from Africa to the first world – December 2014

Professor Mervyn Mer (Principal Specialist in the Division of Critical Care and Pulmonology, Department of Internal Medicine), and Professor Jeffrey Lipman, a Wits Alumnus (Director of the Department of Intensive Care Medicine, Royal Brisbane and Women's Hospital, Professor and Head of Anaesthesiology and Critical Care, University of Queensland), presented the 11th lecture in the Prestigious Research Series. The lecture was entitled "Beyond Superbugs: Critical lessons in life and medicine from Africa to the first world". The single biggest killer of people with HIV is Tuberculosis. Professor Mer says: "There are questions as to whether we are treating TB correctly

in critically ill patients. Emerging data suggests that the level of anti-TB drugs being given may not be adequate. Based on this, we are about to embark on a major research project, drawing on the pioneering research and technology which Professor Lipman has developed."

Professor Lipman has redefined the use of, and the dosing of antibiotics in critically ill, intensive care unit (ICU) patients with bacterial infections in order to beat the superbug: deadly bacteria which are rapidly spreading and developing resistance to all antibiotics through the practice of under-dosing antibiotics in ICUs.



From left: Professors Mark Cotton, Guy Richards, Adriano Duse



From left: Professors Charles Feldman, Mervyn Mer, Jeffrey Lipman, Beverley Kramer and Martin Veller

Nano-Neuro-Therapeutics: Unravelling Neurodegeneration

The 12th Prestigious Research Lecture in the Faculty's series entitled "Nano-neuro-therapeutics: Unravelling neurodegeneration" was held on 10 June 2015. The treatment of neurodegenerative disorders is hampered by issues of site of drug delivery, interactions with proteins, degradation of drugs in the blood and the passage of drugs across biological barriers to reach specific sites in the brain.

An interdisciplinary strategy to solve challenges in treating neurodegenerative disorders has been devised by Professor Viness Pillay (a pharmaceutical scientist), School of Therapeutic Sciences, and Professor Girish Modi (a neurologist), School of Clinical Medicine, to promote a new therapeutic paradigm, Nano-Neuro-Therapeutics, which is the revolutionary new treatment model in neurology.

Nanoscience uses materials on the nanometer scale (1-100nm) to better overcome the blood-brain barrier, to effect targeted and controlled release of neuroactive drugs to specific areas of the brain over a prolonged period.

The lecture included insights into: The design of double-encapsulated crosslinked cellulosic nanospheres for Parkinson's disease; the development of 'smart' polylactide biopolymers for Alzheimer's disease; nanoparticles and nanovectors for CNS bio-distribution of AZT in HIV-Associated Neurological Disorders (HAND); nano-implantable membranes for the treatment of Primary Central Nervous System Lymphoma and Gliomas; bioactive nano-liposhells embedded for therapy in schizophrenia; ligand-coupled nanobubbles for targeting mutagenic proteins and nanotubes to improve acute and chronic CNS drug targeting in stroke self-assembling nanofibres for peripheral nerve injury.

National Research Foundation (NRF) ratings



The NRF rating system is a valuable tool for benchmarking the quality of researchers against the best in the world. Researchers are encouraged to publish high quality outputs in high impact journals and the rating of individuals is based primarily on the quality and impact of their research outputs evaluated by local and international peers. The School is proud to host twenty NRF rated researchers.



NRF A-Rated Researchers

Professor Charles Feldman, *Professor of Pulmonary and Chief Physician at the CMJAH* was re-awarded a NRF A2-rating in 2015. His research in the field of community-acquired pneumonia includes both clinical and translational research. Much of his research has informed both local and international guidelines for the optimal management of pneumonia.



Professor Glenda Gray, *Professor in the Department of Paediatrics and Child Care* in the School, received an NRF A2-rating in 2014. She has expertise in mother to child transmission of HIV. HIV vaccines and microbicides.

NRF Rated Researchers at the School of Clinical Medicine

NAME	TITLE	SCHOOL/DEPARTMENT	FACULTY	RATING	EXPIRES
Sliwa-Hahnle, K (JS)	Professor	Clinical Medicine	Health Sciences	B1	2021
Libhaber, EN	Professor	Clinical Medicine	Health Sciences	C2	2021
Baeyens, AJC	Dr	Clinical Medicine	Health Sciences	Y2	2017
Behrens, KG	Dr	Clinical Medicine - Bioethics	Health Sciences	C1	2021
Sanne, I	Professor	Clinical Medicine - Clinical HIV Research Unit	Health Sciences	B2	2019
Firnhaber, CS	Dr	Clinical Medicine - Clinical HIV Research Unit	Health Sciences	C2	2018
Feldman, C	Professor	Clinical Medicine - Internal Medicine	Health Sciences	A2	2021
Kramvis, A	Professor	Clinical Medicine - Internal Medicine	Health Sciences	B2	2018
Raal, F	Professor	Clinical Medicine - Internal Medicine	Health Sciences	B2	2021
Dessein, PH	Dr	Clinical Medicine - Internal Medicine	Health Sciences	В3	2016
Naicker, S (JS)	Professor	Clinical Medicine - Nephrology	Health Sciences	В3	2021
Hofmeyr, GJ	Professor	Clinical Medicine - Obstetrics & Gynaecology	Health Sciences	B1	2020
Pettifor, JM (JS)	Professor	Clinical Medicine - Pediatrics	Health Sciences	A2	2016
Gray, G	Professor	Clinical Medicine - Pediatrics	Health Sciences	A2	2017
Norris, SA	Professor	Clinical Medicine - Pediatrics	Health Sciences	C1	2017
Ballot, DE	Professor	Clinical Medicine - Pediatrics	Health Sciences	C2	2021
Micklesfield, L	Dr	Clinical Medicine - Pediatrics	Health Sciences	C2	2021
Janse van Rensburg, ABR	Professor	Clinical Medicine - Psychiatry	Health Sciences	C2	2021
Rees, VH	Professor	Clinical Medicine - Reproductive Health & HIV Research Institute	Health Sciences	B1	2019
Candy, G	Professor	Clinical Medicine - Surgery	Health Sciences	C3	2016

MRC CANCER RESEARCH CENTRE

Wits University is one of three tertiary institutions in the country selected by the South African Medical Research Council (SAMRC) to establish a new Clinical Cancer Research Centre. This initiative, spearheaded by the SAMRC, will see an investment of more than R37 million over five years for cancer research at Wits, the University of Cape Town (UCT) and the University of KwaZulu-Natal (UKZN). Coming shortly after commemorating World Cancer Day in February 2015, the Centres are the SAMRC's response to tackling one of the country's and the world's leading causes of illness and death.



Professor Paul Ruff, *Head of the Division of Medical Oncology* at the University and the Charlotte Maxeke Johannesburg Academic Hospital, will head the MRC/Wits Common Epithelial Cancer Research Centre, which will be an exciting collaboration between the Medical Oncology and Surgery Departments at Wits, as well as at the Charlotte Maxeke Johannesburg Academic Hospital, the Chris Hani Baragwanath Academic Hospital and the Wits Donald Gordon Medical Centre as well as the National Cancer Registry.

NEW RESEARCH INITIATIVES

CLINICAL HIV RESEARCH UNIT - DEPARTMENT OF INTERNAL MEDICINE

Clinical Trials

- NC005 and NC006 are two new studies which focus on drug sensitive and drug resistant TB.
- The NiX trial is an innovative study for a treatment regimen for XDR TB.
- An Ethics application is under review for a proposed protocol to investigate the pharmacokinetics of Kanamycin in patients with drug-resistant TB and the relationship between therapeutic drug monitoring and hearing levels.

Oncology Training Modules

 Professor lan Sanne and Carien van der Merwe are working with Professor Paul Ruff from the Donald Gordon Medical Centre on training oncology modules. This is a direct result of the oncology training conducted at the ACTG sites in Africa in which a gap in the market (including domestic needs) has been identified and addressed.

ACTG New Studies

- A5263/AMC066 A Randomized Comparison of Three Regimens of Chemotherapy with Compatible Antiretroviral Therapy for Treatment of Advanced AIDS-KS in Resource-Limited Settings.
- A5300/IMPAACT 2003 PHOENIX Feasibility Study. Study of MDR TB Cases and Their Household Contacts: Operational Feasibility to Inform PHOENIX Trial Design.
- A5338 An Open-Label, Non-Randomized Study of Pharmacokinetic Interactions Among Depot Medroxyprogesterone Acetate (DMPA), Rifampicin (RIF), and Efavirenz (EFV) in Women Co-Infected with Human Immunodeficiency Virus (HIV) and Tuberculosis (TB).

Commercial New Studies

- BMS Al438-047 A Multi-arm, Phase 3, Randomized, Placebo Controlled, Double Blind Clinical Trial to Investigate the Efficacy and Safety of BMS-663068 in Heavily Treatment Experienced subjects Infected with Multi-drug Resistant HIV-1.
- BMS Al468-038A Phase 2b Randomized, Active-Controlled, Double-Blind Trial to Investigate Safety, Efficacy and Dose-response of BMS-955176, Given on a Backbone of Tenofovir/Emtricitabine, in Treatment-Naive HIV-1 Infected Adults.
- BMS Al468-048 A Phase 2b Randomized, Active-Controlled, Staged, Open-Label. Trial to Investigate Safety and Efficacy of BMS-955176 in Combination with Dolutegravir and Atazanavir (with or without Ritonavir) in Treatment-Experienced HIV-1 Infected Adults.
- GSK ING117175 A Phase IIIb, randomized, open-label study of the safety and efficacy of dolutegravir or efavirenz each administered with two NRTIs in HIV-1-infected antiretroviral therapynaïve adults starting treatment for rifampicinsensitive tuberculosis.

- GILEAD GS-US-292-1515 A phase 2/3, Open-Label study to Evaluate the Safety and Efficacy of E/C/F/TAF in HIV-1 Infected Virologically Suppressed Adolescents.
- MSD MK1439A-021 A Phase III Multicenter, Double-Blind, Randomized, Active Comparator-Controlled Clinical Trial to Evaluate the Safety and Efficacy of MK-1439A Once-Daily Versus ATRIPLA™ Once-Daily in Treatment-Naïve HIV-1 Infected Subjects.
- Triclinium NC-006-(M-Pa-Z) A Phase 3 Open-Label Partially Randomized Trial to Evaluate the Efficacy, Safety and Tolerability of the Combination of Moxifloxacin plus PA-824 plus Pyrazinamide after 4 and 6 months of Treatment in Adult Subjects with Drug-Sensitive Smear-Positive Pulmonary Tuberculosis and after 6 months of Treatment in Adult Subjects with Multi-Drug Resistant, Smear-Positive Pulmonary Tuberculosis.
- Primary Central Nervous System Lymphoma and Gliomas; bioactive nano-liposhells embedded for therapy in schizophrenia; ligand-coupled nanobubbles for targeting mutagenic proteins and nanotubes to improve acute and chronic CNS drug targeting in stroke self-assembling nanofibres for peripheral nerve injury.

EMPILWENI SERVICES AND RESEARCH UNIT (ESRU) – DEPARTMENT OF PAEDIATRICS

The LEOPARD study started in the first quarter of 2015. LEOPARD stands for Latency and Early neOnatal Provision of Anti-Retroviral Drugs.

It is led by Dr Karl Technau and is being funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). Our US collaborators on this are Professors Louise Kuhn and Elaine Abrams from the Mailman School of Public Health, Columbia University. This study on the provision of antiretroviral therapy to infants soon after birth will run for the next 4-5 years. There is intense interest in this study as it will explore the notion of a 'functional cure'.

NEUROSURGERY

The Department is in discussions with Professor Mngomezulu of Radiology regarding the possibility of formalising neuro-endovascular training for neurosurgeons into a fellowship type arrangement. A number of our recently qualified staff have expressed keen interest in pursuing this field.

This can only be of benefit, as currently the paucity of individuals providing the service means that it can close down at a minutes notice if an unfavourable situation should occur. We have emphasised to our traditional trade support organisations our desire for cadaver training for registrars; they have graciously agreed to support the initiative once the logistics have been addressed.

PERINATAL HIV RESEARCH UNIT (PHRU) – DEPARTMENT OF PAEDIATRICS

- Needs assessment of Sex Workers, a qualitative study.
- Correlation of HIV infection amongst sex workers in Soweto, a large quantitative cross sectional study.
- Continued development of our community mobilisation programme, with skills development amongst community members, which includes research skills dissemination through sex worker peer educators. Through this we continue to collect basic demographic information about SW in the suburban and conducting HCT.
- GSK Clinical trials ING117175 and 200304, awaiting MCC approval, anticipated to start in Q1 in 2015.
- Established research relationship with Sefako Makgatho Health Sciences University in Limpopo to create a research facility.

PULMONARY INFECTION RESEARCH UNIT – DEPARTMENT OF INTERNAL MEDICINE

 A new research initiative has been launched and an application has been submitted for an NIH R01 grant by Professor F Venter for a study entitled "Establishment of a tissue repository and initial compartmental characterisation of HIV in adult South African HIV-positive patients on and off antiretrovirals" of which Professor C Feldman is involved.

SOWETO CARDIOVASCULAR RESEARCH UNIT – DEPARTMENT OF INTERNAL MEDICINE

The PROTECT-AFRICA STUDY

Pregnancy-Related Obesity prevention Through Education & Communication Technology in AFRICA: Educational levels in young African women remain at historical lows. This provides a particular challenge when attempting to optimise the health of mothers and babies through educational strategies.

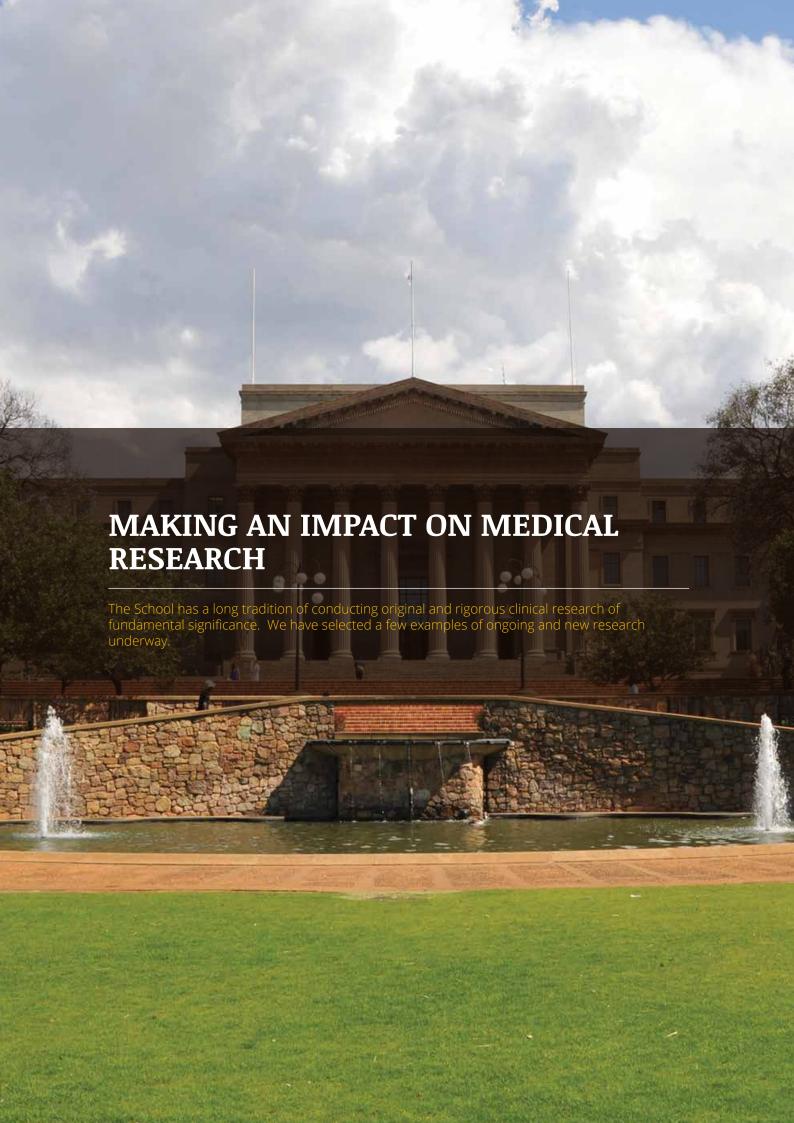
It is estimated that up to one in two pregnant women in urban communities such as Soweto are either overweight or obese. In response, our group has pilot data showing the utility of an innovative information technology-based programme to provide readily accessible and understandable health education to this vulnerable population (HEDUAfrica - www.hedu-africa.org).

WITS REPRODUCTIVE HEALTH AND HIV INSTITUTE (WRHI)

- LIFT Evaluating the uptake and use of a novel mobile phone-based, conditional rewards programme promoting HIV counseling and testing and linkage to sexual and reproductive health and HIV prevention services for South African adolescents.
- RSV Maternal vaccination for Respiratory Syncitial Virus (RSV) - RSV-N-301.
- CANSA Factors associated with anogenital HPV infection and disease prevalence, incidence, persistence: a prospective cohort study.
- HIV Self-Testing-HIV Self-Testing: A supplementary strategy towards achieving the first 90 in inner city Johannesburg.
- GAP Year Grand Challenges Women and Girls at the Center of Development: GAP Year Program (Girls Achieve Power) - using sport to empower girls at critical time of adolescent transition.
- HIV Self-Testing Evaluation of HIV Self Tests for WHO PQ submission.
- CDC DREAMS Notification of \$1m award for PEPFAR DREAMS initiative, details to be worked out.
- Sex Worker Innovation Project DREAMS -Notification of \$1m award for PEPFAR DREAMS initiative, details to be worked out.
- Adolescent Innovation Project DREAMS Notification of \$1m award for PEPFAR DREAMS initiative, details to be worked out.
- UNFPA Implant Removal Qualitative Research detailing the reasons for early removal of Implanon NX contraceptive implants.
- USAID BAA The Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID/ PEPFAR Supported Programmes.
- HPTN082 application package PHS 398 application package for the Sinead's time as technical advisor to the HPTN082 protocol which is under development.

