Tygerland

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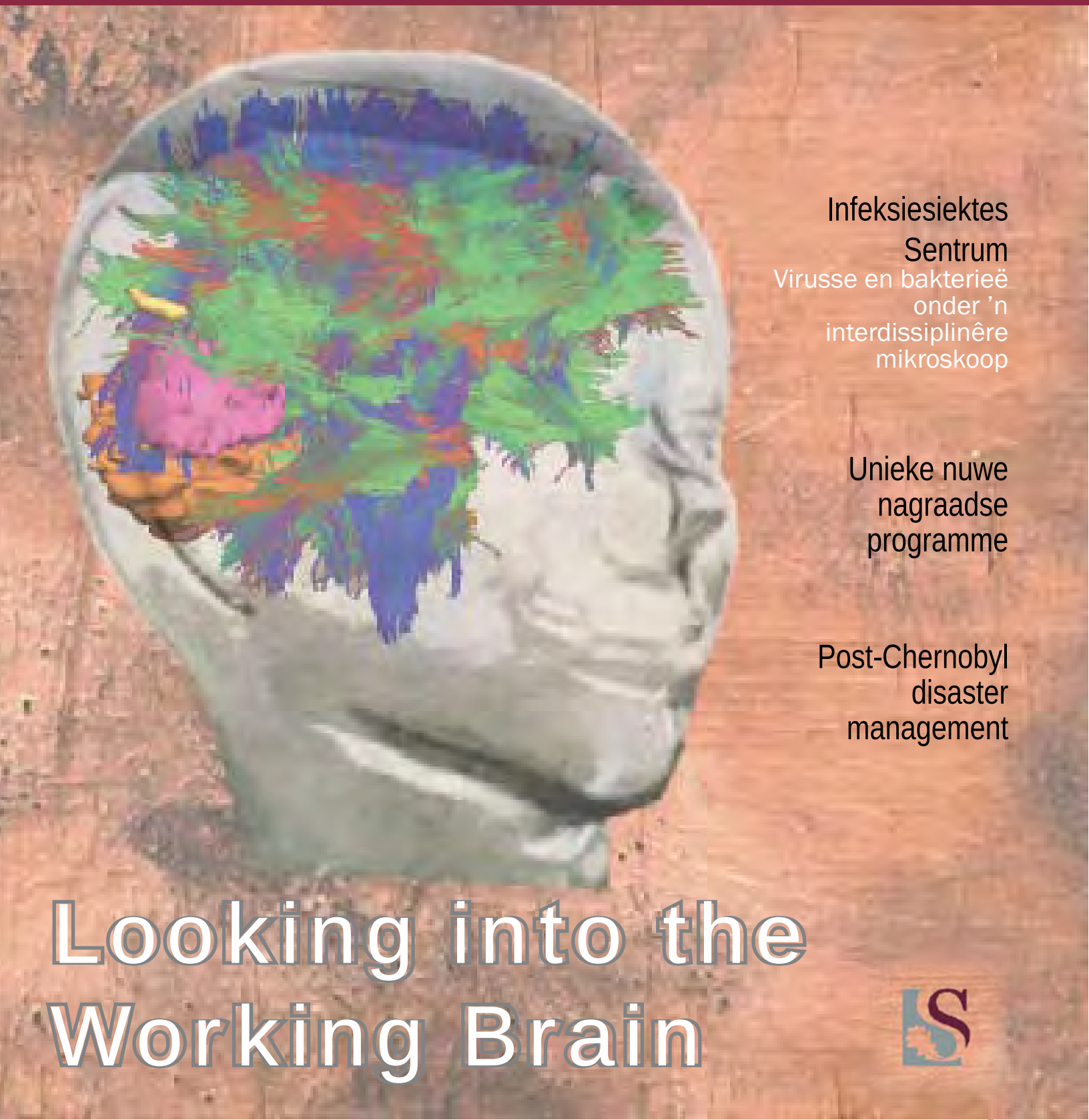


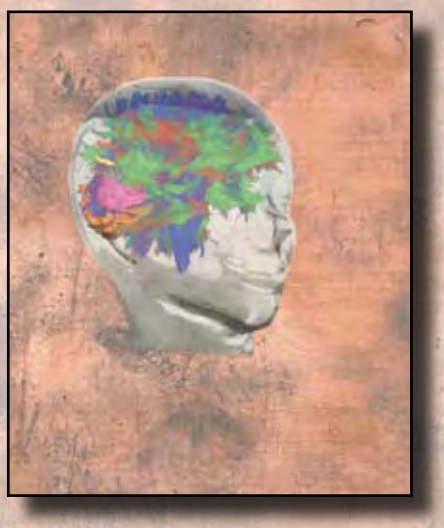
Infeksiesiektes Sentrum

Virusse en bakterieë onder 'n interdissiplinêre mikroskoop

Unieke nuwe nagraadse programme

Post-Chernobyl disaster management

Looking into the Working Brain



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Van die Dekaan se lessenaar

'Die FGW se lewendige navorsingsprogram fokus spesifiek op prioriteitsgesondheidsprobleme in Suid-Afrika, met verreikende voordele vir die Afrika-vasteland as 'n geheel. Navorsing wat in die Fakulteit gedoen word op sleutelgebiede soos Tuberkulose en MIV en Vigs het trouens 'n groeiende impak op gesondheidsbeleid – nie net in Suid-Afrika nie, maar ook in die buiteland' -

Wynand van der Merwe

Stroombelyn vir groei en ontwikkeling

Sedert die publikasie van ons feesuitgawe van *Tygerland* in 2006, het die US Fakulteit Gesondheidswetenskappe (FGW) 'n besonder vrugbare periode van stabiliteit en groei betree. Met die uitsondering van volgehoue uitdagings weens veranderings in die Gesondheidsdienste in die Wes-Kaap, het die veranderings en omwentelings van die laaste dekade grootliks tot 'n einde gekom en oor die laaste jaar het die Fakulteit die vrugte begin pluk van nuwe, stroombelynde akademiese- en steundiensstrukture. Omdat die personeel tans uitsluitlik kan fokus op ons kernfunksies soos onderrig, navorsingsuitnemendheid en gemeenskapsdiens- en interaksie, was daar in die afgelope jaar tientalle nuwe inisiatiewe en ontwikkelings op feitlik alle terreine en in die verskillende departemente en afdelings van die FGW.

Een van die belangrikstes hiervan was die vestiging van die nuwe breinbeeldingsentrum in die Fisangebou. Hierdie Sentrum, wat gesamentlik deur die US en die Universiteit Kaapstad benut word, is vroeër vanjaar op die Tygerbergkampus ingerig en speel sedertdien 'n sleutelrol in 'n groot aantal projekte wat deur navorsers van die twee universiteite bedryf word. Terselfdertyd help die sentrum, wat toegerus is met die hoogs moderne 3 Tesla breinskandeerder, om die druk op MR-skandeerders by Tygerberghospitaal en Groote Schuur te verlig (bl. 5 - 9).

Op navorsingsvlak het die Visedekaan: Navorsing, prof Jimmy Volmink, 'n leidende rol gespeel om te verseker dat navorsers die beste ondersteuning moontlik kry om hul voortreflike werk van die afgelope jare met hernieude momentum voort te sit.

Die FGW se lewendige navorsingsprogram fokus spesifiek op prioriteitsgesondheidsprobleme in Suid-Afrika, met verreikende voordele vir die Afrika-vasteland as 'n geheel. Navorsing wat in die Fakulteit gedoen word op sleutelgebiede soos Tuberkulose en MIV en Vigs het trouens 'n groeiende impak op gesondheidsbeleid – nie net in Suid-Afrika nie, maar ook in die buiteland (bl. 14 - 19). Dit is ook bemoedigend dat eweknie-beoordeelde publikasies uit die Fakulteit oor die afgelope jaar 'n baie betekenisvolle toename getoon het, vergeleke met 2005.

Befondsing vir navorsing

'n Aansienlike toename in plaaslike en buitelandse navorsingsbefondsing van organisasies soos die Europese Unie, die Amerikaanse *National Institutes of Health* en die Bill en Melinda Gates-stigting, het weereens hierdie organisasies se vertroue in die Fakulteit se navorsingskapasiteit en kundigheid bevestig. Benewens toekennings vir, onder meer, MIV en Vigs, tuberkulose en voorgeboortelike blootstelling aan alkohol in hoë risikobevolkings, het die FGW ook substansiële befondsing ontvang vir die *South-to-South*-projek, wat gemik is op die opleiding van gesondheidswerkers in Afrika tov die behandeling en versorging van pediatriese MIV en Vigs (bl. 35).

New projects in Research

In the field of research, Prof Volmink has launched a range of new initiatives aimed at entrenching SU and the Faculty in particular, as a South African leader in innovative research. The *Strengthening Clinical Research Initiative* focuses on capacity building, promoting a stronger research culture, marketing research opportunities and securing improved funding for research. The project targets students on the Masters level as potential future re-

searchers. It is also aimed at the design and implementation of a Faculty-wide training and mentoring programme in clinical research; identifying the needs of postgraduate students and providing targeted support to established researchers and research promotors.

The Faculty has expressed willingness to commit strategic resources to the programme because it has significant potential to lead to an increase in high quality publications, greater relevance and usefulness of research outputs and higher levels of research subsidy.

New projects in Education

In this area of activity, the Deputy Dean: Education, Prof Marietjie de Villiers has led the way in addressing the needs of the postgraduate community. On the recommendations of the Postgraduate Planning Group, the establishment of a Postgraduate Office is currently receiving attention.

The first step towards this target, is a virtual Postgraduate Office that will soon be prominently positioned on the FHS website and will fulfill a welcoming, marketing and advisory role for prospective and current Web visitors. The intention is to establish a virtual postgraduate home that will reflect the many varied and desirable options available on the Tygerberg Campus. It will also reflect and communicate the many diverse postgraduate options available from the various departments and divisions, and across all disciplines.

Postgraduate programmes

In this edition of *Tygerland*, we provide an overview of our new postgraduate programmes – a number of which are unique to South Africa. These include, among others, underwater and hyperbaric medicine, emergency medicine and infection control courses. The new MMed, MPhil en MSc programmes in Emergency Medicine – presented in co-operation with the University of Cape Town – are the first of their kind in the country and proved to be extremely popular from the outset.

There has also been a steady increase in the number of postgraduate students registered at the Faculty. Our success in this regard has been boosted by the popularity of technology-mediated telematic programmes, as well as various traditional residential programmes - all of which have drawn students from all parts of Africa, the Middle East, Europe, the United States and beyond.

Read more about our new postgraduate programmes on p. 28 - 33.

Academic achievements

As a research-based institution, operating in a country with an unique and diversified disease profile, the FHS has at its disposal the knowledge and expertise of health care leaders who enjoy national and international recognition. As in the past, they were again called upon to contribute to a series of text books in fields such as Psychiatry, Nursing Practice, Family Medicine, Infertility, Radiology Imaging, Tuberculosis, HIV, Child Health and others.

Read more about the books, recently published by academics of the FHS, on p. 36 - 37.

Recognition of excellence

The Faculty received international recognition for excellence in a number of areas. An experts' report of the International Atomic Energy Agency (IAEA) describes the Nuclear Medicine division of the FHS and Tygerberg Hospital as 'an example of a Centre of Excellence in Nuclear Medicine'.

Faculty expertise in the field of nuclear emergencies was extended through co-operation with national and international organisations to establish a centre of excellence for the medical management of nuclear emergencies in South Africa at the Tygerberg academic complex (p. 24 - 27).

On the research level, the Faculty's experimental animal centre received international accreditation from the American Association for Assessment and Accredi-

tation for Laboratory Animal Centres (AAALAC), which means, *inter alia*, that the centre is now well-positioned for international funding for experimental animal research. The FHS centre is the first in Africa to receive accreditation from AAALAC.

The FHS Centre for Health Sciences Education was officialy launched in 2006 and a unique MPhil programme in Health Sciences Education has since been developed and accredited (p. 32). The Faculty's reputation for excellence in this field was further enhanced when the Foundation for the Advancement of International Medical Education and Research (FAIMER) awarded a fourth fellowship to one of our academics. Stellenbosch University is currently the only academic institution worldwide with four FAIMER fellows.

Strategic partnerships

International co-operation was further extended during the year through formal co-operation agreements with universities in the Netherlands, Norway and the United States. These agreements include, amongst others, transcontinental teaching and academic exchange programmes. The Virology division also concluded international co-operation agreements with overseas partners, especially regarding the development of a cost-effective system to monitor problems inherent in antiretroviral treatment programmes such as drug resistance.

One of the most important strategic initiatives of the past decade comprised co-operation agreements between the FHS and partners in South Africa's private health sector, for the benefit of training and research excellence. This initiative was largely prompted by financial pressures on the health sciences country-wide as a result of the State's reduction of financial resources for health services. During the year, the Faculty's partnership with the Medi-Clinic Organisation was renewed. This partnership makes provision for substantial funding over a period of two years for postgraduate training and research. Support from Medi-Clinic has already made indispensable contributions towards the strengthening of our postgraduate training platform – amongst others in Neurosurgery, Obstetrics and Gynaecology and Physiotherapy. At the same time, Radiology practices in the private sector decided in 2006 to establish a new chair in Radiology at the Stellenbosch FHS to ensure that training and research in this highly specialised field keep track – and even take the lead – with regard to rapid technological developments in the discipline.

The renewed Medi-Clinic agreement also makes provision for seeding funds for the establishment of the Faculty's new, multi-disciplinary Centre for Infectious Diseases (p. 10).

This centre was conceptualised in 2006 to provide for the growing need for expertise and research in the field of infectious disease control in South Africa and formalises and extends previous co-operation between various disciplines in the Faculty. It currently offers an important platform for multi-disciplinary research with a strong focus on clinical research – which makes it unique in South Africa.

Diversity profile

Like Stellenbosch University, the Faculty of Health Sciences is committed to contribute towards rectifying historical disparities and inequalities within the tertiary educational system. Since 1996, our selection policy and procedures have been amended to reflect our intention to change the demographic profile of our students to bring it eventually into alignment with the country's population profile - using the composition of the Western Cape's population as the first target.

Successes achieved in this regard are reflected by the fact that the number of black medical students has consistently exceeded more than 60% of first year enrollments for the past four years.

The selection process is supported by various initiatives, including the active recruitment of black students from more than 400 schools, a winter school presented exclusively for black students from all over the country and excellent support programmes that have helped to ensure an exceptionally high pass rate of over 90% for all programme groups at the FHS.

No other Stellenbosch faculty has recently achieved a similar pass rate.

Capacity building

The Faculty's participation in an African context is extending progressively year after year, and 2006/2007 was no exception. Most departments report increasing co-operation with academic and health institutions on the continent and beyond, especially in the field of training and postgraduate research. There is still a wealth of untapped possibilities waiting to be explored and I have no doubt that this will continue to develop in 2008 and beyond.

Ten slotte

Die Fakulteit moes oor die laaste jaar totsiens sê aan 'n aantal gewaardeerde kollegas en oud-kollegas. Dit was veral hartseer om afskeid te neem van kollegas wat in die tuig oorlede is, en studente wat op die drempel van die lewe en hul loopbane gestaan het.(bl. 43 - 48).

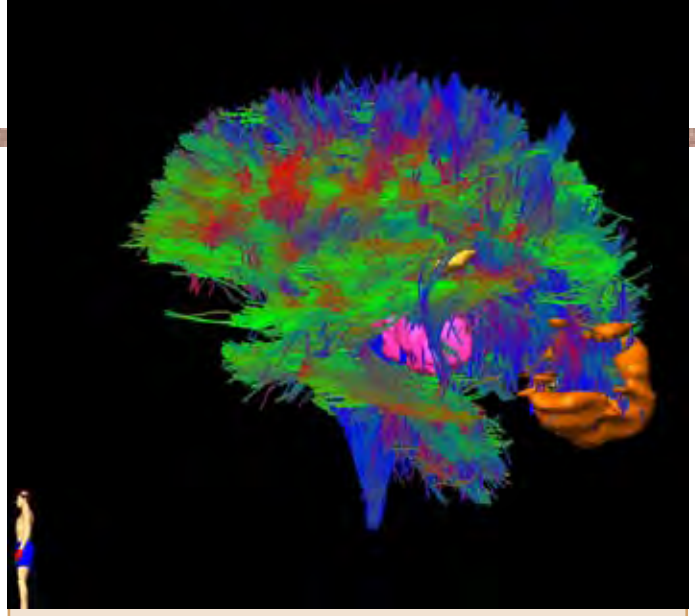
Ons dink met dankbaarheid en waardering aan hulle, en ook aan afgetrede, oud-kollegas wat oor die jare bydraes van onskatbare waarde tot die Universiteit en hierdie Fakulteit gemaak het. Namens die Fakulteit, wil ek graag ons opregte meegevoel aan al hul geliefdes en naasbestaandes betuig.

In the samestelling van die inhoud van *Tygerland*, kan ons uit die aard van die publikasie, op slegs 'n beperkte aantal onderwerpe fokus. Ons hoop egter dat hierdie seleksie, tesame met die fakulteitsnuus wat ons kwartaalliks aan u oordra by wyse van die elektroniese nuusbrief, *Adrenalien,* 'n volledige oorsig bied van die aktiwiteite, inisiatiewe en prestasies van u alma mater – en dat ons op hierdie wyse kan voortgaan om die band tussen die Fakulteit, en u, ons gewaardeerde oudstudente en alle ander belangrike vennote en belanghebbers – deurlopend te verstewig.

Met vriendelike Tygerberggroete,

Wynand van der Merwe
Dekaan
Fakulteit Gesondheidswetenskappe
Universiteit Stellenbosch

A window into the WORKING BRAIN



One of CUBIC's first examples of the value of the scanner in the clinical field, includes images obtained for Dr Roger Melvill, a local neurosurgeon, of the brain of a patient suffering from a brain tumour. Using the scanner's powerful ability to measure brain activation, the surgeon utilised CUBIC's facilities to locate the Wernicke speech centre (yellow) relative to the tumour (pink). A new fibre tracking technique was also employed to visualise important nerve fibre pathways relative to the tumour. This enabled the surgeon to avoid these critical areas while removing the tumour. The patient is doing very well after the operation and his speech centre appears to be perfectly intact.

Basic and clinical neuroscience research in South Africa received a most important boost in 2006 when Stellenbosch University, with support from Siemens and the University of Cape Town, acquired a state of the art magnetic resonance imaging (MRI) brain scanner. Known as the Siemens 3 Tesla Magnetom Allegra, the scanner is the most advanced brain imaging tool on the market today, and the first of its kind in Africa. It is also a powerful research tool that not only produces extraordinarily detailed images of brain structures but is also capable of measuring tissue biochemistry and observing changes that occur in the brain as it processes information.

Academic staff from the SU Faculty of Health Sciences, with the support of scientists from the University of Cape Town, played a leading role in negotiations with the international partner, Siemens, who provided the scanner to the Faculty at extremely favourable terms. At a cost of R6 million, Stellenbosch University constructed a special centre in the basement of the Fisan building on the Tygerberg Campus to house the scanner as well as an electroencephalography (EEG) laboratory, a near infra-red spectroscopy (NIRS) facility and research and patient facilities. The University of Cape Town supports the Centre by paying staff salaries. Known as the Cape Universities Brain Imaging Centre (CUBIC), the new facility is a hub of research and clinical activities, actively utilised by academics and medical staff from the Universities of Stellenbosch and Cape Town, as well as clinicians from the private sector.

"When the idea of the centre took shape, we were acutely aware of the pressure on clinical time on the MRI facilities at both Tygerberg and Groote Schuur hospitals - an effect that filters down to the secondary hospitals with very long waiting lists. As part of SU's commitment to teaching and learning within a service environment, we have entered into agreements with the province to provide a part time clinical service to relieve some of the pressure," says Dr Carey, who is also the co-director of the brain imaging programme in SU's Department of Psychiatry.

In this edition of *Tygerland*, we focus the spotlight on the capabilities of the new scanner and some of the research that will be conducted by scientists from the two Western Cape universities.

Research projects currently conducted in the Centre are aimed at contributing to global efforts in this field, especially with regard to problems that are relevant to the developing world. Thus the scanner is actively used by researchers of the MRC Unit for Anxiety and Stress Disorders. Carey points out that "the increasing sophistication of structural and functional brain imaging techniques has led to the demonstration that specific neurocircuits are involved in the mediation of a number of the major anxiety disorders, and also that both pharmacotherapy and psychotherapy are able to normalize dysfunctional neurocircuitry in some of the anxiety disorders".

The Psychiatry department's brain imaging project focuses in particular on the interaction of psychopharmacology and functional imaging. "Brain imaging carries an enormous potential in understanding trauma and resilience – and in this regard, the acquisition of the 3 Tesla scanner and the establishment of CUBIC have been significant developments."

Collaboration projects between the researchers of the Universities of Stellenbosch and Cape Town are focused on impulsive behaviour such as violence, sexual risk taking and substance abuse as well as neuro-Aids. The research ranges from molecular studies to brain imaging, clinical research and epidemiology.

However, the scanner will also be harnessed by clinical researchers to address major diseases such as HIV and Aids, and tuberculosis.

Wondrous technology

On the Tygerberg Campus of Stellenbosch University, a state of the art magnetic resonance imaging scanner – the Siemens 3 Tesla Magnetom Allegra – has opened a new window on the workings of the human brain.

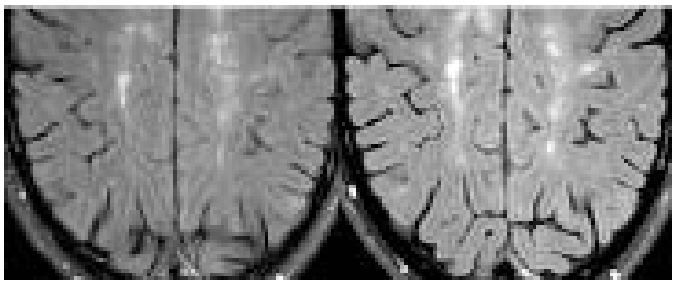
In March this year, the SU Faculty of Health Sciences, with the support of the University of Cape Town, and an industrial partner, Siemens, acquired a new, state-of-the-art magnetic resonance scanner, to be utilised by researchers and hospitals in the Western Cape.

Installed in the Fisan building, the new scanner came into operation early in April and since then clinicians and researchers, under the guidance of a MRI physicist of the University of Cape Town, Dr Bruce Spottiswoode, have been exploring the capabilities of this sophisticated new equipment.

Spottiswoode explains that the Siemens 3 Tesla Magnetom Allegra scanner is a compact, small bore, dedicated brain MRI scanner and as such, much faster than other MRI scanners as its scans at very high resolution, thus allowing for faster scanning of thinner slices. As a result, the scanner is capable of three dimensional imaging. The scanner can generate morphological, three dimensional scans of the head in just a few minutes. Slices can be reconstructed in any orientation, given the volume of the data. It can also produce very high resolution angiograms without the administration of contrast agents.

"It is the first scanner of its kind in Africa and certainly the most advanced brain imaging tool on the market currently."

In processing data from the scanner over the past few months, Spottiswoode and the researchers have developed their own in-house expertise, some of which he demonstrated to *Tygerland*.



The image (left) was acquired on a 1.5 Tesla scanner and is 5mm thick in 3:09. The image (right), acquired on the 3 Tesla scanner is 3mm thick in 1:57

Brain imaging can be broadly divided into structural and functional imaging. Structural imaging reveals the structure of the brain and is used to diagnose brain diseases such as tumors and brain injuries, while functional MR imaging is used for neurological and cognitive science research, as well as clinical diagnoses.

The new 3 Tesla scanner is equipped with software for functional MRI (fMRI) – currently the pre-eminent form of neuroimaging worldwide, and a powerful research tool since it enables safe research on healthy subjects which can be compared to the findings of subjects suffering from disorders where

SIEMENS

A vital partnership

Siemens is proud to be able to support the important local research currently being conducted in the new Cape Universities Brain Imaging Centre (CUBIC), says Mr Sigi Proebstl, chief executive of Siemens Southern Africa the research agreement between his company and Stellenbosch University.

Siemens made a significant contribution towards the University's acquisition of a state of the art MRI brain scanner, which is central to the research conducted by CUBIC.