- HPTN081 infrastructure development request
 PHS398 carry forward request for additional infrastructure development for HPTN081 study.
- HPTN081 application package PHS398 application package for the HPTN081 study. We have been selected as a protocol specific site.
- USAID Microbicides Aps Obj 2 CHARISMA Objective 2: Support women's agency to safely use microbicides and reduce vulnerability to intimate partner violence through: a) improving approaches for measurement of social harms experienced by women using microbicides in research and real-world settings; and b) testing and disseminating promising practices for implementation of microbicide interventions in a coordinated fashion with interventions to address intimate partner violence.
- USAID Microbicides Aps Obj 4 POWER Objective 4: Develop cost-effective and scalable models for implementation of microbicides and other forms of PrEP for women through: a) identifying efficient and safe approaches for the provision of regular HIV-testing in programs offering microbicides and PrEP; b) working in partnership with women at high risk of HIV to design and implement microbicide adherence and retention support interventions integrated with other focused interventions to improve women's health and well-being.
- USAID Microbicides Aps Obj 5 OPTIONS Objective 5: Expedite and sustain access to microbicides in countries and among populations where most needed through: a) facilitating the development of an evidence- based business case(s) and coordinated investment strategy at the global and country level for new microbicide and PrEP products; b) supporting implementation research, policy formulation, and detailed planning for microbicide introduction, particularly at the country-level; and c) providing technical assistance and targeted implementation support to address key bottlenecks to rapid introduction of microbicides.

- Elma Unfinished Business of Paediatric and Adolescent HIV.
- Ehpsa PrEP EMPOWER STRIVE to EMPOWER: Improved combination prevention (including PrEP) in Adolescent women in Tanzania and South Africa.
- Ehpsa MSM TRANSFORM Evidence for targeted action: strengthening the design of HIV prevention interventions for men who have sex with men in Tanzania and South Africa.
- Methods Course Sponsorship Research Methods Course in Sexual and Reproductive Health; HIV and Gender Based Violence Steering Committee, the amount of USD15,000 with the purpose of sponsoring in full (tuition & accommodation) three Southern African participants to attend the course, and extend tuition sponsoring to other students according to applicants' needs.
- CDC-RFA-GH15-1574 'ENVISION' GBV Tech Support - South African University-based Technical Assistance Aimed at Improving the quality of HIV/AIDS and related services in the Republic of South Africa under the United States Presidents Emergency Plan for AIDS Relief (PEPFAR).
- MRC-RFA-SHIP-01-2013: Category 1 Drugs & Medical Devices - Development of a better tolerated and more robust second line ARV Regimenfo HIV Infection (Duranavir).
- MRC/WHC-RHI TB and/or HIV/AIDS Collaborating Centre - Collaborating centre will generate new knowledge that responds to significant current barriers to the field of HIV treatment & Prevention.
- Worldbank contract for App development HIV Care Cascade



FORENSIC MEDICINE

A forensic taphonomic study into the differential decomposition rates and patterns of bodies subjected to varying degrees of burns.

Researcher: Mr Craig Keyes

This study was a MSc(Med) project by Mr Craig Keyes. The field work was conducted at the Frankenwald research site. The study used six domestic pigs (Sus scrofa domesticus) carcasses which were burned to different Crow-Glassman Scale (CGS) levels and left to decompose.

The objectives of this study were to test the reliability of the charred body scale (CBS) within the context of decomposed bodies, develop a body decomposition scoring system for specific burn levels, compare burned and unburned body decomposition rates and patterns, compared summer and winter decomposition rates, and determined if specific rate of decomposition for different body regions as a result of burning.

The result from this study will provide further insight into estimating a post-mortem interval in cases where burnt remains were not discovered for prolonged periods of time. It was noted that burning significantly enhances the appearance of decomposition and may therefore skew current post-mortem interval estimates.

Near-Body Drugs of Abuse Testing In Post-Mortem Medicolegal Population in South Africa: A Pilot Study

Researcher: Dr Candice Hansmeyer

This research was conducted by Dr Candice Hansmeyer as part of a MMed research report. The study was conducted on a sample from the Johannesburg Medicolegal Mortuary with the aim of determining whether Narcotics Detector (ND) point of care testing could be used as a reliable and rapid method of drug screening. The National Forensic Chemistry Laboratory (FCL) is currently overwhelmed with cases with a backlog of up to 9 years. This has resulted in a significant backlog which has led to adverse legal, social and administrative consequences.

The results of this study could provide an additional means to allow for more targeted testing within the FCL negating the need for lengthy and costly generalised untargeted toxicological testing. The results from this study may pave the way forward to more expanded testing and validation for other rapid testing methods which may aid in the processing of Medicolegal cases requiring toxicological testing.

HEPATITIS VIRUS DIVERSITY UNIT (HVDRU)

Online sequence analysis bioinformatics tools from the School of Clinical Medicine

Researchers: Professor Anna Kramvis and Dr Trevor Bell

Bioinformatics is a field of study concerned with computational analysis and storage of biological data. The field is broad, ranging from the study of DNA and proteins, to structural biology, drug design and comparative genomics. Dr Trevor Bell (NRF post-doctoral research fellow) and Professor Anna Kramvis (unit director), from the Hepatitis Virus Diversity Unit (HVDRU) in the Department of Internal Medicine, have developed a number of free, online bioinformatic tools, described in several Open Access papers [1-4]. Bioinformatics is a field of study concerned with computational analysis and storage of biological data. The field is broad, ranging from the study of DNA and proteins, to structural biology, drug design and comparative genomics.

The standard workflow in the HVDRU includes DNA extraction, PCR amplification, direct DNA sequencing, viewing and checking of chromatograms, preparation of curated sequences, multiple sequence alignment, analysis, sequence serotyping, genotyping, phylogenetic analysis and preparation of sequences for submission to public databases such as GenBank. The bioinformatics tools developed in the HVDRU are used at several steps in this process, with a particular focus on processing of chromatograms and DNA sequence data. Although developed and tested with sequence data from hepatitis B virus (HBV), sequences from other organisms can be submitted to most of the tools.

The suite includes tools to plot and visualise chromatogram quality scores, generate contigs directly from forward and reverse chromatograms, conservatively clean or curate sequence data, extract HBV protein sequences, calculate 2-by-2 contingency tables, determine HBV serotype, merge long overlapping sequence fragments, summarize and graph nucleotide or mutation distribution, automate phylogenetic analysis and prepare fragments for GenBank submission. Two tools have been developed to assist with the processing and analysis of ultra-deep resequencing (pyrosequencing) data.

These stand-alone, web-based tools are available to users on any operating system platform from any location with an Internet connection, without needing to learn a new bioinformatics software suite or a new program, and without having to install any software onto their computer.

The appropriate tool is simply used as and when required. They are available online at no cost and do not require extensive computer skills or training to use. Data can easily be processed by a mixture of online tools and other software packages, as standard file formats are used. Using specific tools, designed to perform a single task, means that workflows can be partitioned into logical units and that processes or analyses can be easily repeated.

The tools are available online on the HVDRP server at the following addresses:

http://hvdr.bioinf.wits.ac.za/tools http://hvdr.bioinf.wits.ac.za SmallGenomeTools. The source code for some of the tools is released under the GPL version 2 and is available online via GitHub, at the following address:

https://github.com/DrTrevorBell/ SmallGenomeTools.

The tools are described in the following papers:

- 1. Bell, TG, Kramvis, A (2015). Bioinformatics tools for small genomes, such as hepatitis B virus. Viruses, 7, 2:781-97.
- 2. Bell, TG, Kramvis, A (2013). Fragment merger: an online tool to merge overlapping long sequence fragments. Viruses, 5, 3:824-33.
- 3. Bell, TG, Kramvis, A (2013). Mutation Reporter Tool: an online tool to interrogate loci of interest, with its utility demonstrated using hepatitis B virus. Virology Journal, 10:62.
- 4. Yousif, M, Bell, TG, Mudawi, H, Glebe, D, Kramvis, A (2014). Analysis of ultra-deep pyrosequencing and cloning based sequencing of the basic core promoter/precore/core region of hepatitis B virus using newly developed bioinformatics tools. PLOS ONE, 9, 4:e95377.



Possible mechanism for the increased hepatocarcinogenic potential of subgenotype A1 of the Hepatitis B Virus

Researcher: Dr Nimisha Bhoola and Professor Anna Kramvis

Hepatitis B virus (HBV) is hyperendemic in southern Africa, with subgenotype A1 prevailing. Infection with this subgenotype is associated with rapid disease development and a high frequency of progression to hepatocellular carcinoma (HCC) compared to subgenotype A2 and D3. Subgenotype A2 is the genotype of A circulating outside Africa, whereas subgenotype D3 is the genotype of D circulating in southern Africa. The precore/core (PreC/C) region of subgenotype A1 has unique sequence characteristics, differentiating it from subgenotypes A2 and D3. This region encodes for hepatitis B e antigen (HBeAg), which acts as a tolerogen against HBV because it shares epitopes with HBcAg, the viral capsid protein. The aim of our study was to follow the expression of HBeAg in cells transfected with subgenotype A1 relative to subgenotypes A2 and D3, in order to explain the mechanisms for the higher hepatocarcinogenic potential of subgenotype A1.

Huh7 cells were transfected with replication competent plasmids of HBV belonging to subgenotypes A1, A2 and D3. The subcellular localisation of HBeAg in the secretory pathway, activation of the unfolded protein response (UPR) and subsequent activation of apoptosis was determined.

We found that following transfection, subgenotype D3 HBeAg passes earlier through the secretory pathway than genotype A HBeAg. Subgenotype A1 showed a lower expression of HBeAg in the secretory pathway and a higher co-localisation in the nucleus. This reduced secretion of HBeAg and its intracellular retention was accompanied by greater ER stress and an earlier and prolonged activation of the UPR. Cells transfected with subgenotype A1 had increased apoptosis. In the presence of reduced HBeAg, HBcAg, may be targeted directly by both the cellular or humoral immune responses in vivo. Considering that HBcAg elicits a significantly more vigorous antibody response than HBeAg in vivo, this can lead to necrosis of hepatocytes and liver damage. Liver damage is an important contributing factor in the development of HBV-related HCC. Our study therefore suggests a mechanism by which liver damage many be induced and contribute to the higher hepatocarcinogenic potential of subgenotype A1.

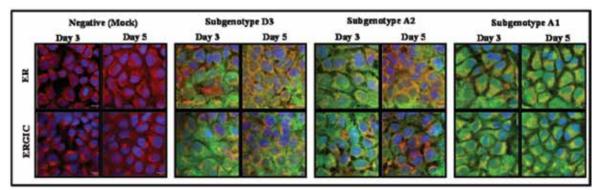


Figure 1: Subcellular localization of HBeAg in the ER and ER Gogi-intermediate compartmet (ERGIC) of the Secretory Pathway

Reference:

Bhoola, NH, Kramvis A. (2016). Hepatitis B e antigen expression by Hepatitis B Virus subgenotype A1 relative to subgenotypes A2 and D3 in cultured hepatocellular carcinoma (Huh7) cells. Intervirology. 59: 48-59. DOI: 10.1159/000446240

INTERNAL MEDICINE -DIVISION OF CARDIOLOGY

Genetics of Idiopathic dilated cardiomyopathy in Johannesburg

Researcher: Nqoba Tsabedze (PhD) Supervisor: Professor Pravin Manga

Cardiomyopathy of undetermined cause is endemic in Africa. Dilated cardiomyopathy (DCM) accounts for 10 - 17% of cardiac conditions encountered at autopsy and for 17 - 48% of patients who are hospitalised for heart failure. Yearly, the Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) cardiology unit treats approximately 100 patients with DCM of unknown cause. According to studies done elsewhere, up to half of these patients are falsely categorised as Idiopathic Dilated Cardiomyopathy (IDCM). Furthermore, 30 - 50% of all patients diagnosed with IDCM are reported to have familial disease. Familial DCM genetic studies have identified mutations in over 40 genes. However, mutations in these genes only explain half of familial DCM cases. Using established heart failure management guideline recommendations; this study aims to prospectively investigate for the various causes of DCM of unknown origin in patients referred to CMIAH. In cases where no clinical aetiology is found, a family pedigree coupled with clinical and echocardiographic screening of first degree relatives of the index proband will be pursued. Families demonstrating a familial disease will then undergo whole exome sequencing to further identify and define the genetic variants responsible for the disease phenotype in our local population.

We hypothesise that in our local setting 40% of patients with DCM of unknown aetiology have familial DCM compared to other primary myocardial diseases such as non-compaction cardiomyopathy, arrhythmogenic cardiomyopathy and secondary causes of DCM. We postulate that there are unique genetic variants in our population responsible for the DCM phenotype.

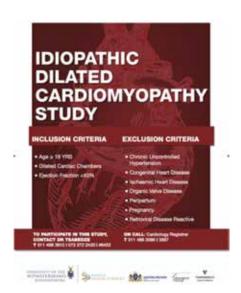
The genetics of IDCM have not been systematically studied in South Africa. We propose that either novel genes or at the very least; new mutations in previously described genes are at play in this distinct population. We also speculate that in these patients the disease presentation is aggressive.

This study will be the first in South Africa to study the genetics of IDCM. Affected patients and their families will be given an advantage of early diagnosis and management. In collaboration with researchers from Vanderbilt University (Nashville, TN), we will perform whole exome sequencing and gene analysis to identify local (Sub-Saharan African) genetic variants responsible for this disease. This will provide a foundation to pioneer novel diagnostics and therapeutics.

Thus far, the student has done two presentations on this topic. First at the Novartis Expert Masterclass scientific meeting held on the 27th - 28th of February 2016, in Somerset West (Western Cape). He has also been invited to talk about the science and rationale of doing whole exome sequencing in familial dilated cardiomyopathy at the African Cardiomyopathy and Myocarditis Registry Program launch on the 7th – 9th of October 2016, at the University of Cape Town.



Dr Tsabedze seen here processing DNA samples in the department of medicine wet laboratory.



Research poster used to advertise the study and increase awareness of this disease entity.

The histological characterisation and coronary endothelial function in HIV positive patients presenting with acute coronary syndromes

Researcher: Dr Ahmed Vachiat (PhD project) Supervisor: Professor Pravin Manga

Cardiovascular disease is the leading cause of morbidity and mortality worldwide. There are approximately 37 million people living with HIV worldwide of whom 70% live in sub-Saharan Africa. The prevalence of HIV in South Africa is the largest in the world where over five million people are infected. The HIV epidemic in South Africa, together with a rise in traditional risk factors, has led to an increase in the prevalence of acute coronary syndromes (ACS). HIV infection accelerates atherosclerosis by a factor of two. However, the mechanisms are poorly understood. The proposed mechanisms include dyslipidaemia, endothelial dysfunction, inflammation and hypercoagulability.

The tissue characterisation of the coronary atherosclerotic plaque in HIV patients is unknown. Thus the aim of this study is to elucidate the tissue characteristics of the atherosclerotic plaque in HIV patients presenting with ACS using intracoronary ultrasound and virtual histology. Furthermore, the coronary atherosclerotic burden will be correlated to the carotid intima media thickness (CIMT) in these patients.

Research:

- 1. Clinical Characteristics of HIV positive patients presenting with acute coronary syndromes Ahmed Vachiat, Pravin Manga, Keir McCutcheon et al. SAHJ Vol 11, No 4 (2014): SA Heart Journal Spring 2014. pg 205.
- Intracoronary lytic in STEMI Ahmed Vachiat, Keir McCutcheon, Rohan Ramjee et al. SAHJ Vol 12, No 4 (2015): SA Heart Journal Spring 2015. pg 223.
- 3. Prognostic indicators for recurrent thrombotic events in HIV-infected Patients with acute coronary syndromes: Use of registry data from 12 sites in Europe, South Africa and the United States. Fabrizio D'Ascenzo, Enrico Cerrato, Darryn Appleton et al. Thrombosis Research 134 (2014) 558-564.
- 4. HIV and Ischemic Heart Disease Ahmed Vachiat MBBCh, Keir McCutcheon MBBCh, Nqoba Tsabedze MBBCh, Pravin Manga MBBCh, PhD. (Accepted, Awaiting Publication in Journal of American Cardiology).

Presentations

- **1. Africa PCR** 14th March 2014. Oral presentation **HIV and coronary artery disease.**
- 2. South African Heart Association Annual Convention 19th October 2014. Oral presentation Clinical Characteristics of HIV positive patients presenting with Acute Coronary Syndromes.
- 3. South African Heart Association Annual Convention 25th -28th October 2015. Poster presentation Intracoronary lytic in STEMI.

The effectiveness of a pharmaco-invasive strategy in the management of ST elevation myocardial infarction.

Researcher: Dr Don Zachariah Supervisor: Professor Pravin Manga

The incidence of cardiovascular disease in sub-Saharan Africa is on an upward trend and the effectiveness of treating these patients needs to be evaluated. Although contemporary guidelines recommend primary percutaneous intervention (PCI) for patients with ST-elevation Myocardial infarction (STEMI), it is found that resource limited centres are not able to provide this to the majority of patients. Inadequacies of referral systems, delays in ambulance services and the shortage of national catheterisation facilities are all contributing factors.

Due to various shortcomings, patients are given thrombolytic therapy as first line before referral to a PCI capable facility. We aim to study the effectiveness of this "pharmaco-invasive" strategy with regards to patient outcome. All STEMI cases admitted to Charlotte Maxeke Johannesburg Academic Hospital will be assessed for reasons for delay in care and correlate this with angiographic findings so as to improve overall STEMI patients care in the country. These patients will be followed up prospectively with an aim to ultimately conclude with recommendations to the National Health Department on strategies to improve state resources.