"The Siemens 3 Tesla Magnetom Allegra is one of the most advanced brain imaging scanners on the market today and will be the perfect machine to assist with the research being conducted into the effects of both Foetal Alcohol Syndrome and HIV on the brain.

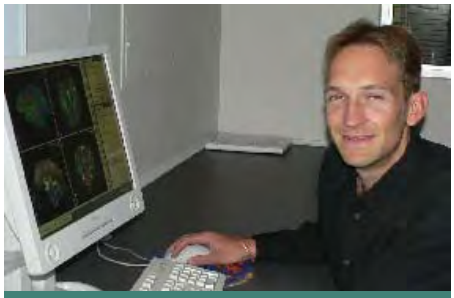
"We are fully aware that local research is on par with what can be produced internationally and the work being done by the Universities of Stellenbosch and Cape Town is testament to that," he says.

Proebstl adds that Siemens has always taken its role as a committed corporate citizen very seriously.

"We have a comprehensive approach to corporate social responsibility with a wide range of activities focusing on improving the lives of all South Africans. This partnership with SU heralds an important first in South Africa, and even the region, and will hopefully contribute significantly to our existing pool of knowledge.

"The Magnetom Allegra is ideally suited for this type of research as it is the only scanner designed and optimized for 3T brain scanning. It is small in size with 3T field strength and fastest gradients".

The short design of the Magnetom Allegra makes it ideal for paediatric patients, since parents or accompanying persons can hold the hand of the child during examinations. Extremely fast gradients enable coverage of the entire brain at a speed of 20 slices per second. The fast gradients minimize the echo-spacing and reduce EPI geometric distortions, enabling excellent image quality.



Dr Bruce Spottiswoode, director of the Brain Imaging Centre.

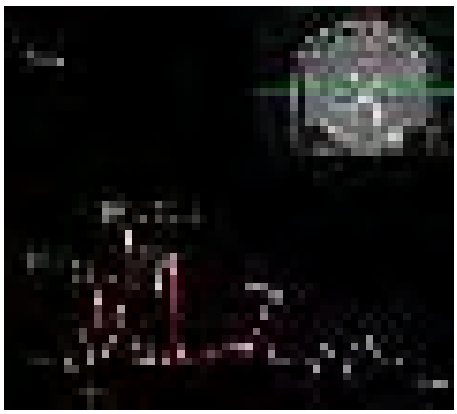
changes in brain function may be very subtle, i.e. anxiety disorders.

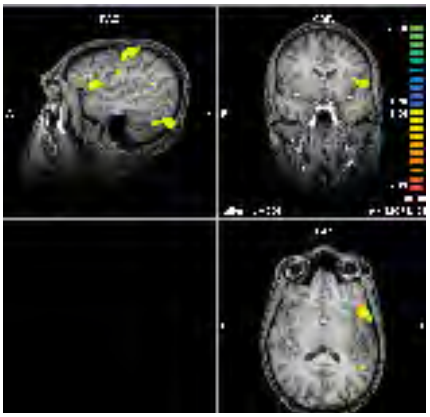
fMRI utilises conventional magnetic resonance imaging principles to acquire images of the brain as it responds to any number of tasks while a subject is in the scanner. In response to a task, blood flow in the functioning region of the brain increases, producing clearly visible changes in the MR signal. As such it is a research tool with endless possibilities in the areas of psychiatry and psychology, says Spottiswoode.

However, fMRI also has the potential to be incorporated into stereotactic neurosurgery. For instance, images from the 3 Tesla scanner clearly depicts the speech centre. Used during a brain operation, i.e. to remove a tumor, such images could allow the neurosurgeon to avoid damage to the speech centre during surgery. Because fMRI is extremely sensitive to blood flow, it is also extremely sensitive to early changes in the brain resulting from abnormally low blood flow, such as the changes that follow a stroke. This could play a role in the early diagnosis of certain types of strokes.

Another advanced neuro application of the scanner include diffusion tensor imaging, which tracks the nerve fibres leading from the brain. While this function is mainly used for research, it also has clinical applications because it shows the fibres leading to functional areas of the body. Thus it helps surgeons to avoid cutting nerve fibres leading to functional areas during surgery.

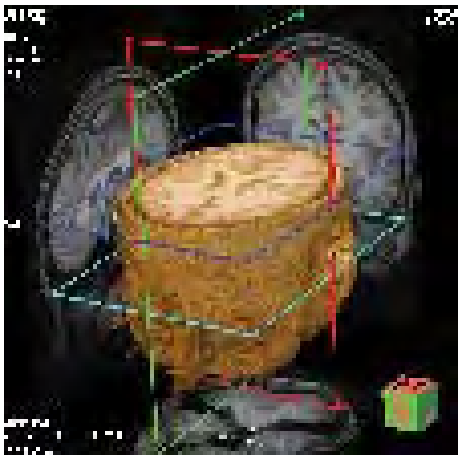
At the same time, the scanner's spectroscopy function allows clinicians or researchers to measure tissue biochemistry non-invasively by measuring biochemical compounds in the brain, i.e. to determine the efficacy of radiation treatment in the ablation of tumours. Using a neurological marker, the differences between healthy tissue and tumours are clearly shown on the images generated by the scanner.





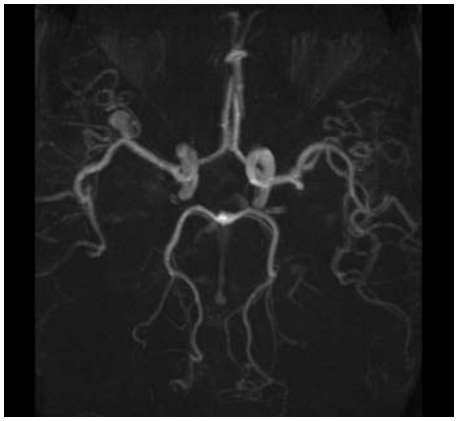
Applications

The scan on the far left is an example of the scanner's high resolution spectroscopy function. On the right, BOLD imaging, showing the regions of the brain activated in reading comprehension.



Reconstruction

3D Imaging allows reconstruction of arbitrary slices



Angiograms

A MRI angiogram, produced without contrast agents

BRAIN IMAGING STUDIES IN PROGRESS

- Dr Barak Morgan of UCT is looking at structural and functional damage to the amygdala in Lipoid Proteinosis.
- Dr Christine Lochner of the Stellenbosch/MRC Unit for Anxiety and Stress Disorders is planning a structural, functional and fibre tracking study on people with obsessive compulsive disorder.
- Dr Renata Schoeman of the SU Department of Psychiatry will be doing a structural MRI study in patients with schizophrenia, looking for acute effects of an atypical vs a conventional antipsychotic on brain structure and function in first-episode psychosis.
- A group of UCT psychology students, supervised by Dr Kevin Thomas and Prof Ernesta Meintjes, are looking at emotional arousal on spatial learning and memory; early adversity on adult spatial cognition; guilt and the effect of asthma drugs on short term memory.
- Mrs Victoria Ives-Deliperi from the University of Cape Town has used the scanner to investigate the effects of mindfulness whereby subjects exercise a form of meditation in the scanner.

Neuro-imaging to address HIV and TB

Diffusion tensor imaging reveals the true wonders of the brain by producing colour images of the thousands of nerve fibres linking the brain's two hemispheres. By following these tracks, scientists hope to pinpoint disease-affected areas of the brain.

Medical imaging has not only opened new windows on the human body and brain, but sophisticated imaging technology, such as the 3 Tesla scanner, now also allows clinical researchers to explore the effects of diseases like HIV and TB on previously hidden areas of the brain, says prof Savvas Andronikou, head of the Radiodiagnosis division in the SU Faculty of Health Sciences.

He believes that such neuro-imaging studies are not only a diagnostic aid in patients with HIV and TB infections, but can actively contribute to new and better ways to manage these diseases.

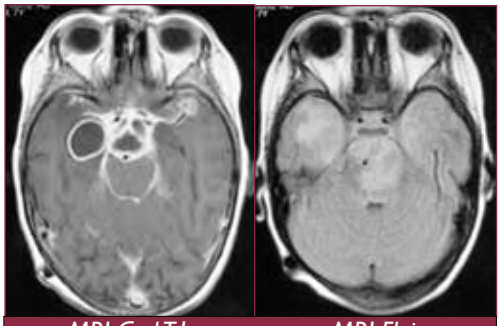
As part of a prestigious Radiology scholarship, Andronikou, a leading radiologist in the field of paediatric imaging, recently had the opportunity to study the powerful clinical research potential of MRI imaging when he spent two months at a MRI facility at Columbia University in the United States. Of particular interest to Andronikou was the potential of diffusion tensor imaging and fibre tracking (see preceding article) to address diseases like HIV and TB that affect millions of people in South Africa and the rest of the subcontinent.

"Unlike any other medical imaging technique, fibre tracking allows researchers to track and follow the nerve fibres through the corpus callosum – the band of white matter in the brain that provides the connection between the two halves of the cerebrum in the brain and enables the transfer of information from one hemisphere to the other. We thus hope to pinpoint areas affected by HIV and TB in the white matter. This will enable us to study the effects of these diseases on areas of the brain that could not be detected previously with medical imaging techniques such as ordinary CT scanning. By exploring these areas with the scanner's sophisticated new imaging techniques, one can work backwards to find simple clinical applications and solutions to address the health care needs of the massive patient populations affected by the two epidemics. In fact, the 3 Tesla scanner allows extremely close scrutiny of the tiniest brain structures to illuminate the effects of diseases such as these on the brain. Understanding such effects can help with the development of new treatments."

Paediatric MR imaging

Andronikou heads a 20-member research group who are currently conducting more than a hundred research projects – many of them in the field of magnetic resonance imaging (MRI) and many of them cutting across departmental and university boundaries, especially in the field of paediatric MR imaging.

One of the division's clinical protocols developed for the scanner involves a PhD study by Dr Christelle Ackerman who will use diffusion weighted imaging in the study of paediatric HIV, correlating it with clinical data such as viral load and CD-4 counts.



MRI Gad T1 *MRI Flair*

Prof Savvas Andronikou

Andronikou hopes to use fibre tracking to see where nerve fibres go through the corpus callosum, where they cross and where the corpus callosum is affected by the diseases.

He says in the case of HIV, most children suffering from the disease – even those without clinically detected encephalopathy – will have signs in the brain, for instance atrophy, calcification, lesions in the white matter and that they are susceptible to infection in the brain. "The 3 Tesla scanner has the ability to reveal things that you don't find with ordinary CT scanning and we make the diagnosis of TB and detect the complications that correspond to the clinical picture more often. In HIV, on the other hand, one can do comparative studies to determine the effect of antiretroviral treatment on brain lesions. The possibilities are endless, especially when one deals with such huge patient populations. We have the most suitable environment to make a difference! We have so many patients with TB and HIV, and then we have these high-tech facilities and the most experienced researchers and clinicians in the field. In the past we had the 'brains' and the patients but not the equipment."

According to Andronikou, it is the mission of researchers in his division to conduct state-of-the-art medical imaging that specifically addresses the health care needs of South Africa and the rest of the subcontinent. Through active collaboration with colleagues in other departments and divisions they hope to contribute to the considerable pool of HIV and tuberculosis expertise that already exists in the FHS.

DRUGS and the ADOLESCENT BRAIN

Alcohol, Tik and cannabis are three of the most dangerous enemies of children worldwide. By studying the brains of adolescents, researchers hope to uncover the mechanisms that make young brains more vulnerable to drugs.

Dr Paul Carey

Dr Paul Carey and researchers of the Cape Universities Brain Imaging Centre (CUBIC), are using MR imaging to investigate three of the major enemies that children worldwide, and in the Western Cape in particular, have to contend with as they grow up: alcohol, methamphetamine (Tik) and cannabis.

Brain imaging performed at the CUBIC has the potential to broaden our understanding of drug and alcohol addiction in this particularly vulnerable time of brain development in childhood and adolescence, Dr Paul Carey, a psychiatrist in the SU Faculty of Health Sciences, says.

A major health problem

In the Western Cape alone, the abuse of methamphetamine – commonly known as Tik – by children and adolescents, has risen dramatically in recent years, tearing lives and communities apart. The result is a major public health problem that requires an urgent and comprehensive response by all role-players. To date very few specific treatments for adolescents have been established.

With two grants from the US National Institutes of Health (NIH) Carey and his fellow scientists in CUBIC hope to gain new insight in what it is that makes children and adolescents so vulnerable to drugs as well as alcohol. They will utilise the 3 Tesla scanner to examine drug-exposed and unexposed brains of children and thus try to uncover the mechanisms that make their young brains more vulnerable to drugs. "Since MRI does not use X-rays, there is no exposure to ionizing radiation. As a completely safe, non-invasive technique, it is therefore ideally suited for studies on children who have been exposed to drugs and well-matched, normal control groups who have not been exposed." Carey and his colleagues will study the effects of different drugs on the brain over a period of time to determine if specific drugs have a specific effect or whether drug abuse in general has a generic effect.

One of the studies will investigate at the effects of tik and cannabis in children between the ages of 12 and 15 years, with the scientists looking for specific markers of vulnerability indicating that the child may become a drug user.

Risk taking increases

Carey explains that drug abuse often occurs during the period of adolescence when risk-taking increases. "Children who take drugs are inclined to leave school earlier, use more and more drugs and display high-risk behaviours. Such behaviour increases the risk of violence, HIV transmission and ultimately cognitive impairment - all of which contribute to the societal burden and the risk of psychiatric disease in adulthood"

Once the researchers have gained insight into the effects of the drugs on the brain they hope to identify the signals in the brains of adolescents who engage in high risk behaviours and those who take drugs, to better understand the pathways into high risk sexual behaviour and drug addiction. Carey says studies like these are of the essence in South Africa where children are exposed to drugs at a young age and where a significant number of people under the age of 20 are HIV positive. The team's second NIH-funded study will focus on the effects of alcohol on the brains of children and adolescents.

Alcohol and the brain

Comparison of functional MRI activations during a proximity judgment task for control subjects (top) and alcohol exposed subjects (bottom)

Apathy and depression

At the same time, they will be utilising the 3 Tesla scanner for a large study to investigate the effects of HIV on the brain of adults, including studies on apathy and depression in HIV. "Despite the increase in antiretroviral treatment in South Africa, there is still a significant percentage of patients who suffer cognitive impairment or psychosis as a result of HIV infection. We will be studying HIV-infected patients in an effort to find markers for dementia."

Carey believes that researchers in the Western Cape can play a vital role in MRI studies of this nature, especially in the light of their access to huge patient populations. 'We have the ability to recruit patients and conduct control studies. This puts us in an excellent position to search for answers to some of the most burdensome problems that plague societies worldwide – and South African society in particular."

VIRUSSE EN BAKTERIEË onder 'n interdissiplinêre mikroskoop

Die Universiteit Stellenbosch se nuwe Infeksiesiektes Sentrum is 'n doelgerigte poging van die Fakulteit Gesondheidswetenskappe om die toename in epidemiese siektes soos MIV/Vigs en Tuberkulose, sowel as die oplewing van ander kommerwekkende infeksiesiektes, aan te spreek deur middel van interdissiplinêre navorsing, opleiding en dienslewering.

Revolusionêre mediese deurbrake op die gebied van entstowwe en antibiotika in die vorige eeu, het soveel optimisme gegenereer dat dit maklik was om tot laat in die 20ste eeu nog te glo dat die mediese wetenskap virusse, bakterieë en gepaardgaande epidemies die nekslag toegedien het. Gevolglik was daar nie meer baie mediese graduandi of aspirant navorsers wat vir hulself 'n loopbaanpad op die gebied van infeksiesiektes oopgesien het nie.

Met die ontstaan van nuwe epidemies soos MIV en Vigs en voëlgriep en die herlewing van ou epidemies soos tuberkulose en malaria, pluk die wêreld – en Suid-Afrika in die besonder – vandag die vrugte van hierdie voortydige optimisme. Dit word, onder meer, weerspieël in die tekort aan kundigheid en opgeleide kapasiteit op die gebied van infeksie-voorkoming en beheer, sowel as epidemiologie.

In die US se Fakulteit Gesondheidswetenskappe, waar 'n groot persentasie kliniese en navorsingskapasiteit reeds op die land se twee groot epidemies – HIV en Tuberkulose – gerig is, het die behoefte aan 'n geïntegreerde, multi-dissiplinêre platform vir die studie en hantering van infeksiesiektes oor die afgelope jare toenemend sterker na vore gekom. Hierdie behoefte is amptelik in die US se Visie 2012 en die Fakulteit se besigheidsplan geïdentifiseer, en het vroeër vanjaar amptelik beslag gekry met die stigting van die FGW se Infeksiesiektes Sentrum – 'n interdissiplinêre platform vir navorsing, diens en opleiding. Drie akademici, wat ten nouste met infeksiesiektes gemoeid is – naamlik proff Mark Cotton van Pediatriese Infeksiesiektes en Elizabeth Wasserman van Mikrobiologie en dr Jantjie Taljaard van Volwasse Infeksiesiektes, het 'n leidende rol gespeel met die stigting van die Sentrum, wat homself in terme van visie en missie, ten doel stel om teen 2012 'n Sentrum van Uitnemendheid en 'n nasionale bate vir die gesondheidsektor in Suid-Afrika te wees, en 'n belangrike bron vir gesondheidsorg in Afrika.

Die navorsers wys daarop dat infeksiesiektes reeds 'n belangrike fokusgebied is in onderrig en navorsing binne verskeie dissiplines, onder meer Mediese Mikrobiologie, Mediese Virologie en Volwasse- en Pediatriese Infeksiesiektes. Met die stigting van die nuwe sentrum word hierdie sinergieë nou uitgebrei om infeksievoorkoming- en beheer, epidemiologie, gemeenskapsgesondheid, openbare gesondheid en die sosiale en etiese aspekte van infeksiesiektes binne die organisatoriese struktuur van die Sentrum in te sluit.

'n Belangrike voordeel wat die Sentrum geniet, is noue samewerking met en toegang tot die omvangryke ervaring, kennis en vaardighede van die Desmond Tutu TB-sentrum, die DST/NRF Sentrum vir Voortreflikheid in TB-navorsing, sowel as die US en die MNR se Sentrum vir Molekulêre en Sellulêre Biologie, die Kliniese Proefgroep vir Pediatriese MIV/Vigs, die Ukwanda Sentrum vir Landelike Navorsing en ander gevestigde strukture binne die FGW.

Akademici soos Cotton, Wasserman en Taljaard glo dat die Sentrum deur middel van sy werksaamhede, sal verseker dat die FGW belangrike bydraes maak tot nuwe kennis wat verband hou met infeksiesiektes – veral in terme van die multi-dissiplinêre, nasionale en internasionale navorsingsprojekte in hierdie veld.

Navorsingsagenda

Die navorsingsagenda van die Sentrum fokus hoofsaaklik op die volgende gebiede van strategiese belang, naamlik:

- Die omvang, erns en epidemiologie van infeksiesiektes in gemeenskappe;
- Optimalisering van die voorkoming, diagnose en behandeling van infeksiesiektes in gemeenskappe;
- Die ontwikkeling van intervensieprogramme vir infeksiesiektes en die evaluering van sulke programme ten opsigte van implementering en uitkomste;
- Ondersoeke en intervensies in infeksievoorkoming- en beheer in gesondheidsfasiliteite – nie net in Suid-Afrika nie, maar ook in ander Afrikalande.

Die Sentrum se navorsingsprogramme

word aktief gebou op professionele samewerking met sleutelrolspelers in Suid-Afrika, en die betrokkenes glo dat doeltreffende netwerke en produktiewe vennootskappe die boustene vir sukses is.

Die vennootskap tussen die FGW en die Medi-Clinic-korporasie, wat vroeër hernu is en voorsiening maak vir 'n jaarlikse Medi-Clinic-skenking van R1 miljoen (oor 'n periode van twee jaar) vir akademiese onderrig en navorsing, het die saadgeld vir die stigting van die Sentrum voorsien.

Nagraadse programme

In 'n onderhoud met *Tygerland,* het Wasserman gewys op die belangrike voordele wat inderdissiplinêre samewerking op die gebied van infeksiesiektes inhou. "Daar is, byvoorbeeld, 'n dringende behoefte aan spesialiste in infeksiesiektes in Suid-Afrika, en die Universiteit is geakkrediteer om subspesialiste in hierdie veld op te lei. Hoewel die Fakulteit reeds een nagraadse program en 'n aantal kortkursusse in plek het, sal ons moet uitbrei met verdere programme in die veld. Ons sal byvoorbeeld graag 'n diploma in infeksiesiektes wil aanbied."

Wat navorsing betref, is die voordeel van interdissiplinêre navorsing dat dit 'n baie beter kans het op suksesvolle befondsing, sê Wasserman, en dit lei tot beter koördinasie van projekte. Dit behels ook samewerking met ander relevante mense om 'n kerngroep vir diens, navorsing en opleiding te vestig, onder meer deur onderlinge konsultasies en bepaling van beleid. "'n Goeie voorbeeld van samewerking wat reeds in plek is, is die riglyne vir antimikrobiale terapie wat ons jaarliks saam met die Universiteit Kaapstad publiseer."

In this edition of *Tygerland*, we devote a considerable amount of space to education and training initiatives as well as research outputs in the field of infectious diseases such as HIV/Aids, Tuberculosis and infection prevention and control. A number of these studies have attracted international attention in recent months and had a significant impact on health policy in South Africa and abroad.

Infection threats in SA

In an overview of health service delivery with regard to infectious diseases in SA, the new Centre for Infectious Diseases in the SU Faculty of Health Sciences, points out that the country's medical infrastructure is good in major cities while primary health care is expanding in rural areas. At the same time modern diagnostic facilities are reasonably widely available.

National surveillance of emerging infections in South Africa is in its infancy, but new surveillance programmes – conducted by the National Centre for Communicable Diseases – include diarrhoeal pathogen surveillance. This is an extended programme of invasive pathogen surveillance (GERMsSA) and surveillance of sexually transmitted pathogens.

The potential for a cholera epidemic in rural areas with poor sanitation and contaminated water is grave.

Many of the infections posing the threat of possible outbreaks in South Africa are endemic, i.e. diarrhea en respiratory pathogens and dramatic, but less common, such as meningococcal meningitis or Congo Crimean hemorrhagic fever.

Major opportunistic infections associated with HIV infection include TB, cryptococcal disease, cytomegalovirus infections, bacterial diseases such as pneumococcal or salmonella bacteremia, and toxoplasmosis.

Multiple drug resistance is an emerging problem in tuberculosis as well as other bacterial pathogens. Extended spectrum betalactamases, for example, are endemic, particularly among Klebsiella species in intensive care units throughout the country. Gram negative bacteria, producing chromosomally mediated Beta lactamase are common in all these setting and Acinetobacter-related problems abound in most intensive-care units in South Africa.

Epidemics of cholera have occurred in the northern parts of the country and cases are often imported to more temperate climates. The potential for an epidemic in rural areas with poor sanitation and contaminated water is grave.

Drug resistance is also an emerging problem amongst the diarrhoeal pathogens. Other serious infective problems include meningococcal disease, complicated by migration patterns and changes in the prevalence of different strains. Drug resistance in staphylococci, pneumococci and other community acquired infections have become a well-recognised problem, emphasising the need for surveillance, correct antimicrobial prescription and infection control interventions such as vaccination based on evidence provided by appropriate and relevant gathering of information and systematic research.

Research focus areas

The FHS has, and will continue to make contributions in this area, especially through research focus areas with currently include:

- Diseases with a high prevalence in our community, i.e. Tuberculosis and HIV-infection;
- Drugs and drug strategies, i.e. observational and programme evaluation studies of the antiretroviral roll-out
- Tickborne diseases where research will include epidemiological, clinical and diagnostic studies of the tick-borne diseases that occur in the Western Cape. A tick-borne diseases research group in the Faculty are involved in studies of this nature.
- Prospective clinical trials on new drugs and drug strategies, i.e. drugs used and new drugs to be used, particularly for tuberculosis and HIV.

Training and accountability needed in

THE BATTLE AGAINST SUPERBUGS

Before the 20th century revolution in medicine and health care, there was a widespread belief among people worldwide that you went to hospital to die. Unless we address the roots of the problems that have lead to today's epidemics, nosocomial infections and hygiene deficits in health care institutions, these beliefs may return to haunt modern day health care. Renowned infection control specialist, Shaheen Mehtar, explains.