Cardiac presentation of HIV positive patients in a busy urban hospital in South Africa

Researcher: Dr Don Zachariah Supervisor: Professor Pravin Manga

South Africa has around 6.6 million people living with HIV, and there is limited knowledge on the impact of the HIV epidemic on heart disease in this country. We evaluated all patients admitted to the cardiology unit at Charlotte Maxeke Johannesburg Academic Hospital from August 2011 to September 2015. A total of 6100 patients were admitted to the unit of which, 9.8% were HIV positive. Among this cohort, 66% of these patients had a CD4 count < 350 cells/ mm2 with only 29% of them being on anti-retroviral therapy. The commonest cardiac manifestation was HIV related cardiomyopathy (34%). These patients are young, with a mean age of 38 years and noted to have a mean CD count of 167 cells/mm2. There have been advances by government to curb the HIV epidemic, such as providing anti-retroviral therapy in fixed dose combinations to improve compliance. Also, the aim to provide treatment to all HIV positive patients irrespective of CD4 count is a move in the right direction. The burden of HIV in the cardiology sector is more than previously estimated and highlights the impact of HIV on non-communicable disease.

Cardio-renal syndrome in patients with chronic heart failure

Researcher: Dr Don Zachariah Supervisor: Professor Pravin Manga

The field of medicine has been challenged by the dual epidemic of heart failure and renal insufficiency. There is an increasing need to identify these patients at an early stage so as to delay progression to renal damage. Patients with heart failure and an ejection fraction of < 50% were studied and the prevalence of cardio-renal syndrome was as high as 34.5%. The mean eGFR was 72.01 ml/min/1.73m2 with an inverse relationship with New York Heart Association grade (p= 0.012). This suggests that patients who have progressed to worse symptoms of dyspnea have an increased likelihood of cardiorenal syndrome. Heart failure patients with renal dysfunction when compared to patients without renal dysfunction, have a worse quality of life, as evaluated by the Minnesota Living with Heart Failure Questionnaire (MLFQ) (p = 0.012). They were also not able to walk as far as patients without cardio-renal syndrome when a 6-minute walk test was done (p =0.003). There is currently no specific therapy for cardio-renal syndrome but the aggressive treatment of heart failure while monitoring renal functions is imperative.

Internal Medicine Research Laboratory Raquel Duarte, Caroline Dickens and Therese Dix-Peek

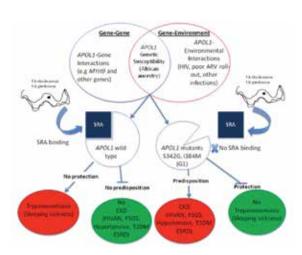
Our unit provides molecular based research support to the various clinical divisions within the Department of Internal Medicine and other research entities in the Faculty of Health Sciences. This period saw continued success in our collaboration with the Division of Nephrology and the Bone Research Laboratory.

The association of APOL1 risk variants with HIV-associated nephropathy in black South Africans

Researcher: Alex Kasembeli (PhD) Supervisors: Professors Saraladevi Naicker and Michele Ramsay and Dr Duarte

Chronic kidney disease (CKD) is a major global public health problem with the incidence increasing each year. There are striking ethnic differences in the prevalence of CKD indicative of an underlying genetic predisposition. While it was known that APOL1 G1 and G2 risk variants play a part in the increased risk of HIV-associated nephropathy (HIVAN), the prevalence of these alleles in the South African population has been unknown. In work towards this, Alex Kasembeli has shown that the effect size of the APOL1 alleles on HIVAN is stronger than that previously reported in the African American population. He showed that while only 2-4% of southern African black Africans carry the APOL1 genotypes, those individuals with the two risk alleles have an extremely high odds ratio (89%) for HIVAN. This is compared to 29 in African Americans.

In his publication entitled "ApoL1 risk variants are strongly associated with HIV-associated nephropathy in black South Africans" (J Am Soc Nephrol. 2015. 26(11):2882-90) the influence of the APOL1 risk variants on HIV and other forms of CKD in South Africans was assessed. Biopsy samples from 116 patients with CKD, 108 controls without CKD and 54 population controls from a Johannesburg population of black ancestry were genotyped.



The data showed that the frequency of the risk alleles were highly enriched in the HIVAN group compared to the HIV-positive controls and population controls. The results of this high impact publication (9.343) were detailed in the Research Highlights section of Nature Reviews Nephrology (April 2015). As mentioned in this commentary, these findings represent "a striking example of a gene-environment interaction where HIV interacts with APOL1 to cause collapsing glomerulopathy".

In the review publication entitled "African origins and chronic kidney disease susceptibility in the human immunodeficiency virus era" (WJN. 2015. 4(2): 295-306) the researchers explore the gene-gene, gene-environment interactions contributing to the APOL1 associated CKD and describe the positive selection of APOL1 CKD risk variants due to the trypanosomiasis epidemic in Africa.

Gene-Gene, Gene-Environment steering contribution to APOL1 associated CKD and the positive selection of APOL1 associated CKD variants as a result of Trypanosomiasis. SRA: Serum resistant associated protein; HIV: Human immunodeficiency virus; T.b: Trypanosoma brucei; APOL1: Apolipoprotein L1; MYH9: Non-muscle myosin heavy chain HIVAN: Human immunodeficiency associated nephropathy; FSGS: Focal segmental glomerulosclerosis; T2DM: Type 2 diabetes mellitus; ESRD: End stage renal disease; CKD: Chronic kidney disease. The results of this study were also presented at the ISN's World Congress of Nephrology (http:// www.wcn2015.org/). This congress is considered the "premiere educational event in nephrology" and is usually rotated throughout the continents. This year it was hosted by the SA Renal Society and took place in Cape Town.

Work in collaboration with the Division of Nephrology was highlighted in eight presentations among which were contributions by PhD graduates for 2014/2015: Dr Muzamil Hassan (ISN Fellow) and Dr Keleabetswe Mpye. This period also saw continued success in our collaboration with the Bone Research Laboratory directed by Professor Ugo Ripamont which resulted in 3 publications in the journal Biomaterials (Impact factor 8.3).

The key goal of this translational medicine laboratory is to understand the key differentiating events underlying the conversion of coral derived calcium carbonate-based macroporous bioreactors into bone in the model primate, Papio ursinus.

The researchers profiled all the members of the BMP and TGF- β growth factor families following the implantation of these devices into the intramuscular sites of the Chacma baboon. Using a qRT-PCR approach the differential expression of the growth factors was determined. An important finding was changes in gene activity in the muscle tissue surrounding the devices. These findings highlight the importance of the cellular microenvironment housing the stem cell niche which respond to growth factor signalling to trigger osteoblast differentiation.

PSYCHIATRY

The use of flexibly dosed paliperidone palmitate in South African patients with schizophrenia

Investigators: Bernard Janse van Rensburg,*
Ugash Subramaney, Thebe Madigoe, Anersha
Pillay, Lesley Robertson
Additional investigators: Craig Bracken, Laila
Paruk, Ralph Brummerhof, Fiona Maynard,
Lavinia Lumu, Sandra Fernandes, Belinda
Marais



* Principal investigator

Paliperidone palmitate is a long-acting injectable (LAI) atypical antipsychotic agent which has been registered for the treatment of schizophrenia by the South African Medicines Control Council in 2013.

Relevant clinical trials have established the efficacy and safety of paliperidone palmitate and changes in schizophrenia related admissions of patients on paliperidone palmitate. The purpose of this investigator initiated study is to explore

the characteristics of South African patients with

schizophrenia who were previously unsuccessfully treated with oral and/or LAI antipsychotic medication and who may be suitably changed to paliperidone palmitate, or alternative antipsychotic agent, as well as the tolerability, safety and treatment response of the antipsychotic medication they subsequently received

This will be a 12-month, open label, prospective, exploratory study at different sites in Gauteng of patients with schizophrenia previously unsuccessfully treated with other antipsychotic medication, who were either suitably changed to paliperidone palmitate, or who were continued on their existing/other oral or (non-paliperidone) LAI antipsychotic medication. The study will provide local data of potentially national significance, and more specifically have implications for patient care in terms of hospital admissions.

PULMONARY INFECTION RESEARCH UNIT

The aetiology, risk factors and outcome of community-acquired pneumonia in sub-Saharan Africa: A systematic review

Researcher: Dr Stephen Aston

This is a systematic review and meta-analysis of the literature investigating the microbial aetiology, risk factors and outcome of community-acquired pneumonia in adults in sub-Saharan Africa and will be the first such study undertaken in this region. The study is being undertaken in collaboration with Dr Stephen Aston, from the Liverpool School of Tropical Medicine, who is doing this study as a component of his PhD. The literature search has been completed and extracted approximately 3,500 articles. The two co-authors have reviewed the abstracts of all these articles and reduced the number of publications to ~200 papers. Thorough review of the individual manuscripts the numbers of publications was reduced to approximately 47 and the transcription of these studies onto the working templates has almost been completed. Finalisation of this process and subsequent analysis of the data should be completed in 2016.

Other significant achievements by Professor Feldman in this time period is that he was elected to the Fellowship of the European Respiratory Society in 2014, in recognition of excellence in scientific and or educational contributions to respiratory medicine over many years and he was also re-elected on to the Board of the Medical Research Council, 2014 – 2016 for a second term.

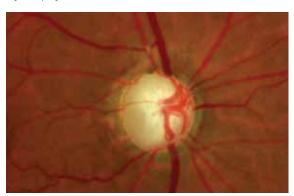
NEUROSCIENCES

Over this period both Neurology and Ophthalmology were involved in collaborative research with Genetics and Pharmacology laboratories at Wits and elsewhere.

Glaucoma Genetics

Researcher: Dr Susan Williams Supervisor: Professor Michele Ramsay

Ophthalmology established an Ophthalmic Genetics Unit under Dr Susan Williams that began with research into glaucoma and more specifically, exfoliative glaucoma, which is a common blinding condition in South Africa. Dr Williams earned her PhD with a project on 'Glaucoma genetics' in 2013 then set up the unit to work closely in association with international glaucoma researchers at Duke University in the USA and with Professor Michele Ramsay who is the head of the Sydney Bremmer Institute for Molecular Bioscience at Wits. These associations have delivered key publications in these areas and have also explored the role of PAX6 mutations in eye disease and investigated other inherited eye conditions such as Macular Corneal Dystrophy.



Glaucoma optic nerve shows the damage caused by glaucoma.

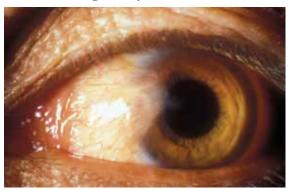
Investigated the role of heredity in pterygium development and factors in the occurrence and recurrence of pterygia.

Researcher: Dr Peter Anguria Supervisor: Professor Trevor Carmichael

This was a PhD project by Dr Peter Anguria and the fieldwork was conducted in Limpopo where the rural population was studied. The familial occurrence of this degenerative condition was established and the role of underlying factors such as sunlight exposure and the use of traditional eye medicines were described.

A different and ongoing area of research involved the development of various slow-release devices for use in and around the eye. Initially ganciclovir-containing devices were used but then nanoparticle penetration of the eye was shown to be possible by Dr Lisa Du Toit as a PhD project in Pharmacology and then other devices were tested to release anti-inflammatory medications into the eye.

Over this period, Neurology was involved in developing novel treatments of spinal cord injuries and also dementia using nanoparticles and also transdermal drug delivery.



These were developed with the Department of Pharmacology, here at Wits. The Division of Neurology was also involved in reporting mutations associated with Huntington disease.



THE STEVE BIKO CENTRE FOR BIOETHICS

A Study of Vulnerability in Health Research

Researcher: Professor Ames Dhai – PhD 2014

Vulnerability, an abstract concept in health research, has concrete effects both on those who are labelled vulnerable and those who are not. It has been used increasingly as an exclusion criterion in research but has been the least examined from an ethical perspective despite being linked in most research ethics guidelines and codes, both international and local, to questions of justice and informed consent. Neither has there been an agreed upon standard for identifying and responding to vulnerability. The guidelines, despite categorising vulnerable research participants into groups and subpopulations, do not offer a robust and comprehensive definition of vulnerability.

The study aimed to analyse the notion of vulnerability in health research with a view to constructing an operational definition of the concept which would assist researchers and RECs to identify and understand vulnerabilities and strategise on maximising protections for the participants without obstructing essential research.

Using normative, metaethical and historical methods of bioethical inquiry, this research has shown that the categorisation of people into vulnerable groups is not justified as it could result in obstructing research, and paternalistically excluding participants from necessary research, or inadequately protecting participants enrolled in research. The study has resulted in an appropriate operational definition of vulnerability and a Vulnerability Assessment Scale being developed to assist Research Ethics Committees and researchers identify participants with vulnerabilities and develop focused safeguards for their protections.

The concept of vulnerability in health research is no longer nebulous and vague and its definition is therefore no longer an unanswered question. A hermeneutical analysis of the impact of sociopolitical and legislative developments on South African institutional mental healthcare from 1904-2004



Researcher: Dr Gale Ure – PhD 2015

The use of diagnosis and treatment of mental illness to manage and manipulate the shape of the social and political world is not a new concept. It has been documented in the USA, the USSR, Indo-China and other countries internationally. There were a number of accusations

of rights abuses made against South African (SA) mental health institutional practices by international bodies in the heyday of apartheid in the late 1970s and 1980s. The South African government vehemently denied politically directed rights abuses against patients in long term psychiatric institutions that were used to further the aims of the then apartheid government. International health bodies travelled to the country to investigate the claims made by the Citizens' Commission for Human Rights (this group mainly represented the interests of the Church of Scientology) and the findings that that there were abuses occurring were rejected by the SA Government. In spite of the rejections, legislation was put in place to prevent further incidents of investigation and to protect practitioners who were employed to work in these facilities.

The abuse of human rights was not to be found in general clinical practice of South African facilities or practitioner practice of psychiatry. It was imbedded in the system of sending people, who were guilty of apartheid social offences (for example not carrying pass books, public drunkenness or simply for not speaking English or Afrikaans), to homeland 'retraining' facilities or South African 'rehabilitation' facilities.

It was also entrenched in a system of institutional care that was both differently funded and provided across the colour bar.

These people were left isolated and neglected in circumstances, which over time degraded their dignity and humanity to the point of institutional stasis. Homeland facilities, while ostensibly not linked to South African practices or government, were paid for by the South African Department of Health to house Black persons who had proved not to have the social skills or the desirable qualities of a suitable worker in the South African system. They were simply returned to their cultural region, away from White areas, where they did not fit in.

South African mental health professionals, who had been concealed behind the justification that they were pawns in the political process and could not change the status quo, were guilty of a greater crime than actively using their profession to commit politically motivated acts of direct abuse against individual patients. Being not only aware of the political issues in psychiatry and being pressurised by their international peers to do something to demonstrate their rejection of the system maintaining the abuse, the majority of practitioners chose the option of distancing themselves from the areas of mental healthcare under scrutiny. This action - considering that many were an intrinsic part of the both the private and public service delivered to government - had no effect whatsoever on changing the status quo. A number of practitioners continued to attend to patients in these facilities under the auspices of government and some continue in their personal capacity to the present day. Practitioners continued to refer patients to these private facilities from provincial hospitals. They knew what these facilities were because they had publicly rejected them as a professional body, and they knew that these patients would not be given appropriate care because this was the reason they had given for their rejection.

They turned their backs on a situation which they were very aware would leave vulnerable certified patients at the mercy of a system of private mental healthcare, providing paid incarceration and relocation services to the South African government, under the guise of 'rehabilitation'. They effectively omitted these people from their clinical practice scope by rejecting the facilities in which they were held in the name of conscientious objection.

This denialism was part of the deep and pervasive abuse perpetrated by the law and political structures that underpinned all of South African life. The process of sending 'patients' to these facilities lay at the door of psychiatrists and mental health professionals in South African provincial mental health facilities. They continued this practice well into the 1990s.

This research identifies the processes, players and specific historical incidents that drove the promulgation of various acts, social principles and legislation into a place where such abuses could occur. The rise of private for-profit institutions and the human rights abuses that occurred are testament to how professional, personal and profit agendas can sublimate the mores on which ethical clinical care is based. The concepts of beneficence and non-maleficence, as examples, are lost in the business concepts of providing a service for a customer, who perhaps does not see the provision of ethical and quality care as an operational mandate of importance, and the customer being right. The set of interconnecting contexts and circumstances, during this period, opened the door for abuse of the process of care by a series of national agendas and power plays in international politics, the expansion and self-promotion of medical practitioners' own agendas and the accumulation of personal wealth.

Critique of the conditions and practices in South African mental and social institutions continues to the present. As the people who were placed in these facilities begin to die of old age, many having spent 30 years upward of their lives incarcerated for social and political agendas, time is simply running out because they have been forgotten by the very people who should have been there to protect them. They are unwitting detritus on the road of history and are now a complication which both the Department of Health and those same practitioners, now in positions of authority, are loath to acknowledge still exists. The new Mental Health 'Action Plan' - to which the South African Government and the WHO are signatories - is hailed as the new era of mental health care in the country, yet, these patients are still missing from the numbers of the research and statistics which the government is presently using for service planning going forward.



THE STEVE BIKO CENTRE FOR BIOETHICS

The Bioethical and Human Rights Challenges Surrounding the HIV testing of Women in South Africa and other Sub-Saharan African countries

Researcher: Mary O'Grady - PhD 2015

This thesis explored the current HIV testing protocols, especially provider-initiated counselling and testing, otherwise known as 'routine testing,' under implementation in sub-Saharan African countries and examined whether and how they transgress bioethical and philosophical principles and the human rights of women in the current context of the highly stigmatised HIV epidemic. The

research method employed was mainly a literature review partly based on the author's 20 years of experience working on HIV testing programmes and programmatic evaluations in sub-Saharan African countries, from which earlier background papers and the thesis topic grew. Included in this primarily moral examination were the historical philosophical and present bioethical principles of autonomy, beneficence, justice, and non-maleficence, the philosophical right to self-preservation, and relevant human rights principles and recent examples of human rights infringements related to the HIV testing, in particular, the routine testing of women in sub-Saharan African countries.