Prof Shaheen Mehtar

In South Africa, factors at the heart of the deficiencies in infection prevention and control include a lack of accountability, duty of care and legislation, says Prof Shaheen Mehtar, an internationally renowned infection control specialist and head of the SU and Tygerberg Hospital's Academic Unit for Infection Prevention and Control.

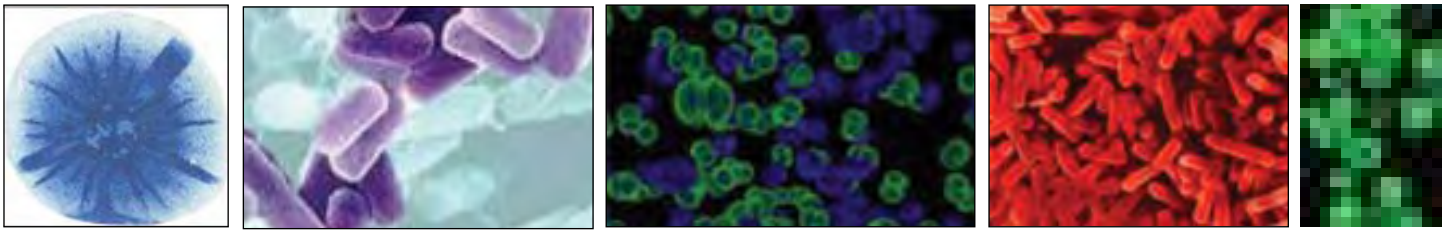
For the past decade, since she moved from England to South Africa, Mehtar has been doing infection surveillance as well as audits all over the country, ranging from hospitals where nosocomial infections claimed the lives of large numbers of babies, to correctional facilities for juveniles and women to study the transmission of infectious diseases; dental practices that lead to blood-borne virus transmission and the growing incidence of antibiotic resistance in a country struggling with a HIV/Aids as well as a tuberculosis epidemic.

Although factors like budget cuts in public hospitals and consequent failures to replace old and defunct equipment, as well as staff shortages contribute to infection control shortcomings in public sector hospitals and clinics in the Western Cape and other parts of the country, Mehtar believes that these factors should not serve as an excuse for health care workers to neglect their duty of care towards their patients. "The safety and well-being of patients should come before anything else. The way to address the shortcomings in our system is to instill a sense of accountability among health care workers, emphasise their duty of care and improve legislation to ensure adequate infection prevention and control measures in the health system." This essentially requires continuous training and support from the Infection Prevention and Control team.

However, nosocomial infections and hygiene deficits are a worldwide problem and not only confined to underdeveloped countries such as South Africa, she says. "In fact, some of our facilities compare quite favourably with countries in the West, for instance the neonatal and burn units at Tygerberg Hospital."

While most public health care institutions in South Africa can benefit by the acquisition of better equipment and greater investment in measures to improve hygienic conditions, Mehtar believes the ultimate answer lies in training that will ensure that certified people take responsibility infection prevention and control. "Training is the basis of infection control and the country needs people who are

"We must instill a sense of accountability among health care workers, emphasise their duty of care and improve legislation to ensure adequate infection prevention and control measures in the health system."



trained to address deficiencies that lead to infection outbreaks in hospitals and communities."

Since Mehtar established the Unit for Infection Prevention and Control, she played a leading role in developing and instituting various training programmes and courses for the SU Faculty of Health Sciences and Tygerberg Hospital, among others the first postgraduate diploma (PDIC) in Africa, specifically aimed at the prevention and control of infection, and the establishment of quality health management in hospitals and communities. The first students to complete this course received their diplomas in 2006 from SUN.

The course is presented by a team of experts from the Faculty of Health Sciences and involves a large amount of practical work, intensive one-on-one training, ward rounds, some theory and a research paper. The first recruits included doctors and nurses, but the PDIC course is also open to students with a Bachelor's degree, such as a MBChB or BCur; a BSc or MSc in Social Sciences or Behavioural Psychology.

The five stand-alone modules range from microbiology to professional practice, hospital design and management and factors influencing infection control in health practice; risk management and infection control safe practice; surveillance and epidemiology in health care facilities as well as research methodology and basic statistics. Mehtar says the University expects very high standards since students who complete the course will directly influence patient care.

She points out that formal and informal training and education form an integral part of the Unit's commitment to improve infection prevention and control (IPC) programmes – not only at Tygerberg Hospital, but also at other hospitals and health care institutions in the Western Cape. Apart from the postgraduate course, the Unit's other education and training initiatives comprise:

- Basic, intermediate and advanced short courses in decontamination and sterilization that lead to a diploma in decontamination and sterilization;
- Short courses in IPC that include a three-day course for managers, a five-day course for non-IPC practitioners, a four-month course – with one week each month of contact time – for newly-appointed IPC practitioners, and a five-day course for paramedics.
- An infection module for MBChB students in their fourth year of study.
- Basic courses in infection prevention and control in Namibia, Botswana and Malawi.

Apart from teaching, training and service delivery, the Unit is also involved in research of which its study on the antibacterial properties of copper surfaces (see article on page 20) is a prime example. In 2008, the Unit will focus the research spotlight on TB and initiatives to reduce TB infections in South Africa where more than five million people live with HIV and are particularly vulnerable to the disease and other opportunistic infections.

For more information, please contact Prof Mehtar on the eMail address, smehtar@sun.ac.za, or on Tel: (021) 938 5051, or Fax: (021) 938 5065.

New degree in Epidemiology

One of the significant developments in the Faculty's sharpened focus on infectious diseases was the development of a new Masters degree in Epidemiology (MMedSci in Clinical Epidemiology), currently pending accreditation from the HEQC (Health Education Quality Control). The two-year, part-time course has already been approved by the Department of Education.

Clinical Epidemiology impacts on patient care by providing scientifically valid answers to questions concerning diagnosis, prevention, therapy, prognosis and aetiology. This Masters Programme, with an emphasis on evidence-based medicine, provides health professionals with the necessary skills to generate and apply reliable, up-to-date evidence in clinical practice.

Outline: The 10-module programme, which includes a research project, offers robust methodological training for health care professionals who wish to pursue a career in Clinical Research or Evidence-Based Practice. The programme will be of interest to those seeking a sound understanding of advanced scientific concepts and rigorous training in the use of epidemiological methods in health care.

Eligibility: For admission to this MSc Programme the prospective candidate shall hold an MBChB or equivalent degree; or at least a 4-year professional Bachelor's degree in a health-related discipline.

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Confronting infectious diseases AT THE COALFACE

Researchers in the SU Faculty of Health Sciences are working at the coalface of infectious disease epidemics such as HIV/Aids and Tuberculosis, in South Africa. Their groundbreaking work in this field is signposting the way towards new and better strategies to prevent and treat these diseases, especially in mothers and babies. In recent months, these studies received national and international recognition and are currently impacting on public health policy at the highest level – in organisations such as the World Health Organisation, the National Institutes of Health in the United States and the national and Western Cape Departments of Health.

Early ARV treatment for HIV-infected babies

Prof Mark Cotton

The most recent and far-reaching study in this regard, emanated from the Children's Infectious Diseases Clinical Research Unit (KID-CRU), headed by Prof Mark Cotton of the SU Department of Paediatrics and Child Health.

On the basis of research conducted by Cotton and Dr Avy Violari of the Perinatal HIV Research Unit, University of the Witwatersrand, through the Comprehensive Program for Research in AIDS (CIPRA-SA), the Data Safety Monitoring Board (DSMB) for the study recommended that the early results be released into the public domain for the attention of key stakeholders such as the World Health Organization, ethics committees, regulatory authorities and other key stakeholders in the field of paediatric HIV, to consider and evaluate new treatment protocols for babies born with the HI virus. The CIPRA-SA grant is sponsored through the NIH. This comprises a grant valued at R20 million over five years that was awarded to a consortium from the universities of Stellenbosch, Witwatersrand and Cape Town. As part of the programme, Cotton and Violari were conducting a phase 3, randomized clinical trial to determine whether early antiretroviral therapy, given over a limited period of time, would delay disease progression in HIV-infected babies. The current standard of paediatric HIV care in South Africa, and recommended by WHO, is to treat infants with antiretroviral therapy only after they show signs of illness or a weakened immune system.

Although the trial - known as "Children with HIV Early Antiretroviral Therapy" (CHER) - is due to run until 2011, startling interim results indicated that the infants who received early treatment had a 96% chance of surviving if ARVs were started immediately after diagnosis. In comparison, only 84% of the children in the control group, who received standard care, had the same survival rate. The trial will still continue for 3 to 5 years in answer to other objectives of the study.

The DSMB recommended that no

new subjects be randomized to deferred therapy and that all infants in that arm be urgently evaluated for ARVs. According to Cotton, almost all of the 125 HIV infected babies from the Tygerberg branch of the trial, are now receiving ARV's, "and they are mostly doing extremely well."

In a press release announcing the interim results of the trail, the NIH pointed out that hundreds of thousands of babies around the world were born each year with HIV - more than half a million in 2006 alone. Caring for these children is complicated by the fact that their immune systems are not fully developed in the first year of life, which makes them especially susceptible to rapid HIV disease progression and death. "Children with HIV infection frequently show rapid disease progression within the first year of life due to their developing immune systems and susceptibility to other serious infections," NIH Director Elias A. Zerhouni, said. "This is the first randomized clinical trial that shows that infants treated before three months of age will do better than infants who have their treatment delayed."

Prof Mark Cotton (right) with research assistants, Mrs Jeanne Louw (left) and Mrs Elize Thompsen (at the back).

Infants who received early treatment had a 96% chance of surviving if ARVs were started immediately after diagnosis.

Other NIH experts pointed out that the results of the trial could have significant public health implications worldwide, since the findings will cause experts to consider changes in standards of care in many parts of the world. The Institute and the researchers therefore released details of the interim results to the World Health Organization, local ethics committees, regulatory authorities and other key stakeholders for their consideration and evaluation for possible implementation. The results also highlighted the importance of diagnosing HIV infections early - within the first six weeks of life since the majority of infants in the trial commenced ARVs by seven weeks of age. This, however, poses a direct challenge for South Africa and other underdeveloped countries which have limited resources for diagnosing HIV-positive babies at birth. Because babies born to HIV-infected mothers carry the mothers' antibodies, they need to be diagnosed with costly polymerase chain reaction tests instead of the rapid antibody tests used for older children and adults. It thus remains a challenge to turn the test results into policy, says Cotton, especially within resource-constrained settings. He has had discussions with provincial health authorities and they are considering the findings. At present, treatment guidelines for children as well as adults with HIV are being rewritten and Cotton and his team will strongly advocate early treatment of infected babies.

The dangers of BCG vaccination for HIV infected babies

Dr Anneke Hesseling

In November last year, the World Health Organisation cited research by Dr Anneke Hesseling of the SU Department of Paediatrics and Child Health to sound a warning that the bacille calmetic-guerin (BCG) vaccine - used worldwide to protect babies against TB - could itself cause TB in babies with immune systems already weakened by HIV.

Anneke studied infants who were vaccinated with BCG at birth to protect them against tuberculosis. BCG contains a live, attenuated (weakened) form of mycobacterium bovis, a TB strain isolated from cows and developed as a vaccine in 1928. Although the vaccine offers no protection to adults, it protects babies and young children against meningitis and disseminated tuberculosis that affects organs such as the stomach or bones. In most developing countries, the vaccine is routinely given to babies at birth.

The vaccine very rarely affects healthy babies, but Anneke has found that when

"Evidence increasingly points to the high vulnerability of infants - even if they escape HIV infection".

given to HIV-infected infants with a weakened immune systems, there is a very high risk of severe vaccine complications - in the order of 400 per every 100 000 HIV-infected infants. This data, in conjunction with data from infected children in Argentina, has recently led the WHO to revise its recommendations regarding BCG vaccination in HIV-exposed and infected babies.

However, both Anneke and Prof Mark Cotton of KID-CRU have pointed out that this warning by the WHO poses serious problems for countries like South Africa, where HIV-infected infants are not diagnosed with the virus at birth but only several weeks later. This makes selective vaccination of HIV-exposed infants (born to HIV-infected mothers) difficult to implement. "As HIV-exposed and infected infants are at high risk of TB, it is important to obtain good data on both the risks and benefits of BCG in infants born in settings where TB and HIV are highly endemic," Hesseling says. "This is known as a 'risk/benefit' assessment'.

Community-based studies

A full-time clinical researcher in the faculty's Desmond Tutu TB Centre, Anneke holds several research grants. A large study - recently funded by the NIH, the Thrasher Foundation and the Norwegian Scientific Council, in collaboration with the Case Western and Bergen universities - will look at tuberculosis transmission and preventive strategies in children in two high-burden TB communities.

"This prospective, community-based study will assess the value of new diagnostic tools for TB infection and disease, namely interferon-gamma release assays. These are new commercial blood tests that measure the body's immune responses to antigens that are specific for *Mycobacterium* tuberculosis. They appear to be more sensitive and specific than the traditional TB skin test, also in patients who are immune compromised as a result of HIV infection," Anneke says.

The new study will recruit a cohort of 1 200 HIV-infected and uninfected children who will be followed for both TB infection and disease. The study will investigate the effect of household and community exposure to TB as well as the effects of HIV, nutritional status and other environmental factors in the use of the new TB diagnostic tests and immune responses to TB.

Building capacity

Furthermore, the study "offers an exciting opportunity to build capacity for the training of health care workers within the programme, as well as postgraduate clinical and laboratory-based researchers in the fields of immunology, molecular biology and clinical epidemiology of paediatric TB and HIV.

Parallel collaborative projects in India and Nepal will assess the value of nutritional interventions and new diagnostic tests in children with tuberculosis.

Much of Anneke's work on the interaction between HIV and BCG is part of her PhD studies in infectious and tropical diseases at the London School of Hygiene and Tropical Medicine, as a recipient of a Commonwealth scholarship. She did her training in epidemiology and public health at Columbia University, New York, through a South African NIH Fogarty HIV training fellowship. Apart from her work on HIV, TB and BCG, she is also conducting an operational study in collaboration with the local prevention of mother-to-child HIV programme, to map out the morbidity and mortality of HIV-exposed and infected infants, within the context of a large, well-functioning PMTCT programme at Site B, Khayelitsha.

Dr Anneke Hesseling and nurses who assist her with one of her studies at Site B, Khayelitsha.

"People tend to think that if infants escape HIV infection they do not suffer much morbidity and mortality, but evidence increasingly points to the high vulnerability of infants - even if they escape HIV infection. This may be due to immunological and other facts. The study includes and audit of large infant cohorts to assess these factors," she says.

Anneke believes that South Africa can make an important contribution in addressing important question regarding paediatric HIV and the TB co-epidemic. "We have unique patient populations that enables us to work at the coalface of these epidemics."

Left: T*he Khayelitsha community, where Anneke conducts large epidemiological studies.*

Testing for HIV in the labour ward

Prof Gerhard Theron

Prof Gerhard Theron

As a researcher of Prof Mark Cotton's Children's Infectious Diseases Clinical Research Unit (Kid-Cru), Prof Gerhard Theron of the Department of Obstetrics and Gynaecology, has also been involved in a mother-to-child transmission of the HI virus study. The study was sponsored by the Pediatric AIDS Clinical Trails Group (PACTG). At the same time, he is the principal investigator of a NICHD phase 3, randomised clinical trial aimed at determining the safety and efficacy of neonatal antiretroviral regimens for the prevention of HIV transmission during birth.

Rapid testing of women with an unknown HIV status in labour wards is feasible and well accepted,

Citing figures that indicate that 30% of South African women attending public health care antenatal clinics in 2005 were HIV positive, Theron points out that the two-part nevirapine National Perinatal Mother-to-Child Transmission Programme (PMTCT) can reduce the transmission of HIV from mothers to their babies by nearly 50%.

However, to prevent transmission of the HI virus during birth, the HIV status of a pregnant woman must be known before she goes into labour. In South Africa, a significant proportion of women enter labour with unknown HIV status. To determine the correct management of these women, the PACTG-supported clinical trial was designed to compare the feasibility and acceptance of voluntary counseling and testing for HIV among women with unknown HIV status being admitted to labour wards. Theron and his colleagues have found that the time from initiation of HIV pre-test counseling until the rapid HIV test results were available, was 45 minutes or less in 50% of women. This allows for timely nevirapine intervention to prevent transmission of the virus to the unborn child with the interval between administration of nevirapine and delivery more than 2 hours in at least half of the women.

As a result of this important trial, Theron and his colleagues came to the conclusion that rapid testing of women with an unknown HIV status in labour wards is feasible and well accepted, still allowing for timely intervention and prophylaxis.

New prevention strategies needed to lower the risk of ARV resistance

Dr Gert van Zyl

Dr Gert van Zyl

In South Africa, the Western Cape has played a leading role in managing the HIV epidemic with antiretroviral treatment. At present, it is the only province nationally where the antiretroviral drug, AZT, is routinely added to nevirapine to prevent mother-to-child transmission of the virus during birth and shortly afterwards.

Resistance rates in women receiving nevirapine and AZT dual therapy, dropped significantly.

New research by Dr Gert van Zyl of the Virology division in the SU Faculty of Health Sciences recently received country-wide attention when he showed that the dual therapy could cut the development of drug resistance by half. He presented these findings as part of his state of the art presentation on ARV resistance at the Faculty's recent Academic Day.

Van Zyl's findings add weight to a country-wide campaign promoting the introduction of dual therapy in other parts of the country. Nevirapine, administered in one dose to the mother in labour and then one dose to the baby, has long been the subject of controversy as far as the threat of the development of resistance is concerned.

In the FHS, the Virology division under the leadership of Prof Wolfgang Preiser, has been keeping a close watch on problems such as antiretroviral resistance that may arise as the country's ARV programmes gather momentum. Van Zyl's study is an important part of this programme. He has found that the rate of resistance to nevirapine dropped significantly from an average 35.7% in those women getting a single dose to 17% among those receiving the nevirapine and AZT dual therapy combination. In the Western Cape, pregnant women start taking AZT from 34 weeks until labour, and the baby gets AZT for seven days after birth. In addition, the women get a single dose of nevirapine during labour and the babies a single dose within 72 hours of birth.

According to Van Zyl, AZT has

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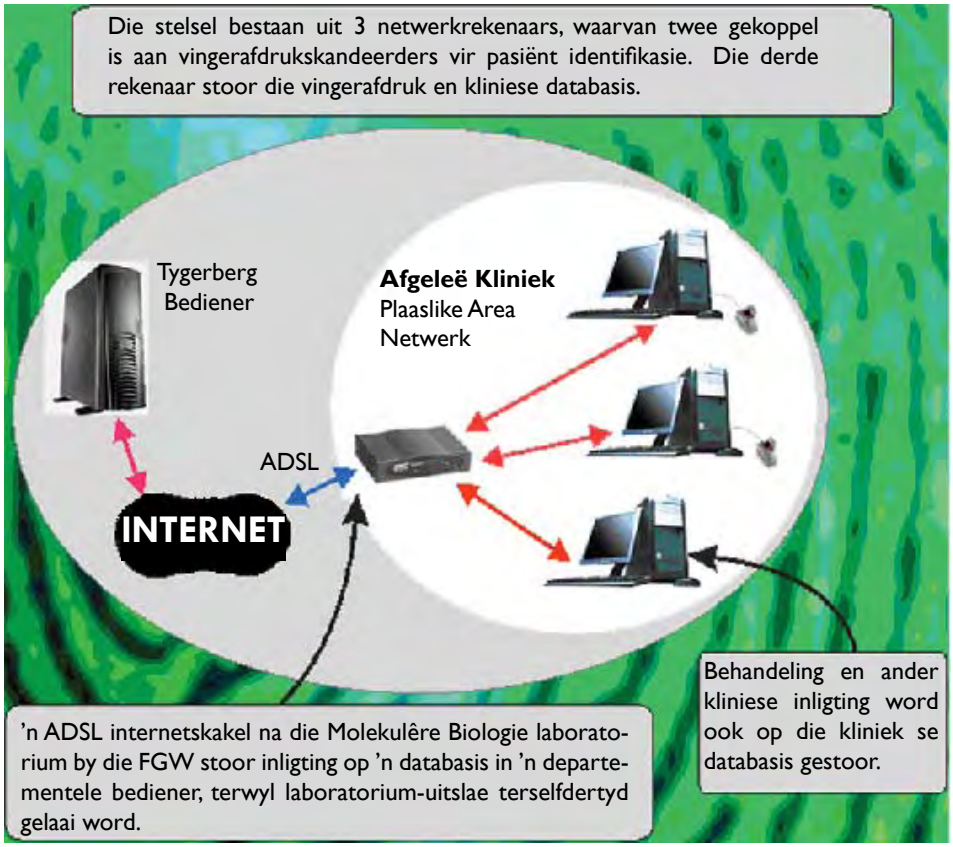

Tegnologie om TB hok te slaan

Prof Tommie Victor

'n Tuberkuloseprojek, wat in 'n informele nedersetting in George bedryf word, is 'n sprekende voorbeeld van die manier waarop navorsers van die Stellenbosch FGW kundigheid en hulpbronne aanwend om nuwe en innoverende oplossings te vind vir TB-middelweerstandigheid - een van die hardnekkigste probleme wat die TB-epidemie in Suid-Afrika kenmerk.

In 'n klein en onopvallende kliniek in die Lawaaikamp-woongebied van George in die Suid-Kaap is prof Tommie Victor en navorsers van die Departement Biomediese Wetenskappe die afgelope paar jaar besig om middelweerstandige tuberkulose (TB) - een van die hardnekkigste manifestasies van die TB-epidemie in die land - met eerste wêreldse rekenaartegnologie en hoogs gesofistikeerde molekulêre wetenskap, hok te slaan.

Victor verduidelik dat TB-middels uit die staanspoor 'n tweesnydende swaard was. "Hulle vernietig die bakterium wat TB veroorsaak (Mycobacterium tuberculosis), maar kan onder sekere toestande ook selekteer vir weerstandige bakterieë waarteen die middels ondoeltreffend is. In die 1970's het die middels die oorhand gehad en TB het begin afneem. Die eerste TB-middels is in die 1940's bekend gestel en hoewel weerstandigheid kort daarna ontstaan het, was dit altyd weerstandigheid teen slegs een van die middels. Teen die einde van die 1960's het rifampien op die toneel verskyn en die gebruik daarvan in kombinasie met die ander middels het gelei tot 'n afname in middelweerstandige en middelvatbare TB in ontwikkelde lande. Befondsing en belangstelling in TB-beheerprogramme het derhalwe afgeneem en vir die volgende 20 jaar was daar geen sistematiese monitering van middelweerstandigheid nie."

Uiterste middelweerstandigheid

Hierdie situasie het ingrypend verander met die begin van die MIV/Vigskrisis in die begin van 1980's. Dit het aanleiding gegee tot 'n groeiende TB epidemie, tesame met die voorkoms van multi-middelweerstandige TB (MDR-TB)-stamme. Die Wêreldgesondheidsorganisasie (WGO) het in 1997 aangetoon dat middelweerstandigheid 'n wêreldwye probleem was en in 'n onlangse verslag is Suid-Afrika gelys as 'n gevaarsone met meer as 6 000 nuwe MDR-gevalle per jaar. "Onlangs het die prentjie vir TB-beheerprogramme nog donkerder geword met die ontdekking van uiters-middelweerstandige TB (XDR-TB)-stamme. Hierdie stamme is weerstandig teen eerste sowel as meeste van die tweede linie-middels."

Oor die laaste dekade het dit ook duidelik geword dat middelweerstandige TB

oordraagbaar is en baie duur om teë te werk. In Suid-Afrika is dit 'n reuse gesondheidsprobleem. Victor verduidelik dat MDR-TB ontstaan wanneer pasiënte nie hul medikasie gereeld gebruik nie, of wanneer hulle dit in die verkeerde kombinasie gebruik. "Die gevolg is dat sekere middels in 'n later stadium nie meer doeltreffend is nie. XDR-TB ontwikkel uit MDR-TB, wanneer 'n MDR-pasiënt sy/haar medikasie ongereeld of glad nie meer gebruik nie. Die behandeling van XDR-TB is baie moeilik en pasiënte moet meestal geïsoleer word."