A conclusion was reached that where HIV testing is practiced in sub-Saharan African countries, and anywhere for that matter, without alignment with the bioethical principles of respect for autonomy, justice, beneficence, and non-maleficence, and without protecting the human rights of individuals testing for HIV, including the provision of pre- and post-test counselling, implementing the informed consent process, maintaining the confidentiality of test results, and making referrals to other services available to all individuals who test negative or positive, as well as making antiretroviral therapy (ART) available to anyone who tests HIV-positive, such testing is unethical. Thus the author posited that the 'routine testing for HIV' of all individuals presenting to a clinic for healthcare – and the 'routine testing of all pregnant women for HIV' – amidst the highly stigmatised HIV epidemic in sub-Saharan Africa is unethical.

RESEARCH UNITS

ENTITY TITLE	TYPE	RECOGNITION	DIRECTOR/LEADER
Carbohydrate & Lipid Metabolism Research	Unit	2015-2019	Professor F Raal
Clinical HIV Research	Unit	2015-2019	Professor I Sanne
Developmental Pathways for Health Research	Unit	2011-2015	Professor SA Norris
Effective Care Research	Unit	2015-2019	Professor GJ Hofmeyr
Empilweni Services and Research	Unit	2015-2019	Professor AH Coovadia
Hepatitus Virus Diversity Research	Unit	2015-2019	Professor A Kramvis
Perinatal HIV Research	Unit	2015-2019	Dr N Martinson (Acting)
Pulmonary Infections Research	Unit	2016-2020	Professor C Feldman
Wits Reproductive Health and HIV Research	Institute	2015-2019	Professor VH Rees



CARBOHYDRATE & LIPID METABOLISM RESEARCH UNIT

Unit Director: Professor Frederick Raal (Derik)

The focus of the Unit's research 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 well recognised 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 reported in *Circulation* the reduction in mortality associated with advances in lipid-lowering therapy, mainly statin therapy, in the largest cohort of subjects with homozygous familial hypercholesterolaemia described worldwide. This paper has been widely cited. The unit continues to research novel therapies such as antisense apo B-100 and PCSK9-inhibitor therapy in this patient group. The results of such studies with Evolocumab, an inhibitor of PCSK9 given once or twice monthly by subcutaneous injection to subjects with either heterozygous or homozygous FH, were published as lead articles in the *Lancet* with Professor Raal as first author. Professor Raal was also co-author on two papers evaluating cardiovascular outcomes with PCSK9 inhibitor therapies published in the *New England Journal of Medicine*.



CLINICAL HIV RESEARCH UNIT (CHRU)

Unit Director: Professor Ian Sanne



Clinical The HIV Research Unit (CHRU), an internationally recognised research and technical assistance unit delivers excellence and quality clinical, epidemiologic and health economic research services in Iohannesburg ensures that this information is invested

at operational level for the prevention, treatment and management of HIV and associated diseases.

Located at the Themba Lethu Clinic (TLC), HJH, it is one of the largest HIV and TB clinics in South Africa. The CHRU epidemiology division operates independently under HE2RO located in Parktown.

The Health Economics and Epidemiology Research Office (HE²RO) is a division of the Wits Health Consortium (WHC) of Wits. It conducts applied, policyand program-relevant research and evaluation on issues of public health importance in South Africa. HE²RO was established in 2004 as a collaboration between WHC and the Center for Global Health and Development at Boston University in the United States.

It focuses on 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 (NHLS), provincial departments of health, PEPFAR partners, and healthcare providers, answering questions of immediate practical relevance to these stakeholders.

The CHRU's research focus is HIV treatment in adults, HIV prevention, Tuberculosis (TB), Cervical Cancer and HIV related Malignancies such as Karposi Sarcoma has made significant contributions to these research disciplines, with over 250 publications since its inception in 1999. CHRU, in collaboration with Right to Care, offers an unique third line clinic to diagnose and treat third line patients. CHRU has completed over 66 antiretroviral therapy (ART) studies in phase I-III research. It was the first International AIDS Clinical Trials Group (ACTG) Site in 2002, and has since been one of the highest performing ACTG international site. CHRU implemented five new studies in 2014 and eleven in 2015.



Pap-smear services

Community Advisory Board (CAB) CHRU staff

The TB research unit established at the Sizwe Hospital, remains the only inpatient referral unit for MDR TB in Gauteng. The outcome of the START trial, in which the unit participated, directly resulted in a recommendation that anti-retroviral (ARV) treatment may commence at any CD4 count. This has impacted on the present World Health Organisation and this should also impact on the National Department of Health's guidelines. The CHRU, together with global partners, are conducting a feasibility assessment study of MDR household contacts with the objective of determining MDR TB Prophylaxis with linkages to care for family members of MDR TB patients, this will be a large scale clinical trial. In April 2014, the CHRU expanded its science when in collaboration with the WITS FHS Radiation Oncology Department registered an AIDS Malignancy Consortium (AMC) clinical trial for HIV positive patients with locally advanced cervical cancer. The unit administers chemotherapy and anti-retroviral treatment for these patients.

The radiation treatment consists of external beam radiotherapy and high dose Brachytherapy managed by the WITS Radiation Oncology Department. An appreciation for the need to further expand the research required on HIV Associated Malignancies has been realised as the unit intends to intensify this focus.

The unit's international collaboration research includes scientists from Boston, Cornell, Munich Universities as well as the University of North Carolina.

During the review period, the CHRU and HE2RO published 93 articles. The CHRU and HE2RO researchers made oral and poster presentations at National and International conferences including the Conference on Retroviruses and Opportunistic Infections (CROI) and the 46th Union World Conference on Lung Health.

At CHRU it is our mission to deliver excellence and quality in clinical, epidemiologic and health economic research, services and support in Johannesburg, and to further ensure that this information is invested at operational level for the prevention, treatment and management of HIV and associated diseases.







DEVELOPMENTAL PATHWAYS FOR HEALTH RESEARCH UNIT (DPHRU)

Unit Director: Professor Shane Norris

DPHRU addresses the national priorities of increasing life expectancy, decreasing maternal and child mortality and strengthening health system effectiveness. It investigates genetic, physiological, psycho-social, and lifestyle determinants of growth and development, obesity and risk of cardio-metabolic diseases, and healthy ageing. DPHRU adopts a multidisciplinary approach and associated methodologies to understand physical and mental health across the life course and the transgenerational effects and to identify possible interventions schemes to improve health outcomes.

The Unit also forms a unique research platform with substantial infrastructure and equipment, extensive longitudinal data and well-established links with the urban and rural South African communities. Using more than twenty years of longitudinal data from the Birth-to-Twenty cohort study and longitudinal statistical modelling, the growth and development from birth to 20 years of age of children born in 1990 in Soweto has been characterised.

It was found that while black girls have a similar physical growth and pubertal development as their white peers, black boys have a delayed growth and development (by approximately 6 months) in comparison to their white counterparts. These results suggest that some biological triggers of growth and pubertal development are different between boys and girls. It was also found that children who had more adiposity (measured by body mass index) and/or were taller at 5 or 8 years of age were more likely to have an early onset of puberty, a risk factor for cardio-metabolic diseases and an important determinant for reproductive behaviour and health. For instance, 50% of the girls in the cohort had their sexual debut at 16 years old, about 3.5 years after the mean age at menarche calculated for the cohort. Besides the fact that these results are unique in sub-Saharan Africa, the longitudinal description of growth and pubertal maturity is also important for the investigation of their determinants and effects on physical and mental health across the life-course.

The analysis of BT20 data together with data from other cohort studies in low and middle income countries contributed to the findings that show that low birth weight and greater weight gain in childhood (after 2 years) increases adiposity, as well as diabetes and hypertension risk in later life. Linear growth, but not weight gain, in the first two years of life is positively associated with school attainment.

These results and others provided the motivation for DPHRU to start the Soweto First Thousand Days project (S1000), a new longitudinal pregnancy and infant cohort study, which aims to do an in-depth investigation on the maternal biological and psychosocial factors that influence foetal and infant growth and development. Most of the research recently published by DPHRU researchers has focused on the childhood and adolescent factors that lay down the premise of cardiovascular and metabolic risks in young adulthood. Based on the BT20 cohort, it has been shown that the prevalence of overweight and obesity increases progressively between childhood and adolescence, particularly in females. Children are at a significantly higher risk of becoming obese by late adolescence (16-18 years) if they were overweight or obese between ages 4 and 8 years. Data from the 10 year longitudinal follow-up study showed that the prevalence of obesity rose by 14%. With regard to cardio-vascular risks, 22% of the BT20 children had high blood pressure (BP) at 5 years of age and a third of those had sustained the elevated BP status at 18 years of age. This raises the importance of routine blood pressure assessment in paediatrics for early identification of at-risk children, which may inform timely interventions to prevent elevated blood pressure in later life.

In the ageing population, the role of behavioural factors in determining the risk of obesity and cardiometabolic risks has been investigated longitudinally in the mothers of the BT20 study participants. Results show that while vigorous intensity activity is associated with significantly smaller gains in body weight and fat mass over time, only 45% of black South African women participated in leisure time physical activity.

Another important biological aspect of ageing and health that has been the focus of recent work at DPHRU has been on the menopausal transition where it was shown that the menopausal transition in black South African women has been associated with a decrease in lean mass and bone mineral density.

DPHRU has recently launched the African Centre for Obesity Prevention (ACTION) which aims to raise awareness on obesity and associated diseases by providing evidence-based information on obesity, and to engage with the public through recommendations on how to engage in a healthy lifestyle.

Building the costly human brain: Implications for the evolution of childhood and the origins of Diabetes – 25 February 2015.

DPHRU and the DST-NRF Centre of Excellence in Human Development presented a lecture by Professor Christopher Kuzawa, Anthropologist, University of Northwestern, US, in the frame of their series of public seminars on the Evolutionary Biology of Human Development and Health. In his talk entitled *Building the costly human brain: implications for the evolution of childhood and the origins of diabetes,* Professor Kuzawa presented his and his colleague's recent results around the implication of the energy costs of human brain on growth and metabolism.

Using brain imaging data, they showed that brain energy demands peaks at 4-5 years of age when neuronal connections expands with learning and cognitive development. In addition, they found that the rate of body weight growth is slowest at ages when the brain is most costly and is fastest when the brain is least costly. It suggests that human's unique characteristic of slow and prolonged linear growth during childhood could be an evolutionary strategy to conserve resources and to feed the "unusually high costs of our brain development".



Finally, Professor Kuzawa opened discussions around a new hypothesis on the evolution and origins of diabetes. He and his colleagues postulated that the diabetes-causing condition of insulin resistance, wherein muscle tissue's uptake of glucose is lowered, could be a strategy to prioritise the use of glucose for the brain over other tissues during the childhood peak in brain glucose needs.

Inaugural Lecture: Professor Shane Norris

On 18 August 2015, Professor Shane Norris delivered an inaugural lecture entitled:

Growing up in South Africa: does childhood influence adult health and disease-risk? His lecture was a synthesis of over 25 years of longitudinal research and presented how Soweto-Johannesburg has transitioned since 1990 and its impact on children's growth and development, and the implications for adult bone health, obesity, diabetes, and hypertension-risk.

The research findings highlighted the importance of maternal and child nutrition in the first 1000 days, which includes pregnancy and first two years of infancy, for programming growth and body composition of children but that childhood and adolescence were stages of opportunity to optimise health.



Photograph: John M Pettifor, Honorary Research Professor and Professor Emeritus, Developmental Pathways for Health Research Unit, Wits Department of Paediatrics; Professor Tawana Kupe, Deputy Vice-Chancellor: Advancement, HR and Transformation; Professor Shane Norris; Professor Martin Veller, Dean, Wits Faculty of Health Sciences

Professor Norris started at Wits in 1998 as a research officer and now has over 17 years research experience in longitudinal cohort studies and life-course epidemiology. His research expertise includes maternal and child health, child nutrition, growth and body composition and intergenerational transmission and developmental origins of obesity and metabolic disease risk. His greatest scientific impact has been his research that showed that varying early life growth patterns confer different risk trajectories for Type 2 diabetes in adult life.



EFFECTIVE CARE RESEARCH UNIT (ECRU), DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

Unit Director: Professor Justus Hofmeyr

Clinical trials

The Unit has sustained an active programme of randomised clinical trials to answer important intervention questions relating to maternal and perinatal health in low-resource settings.

The Calcium and Pre-eclampsia study is in the fifth year of recruitment, with 90% of the sample size recruited. ECRU is the lead institution in this placebo-controlled trial of calcium supplementation commencing before pregnancy in women with previous pre-eclampsia. The study sites are East London, CHBH, University of Cape Town, University of Stellenbosch, Harare University and several sites in Argentina.

Co-ordination is by World Health Organisation, and funding via the University of British Columbia, and Grantee of the Bill and Melinda Gates Foundation. In 2015, we commenced recruitment for the Gentle Assisted Pushing study to assess the benefits and risks of upright posture and upright posture with controlled manual fundal pressure, versus routine care in the second stage of labour. The study is co-ordinated and funded by the World Health Organization.

In the biennium, we continued preparations for participation in the ECHO study, a multi-centre randomised trial comparing pregnancy risk and HIV acquisition between three contraceptive options: Depot medroxyprogesterone acetate, levonorgestrel implants and the copper intrauterine device.

Systematic reviews

The Unit has continued to update and add to over fifty Cochrane systematic reviews published in the Cochrane Library.

Innovations

A new method of management of shoulder dystocia called Posterior Axilla Sling Traction has been designed, which has been included in obstetric training programmes in several countries.

Research training

Research methods courses, funded by World Health Organization, for researchers from South Africa and the WHO AFRO region are run on an annual basis.

Research recognition

The Unit received re-accreditation as a WHO Collaborating Centre for Research Synthesis in Reproductive Health in 2015.





EMPILWENI SERVICES AND RESEARCH UNIT (ESRU)

Unit Director: Professor Ashraf Coovadia

The Empilweni Services and Research Unit (ESRU) based within the Department of Paediatrics and Child Health at the RMMCH, is one of the newest officially recognised members of the Faculty of Health Sciences at Wits. The unit obtained official recognition in late 2014. The unit is headed by its Director Professor Ashraf Coovadia and has a team of senior clinical researchers including Professor Gayle Sherman, Dr Karl Technau, Dr Renate Strehlau, Dr Gary Reubenson, Dr Gill Sorour and Prof. Joanne Potterton.

Historically, this unit grew out of a need to provide antiretroviral access to HIV-infected children receiving care within the Department of Paediatrics at Wits. Professor Ashraf Coovadia along with Professor Tammy Meyers (Chris Hani Baragwanath Academic Hospital - CHBAH) and Dr Dalo Ndiweni (Charlotte Maxeke Johannesburg Academic Hospital - CMJAH) initially created the Wits Paeds Group which was a network of Paediatric HIV clinics that provided state-of-the art services to infants and children who were HIV-exposed or HIV-infected. This group, later called the Wits Paediatric HIV Clinics, continued to grow in staffing as well as began research projects at the Harriet Shezi Children's HIV clinic at CHBAH. In 2000 clinical research began within the Paediatric HIV services at RMMCH which was later called the Empilweni Clinic. Empilweni was chosen as its name as it is translated from isiZulu as 'a place of life'.

This was an apt name for the clinic and its services as the time as the country and the HIV programme was undergoing a major change in its approach to treatment for the HIV-infected population.



In 2010, the Empilweni Services and Research Unit was established as an entity within the Wits Health Consortium as the Harriet Shezi Children's research unit had become part of the newly established Wits HIV Research Institute (WRHI). ESRU, which received funding from WRHI as a sub-recipient of the Presidential Plan for AIDS Relief (PEPFAR), continued to advance its services for HIV-infected children as well as HIV-infected mothers and their HIV-exposed infants as well as its research agenda.

Today ESRU boasts a staff compliment of more than 40 individuals involved in either research or service provision at the RMMCH. Its work spans advocacy, training, clinical research and, importantly, overseeing and managing the two important HIV programmes of the National Department of Health being the Prevention of Mother to Child Transmission of HIV (PMTCT) and the Paediatric HIV treatment programme. There are several NIH funded clinical research projects as well as pharma sponsored trails. ESRU remains one of few Paediatric research sites across the province and indeed the country. The official recognition of the unit by the Faculty of Health Sciences in 2014 and the construction of the new three story building at RMMCH were major highlights during the review period.









New buildings at RMMCH

HEPATITIS VIRUS DIVERSITY RESEARCH UNIT (HVDRU)



Unit Director: Professor Anna Kramvis

The University Research Council (URC) granted Unit status to the Hepatitis Virus Diversity Research Unit in January 2015. The Unit continued its research on the molecular epidemiology of hepatitis B virus (HBV) in Africa.

This virus is estimated to infect two billion humans and it is second only to cigarette smoking as an agent causing human cancer. In 2009, HBV infection was again placed on the list of top ten infectious diseases by the World Health Organisation.

Globally, over 240 million individuals are chronically infected with the virus and a large number of them will develop hepatocellular carcinoma (HCC) or liver cancer. Close to a quarter of the world's chronic carriers reside in sub-Saharan Africa and approximately 1% in South Africa. No infectious disease research in Africa can neglect the AIDS pandemic scourging our continent, so, in addition to HBV-mono-infection, the HVDRU team is currently researching HBV/HIV co-infection and developing bioinformatics tools to facilitate the study of these infections.

Following an extensive review of the molecular epidemiology of HBV in Africa, it became evident that there were a number of African countries for which there was no data. Therefore the HVDRU has undertaken to close some of the knowledge gaps and to expand the database of African HBV sequences. To date, the HVDRU team has characterised HBV isolates circulating in South Africa, Zimbabwe, Namibia, Kenya, Sudan, Angola and Madagascar.

Their studies have also shown that HBV strains from Africa have been dispersed to various regions of the world as a result of human migrations.

The major genotypes of HBV circulating in Africa are genotype A (subgenotype A1), genotype D and genotype E. Subgenotype A1 has unique molecular characteristics differentiating it from subgenotype A2, the subgenotype of genotype A circulating outside Africa.

Research highlights

In 2014-2015, the Unit completed the construction of replication competent clones of HBV belonging to sub genotypes A1 and A2, genotype D and also showed that preS deletion mutants of subgenotype A1 are replication competent. The generation of these replication competent clones is an important step in the functional characterisation of sub genotypes of HBV circulating in Africa and their comparison to strains circulating in other geographical regions of the world.



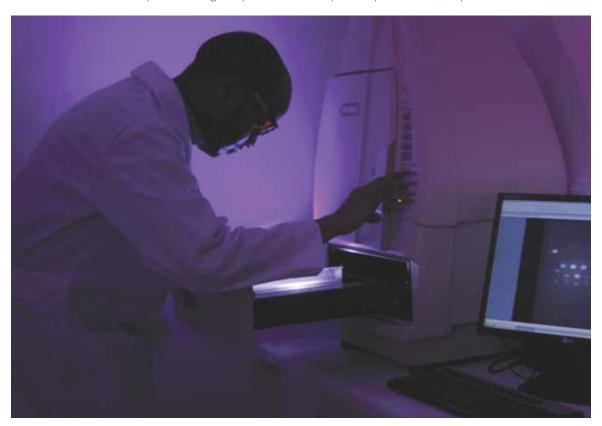
HVDRU Laboratory



When we carried out molecular characterisation of HBV isolated from HIV-infected individuals, we showed that the dominant quasispecies population had deletions in the preS region of the genome of HBV. Of significance is that these preS deletion mutants are similar to those seen in HCC or liver cancer patients, from South Africa and India, infected with sub genotype A1. Both experimental and clinical studies provide strong evidence for a link between these deletion mutants and the pathogenesis of HCC.

Following the construction of plasmids containing these deletions, we have functionally characterised these preS deletion mutants in vitro.

We showed that these deletion mutants express HBsAg at equivalent levels to those expressed by wild-type constructs and have similar viral loads to the wild-type construct. Thus the deletion mutants are replication competent. The fact that these mutants are replication competent means that they can be transmitted. They are frequently found in immunocompromised HIV-infected individuals and because the deletions overlap B and T cell epitopes they could infect immunocompetent, including vaccinated individuals. Transmission of deletion mutants, with hepatocarcinogenic potential, has important public health implications.



HVDRU Laboratory



In their declaration www.worldhepatitissummit.com/declaration/), the participants of the summit:

Believe it is possible and essential to set as a goal the elimination of both hepatitis B and C as public health concerns. We therefore call upon governments in all jurisdictions to develop and implement comprehensive, funded national hepatitis plans and programmes in partnership with all stakeholders and in line with the World Health Assembly Resolution 67.6 and, in collaboration with the World Health Organization, to define and agree on realistic yet aspirational global targets for prevention, testing, diagnosis, care and treatment.

In order to respond to the hepatitis burden in Africa, there needs to be a concerted effort to interact with national policy makers and public health professionals. As a laboratory based research scientist and Director of the HVDRU, Professor Kramvis feels the need to get involved in advocacy and to interact with national and international policy makers

In October 2015, she gave a statement talk entitled "Hepatitis B Virus Infection in Africa ~ no room for complacency" at the 2015 International Meeting on Molecular Biology of Hepatitis B Viruses, Dolce Bad Nauheim, Germany. This talk was well received and as a consequence she was approached by the World Hepatitis Alliance www.worldhepatitisalliance.org and a number of researchers from the USA, for her slides and more information.

Joint Workshop

A six member delegation from China, headed by HVDRU collaborators Professor Zhong-Liao Fang, Deputy Director of Guangxi Zhuang Autonomous Region Center for Disease Prevention and Control visited Wits in October/November 2015 and participated in the Joint Workshops organised by the two teams: China-South Africa Joint Research Programme (JRP) Knowledge Interchange Visit and Workshop, Wits,. 31st October – 3rd November 2015.



RESEARCH UNIT (PHRU)
Unit Director:
Dr Neil Martinson
(Acting)

PERINATAL HIV



Dr. Neil Martinson is the *Chief Executive Director at* the Perinatal Research Unit and is an Assistant Professor at Johns Hopkins University Centre for TB Research. After obtaining an MPH from Johns Hopkins under the mentorship of Dr. RE Chaisson via a Fogarty TB grant, he started work at the PHRU managing a large randomised trial of preventative treatment against TB. His current major research interests are the prevention and diagnosis of TB in contacts of TB cases. He manages three US Presidents Emergency Programme For AIDS Relief (PEPFAR) projects: a programme of contact tracing for TB, a mass male circumcision programme, and a HIV clinic in downtown Johannesburg. Prior to embarking on a career in research, Dr. Martinson managed a large health district comprising the eastern communities of Johannesburg where he implemented the TB control programme in thirteen primary care clinics staffed by nurses. In 2014, Professor Glenda Gray, the previous Director of PHRU was appointed the President of the South African MRC, with Dr Martinson taking on the leadership of the PHRU. Over the past two years, the PHRU in Soweto has restored critical research infrastructure.

After re-engineering support services, and having successfully applied for two capital expenditure grants from Wits, we have rationalised and modernised our back up power - installing a 250kVA generator capable of providing power for 24 hours, replacing dangerous wiring, and installing modern switchgear.



The Unit has upgraded the IT infrastructure - installing a 30Mb/s fibre internet connection, updating email services and replacing ageing laptops and PABX.

Our clinical research pharmacy has had major renovations, creating additional space for new freezers and laminar flow hoods that are a vital part of our capacity particularly as PHRU expands its vaccine-related research. We continue to build research infrastructure at the Klerksdorp Tshepong Hospital Complex in the North West Province, and have a small research lab capable of processing immediate specimens with daily courier service to Johannesburg, and soon will have installed a fibre internet network with Wi-Fi connectivity to the large parts of the Tshepong hospital. We have also funded multiple doctors and nurses to attend TB and HIV conferences both locally and abroad.

By December 2015, PHRU's five circumcision sites had circumcised over 100,000 young men. Finally we plan to expand our collaborations and build research infrastructure in Limpopo where we have several small projects in Vhembe, a health district with the lowest annual TB incidence in South Africa, as a counterpoint to Matlosana which has an extremely high TB burden.

Research highlights

Investigators at PHRU were co-authors of 42 and 47 internationally peer-reviewed publications in 2014 and 2015, respectively; many in high impact journals and PHRU authors frequently occupied first or last author positions. Indeed, in 2015 alone, PHRU authors were part of three Lancet papers and one NEJM paper.

Our largest multi-year grant, the NIH-funded clinical research site (CRS) which is an international collaboration of researchers, contributes to the global HIV (Dr Ravindre Panchia) prevention, HIV vaccine (Dr Fatimal Laher) and treatment research agenda in both adults (Dr Lerato Mohapi) and children (Dr Avy Violari). In 2015, Dr Violari was notified of her successful application for a South African MRC US NIH grant that she applied for. In 2014, PHRU's Ms Jenny Coetzee (a PhD candidate) established a sex worker research programme in Soweto, providing HIV testing and referral services whilst gaining a better understanding of this under-reported predominantly non brothel-based cohort. Our research into HIV prevention has increased and PHRU was a primary contributing site to the recently completed multi-site FACTS study (co-Chair Professor Gray) which comprehensively showed that, overall, providing a vaginal antiretroviral agent to women to be used precoitally did not reduce new HIV infections in this group at extreme risk of HIV.

Using the five PHRU-managed high volume male circumcision sites, investigators at PHRU (Dr Lebina and Ms Milovanovic) have published on use of the PrePex male circumcision device in South Africa. PHRU was awarded four new major research grants during this reporting period together with multiple small awards. At any one time we run approximately 45 active studies. We continue to collaborate with international researchers predominantly in the US and UK. Mr Kennedy Otwombe, a PhD candidate, was funded for a short sabbatical at University of Gothenburg in Sweden and Dr Janan Dietrich, who recently obtained her PhD, collaborates widely with investigators at Simon Fraser University in Canada. We collaborate extensively with other Wits researchers: Professors Tiemessen, Morris, Puren, Papathanasopolous, Scott, Luke, Kana and Variava. Dr Omar, Kawonga, Cohen, Moyes, Gordhan and Lala were PHRU collaborators in various grant proposals and studies. The Unit has recruited several new research staff to build intellectual capacity at PHRU and trust they will become independent researchers capable of attracting their own research funding and publishing. Dr Brahmbatt, Kinghorn, and Buckley provide PHRU with new epidemiology, health economics and psychiatric research skills, respectively.

In Matlosana, North West Province, our satellite research facility now employs almost 150 people. With Professor Variava and the North West Department of Health, we have established an excellent clinical research facility capable of collaborating both locally and internationally on donor and pharma-sponsored research. In Klerksdorp, we have mentored four registrars in internal medicine to conduct their MMed research projects.

Sponsor	Project Title
National Institutes of Health – R21	A study of transmission risk behaviour in a clinical population of adolescents with perinatally-acquired HIV in Soweto, South Africa. PI: Dr Avy Violari
South African Medical Research Council and UK MRC Newton Fund	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) PI Dr N Martinson
US NIH TB Report	TB in hot and cold spots in South Africa:researching index cases and their households. A South Africa – Hopkins TB collaboration. (The SoHoT Study) PI Dr Martinson and Chaisson

Research events and initiatives

Using the MRC's Soweto Matlosana Collaborating Centre for HIV/AIDS and TB, we convened a research forum where new investigators presented and have had a call for small grant research proposals targeted at new investigators. PHRU has established a research presence in Limpopo province and have started collaborative work with the Department of Internal Medicine at the University in Limpopo.



PULMONARY INFECTION RESEARCH UNIT

Unit Director: Professor Charles Feldman

This Unit was initially established in 2001 as the "Human Ciliated Epithelium Research Unit" and underwent a name change in 2006 to the "Pulmonary Infection Research Unit". The main reason for the name change was because the focus of the basic research in the Unit, which has been investigating host-bacterial interactions, shifted away from research on the human ciliated epithelium to focus more on the bacteria. The Unit has undergone three successful five year reviews by the University, the last in 2014.

The main area of research interest in the Unit is in the field of community-acquired pneumonia, and particularly pneumococcal infections. The Unit undertakes both basic research as well as clinical studies. As indicated, the basic research has been investigating host bacteria interactions, to better understand pathogenic mechanisms in community-acquired pneumonia.

This initially included studies of the interaction of the major pneumococcal toxin virulence factors, including pneumolysin, hydrogen peroxide, hyaluronidase and neuraminidase, with human ciliated epithelium.

Ongoing basic research is currently investigating the interactions of pneumolysin, considered by many to be one of the most important toxin virulence factors of the pneumococcus, with human neutrophils. This has recently documented that pneumolysin induces neutrophil extracellular trap (NET) formation in human neutrophils, which may represent an additional mechanism by which pneumolysin may cause injury in the human host, particularly in severe infections. In addition we have continued to investigate the effects of cigarette smoke condensate (CSC), recognising that cigarette smoking is a major risk factor for pneumococcal infections, on the pneumococcus concentrating on pneumococcal growth, biofilm formation and the genetic changes that occur in the microorganisms on CSC exposure.

The Unit also participates in major clinical collaborations, including Community-Acquired Pneumonia Organisation (CAPO) with cases of community-acquired pneumonia being entered into a web-based case report form. A number of publications and conference presentations on various topics in community-acquired pneumonia continue to emanate from this collaboration.



SOWETO CARDIOVASCULAR RESEARCH UNIT

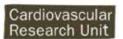
Unit Director: Professor Karen Sliwa











Professor Karen Sliwa and her team established a number of cohort studies in Soweto under the overarching name 'Heart of Soweto Studies' with the aim to investigate the prevalence, presentation and management of cardiac disease in an urban African population tertiary care as well as in the communities. These studies on more than 8000 patients, highlighted the high prevalence of hypertension, obesity and cardiac diseases in an urban African population.

The first seminal paper was published in the Lancet 2008 and since then more than 25 papers have emerged from this cohort **www.socru.org**. The impact of those studies was highlighted in Professor Sliwa's profile published in the Lancet 2014 and a further profile article published in the European Heart Journal 2015 highlighting her role as a global leader in cardiovascular medicine.

The Heart of Soweto studies have recently expanded under the umbrella of the 'Heart of Africa studies' to other African countries, including Mozambique, Nigeria, Tanzania, Kenya and Sudan. One of those cohorts has been the THESUS study on more than 1000 African patients with acute heart failure reporting on the predictors of mortality, gender differences and co-morbidities that have been published in since 2012. Those studies have provided data for the PhD thesis of Dr. A. Becker, Dr. L. Ntyinyane, Dr K Tibazarwa and Dr O Ogah. In addition they serve as a basis of postdoctoral research work for Dr D Ojji, Dr. K. Lamont, Dr. K. Tibazarwa and Dr. A. Dzudie funded via the NIH Millennium Fogarty Chronic Disease Leadership program and supervised by Professor Sliwa, Professor Libhaber and Professor Kerstin-Klipstein-Grobusch.

The REACH US SMS Project

The Reliable Equitable Accessible Healthcare Utilising SMSs (REACH US) study aims to understand the underlying issues that cause poor pregnancy outcomes by testing pregnant women's knowledge about risk factors that should be avoided. Dr K Lamont has published a paper in the Journal of Health Education in November 2015 surveying the literature; 'Short message service (SMS) as an educational tool during pregnancy: A literature review'.

Heart of Soweto Outreach Project

The successful "Heart of Soweto Hypertension and Heart Failure Management Programme" funded by the Medtronic Foundation USA 2010-2014 was expanded into a broader 'Chronic Disease Management Programme' to the Soweto Primary Health Clinics under Sandra Pretorius' leadership as part of her PhD thesis.

This has the aim to improve health outcomes in the increasing number of people affected by chronic disease of lifestyle as obesity, hypertension, heart failure and obesity.

The programmes incorporate awareness and education around healthy weight, blood pressure, glucose and cholesterol levels, and healthy eating, cooking and exercise (as demonstrated in the videos on www.hedu-africa.org.





Non-traditional factors for the development of non-communicable diseases

Data on 1311 subjects attending two primary health care clinics in Soweto, South Africa served as the basis to determine whether other environmental factors (including sleep duration, smoking and physical activity) are related to body anthropometry and blood pressure (BP). Anthropometric and BP measurements were taken. The data suggested that environmental factors rarely collected in African populations are related, in gender-specific ways, to body anthropometry and blood pressure. Further research is required to fully elucidate these associations and how they might be translated into public health programs to combat high levels of obesity and hypertension. Sandra Pretorius is the first author on the publication in Plos One, investigating the association between sleeping patterns and other environmental factors with obesity and blood pressure as part of her PhD thesis submitted.

Future Plans - Clinic in a CAN

The future plans of SOCRU are to focus on mobile health, increasing the dissemination of information via cell phone, website and mobile units such as Clinic in a CAN. In addition to this, the group will also focus on the effects non-conventional contributors such as sleep pattern and pollution may have to CVD.





WITS REPRODUCTIVE HEALTH AND HIV RESEARCH INSTITUTE (WRHI)

DIRECTOR: Professor Helen Rees

The Wits Reproductive Health and HIV Research Institute's (WRHI) areas of expertise cover HIV, sexual and reproductive health and, increasingly, vaccine preventable diseases, as well as the intersections between these key areas. During the biennium, the Institute continued to grow its research footprint and provide support to the formulation of key global and national policy and guidelines.

Wits WRHI has consolidated its leadership in the fields of both HIV treatment and prevention, completing several globally significant trials, and launching a number of new research initiatives on HIV treatment optimisation for adults and children. We have grown our focus on pre-exposure prophylaxis (PrEP) for HIV prevention in key populations, as well as our portfolio of work on the structural drivers of HIV. We completed a large cash transfer trial for HIV prevention in young women, and expanded several projects aimed at preventing violence against women and girls. Building on previous work, 2015 saw our research agenda expanding to include vaccine preventable diseases and, in partnership with other Wits University entities working in the field, we formed a consortium to strengthen vaccinology research in the southern African region.

Overall, the number of new grants awarded grew by an impressive 163%, from 16 in 2014 to 26 in 2015, while 76 manuscripts were accepted for publication and a further 12 are under review. Ten new staff received joint appointments within the Faculty during the year and 38 staff registered for postgraduate degrees, including 15 who registered for PhDs. In addition to Wits WRHI's research output, our contribution to policy development continued to gain global and local recognition.

The growing number of personal awards received by staff also reflects our leadership and expertise in the field. Wits WRHI hosted numerous high-level visitors from the USA and the UK, as well as a visit from the South African parliamentary portfolio committee for Science and Technology. Wits WRHI continues to go from strength to strength, and we look forward to consolidating this growth even further in the year ahead.



Research Highlights

2015 was another productive year for Wits WRHI. We completed several large trials and were awarded a significant number of new grants, including several where Wits WRHI is the lead organisation. We continued to strengthen our publication outputs and support to postgraduate students. Wits WRHI staff also received significant personal recognition in the form of awards, as well as invitations to speak at conferences, participate in conference organising committees or contribute to the development of new or revised policy guidelines. In 2015 in particular, we played a key role in the development of policies for pre-exposure prophylaxis for HIV both nationally and internationally.

In February 2015, Professor Helen Rees presented the results of the FACTS 001 trial, a multi-centre phase III licensure trial of tenofovir 1% gel at the Conference on Retroviruses and Opportunistic Infections in Seattle.