Vir navorsers soos Victor het dit 'n uitdaging geword om maniere te vind om die oordrag van middelweerstandige TB te bekamp. "Vinnige diagnose, nuwe middels en beter kennis van die dinamika van die siekte kan 'n reuse verskil maak," sê hy. "Dit neem op die oomblik ses tot agt weke om 'n pasiënt se speekselmonster te ontleed en vas te stel of die pasient inderdaad MDR-TB het en teen watter middels hy/sy weerstandig is. "In daardie tydperk het die persoon baie tyd om die siekte, wat lugoordraagbaar is, te versprei."

Vinnige nuwe diagnostiese toetse

In die Departement Biomediese Wetenskappe het navorsers hul kundigheid en alle beskikbare hulpbronne ingespan om doeltreffende oplossings vir hierdie probleme te bedink.

In die eerste plek het die navorsers nuwe, vinnige toetse ontwikkel om weerstandige TB te diagnoseer. Daarna moes daar 'n nuwe stelsel ontwikkel word om die resultate van die toetse so gou moontlik beskikbaar te stel - veral aan afgeleë, plattelandse gebiede.

"As deel van hierdie projek het ons 'n biometriese vingerafdrukstelsel ontwikkel en as 'n loodsprojek by die kliniek in Lawaaikamp geïnstalleer om vas te stel of hierdie tegnologie gebruik kan word om die verspreiding van die siekte meer doeltreffend te hanteer."

Foto links:
Prof Tommie Victor (regs agter) kyk hoe mev Jo-Ann Fortuin - projekbestuurder van die Lawaaikkamp TB-Kliniek - die vingerafdrukke van 'n pasiënt op die stelsel invoer.

Skoolkinders van die Lawaaikamp-woongebied tydens 'n TB-bewusmakingsveldtog deur prof Tommie Victor en lede van die US Departement Biomediese Wetenskappe.

"Middelweerstandige TB is 'n reuse gesondheidsprobleem in Suid-Afrika, en baie duur om te bekamp."

By die Lawaaikamp-kliniek word die pasiënt se vingerafdruk mbv 'n gesofistikeerde rekenaarstelsel wat in die Departement Biomediese Wetenskappe ontwikkel is, geneem en saam met sy naam op 'n databasis vasgelê. 'n Etiket met 'n stafie-kode word onmiddellik vir sy speekselmonster uitgedruk. Die speekselmonster word dan per koerier na die Tygerbergkampus gestuur waar dit vinnig getoets word met die metodes wat in die Departement ontwikkel is, en die resultate word in 'n rekenaar ingevoer. "Die kliniek op George het onmiddellike toegang tot die resultate op hulle rekenaars en kan daar dadelik begin word met die behandeling vir MDR-TB.

"Met die hulp van die rekenaarstelsel word pasiëntbesoeke en die kliniekmonsters gemonitor. Die verpleegsters kan met hierdie inligting voorhande, in die gemeenskap ingaan om pasiënte wat nie hul medikasie ontvang het nie, op te volg. Dit is nie net tot voordeel van die pasiënt nie, maar tot voordeel van die gemeenskap as 'n geheel as middelweerstandigheid gestop kan word."

Victor wys daarop dat die projek ons ook in staat stel om die oordrag van TB in oorvol klinieke soos Lawaaikamp te bestudeer.

Onlangs het Victor en studente Lawaaikamp besoek om groter bewustheid van TB en die kliniek werksaamhede in die gemeenskap aan te moedig.

Om die gemeenskap vertroud te maak met die feite en gevare van TB, is 'n uitstalling - wat prof Valerie Corfield spesifiek vir interaksies van hierdie aard ontwikkel het (sien bl. 22) - gebruik. Die geleentheid oor twee dae is bygewoon deur plaaslike gemeenskap leiers en honderde skoolkinders.

• Vir meer inligting oor hierdie projek en ander TB-navorsingsprojekte, skakel die Departement Biomediese Wetenskappe aan die US Fakulteit Gesondheidswetenskappe, Afdeling Molekulêre Biologie en Mensgenetika, by Tel 021 - 938 9251; Faks 021 938-9476, of prof Victor op die ePos-adres: TV@sun.ac.za.

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some effect on the amount of virus circulating in the blood. "We found that the combination of nevirapine and AZT have some protective effect against resistance in the mother, - even though the 17% resistance rate we found still constitute a significant rate of resistance".

Van Zyl's study was based on an examination of blood samples collected from 76 mothers at Tygerberg Hospital and the Delft Community Health Centre, and testing them for mutations associated with resistance.

Women who develop resistance will show an increased rate of failure and may need to start the standard antiretroviral treatment, known as triple therapy, within six months of giving birth, especially if their CD4 count should drop below 200. This is the standard used in South Africa to start ARV treatment for patients with HIV and Aids.

Other studies have shown that the dual therapy also significantly decreased the risk of HIV transmission during birth - reducing the transmission risk to less than 5%, compared to nevirapine alone where the transmission risk is 12%.

According to Van Zyl, women who are at risk of developing Aids within a year after giving birth, should rather get triple therapy treatment right from the start. This is known to be the most effective approach in preventing mother-to-child HIV transmission. However, there are cost implications, the treatment is more difficult to administer and if a high rate of adherence is not maintained, drug resistance becomes a threat.

He points out that pregnant women in most first world countries receive triple therapy. Once they have given birth the treatment is interrupted and only resumed later when their CD4 counts drop. Although drug-induced resistance is the main problem with single-dose nevirapine, Van Zyl warns that HIV-infected women, who had never been on therapy, could contract a resistant virus from sexual partners.

Copper harnassed in the battle against pathogens

As a metal with a history and origins in Africa, copper is set to play a significant role in the battle against diseases that are ravaging the continent today – thanks to its anti-bacterial properties.

A team of specialists, led by infection control specialist, Prof Shaheen Mehtar, have produced results indicating that copper could be a powerful tool in reducing the bioburden in African health care settings.

Supported by the Copper Development Association of Africa – the organisation driving the African Health Care initiative – the Stellenbosch team recently showed in vitro, that copper-covered touch surfaces are effective in killing multidrug resistant bacteria in African health care settings – including strains of the multi-drug resistant bug, MDR-TB.

The laboratory studies were conducted by Prof Leon Dicks of the Department of Microbiology on the main campus of Stellenbosch University, and Dr Ian Wiid of the Molecular Biology and Human Genetics division in the FHS. They found that after 48 hours of exposure, pure copper and five of its alloys could wipe out TB bacterial growth – including strains resistant to the usual TB drugs. Furthermore, there were no signs of regrowth over the study period of 15 days. The researchers presented their data at a meeting of the International Federation of Infection Control (IFIC), held at Stellenbosch in 2006.

Mehtar points out that TB bacteria are extremely resilient and tend to grow back after a few days on other surfaces such as stainless steel – even after such surfaces have been cleaned with disinfectant.

As a result of this study, Mehtar and colleagues have designed a controlled study to test copper and copper alloy surfaces in a primary health care clinic in Grabouw, where copper will be used in one room to cover every surface that is exposed to pathogens. At the same time, her Unit will conduct a similar study the 'cough room' of the infectious diseases clinic in Tygerberg Hospital. One half of the room will have ordinary touch surfaces while all surfaces in the other half will be fitted with copper.

Depending on the data, the copper study will be carried through to a second phase, comprising 12 clinics across six southern African countries.

According to Mehtar, copper has been used for thousands of years to reduce bacteria and it is currently tested across the world, not only in health care settings, but also to reduce pathogenic bacteria in the water supply.

"In the UK, for instance, all new houses are fitted with copper piping. The downside, however, is the cost of copper as well as corrosion and staining. As part of our study, we will look at the cost-effectiveness of copper touch surfaces in comparison with stainless steel and plastic."

She also points out that TB is transmitted by the inhalation of airborne bacteria and copper surfaces may therefore not have a direct impact but should reduce the environmental bio-burden.

In a country such as South Africa, where more than five million people live with HIV and are particularly vulnerable to opportunistic infections such as TB, self-sanitizing copper touch surfaces may prove to be of great benefit in the country's efforts to bring these epidemics under control.

GELETTERDHEID IN SA
'n Nasionale krisis

Die grondslag vir geletterdheid word in die huis gelê, lank voor 'n kind skool toe gaan. In Suid-Afrika is daar groot getalle kinders wat hul skoolloopbaan begin met 'n agterstand wat hulle nooit inhaal nie - soveel so dat hulle moeilik die mas opkom in die hoogs tegnologiese wêreld waarin ons leef. Mev Daleen Klop (regs op die foto saam met pre-primêre leerders), en studente van die afdeling Spraak-Taal- en Gehoorterapie doen baanbrekersnavorsing op hierdie gebied.

In 'n wêreld wat voortdurend nuwe tegnologiese uitdagings aan ons stel en rekenaargeletterdheid as byna vanselfsprekend aanvaar word, het 'n persoon met 'n lae vlak van geletterdheid, nie 'n kans om 'n ekonomiese bydrae te maak nie. Tog word die meerderheid van ons land se bevolking geraak deur funksionele ongeletterdheid.

Akademici en studente in die FGW se afdeling Spraak-Taal- en Gehoorterapie het oor die afgelope paar jaar, deur middel van 'n aantal navorsingsprojekte, baanbrekerswerk gedoen om hierdie probleem aan te spreek.

Die hoof van die afdeling, mev Dalene Klop, wys daarop dat funksionele ongeletterdheid is 'n probleem wat lande wêreldwyd affekteer, "maar in die meeste gevalle is dit minderheidsgroepe in die bevolking wat daardeur geraak word."

"In Suid-Afrika egter is dit 'n probleem van die meerderheid van die bevolking – en die ongelukkige waarheid is dat dit veral diegene in die lae sosio-ekonomiese groep is wat daardeur geaffekteer word."

Anders as iemand wat glad nie kan lees of skryf nie, is funksioneel-ongeletterde mense wel in staat om te lees en te skryf, maar hulle is nie in staat om met insig en begrip te lees nie – soveel so dat hulle dikwels nie eens die konsep van 'n kontrak verstaan nie. In 'n gesondheidsorgomgewing, byvoorbeeld, verstaan hulle nie die inligting op 'n afspraakkaartjie of medisynehouer, of die inhoud van 'n ingeligte toestemmingsvorm nie – en kan selfs nie die vorm doeltreffend invul nie. Met ander woorde, wanneer hulle met gedrukte inligting gekonfronteer word, kan funksioneel-ongeletterde volwassenes nie binne 'n moderne gemeenskap funksioneer nie, sê Klop.

Navorsing uit die afdeling dui daarop dat die grondslag vir geletterdheid gelê word lank voor 'n kind begin skoolgaan. Groot getalle kinders begin dus hul skoolloopbaan met 'n agterstand wat baie van hulle nooit inhaal nie. Hierdie agterstand is hoofsaaklik daaraan te wyte dat groot getalle Suid-Afrikaanse kinders selde in kleintyd blootgestel word aan geletterheidstaal, soos bv die taal wat deur die gesin gebruik word as kommunikasie tussen die kind en volwassenes. "Kinders word ook nie blootgestel aan boeke of selfs koerante of tydskrifte in die huis nie en daar word nie vir hulle stories gelees nie. "Nie alle kulture het kind-gesentreerde kommunikasie interaksie nie," sê Klop. "Die ongelukkige nadraai is dat die kind dan in die skool kom met 'n taalagterstand van drie jaar, en hy of sy raak selfs verder agter in die fondasiefase, wat vanaf pre-primêr tot graad 3 duur."

Navorsing uit haar afdeling het o.m. getoon dat hierdie kinders deurgaans 'n agterstand van drie jaar het, terwyl syfers van die Wes-Kaapse Onderwysdepartement daarop dui dat 'n gemiddeld van slegs 39.5% van alle graad 3 leerders in die Wes-Kaap in 2005 'n geletterdheidstoets kon slaag. Dit is effens hoër as in 2002, toe net 37,3% van die leerders hierdie toets geslaag het, Dit is dan ook hier waar die angel van die probleem lê, verduidelik Klop.

"Teen graad 3 is die fondasiefase verby en word daar van kinders verwag om te kan lees om te leer. Kinders wat op hierdie stadium 'n agterstand het, haal nooit weer in nie en teen die einde van hul skoolloopbaan is baie van hulle funksioneel ongeletterd."