The FACTS consortium is an all-South African consortium and the largest medical research trial ever funded by the South African Departments of Science and Technology and Health. The trial was supported by USAID and the Bill and Melinda Gates Foundation (BMGF), and led by three Wits researchers – Professor Helen Rees, Professor Glenda Grey and Professor Sinead Delany-Moretlwe. This well-conducted trial showed that tenofovir gel was not effective in preventing HIV infection in young South African women and highlighted the urgent need for new HIV prevention methods for this group at high risk for HIV infection. Two other large, multicentre trials led by Wits WRHI researchers completed participant follow-up in 2015: The ASPIRE trial (MTN 020) is a phase III trial of the safety and effectiveness of a dapivirine-containing intravaginal ring. The trial enrolled 2 629 women across several sites in Africa and results are expected in early 2016. Dr Thesla Palanee-Phillips was the international co-chair of this trial. A trial comparing low dose stavudine (d4T) with tenofovir (TDF), led by Professor Francois Venter, also completed participant follow-up at the end of 2015. Wits WWRHI launched several new research initiatives in 2015 aimed at strengthening HIV prevention through the effective use of antiretrovirals.

Three grants were awarded for implementing science projects evaluating the delivery of pre-exposure prophylaxis to key populations, particularly sex workers and adolescent girls and young women, led by Professor Rees and Professor Delany-Moretlwe respectively. In addition, Professor Venter was appointed to lead a multi-partner consortium in a multi-year programme to evaluate dose optimisation of antiretroviral drugs. Key to these two initiatives is the expansion of HIV testing, and several research grants relating to the strengthening of HIV testing in key populations, particularly among adolescents and young women, were received. Grants were also awarded for the introduction of HIV self-testing. Wits WRHI was further acknowledged for its key role as a US Presidents Emergency Programme For AIDS Relief (PEPFAR) partner and was awarded additional funds to support the USAID/BMGF/Nike-funded DREAMS initiative aimed at reducing HIV infection in young women. This is a multi-component initiative, and Wits WRHI was recognised specifically for our experience with PrEP delivery, GBV prevention and integrated delivery of sexual and reproductive health services.

In addition to HIV prevention, several research initiatives targeting sexual and reproductive health and the intersection with HIV got underway. The ECHO trial, a large phase III trial to evaluate the safety of injectable contraception enrolled the first participant in late 2015. Complementary to this was the CHOICES study, funded by the National Institute of Child Health and Development (NICHD). This study collects observational data on the risk of HIV and STIs in young injectable contraceptive users. Wits WRHI continued to focus on the prevention of cervical cancer through HPV vaccination and we expanded our maternal immunisation research portfolio significantly. Professor Rees, together with colleagues from other entities across Wits, launched the NRFsupported African Local Initiative for Vaccinology Expertise (ALIVE) consortium – a 15-year plan to strengthen vaccinology research in the region. ALIVE has been selected by the University to be proposed as a National Research Foundation Flagship Project.



Dr Pierre M'pele, Professor Helen Rees, Dr Gillian Mellsop at the meeting

Research capacity building remained a focal point both through our in-house programme as well as through support for the Reproductive Health Research Methods Course. By the end of 2015, 41 staff was jointly appointed within the Faculty of Health Sciences, with 26 staff at the level of researcher or higher. In addition, 15 honorary joint appointments were approved. In 2015, Wits WRHI staff published 76 papers with an additional 12 under review at the time of submitting this report. All of these papers were in ISI-accredited journals, 35% were first or lastauthored by a Wits staff member, and 80% had an impact factor ≥3. Several new authors also published for the first time in 2015. Staff also presented 34 abstract-driven oral or poster presentations at international conferences, and gave a further 45 invited presentations across a range of platforms during the year under review.

Research Events and Initiatives

Wits WRHI has developed a comprehensive research capacity building programme aimed at postgraduates and research active staff aimed at strengthening publication outputs and increasing the throughput of postgraduate students.

The programme includes two manuscript writing workshops annually. In 2015, the 20 participants included staff from Wits WRHI as well as participants from the Mwanza Intervention Trials Unit in Tanzania, the London School of Hygiene and Tropical Medicine and the International Centre for Research on Women. Wits WRHI staff facilitated the workshop which led to the development of manuscripts to quite an advanced stage, with several being submitted by the end of 2015.

The weekly "One Hour Researcher" seminar launched in mid-2015 provided a regular forum for staff and invited speakers to present and debate their latest research findings and conduct short trainings.

By end of 2015, 18 sessions had taken place. A monthly STATA users group launched in 2014 continued to provide statistical software support to researchers. In 2015, 86 participants attended nine sessions. A similar workshop for qualitative researchers was held to train staff in the use of Nvivo.

Wits WRHI hosted the annual Research Methods Course in partnership with the South African MRC in 2014 and 2015. Fourteen participants from South Africa, Nigeria and Tanzania completed the course in 2015. Staff also contribute to teaching and training across the University through lectures and supervision of students.

Task force on immunisation urges the African region to strengthen routine immunisation systems

Professor Helen Rees chaired the Task Force on Immunisation meeting in Ethiopia in 2015 to review the progress made in improving immunisation in the African region and to strategise for the future. The TFI is the principal technical advisory group to the World Health Organization's Regional Office for Africa (WHO AFRO) on overall regional policies and strategies related to vaccines and immunisation.

The two-day meeting was attended by several Global EPI partners and the Federal Ministry of Health of Ethiopia. The international advisory group, which consists of senior experts in immunisation and is chaired by Professor Rees, concluded that the African region must make use of the polio "legacy" and lessons learnt to strengthen efforts to eliminate other vaccine preventable diseases like measles and rubella.



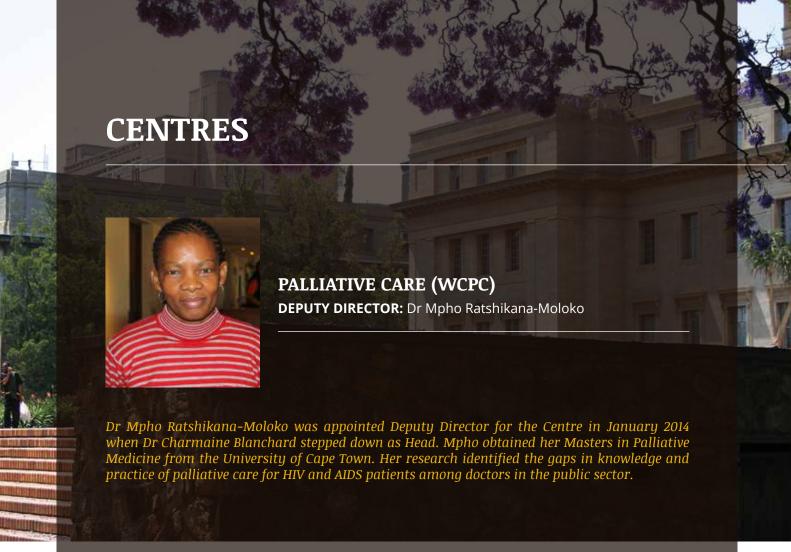
A key message that came across during the meeting was that health systems need to be strengthened and routine immunisation improved in order to sustain gains made and improve child survival interventions.

Vaccines, Viral Haemorrhagic Fevers or Vascular Disease - A Health Minister's Dilemma

Wits WRHI hosted a symposium to celebrate its 20-year anniversary to commemorate 20 years working towards better health outcomes in the field of sexual and reproductive health. A number of important guests debated issues around resource allocation in South Africa, including WRHI Director Professor Helen Rees; Wits Vice-Chancellor Professor Adam Habib; Professor Karen Hofman, Director of PRICELESS SA; public health specialist Dr Neil Cameron; WRHI Deputy Director Professor Francois Venter; and Professor Martin Veller, Dean of the Wits Faculty of Health Sciences. A special guest from the National Department of Health, Deputy Director-General Dr Yogan Pillay, was also part of the panel.

Professor Rees opened with a brief history of South Africa's public health challenges and responses from 1994 to the present, and gave some insight into WRHI's beginnings as a small Wits research unit, the RHRU, and its progress through the years. Dr Neil Cameron took the audience on a journey to rural Madwaleni in the Eastern Cape, and described some of the challenges in making sure that all South Africans have access to life-saving vaccinations. Professor Karen Hoffman explored how public health campaigns such as vaccinations could be made as cost-effective as possible, given that South Africa has a constrained budget and a number of pressing health concerns. Professor Francois Venter's dissection of the lack of evidence behind some of our most common perceptions about health was both surprising and entertaining and provided a great deal of food for thought. Professor Adam Habib's comments highlighted how important it is for public policy to serve those who need it most, and called for greater accountability from not only the state but also the private sector. Dr Yogan Pillay spoke on behalf of the Minister and the Department of Health on how health systems need to be strengthened to achieve public health goals and meet the needs of the underprivileged.





Wits Centre for Palliative Care (WCPC) was established in 2011 following the successful implementation of the N'doro project under the leadership of Dr Natalya Dinat.

N'doro is a Shona word meaning to heal. The N'doro model is based on the concept of healing. The N'doro Model uses a comprehensive approach to palliative care. It runs from within the existing public health system and so is firmly rooted in a rights-based approach to health care provision. Healing with palliative care involves the following core activities: Pain and symptom control; Psychosocial support for the patient and families; Spiritual care for the patient and families and bereavement support.

mission

The WCPC has a vision to provide equitable, quality palliative care for all.

our values

Celebrate life: Finding time to celebrate life

Accountable: Respond to the needs and expectations of internal and external

stakeholders

Respect: Respect, value and appreciate patients and colleagues
Equity: Ensure equity of access to palliative care services to all
Excellence: We strive for excellence in every aspect of our work
Ethical: We aspire to maintain ethical and professional standards



South Africa faces a quadruple burden of disease; HIV and AIDS, Maternal and Child mortality, non-communicable diseases, violence and injury. Palliative Care is defined by the World Health Organisation (WHO) as an approach that addresses patients and families facing life threatening illnesses and for pediatrics life limiting. According to the World Atlas of Palliative Care, only 1% of patients needing palliative care receive it.

In May 2014, the World Health Assembly (WHA) passed a resolution 67.19 "Strengthening of palliative care as a component of comprehensive care throughout the life course." South Africa, having led the process, is in the process of ensuring that palliative care is accessible to all who need it. The Centre provides the much needed palliative care services to patients facing life threatening conditions at CHBAH and surrounding areas, trains health care professionals and delivers consultative services to the Department of Health.

In 2014/15 the Centre had the following goals:

Goal 1: To deliver equitable accessible quality evidence based services to patients and families (CHBAH and the community of Soweto).

4,123 adult patients were seen during the review period, 1,080 of whom were new referrals. Early referral improves the quality of life of patients and their families. The Centre strives to provide consultation within 24 hours of referral and it is pleasing to note that 70% of patients were seen within this specified timeframe. Late referrals remain a challenge; 286 patients died before being assessed, while 307 were already discharged.

Cancer remains the most common diagnosis of patients referred to Palliative Care, accounting for 58% over the two years (see Figure 1). Patients who presented with cancer with a positive HIV status remain around 17.5%. Patients with an HIV status account for 33% of all patients. This however needs to be interpreted within the context of our referral pattern.

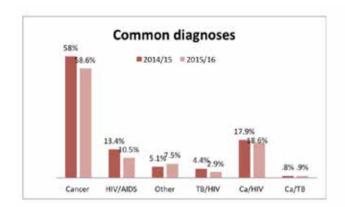


Figure 1: Common diagnoses

One of the key interventions provided by the Centre is to counsel patients and families to choose where to die – to die peacefully at home or at a hospice.

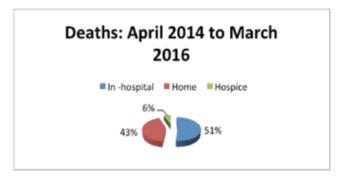


Figure 2: Total Deaths-FY2014-2015

Social interventions

Because palliative care deals with both the patient and the family, social interventions include all family members, and this goes beyond the death in the family. A total of 3,208 patients received intervention through the social worker. Table 1 highlights some of the interventions provided.

Social Interventions	Total number 2014/15 (1668)
Bereavement	232
Counselling	1289
Emotional support	1017
Grants	404
Placements/referrals	271
ID/Birth certificates	35
Adherence/health education	556
Information	1038
Spiritual	601

Table 1: Summary of Social interventions

Wits Paediatric Palliative Care (WPPC)

The WPPC offers a vital service to children and their families facing life limiting illnesses. The programme is privately funded, mainly by the Stephen Lewis Foundation, and other donations received through different sources.

WPPC has a staff compliment of one nurse, one social auxiliary worker (full time), one volunteer social auxiliary worker, one nurse (part-time) and one doctor (part-time). Because of the staff compliment and availability, the coverage is limited.

During the review, WPPC was able to conduct 862 consultations at the three major hospitals. In addition to social interventions for adults mentioned above, the Centre offerered the following additional support services:

- Advanced care plan: because of the lack of knowledge and not being given information to plan, our families find themselves not ready for the death of their loved ones. Through counselling, they are able to understand the trajectory of the diseases, plan, and be expectant of the death and undergo the much needed bereavement counselling
- Funeral support for destitute families who are not able to bury their children
- Healing services offered to the bereaved families.
- Support group for mothers who find themselves with children who have life limiting illnesses
- Health education on the different conditions and how to care for the children was available
- Transport for mothers who do not have money to come to the hospital.

The Healing Service

The Centre conducts a healing service, which provides an outlet for releasing emotions and receiving messages that the family would have given to the lost child. The release of the balloon is the final step of the journey.



Healing Service



WPPC staff - Sr Suzan Moloto, Ms Busi Nkosi, Dr Meenaz Ally, Ms Nonkosi Mteto, Mr Tlou Mothata



Beneficiaries of WPPC

Goal 2: To provide training in palliative care

1. Undergraduate training: Training is provided to the GEMP I to GEMP 4 students. In the final year, students have an opportunity to visit patients in hospitals, homes and hospice. In 2014, Paediatric Palliative Care was added as an additional platform for training GEMP 4 students. A total of 563 GEMP 3 and 496 GEMP 4 students were trained in 2014/15.

2. In service training:

- 1,726 newly appointed nurses received orientation in palliative care at CHBAH
- Palliative Care nurses received in-service training on how to use a syringe driver
- Sr Siza Nkosi training nurses on how to use syringe drivers
- Twenty-seven health care professionals were trained by the URC USAID TB programme on Basic TB/HIV management.

- 3. Ninety doctor interns: at CHBAH received training on Palliative Care through the Department of Internal Medicine.
- **4. Nurses from different hospitals:** attended a course on an "Approach to Palliative Care". Helen Joseph Hospital has since been able to provide support for their patients requiring palliative care.
- **5. Postgraduate training:** Registrars in Family Medicine underwent training and completed their rotation at the Centre. In addition two registrars completed their six month electives and five MSc Pain Management Physiotherapy students received training in palliative care.
- **6. Ancillary workers:** Six students from Bhikikazana, an organisation which trains Ancillary Workers, attended training in community based palliative care. These included:
 - HIV and TB screening Families of Palliative Care Patients
 - Wound care
 - Bed bathing
 - Mouth care
 - Monitoring of vital signs
 - Treatment supervision

Goal 3: To conduct research and publish in peer reviewed journals

The Centre conducts research which influences policy and provides evidence for clinical guidelines. Research projects include:

- The Spectrum of Malignancies Associated with AIDS in Palliative Care Patients at the Gauteng Centre of Excellence in Palliative Care at Chris Hani Baragwanath Academic Hospital, Soweto. M. Ratshikana-Moloko, C. Blanchard, K. Mmoledi
- Palliative Care and end of life issues among cancer patients in Soweto, South Africa. NIH Research grant collaboration with the Herbert Irving Comprehensive Cancer Centre (HICCC) at Columbia University, Medical Oncology, Respiratory Unit (Medical), Surgery and Palliative Care
- Bophelo Renal Project: in 2015 Rotary International expressed the interest to support Palliative Care initiatives. Syringe drivers were donated to the hospital for use by both Palliative Care and other wards. The Bophelo Renal project was initiated to introduce palliative care to end stage renal failure patients. The project has a spiritual care component which is being jointly done with the United Kingdom Health Care Chaplaincy Director, Ms Debbie Hodge. Training material on Spiritual Care was developed with Dr Charmaine Blanchard from the Centre.

Goal 4: To conduct Advocacy, Awareness and Communication

The Centre organised a number of activities to raise palliative care awareness during the review period.

- Gauteng Palliative Care Symposium the Centre co-hosted a symposium jointly with Care and Support for Improved Patient Outcome (CaSIPO) in October 2014. The aim of the symposium was to review the current situation of palliative care in Gauteng and to make recommendations for future policy development and planning Key stakeholders included: CaSIPO and their funders (USAID, FHI360); Dr Julia Moorman, (Lecturer, Wits School of Public Health), Dr Richard Lebethe (Chief Director Forensic Pathology) who represented Dr Barney Selebano (Acting HOD Gauteng DoH), Ms Sandyha Singh (Director NCDs; National DoH), Dr Liz Gwyther (CEO HPCA), and Ms Meisie Lerutla (Chief Director District Health Services)
- Hats 4CPC Awareness was raised globally to mark and celebrate the Hospice and Palliative Care Day as well as the Hats 4CPC (Children Palliative Care).
- Media Coverage SABC1 Ms Nonkosi Mteto, an Auxiliary Social Worker, spoke on SABC 1 – on paediatric palliative care. She highlighted the need for referrals and how to care for children with life limiting illnesses. KYKNET – Dr Charmaine Blanchard spoke about Palliative Care on Kyknet
- Super Heroes party One of the major fundraising events for the programme was the Momentum Cycle Challenge, where Super Heroes donate funds while participating in the race. A number of cyclists supported WPPC through this intiative – and the cyclists were able to meet the beneficiaries after the race
- Dinner with Atlantis Swimming Club In 2015, a fund raising dinner was organised by the Atlantis Swimming Club in Lenasia. An amount of R40000 was raised for the Centre at this event.



Super Heroes, Professor Velaphi

World AIDS Day 2015

At least 60% of our patients are infected or affected by HIV and AIDS. The World AIDS Day celebration on the 1st December 2015 was commemorated with children and families who are infected and affected by HIV and AIDS. Distinguished guests included Sr Susan Moloto, our Paediatric Nurse Clinician and three members from the Community Advsiory Board (CAB). In her keynote address, Sr Susan Moloto highlighted the importance of the prevention of mother-to-child transmission (PMTCT), especially to HIV positive pregnant mothers. She also emphasised the importance of giving HIV infected children their ARV (antiretrovirals).

Christmas Party for children

In 2015, despite the challenge of dealing with life limiting illnesses, children and their families were treated to a Christmas party and received gifts donated by different organisations.

Goal 5: To collaborate with other organisations on Palliative Care

The Centre continues to collaborate with various organisations and community centres.

- A collaboration with CASIPO (Care and Support to Improve Patient Outcome), a programme funded by the USAID through HPCA and FHI360 resulted in a successful Gauteng Palliative Care symposium.
- Dr Charmaine Blanchard and Sr Keletso Mmoledi were involved in the development of E-learning for palliative care; a project which was coordinated by the Hospice Palliative Care Associate (HPCA). The training material is available for use by different training health professionals.
- The Centre contributed to the development of National MDR TB Palliative Care guidelines. The workshop was arranged by the URC USAID TB Programme.







RURAL HEALTH (CRH)

DIRECTOR: Professor Ian Couper

As part of its on-going commitment to assisting the development of health care for all people in South Africa, the University of the Witwatersrand established the Centre for Rural Health in the Faculty of Health Sciences in 2008. The Centre's focus is on human resource development for rural health care through advocacy, teaching, research and policy through support and sustainability.

The conception of the Wits Centre for Rural Health (CRH) began in 2003 when the University's Faculty of Health Sciences recognised a demand for rural health care improvements. These demands were broken down and key areas were highlighted and targeted.

The Centre was seen as a long-term project but has since seen rapid growth where academic support and educational approaches are provided to both undergraduate and postgraduate health care students. The promotion of focused and team-related tasks by the centre has lead to the aim of recruiting and retaining as many health science students within rural communities due to the current shortage of such practitioners. Furthermore, collaborative research is performed in order to pin-point areas of focus for future directionality.

It is together with the University, partners and sponsors that the CRH has been able to take an active stance in the improvement of lives to those in lower socio-economic environments through rural development, access, relevance and affordability.

Master of Public Health (MPH) in the field of Rural Health

In its efforts to provide better health care to all people of South Africa, the Rural Health unit, in cooperation with the School of Public Health (SPH), offers a postgraduate degree, in the form of a Master of Public Health in the field of Rural Health, to health care workers practising or intending to practise in the rural areas of South Africa and Africa. There is a critical need for health care professionals in rural areas who can take leadership in supporting and developing the health service in these areas, in designing appropriate health systems, and in researching and advocating around the health needs of rural people. This field of study is aimed at addressing these needs.

The aims of the qualification are, within the rural context, to:

- · Provide students with the necessary skills to address the health needs of their respective rural communities.
- Enhance their public health knowledge to manage not only existing conditions but also to promote health and prevent diseases within the communities in which they practise.
- Enable them to be effective leaders in the health service, manage their resources, develop appropriate programmes, work with communities, and advocate on behalf of rural people.
- Enable them to monitor the effectiveness of their interventions through research and thus also provide evidence for other rural health care practitioners.

Structure

Students do the generic first year MPH and then take specific courses in the second year related to the field of study, as well as completing research in the field of rural health. Master of Public Health (Rural Health) students are awarded a Master of Public Health (Rural Health), after completing the required core and electives modules as part of their coursework and participating in rural based research.





STEVE BIKO CENTRE FOR BIOETHICS

DIRECTOR: Professor Ames Dhai

"It is better to die for an idea that will live, than to live for an idea that will die".- Steve Biko



The Steve Biko Centre for Bioethics is a university-based centre committed to the values of justice, dignity, respect and freedom - both intellectual and academic. The Centre is a Faculty Centre situated in the School of Clinical Medicine.

Staff at the Centre boast a wide range of expertise in ethics and they are deeply committed to furthering the discipline of bioethics in South Africa and internationally. Centre staff take pride in advising and consulting for policy makers at national and provincial level, as well as in programmes like Good Clinical Practise - and that is just the tip of the iceberg.

At national policy level, Centre staff provide advice and consultation in bioethics, human rights and health law for health sciences curricula, regulation, development and ethics in research for the country.

At an international level, Centre staff contribute to programmes in UNESCO, the European Commission and The National Institutes of Health (US) to name but a few. Centre staff also contribute to the development of bioethics and research ethics capacity on the different African regions.

The Centre expanded its postgraduate programmes during the review and graduated its first PhD in 2014, and two more in 2015. Details of their research can be found on page 78 of the report.

GRADUATE	THESIS
Ames Dhai – PhD 2014	A Study of Vulnerability in Health Research.
Mary O'Grady – PhD 2015	The Bioethical and Human Rights Challenges surrounding the HIV testing of women in South Africa and other sub-Saharan African Countries.
Gale Ure – PhD 2015	A hermeneutical analysis of the impact of socio-political and legislative developments on South African institutional mental healthcare from 1904-2004.

MSc Graduates - 2014

GRADUATE	RESEARCH REPORT	SUPERVISOR
Lineo Motopi	Human Papillomavirus (HPV) Vaccine immunisation as an intervention programme for the prevention of cervical cancer and other similar HPV genotype-related diseases in South Africa: Some ethical and legal matters for consideration	Professor Ames Dhai
Elphus Muade	The birth of a "saviour sibling": An ethico-legal appraisal	Dr Anthony Egan
Tracy Jacovides	The legal and ethical duty of the medical doctor to report police brutality	Dr Anthony Egan
Kishen Mahesh	Genomic sovereignty in South Africa: Ethico- legal issues	Dr Anthony Egan and Ms Robyn Fellingham
Patricia Sidley	Trust: A case study of the intersection of doctors' and journalists' ethics	Dr Kevin Behrens
Hilde Hendriks	The use of Cone-beam computed tomography (CBCT) by dentists for diagnostic purposes in South Africa. Ethical and legal issues	Dr Norma Tsotsi

MSc Graduates - 2015

GRADUATE	RESEARCH REPORT	SUPERVISOR
Gregory Green	Is the fee-for-service model for remuneration of medical practitioners in private practice morally justifiable?	Dr Kevin Behrens
Seeiso Koali	An account of human dignity able to entail dignity for the severely mentally disabled, inspired by sub-Saharan African thought	Dr A. Egan Dr C. Wareham
Annelie van der Westhuyzen	The use of pacifiers for non- nutritive sucking in South African neonatal intensive care units: Ethical considerations	Dr C. Wareham
Robai Lumbasyo	Towards a Kenyan legal and ethical framework on surrogacy	Dr A. Egan
Johanna Mathibe-Neke	The role of the South African Nursing Council in promoting ethical practice in the nursing profession: A normative analysis	Dr Kevin Behrens Ms Jillian Gardner
Aina Lundgren	Informed consent for genetic research in adult patients in a research entity in South Africa: an ethico-legal inquiry	Dr A. Egan Professor P. Cleaton-Jones
Patricia Marlow	Health practitioner's ethical obligations towards hunger-strikers	Dr C. Wareham Advocate Yolande Guidozzi

The Centre contributes to excellence in bioethics by:

- Developing national and international research programmes
- Ongoing curriculum development and teaching
- Collaborating with other developing and developed world-based bioethicists on training and research projects
- Advising health providers on policy matters, including resource allocation, rationing of health care services and monitoring standards of care for the ethical practice of the caring professions including medicine, dentistry, nursing, physiotherapy, occupational therapy, and pharmacy
- Providing an ethics consultation service at hospitals and clinics within the academic hospitals as well as the primary health care settings
- Providing NGOs and other community groups with health care ethics advice and
- Community outreach as a social responsibility

We list a few activities during the biennium.

The Dis-Eases of Secrecy: Project Coast Then and Now

The Steve Biko Centre for Bioethics, Wits Students' Bioethics Society (WSBS) and the South African Medical Association, Gauteng Branch hosted a public lecture entitled Dis-eases of Secrecy: Project Coast Then and Now on 3 June 2014. The speakers were Dr Chandré Gould, a senior research fellow in the Crime and Justice Division of the Institute for Security Studies and Brian Rappert, a Professor of Science, Technology and Public Affairs at the University of Exeter. The presentation explored the aspect of secrecy and disclosure related to confronting apartheid South Africa's chemical biological warfare (CBW) programme. Gould and Rappert focussed on Dr Wouter Basson who headed the CBW project, Project Coast. The speakers led the audience from Basson's Truth and Reconciliation process in the mid-1990s, to his conviction in December 2013 of four charges of unethical and unprofessional conduct brought against him by the HPCSA. In relaying his defences for both investigations, Gould and Rappert examined the role of selective disclosure in constructing a smoke screen to conceal.

In the lead up to the lecture, the newly formed WSBS ran a logo competition inviting submissions for their logo design and the winner was announced after the lecture. Laurinda Vorster won the competition with her submission, "Wall of Caduceus". Her design will be the marque of the WSBS. The lecture was chaired by the incoming Dean, Professor Martin Veller in his first duty as incoming Dean. The large student attendance was ensured by the WSBS's marketing efforts, yet is also indicative of the significance of South Africa's past to an emerging generation of healthcare professionals.

2014 Ethics Alive: The Right to Quality Healthcare

The annual Ethics Alive week was held from 10–15 March. The theme: *The Right to Quality Healthcare*, was informed by the amendment of the National Health Act (2013) which established the Office of Health Standards Compliance. The activities related to the overall theme as well as the context. Hospital talks were presented at four teaching hospitals during the week.

Ms Kirsten Whitworth, a Researcher at the Wits Centre for Applied Legal Studies spoke on

"The Right to Quality Healthcare" drawing on the law and her experiences as a lawyer and advocate. Dr Howard Manyonga, whose participation the week's activities was sponsored by the Medical Protection Society, spoke on "Shared Decision Making". The Undergraduate Student Symposium on The Right to Quality Healthcare was held on 12 March and brought together a panel of four speakers from different undergraduate programmes. Mitchell Gow (MBBCh) spoke on "Biopsychosocial Medical Care", Jason Earnshaw (BDS) challenged "Informed Consent", Maria Chrysostomus (BHSc) presented on the "Management of Multidisciplinary Teams", and Thabang Mokoena (BSc Nursing) addressed "Patient Advocacy". This was followed by extensive and lively discussion and debate. The Student Bioethics Society was launched to keep discussions on healthcare ethics and professionalism active throughout the year. The Symposium was co-facilitated by MBBCh students Brendan Savary and Zahraa Khotu and was well attended with a strong representation from Nursing Sciences.

The Ethics Alive Symposium was held on 13 March and was opened by Professor Adam Habib, Wits Vice-Chancellor and Principal, and chaired by Professor Judith Bruce, Head, School of Therapeutic Sciences. Professor Bonita Meyersfeld, Director: Wits Centre for Applied Legal Studies, spoke on The Right to Quality Healthcare focusing on the South African healthcare system's participation in enforcing economic apartheid and concluded that the apathy of citizens towards this injustice further drives this divide. Professor Laetitia Rispel, Head, School of Public Health (SPH) and Deputy Chair of the Board of the Office of Health Standards Compliance explained the role, function and mechanisms of the Office of Health Standards Compliance. Dr Carol Marshall, Cluster Manager: Office of Standards Compliance, was the respondent afterwhich an open discussion followed.

During the week, the Abu Asvat Institute for Nation Building teamed up with the Steve Biko Centre for Bioethics to present the 3rd Abu Asvat Memorial Lecture on *The Right to Quality Healthcare* as a satellite activity on 15 March. The keynote speaker was Professor Hoosen Coovadia, Director of Maternal Adolescent and Child Health Systems at Wits.



Dr Carol Marshall, Professors Judy Bruce, Ames Dhai, Mkhululi Lukhele, Laetitia Rispel, Bonita Meyersfeld

The Steve Biko for Bioethics Student Symposium

The Centre and the students of the Faculty hosted a student symposium as part of the annual Ethics Alive Week.

Thestructureforthisyear's eventwas a panel discussion where students from a number of our professional degrees addressed issues under the headings of:

- · Access to information;
- · Quality biopsychosocial patient care;
- · Interprofessional team work and
- · Patient advocacy

Members of the panel spoke for a short time and allowed for discussion from the floor. Students from all Faculties were encouraged to join the discussion in an effort to raise awareness of where South Africa's Healthcare System is as opposed to where we want it to be. Healthcare does not only concern health professionals but every member of society.



Facilitators and Participants at the Undergraduate Student Symposium L – R: Zahraa Khotu (MBBCh), Brendan Savary (MBBCh), Thabang Mokoena (Nurs Sci), Maria Chrysostomus (BHSc), Jason Earnshaw (BDS) and Mitchell Gow (MBBCh

A Morning of Ethical Reflection

"A Morning of Ethical Reflection" was co-hosted by the Centre and the SPH in October 2014. The guest speakers included Sir Michael Marmot, Professor of Epidemiology and Public Health at University College London and Professor Rutger Jan van der Gaag, Radboud University Medical Centre and President of the Royal Dutch Medical Association. Sir Michael Marmot, drawing extensively from his experience as the former Chair of the Commission on Social Determinants of Health and his international research efforts on social determinants, set about answering the question "Closing the health gap in a generation?"

He illustrated that both the knowledge and the means to achieve health equality is available. However, often access to the means is barred by political will. He further shared some success stories of developing nations that committed to the 'Marmot Plan' and managed to reduce the health gap between the high and low income groups in these countries.

Professor van der Gaag's talk was entitled "Doctors' and Patient's dilemmas on Dying with Dignity: The Legalisation of Euthanasia in the Netherlands". He explained that establishing euthanasia legislation was difficult but is now widely supported.

Recent data indicated that 2.8% of all deaths in the Netherlands were a result of euthanasia, thus use of this law is low. Each case is carefully evaluated by doctors in the specialised Support and Consultation for Euthanasia in the Netherlands (SCEN) health service. Professor van der Gaag's presentation can be downloaded from www.wits.ac.za/bioethics

Limiting Freedom for the good of others - A Public Health Challenge

Professor Vivienne Nathanson, Senior Director of Professional Activities at the British Medical Association, gave an inspiring presentation entitled "Limiting Freedom for the Good of Others: A Public Health Challenge" in 2015. In her talk she highlighted three models used in public policy: 'nannying', 'nudging' and the 'ladder of intervention'. Nannying refers to the policies that dictate what one may or may not do; nudging uses positive reinforcement to guide people towards making decisions that are thought to be good for them; the ladder of intervention prescribes an escalating approach from monitoring a situation and providing information up to restricting and eliminating choice. The challenges to changing policies and laws lie in acquiring support from the public, media and government.

Nathanson explained that civil liberties are an important part of the British democracy thus getting public support is critical. Learning to work with the media to make public information newsworthy has been an important learning curve.

When it comes to the social determinants of health, Professor Nathanson emphasised that it was key to make government see that 'every minister is a health minister'. This well attended and most interesting session was chaired by Professor Martin Smith, Head of the Department of Surgery.



L—R: Prof. Ames Dhai, Prof. Vivienne Nathanson, Prof. Martin Smith.

Reflections on end-of-life decisions

The Centre, in association with the Hospice Palliative Care Association of South Africa and the SPH, hosted an important and interesting evening of discussion and debate titled Reflections on End-of-Life Decisions in May 2015. The speakers, who provided an array of views on the subject, were Professor Willem Landman, Dignity South Africa; Dr Jabu Makhanya, Chief Nursing Officer at the National Department of Health; Professor Dan Ncayiyana, Past-editor of South African Medical Journal; Dr Liz Gwyther, CEO of Hospice Palliative Care Association of South Africa and Professor David McQuoid-Mason, Professor of Law, University of KwaZulu-Natal. Professor Ncayiyana suggested that South Africa is not yet ready for legalised euthanasia at this time, particularly as there is no functional and reliable framework of supervision to monitor its implementation, while Dr Gwyther contended that assisted dying is an unnecessarily extreme measure. She said that palliative care affirms life and regards dying as a normal process. She added that this type of care intends neither to hasten nor postpone death.

Professor Landman argued that the Constitution is the ultimate authority and that public debate on this contentious issue must stay clear from personal, religious or cultural beliefs and that it is important for public policy to be developed on the basis of the spirit, values and rights of the Constitution, while Dr Grootboom urged that patients must be included in discussions affecting their lives.

Ebola Colloquium 2015

The Centre got off to a flying start when it held an excellent Ebola Colloquium together with the SPH in February 2015. Dr Andrew Madina-Marino, Extraordinary Lecturer at the School of Health Systems and Public Health at the University of Pretoria, from MSF, presented the ethical dilemmas that he confronted in Liberia from the Médecins Sans Frontières point of view. This was followed by a response from Professor Ian Sanne who took the lead in terms of the South African response in West Africa. Both presenters were saluted for their powerful humanitarian contributions at the coal face.

WMA'S 50th Anniversary Celebration of the Declaration of Helsinki

Celebrations to mark the 50th anniversary of the Declaration of Helsinki on biomedical research were held by the World Medical Association in Helsinki on 11 November 2014. The Declaration has undergone seven revisions. Professor Ames Dhai, Director of the Centre, contributed to the 7th revision, which was adopted by the WMA in 2013. Delegates were addressed by the President of Finland, His Excellency Sauli Niinistö.

The ceremony highlighted the impact that the Declaration has had on protecting health research participants and attention was given to the current Ebola epidemic and the use of unproven interventions.

Professor Dhai spoke about Implementation of the DoH: Perspectives from the Developing World. In their press release, the WMA referred to Professor Dhai's message that "the moral authority of [the] Declaration was intricately linked with respecting the human dignity of participants in research and this was both implicit and pervasive in the Declaration and translated into safeguards for vulnerable participants" (WMA 11 November 2014). WMA President Dr Xavier Deau presented the latest version of the Declaration to President Niinistö marking the 50 years since the 1st edition was presented to His Excellency Urho Kekkonen, the President of Finland in 1964.



Speakers' table: Professor Ames Dhai with Professor Dominique Sprumont from the Institute of Health Law at the University of Neuchâtel in Switzerland

Ghosts from the Past: The Importance of the HPCSA's findings against Wouter Basson

The Centre co-hosted an evening seminar entitled Ghosts from the Past: the importance of the HPSCA's findings against Wouter Basson on 26 November 2014. In December 2013, the Health Professions Council of South Africa (HPCSA) found Dr Wouter Basson guilty of four out of seven charges of unprofessional conduct as head of South Africa's apartheid chemical biological warfare programme

(CBW) codenamed Project Coast. Project Coast engaged in research to develop a vaccine to sterilize black women without their knowledge, neurotoxins to incapacitate persons, and aerosol riot control agents. Sentencing began on 26 November. The speakers were Kathryn Smith, lecturer in visual arts at Stellenbosch University; Dr Chandré Gould, senior researcher at the Institute of Security Studies; Brian Rappert, Professor of Science, Technology and Public Affairs at the University of Exeter; and Verne Harris, Director of Research and Archive at the Nelson Mandela Foundation. Kathryn Smith presented her film entitled aka RRL. The film used audio from Basson's hearings and Smith's photographs from a recent visit to Roodeplaat Research Laboratories, one of the facilities Basson established as a front for Project Coast research.

The film provided a visual reference for Project Coast. Dr Chandré Gould and Professor Brian Rappert copresented Project Coast then and now. Delving into the activities of Project Coast, they described the use of CBWs on anti-apartheid activists, such as Reverend Frank Chikane, and civilians. Verne Harris gave a short talk on Ghosts of the past: The importance of remembering. Harris asserted that some of South Africa's 'memory work' projects have been ineffective in reckoning with the past, promoting reconciliation, and supporting social development. He criticised the TRC process for granting Basson and many others amnesty in exchange for their testimonies thus denying their victims justice. A discussion then followed. The programme was chaired by Professor Tawana Kupe, Wits Deputy Vice-Chancellor of Finance, Human Resources, Transformation and Advancement. The seminar was presented in collaboration with the Institute for Security Studies, Wits Students' Bioethics Society, the Nelson Mandela Foundation, Stellenbosch University, University of Exeter, and the South African Medical Association: Gauteng Branch.

UNESCO Ethics Teacher Training Course

An Ethics Teacher Training Course (ETTC), a collaborative effort involving UNESCO and the Steve Biko Centre for Bioethics, was held between 31 August and 4 September 2015. The course offered a unique opportunity for participants from South Africa, and from other countries in the region, to enhance their teaching and professional capacities in bioethics and ethics. It was designed to advance pedagogical capacity for ethics teaching and improve the quality of ethics education around the world.



The Seminar in session

Delegates came from as far afield as Egypt and Israel to name a few, to attend the course. This is the second time that UNESCO has offered such a course in Africa and the response was overwhelming. The Centre was privileged to be asked to be the host this time.

The course was conducted by a team of international and local experts with extensive experience in ethics education, and was based on a five-day training module developed by UNESCO in collaboration with global experts in ethics education. The three UNESCO trainers were Professor Amnon Carmi, Director of the UNESCO Chair of Bioethics established in 2001 at Haifa University in Israel, Dr Dafna Feinholz, Director, Division of Ethics of Science and Technology, UNESCO and Dr Masoud Nassor, Lecturer at the University of Dar es Salaam, Education Management.

Conference: Giving a Voice to African Thought in Medical Research Ethics

In December 2015, the Centre and the Philosophy Department at the University of Johannesburg cohosted the Conference entitled "Giving a Voice to African Thought in Medical Research Ethics".

The focus of the conference was to reflect on ethical issues in medical research through the lens of African ethical thought or philosophy, rather than merely on ethical issues affecting Africa. The intention was to encourage new work that applies salient sub-Saharan moral values or norms to pertinent questions in medical research ethics, thereby giving a voice to indigenous African moral perspectives. Presenters included health science academics, researchers, lawyers, bioethicists and clinicians involved in medical research.

The keynote address was given by Professor Godfrey Tangwa, of Cameroon, a former Vice-President of the International Association of Bioethics, and fellow of both the Cameroon and African Academies of Sciences. Professor Tangwa has been a leading figure in the development of African bioethics. Participants hailed from Uganda, Nigeria, Ghana, Turkey, Australia, the USA and South Africa. The Dean, Professor Martin Veller, pointed out in his welcome address that the theme of the Conference was particularly pertinent in a time in which universities are seeking ways to transform the curriculum to reflect the needs and values of our own African context.

The deliberations at the conference highlighted the following:

- Persistent concerns about exploitation and injustices in research in Africa, despite regulatory frameworks and guidelines
- The need for informed consent to be reconceptualised in ways which make it responsive to the indigenous worldviews
- Extreme concerns about the practice of obtaining 'blanket consent' for genetic research
- The important contribution that indigenous philosophy and thought can make to enriching our bioethical discourse. The Conference provided an excellent opportunity for networking and establishing collaborations. A selection of articles from the Conference will be published in a special edition of Theoretical Medicine and Bioethics in 2016. It was made possible by a grant from the Medical Research Council.

RESEARCH OUTPUT

PUBLICATIONS 2014

- 1. Ackermann C, Andronikou S, Laughton B, Kidd M, Dobbels E, Innes S, van Toorn R, Cotton M (2014). White Matter Signal Abnormalities in Children with suspected HIV-Related Neurologic Disease on Early Combination Antiretroviral Therapy. *PEDIATRIC INFECTIOUS DISEASE JOURNAL*, 33 (8), pp. E207 E212.
- 2. Ade N, Nam TL, Derry TE, Mhlanga SH (2014). The dose rate dependence of synthetic diamond detectors in the relative dosimetry of high-energy electron therapy beams. *RADIATION PHYSICS AND CHEMISTRY*, 98 pp. 155 162.
- 3. Adebayo E, Ataguba J, Uthman O, Okwundu C, Lamont KT, Wiysonge C (2014). Factors that affect the uptake of community-based health insurance in low-income and middle-income countries: A systematic protocol. *BMJ OPEN*, 4 pp. 1 5.
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- 10. Andronikou S (2014). Pediatric teleradiology in low-income settings and the areas for future research in teleradiology. *FRONTIERS IN PUBLIC HEALTH*, 2 pp. 1 5.
- 11. Andronikou S, Ackermann C, Laughton B, Cotton M, Tomazos N, Spottiswoode B, Mauff K, Pettifor JM (2014). Correlating brain volume and callosal thickness with clinical and laboratory indicators of disease severity in children with HIV-related brain disease. *CHILDS NERVOUS SYSTEM*, 30 pp. 1549 1557.
- 12. Andronikou S, Dehaye A, Boechat M (2014). WFPI virtual communications centre: a hive of e-mail activity. *PEDIATRIC RADIOLOGY*, 44 pp. 700 703.
- 13. Andronikou S, van Wyk MJ, Goussard P, Gie R (2014). Left Main Bronchus Compression as a Result of Tuberculous Lymphnode Compression of the Right-Sided Airways With Right Lung Volume Loss in Children. *PEDIATRIC PULMONOLOGY*, 49 pp. 263 268.
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CHAPTERS IN BOOKS

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Chapter 4.3.2 Short term rural placement for medical students

Chapter 5.1.3 Health service management training for rural doctors

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Part D conclusions and recommendations
Appendix I patient interviews
Appendix II forensic pathology
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ABBREVIATIONS AND ACRONYMS

ABMS - American Boards of Medical Specialty

ACS - Acute Coronary Syndromes ACTG - AIDS Clinical Trials Group

ACTION - African Centre for Obesity Prevention AfSPI - African Society of Paediatric Imaging AIDS Acquired Immune Deficiency Syndrome

ALIVE - African Local Initiative for Vaccinology Expertise

AMC - AIDS Malignancy Consortium APOL1 - Apolipoprotein L1 ART - Antiretroviral Treatment

ARV - Anti-Retroviral

ASCO IAC - American Society of Clinical Oncology

International Affairs Committee

ASLM - African Society of Laboratory Medicine

ATLS - Advanced Trauma Life Support BHSc - Bachelor of Health Sciences

BIGOSA - Breast Interest Group of South Africa BNCA - Bedside Neurocognitive Assessment

BNCA - British Columbia Neurocognitive Assessment

BP – Blood Pressure BSc – Bachelor of Science

CAANS - Continental Association of African Neurosurgical Societies

CAB - Community Advisory Board

CANSA – The Cancer Associatgin of South Africa

CAPO - Community-Acquired Pneumonia Organisation

CaSIPO - Care and Support for Improved Patient Outcome

CASSA - Cardiac Anaesthesia Society of SA CBCT - Cone-Beam Computed Tomography

CBS - Charred Body Scale CBW - Chemical Biological Warfare CEO – Chief Executive Officer CGS - Crow-Glassman Scale

CHBAH - Chris Hani Baragwanath Academic Hospital

CHRU - Clinical HIV Research Unit CIMT - Carotid Intima Media Thickness

CKD - Chronic Kidney Disease

CLMRU - Carbohydrate and Lipid Metabolism Research Unit

CMJAH - Charlotte Maxeke Johannesburg Academic Hospital

CMSA - Colleges of Medicine of South Africa CNS - Congress of Neurological Surgeons

CPC - Children Palliative Care CRH - Centre for Rural Health

CROI - Conference on Retroviruses and Opportunistic

CSC - Cigarette Smoke Condensate CSI - Corporate Social Investment CT - CardioThoracic Surgery

D4T - Dose Stavudine

DCM - Dilated Cardiomyopathy

MDG - Millennium Development Goals

DHET - Department of Higher Education and Training

DMPA - Depot Medroxyprogesterone Acetate

DNA - DeoxyriboNucleic Acid, DOH - Department of Health

DPHRU - Developmental Pathways for Health Research Unit

ECRU - Effective Care Research Unit ED – Emergency Departments

EFV - Efavirenz

EM – Emergency Medicine ENT – Ear, Nose and Throat

ERS - European Respiratory Society

ESMOE - Essential Steps in Managing Obstetric Emergencies

ESRD - End Stage Renal Disease

ESRU - Empilweni Services Research Unit ETTC - Ethics Teacher Training Course FCL - Forensic Chemistry Laboratory

FCOG - Fellowship of the College of Obstetricians and

Gynaecologists of SA

FH- Familial Hypercholesterolaemia

FIFA - Fédération Internationale de Football Association

FoSAS - Federation of South African Surgeons

FPS - Forensic Pathology Service

FSGS - Focal Segmental Glomerulosclerosis GEMP – Graduate Entry Medical Programme G-NCA - Gauteng Neurocognitive Assessment HANC - HIV/AIDS Network Coordination HAND - HIV-Associated Neurological Disorders

HBeAg - Hepatitis B e Antigen HBV - Hepatitis B Virus

HCC - Hepatocellular Carcinoma

HE²RO - Health Economics and Epidemiology Research

HEDU Africa - Health Education Africa

HELTASA - Higher Education Learning and Teaching

Association of Southern Africa

HFL - National Horse Forensic Laboratory HHUS - Emolytic-Uremic Syndrome

HICCC - Herbert Irving Comprehensive Cancer Centre

HIV - Human Immunodeficiency Virus

HIVAN - Human Immunodeficiency Virus-Associated

Nephropathy

HJH - Helen Joseph Hospital

HMPG - Health and Medical Publication Group

HOD - Head of Department HPB - Hepato Pancreatico Biliary HPCA - Hospice Palliative Care Associate

HPCSA - Health Professionals Council of South Africa

HPV - Human Papillomavirus

HVDRU - Hepatitis Virus Diversity Research Unit

HVTN - HIV Vaccine Trials Network
IAEA - International Atomic Energy Agency

ICL - Instructional Course lecture

ICU - Intensive Care Unit

IDCM - Idiopathic Dilated Cardiomyopathy

ISICEM - International Symposium on Intensive Care and

Emergency Medicine

JPC - Johannesburg Perioperative Cardiothoracic

KID-CRU - Children's Infectious Diseases Clinical Research Unit

LAI - Long-Acting Injectable

LEOPARD - Latency and Early neOnatal Provision of Anti-Retroviral Drugs

MAC - Medical Advisory Committee

MACC - Ministerial Advisory Committee on Cancer Control

and Prevention

MBBCh - Bachelor of Medicine and Bachelor of Surgery

MCC - Medicines Control Council MCQ - Multiple Choice Questions

MDR TB - Multi-Drug-Resistant Tuberculosis MEDUNSA – Medical University of Southern Africa

MLFQ - Minnesota Living with Heart Failure Questionnaire

MMed - Master of Medicine

MO - Medical Officer

MOA – Memorandum of Agreement MPI - Myocardial Perfusion Imaging MRC – Medical Research Council MRI - Magnetic Resonance Imaging MSc - Master of Science

MSF - Médecins Sans Frontières

MYH9 - Non-Muscle Myosin Heavy Chain 9

ND - Narcotics Detector

NET - Neutrophil Extracellular Trap

NEUPSIG - Neuropathic Pain SIG

NHLS - National Health Laboratory Service

NICHD - National Institute of Child Health and Human

Development

NIH - National Institutes of Health

NIOH - National Institute of Occupational Health

NMCH - Nelson Mandela Children's Hospital

NRF - National Research Foundation

NSTF - National Sciences and Technology Forum

ORL-HNS - Otorhinolaryngology - Head and Neck Surgery

PABX - Private Automatic Branch Exchange

PACSA - Paediatric Anaesthesia Congress of South Africa

PCI - Primary Percutaneous Intervention PCNL - Percutaneous Nephrolithotomy

PEPFAR - Presidents Emergency Plan for AIDS Relief

PHODISO - Programme for Chronic Mental Disorders.

PHRU - Perinatal HIV Research Unit

PIRU - Pulmonary Infection Research Unit

PMTCT - Prevention of Mother to Child Transmission of HIV

PreC/C - PreCore/Core

PrEP - Pre-Exposure Prophylaxis

PRICELESS SA - Priority Cost Effective Lessons for Systems

Strengthening South Africa

PTB - Physikalisch-Technische Bundesanstalt

REACH US - Reliable Equitable Accessible Healthcare Utilising

RHRU - Reprodutcive Health Research Unit

RIF - Rifampicin

RMMCH - Rahima Moosa Mother and ChildHospital

RRI - Roodeplaat Research Laboratories

RSV - Respiratory Syncitial Virus

S1000 - Soweto First Thousand Days project

SA - South Africa

SA ANP - South African Association of Nuclear Physicians

SAAHE - South African Association of Health Educationalists

SAFSAS - Southern African Federation for Student Affairs and Services

SAGES - South African Gastroenterology Society

SAHCS - SA HIV Clinicians' Society

SAJCH - South African Journal of Child Health

SAJR - South African Journal of Radiology

SAMRC - South African Medical Research Council

SAOC - South African Oncology Consortium

SAPS - South African Police Service

SASA - South African Society of Anaesthesiologists

SASC - Scientific Agenda Steering Committee

SASNM - South African Society of Nuclear Medicine (SASNM)

SASOP - South African Society of Psychiatrists

SASPI – South African Society of Paediatric Imaging

SCEN - Support and Consultation for Euthanasia in the

Netherlands

SCM - School of Clinical Medicine

SCRU - Soweto Cardiovascular Research Unit

SEMDSA - Society for Endocrinology, Metabolism and

Diabetes of South Africa

SMCCC - Site Management and Clinical Care Committee

SMS - Short Message Service

SOCM - School of Clinical Medicine

SoMCHAT - Wits MRC Matisana Centre for HIV AIDS and

Tuberculosis SPH - School of Public Health

SRA - Serum Resistant Associated Protein

STEMI - ST-Elevation Myocardial Infarction

STIs - Sexually Transmitted Infections

STRIVE - Sierra Leone, Trial to Introduce a Vaccine Against Ebola

T.b - Trypanosoma Brucei

T2DM - Type 2 Diabetes Mellitus

TAU - Teaching Advancement at University

TB - Tuberculosis

TBTSG - TB Prevention Working Group TSG

TDF - Tenofovir

TFI - Task Force on Immunisation

TLC - Themba Lethu Clinic

TRC – Truth and Reconciliation Commission

TSG - Transformational Science Group

UCT – University of Cape Town

UJ - University of Johannesburg

UKZN - University of KwaZulu-Natal

UNESCO - United Nations Educational, Scientific and

Cultural Organization

URC – University Research Council

USA – United States of America

USAID United States Agency for International Development

WAMM - World Airway Management Meeting

WCPC - Wits Centre for Palliative Care

WCRH - Wits Centre for Rural Health

WDGMC - Wits Donald Gordon Medical Centre

WHA - World Health Assembly

WHC - Wits Health Consortium

WHISC - Women's Health Inter-Network Scientific

Committee

WHO - World Health Organisation

WHO AFRO - World Health Organization's Regional Office

for Africa

WHRG CTU - WITS HIV Research Group Clinical Trial Unit

WIRHE - Wits initiative for Rural Health Education

WITS – University of the Witwatersrand

WMA - World Medical Association

WPA - World Psychiatric Association WPPC - Wits Paediatric Palliative Care

WR – Registration Numbers

WRHI - Wits Reproductive Health and HIV Institute

WSBS - Wits Students' Bioethics Society

WSSS - Wits Students' Surgical Society

XDR TB - Extensively Drug-Resistant TB





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