Die navorsing wat Klop en haar studente doen, fokus op ontluikende geletterdheid in voorskoolse kinders en syself is besig met navorsing vir 'n doktorale tesis oor geletterdheid, spesifiek ten opsigte van die konstruksie van betekenis tydens lees.

Sy beklemtoon dat kinders met 'n geletterdheidsagterstand baie vroeg geïdentifiseer moet word. In hierdie verband speel die personeel en studente van Spraak-Taal- en Gehoorterapie 'n belangrike rol, veral tydens gemeenskapsgebaseerde opleiding wanneer hulle kinders vanaf babatyd en op 'n baie vroeë ouderdom – lank voor die kind kan lees of skryf – begin sien. Hulle is ook betrokke by 'n gemeenskap in die Paarl waar hulle voorkomende werk doen deur middel van 'n program waarvolgens hulle opvoeders leer om voorgeletterdheidsvaardighede by voorskoolse kinders te vestig.

"Die opvoeding van 'n ma is die belangrikste voorspeller van geletterdheid in 'n kind. Ons sal meer moet belê in die opvoeding van vroue as ons die probleem doeltreffend wil aanspreek," sê sy. "Kinders moet vanaf geboorte reeds blootgestel word aan geletterdheid. 'n Persoon met 'n lae vlak van geletterdheid, het vandag nie 'n kans om 'n ekonomiese bydrae te maak nie – veral nie in 'n tydsgreep waar daar ook rekenaargeletterdheid van mense verwag word nie."

Stripping science of jargon with Models, Metaphors and Make-belief

Prof Valerie Corfield uses quirky humour and ordinary objects from an ordinary world to 'translate' science and make it accessible to young and old.

On Women's Day this year, the Medical Research Council named Prof Valerie Corfield of the Molecular Genetics division in the SU Faculty of Health Sciences as their 'Woman of the Year' for her 'excellence in work'. At the same time, she also won the prize for the best scientific exhibition - a quirky 'translation' of the science behind TB – at the Faculty's recent Annual Academic Day.

These commendations, like many others from scientific organisations, such as the annual Grahamstown Science Festival, are displayed on one of the walls of her office in the bustling Molecular Genetics laboratory - together with a wide array of models and posters that assist her in her efforts to 'translate' science for school children, non-governmental organisations and numerous interest groups in the Western Cape and other parts of the country. Today the various science workshops, that she started to develop some ten years ago, are so popular that they have become a second career that she would like to carry with her into retirement.

> *"By tracing the history of human skin colour, it becomes evident that colour is only skin deep."*

It all started when she was asked to give a lecture on science for children at the annual Science Festival in Grahamstown. For that occasion she developed a workshop, known as 'DNA Detectives - what's in your genes?' to explain the mysteries of the DNA molecule. This workshop is still presented at the Festival every year - and it is usually fully booked. "I then realised that there was a need to explain HIV and Aids to the layman, and I got together with Dr Francois Cilliers to develop 'HIV comes to the Party'. This also went to the Science Festival."

Next came 'Food for Thought', a workshop for tiny tots on food, food technology and 'fun stuff' such as making yoghurt and bread. 'Enzyme Antics' followed, and is usually fully booked at the Science Festival, with parents enjoying it as much as their children.

Her next project, 'The Skin you're In', presented Valerie with the opportunity to not only focus on the physiology of the skin - ranging from 'zits' to ageing - but also to tackle discrimination.

"By tracing the history of human skin colour, it becomes evident that colour is only skin deep," she says. At the same time, the subject allowed her to incorporate all the elements that have made her workshops so popular: models, metaphors, role playing and an abundance of humour, especially the kind that appeals to children. For instance, under the "Sies Stuff' she includes bacteria living on the face, the number of dead cells dropping of the body at any given moment and how a pimple is formed. And in 'HIV comes to the party', opportunistic germs are depicted as daggers while antibodies are represented by dart guns.

In her scientific exhibition on TB, she includes a model of a Jim Carrey-like head that shows, in a most realistic fashion, how a single sneeze can carry airborne TB bacteria over a wide area! Her models are made from easily recognisable items from the kitchen or the toy box, such as play dough, or rice, coloured to represent melanocytes, and her ideas are absorbed from everywhere and everything around her.

All the workshops are designed to ensure that the science is correct, but Valerie strips them of scientific jargon by telling the different stories in metaphors and analogies that can be adapted to enable her to present them from primary level to matric and adult audiences - be they church groups or labourers.

"I have presented 'DNA Detectives' and 'HIV comes to the Party' to adult education groups, scout masters and various other

groups. At the same time, both workshops can be and have been adapted for presentation at primary schools."

This year, Valerie is working with Dr Ethelwynn Stellenberg of the Nursing division, on a research project that involves the presentation of the HIV workshop to children in all grades in every school in the Kuils River community. This is part of Dr Stellenberg's comprehensive LINK project. For this purpose, Valerie has been busy training facilitators from the community to present the workshops.

One of the reasons why Valerie's workshops have become a popular feature throughout the country is that she trains others to present them. One of her closest collaborators in this regard is Mrs Khalipha Ramahlape, community liaison officer of the MRC, who now presents workshops at Science Week, in the Eastern Cape and elsewhere. Valerie also gave the workshop on HIV to Jozi Municipality, to train 60 Aids councillors working in Ivory Park, and was asked to give the HIV Workshop to Namibia. At the same time, Khalipha took it to the rural areas of KwaZulu-Natal, while the Association for Science and Technology Advancement has trained its own people to present 'DNA Detectives' at national primary science day.

With her love and passion for science, Valerie believes that it is incumbent on everyone at institutions like the FHS, to 'translate' their science by dropping the jargon, and making it fun and accessible to young and old.

"It is incumbent upon all scientists to 'translate' their science by dropping the jargon, and making it fun and accessible to all."

In the photograph at the top, children at a LINK vacation school proudly show off their models of the immune system fighting off germs.

In the photograph above, children from a school in KwaZulu-Natal attend one of Valerie's HIV workshops. They are observed by American students, studying global health.

In the photo left, Valerie (right) with Gerry Noel, a BSc Hons student, who helped her to design the Jim Carrey-like 'Dr Coffit' for her prize-winning TB exhibition at the Annual Academic Day of the Faculty of Health Sciences.

Dear Delegate,

We take pleasure in inviting you to a party with a twist! You will be one of 50 guests at our party.

Time: 15:30
Date: Tuesday, 5 December 2006
Venue: Refreshment table in the conference centre.

Do join us for this occasion and see how hands-on, minds-on science communication sheds light on our **HIV gate-crasher!**

Left: This invite to the workshop, HIV comes to the party, was handed out to 50 delegates at the African Science Communication Conference last year.

Nuwe inisiatiewe vir die hantering van bestralingsnoodgevalle

Foto: www.eskom.co.za

Tygerberghospitaal beskik oor die enigste fasiliteit in Suid-Afrika wat ingerig is om bestralingsnoodgevalle te hanteer, en kundigheid op hierdie hoogsgespesialiseerde gebied is beskikbaar in verskeie dissiplines in die Fakulteit. Hierdie kundigheid word tans, in samewerking met 'n aantal ander plaaslike en internasionale instansies, uitgebrei om 'n sentrum van uitnemendheid vir die mediese hantering van bestralingsnoodgevalle in Suider-Afrika by die Tygerbergkompleks te skep.

Die US se Fakulteit Gesondheidswetenskappe, in samewerking met Tygerberghospitaal, iThemba Labs, die nasionale Departement Gesondheid en ander belanghebbendes in die Wes-Kaap het die afgelope twee jaar aansienlike vordering gemaak om 'n Suider-Afrika-sentrum van uitnemendheid vir die mediese hantering van bestralingsnoodgevalle tot stand te bring.

Hierdie sentrum sal opleiding en advies ten opsigte van bestralingsongelukke aan al die lande van die subkontinent verskaf, in samewerking met die Wêreldgesondheidsorganisasie (WGO) en die Internasionale Atoomenergie-agentskap (IAEA), sê prof Barney de Villiers van die afdeling Gemeenskapsgesondheid.

Radioaktiewe bestraling en terroristebedrywighede

De Villiers sê daar het oor die jare 'n aantal stralingsongelukke in Suid-Afrika plaasgevind, meestal as gevolg van blootstellings aan radioaktiewe bronne en foutiewe radiologiese toerusting. Die hantering van mense wat op hierdie wyse blootgestel word, vereis hoogsgespesialiseerde mediese en verwante vaardighede. Die ernstige tekort aan sulke vaardighede - veral in 'n tydsgreep waarin radioaktiewe bestraling as gevolg van terroristebedrywighede 'n groeiende moontlikheid is – het mediese wetenskaplikes van die Fakulteit en TBH genoop om die probleem deur middel van 'n inter-institusionele benadering onder die loep te neem. Met die aanmoediging van lede van die WGO se Bestraling- en Omgewingsgesondheidsprogram en die samewerking van plaaslike instansies soos Eskom, iThemba Labs and die Wes-Kaapse en Nasionale Departement van Gesondheid, is die *Radiation Emergency Medical Advisory Centre of Southern Africa (REMACSA)* – onder voorsitterskap van dr Wilhelm Groenewald, van Mediese Fisika in die FGW en by Tygerberghospitaal – gevolglik tot stand gebring.

Omdat so 'n hoogsgespesialiseerde aktiwiteit nie in afsondering bedryf kan word nie, het die lede van REMACSA uit die staanspoor besluit om met die IAEA en die WGO saam te werk. Die WGO bestuur 'n internasionale netwerk vir bestralingsnoodgevalle wat bekend staan as die *Radiation Emergency Medical Preparedness and Assistance Network (REMPAN)*, wat tot stand gekom het deur konvensies waarvan Suid-Afrika ook 'n ondertekenaar is. In 2006 het De Villiers en Groenewald 'n voorlegging by 'n vergadering van REMPAN gemaak, waarin die kapasiteit en doelwitte van REMACSA uiteengesit is, en op grond daarvan het dié sentrum erkenning gekry as 'n skakelinstituut van REMPAN in Suider-Afrika. Die volgende doelwit is om REMACSA te ontwikkel tot 'n samewerkingsentrum *(collaborating centre)* van REMPAN vir al die lande van die subkontinent.

Kundige netwerke om stralingsnoodgevalle te hanteer

As deel van die voorbereidingstaak om hierdie rol te kan vervul, het De Villiers 'n kursus in België bygewoon wat spesifiek gerig is op gereedheid en reaksie ten opsigte van kern- of radiologiese noodgevalle. Sy kundigheid op hierdie gebied - en dit wat ook in verskillende kliniese dissiplines in die Fakulteit beskikbaar is - sal mettertyd aangewend word om individue uit die verskillende lande in Suid-Afrika op te lei sodat elke land mettertyd 'n node van kundiges het wat weet hoe om die netwerk vir stralingsnoodgevalle te aktiveer en te gebruik. De Villiers sê REMACSA sal alle kundiges uit die verskillende areas van die Suid-Afrikaanse samelewing – soos bv ook kundiges in die Weermag – identifiseer en op 'n lys plaas wat geaktiveer sal word waar en wanneer nodig.

Intussen is die Fakulteit en Tygerberghospitaal onbetwiste voorlopers in Suid-Afrika op die gebied van stralingsverwante werk – hetsy rampbestuur, kerngeneeskunde of die hantering van stralingsnoodgevalle.

Slaggereed vir *STRALINGSONGELUKKE*

Die Tygerbergkompleks is vir jare reeds die enigste sentrum in Suid-Afrika wat spesifiek toegerus is om noodgevalle, waar pasiënte ook radioaktief gekontamineer is, te hanteer, sê dr Wilhelm Groenewald van Mediese Fisika in die US Fakulteit Gesondheidswetenskappe en Tygerberghospitaal.

TBH, die sentrale verwysingshospitaal van die Departement Gesondheid in die Wes-Kaap, beskik oor 'n Stralingsnukliede Advieskomitee en 'n Stralingsongevalle-fasiliteit (TBOF) - 'n unieke teaterkompleks wat saam met Eskom bedryf word.

Groenewald verduidelik dat hierdie fasiliteit in die vroeë 1980's ingerig is as voorwaarde vir die uitreiking van 'n lisensie aan die Koeberg-kragsentrale. Dit is gerat om werknemers van Koeberg, wat in 'n ongeluk beseer en radioaktief gekontamineer word, te hanteer.

Die fasiliteit is deur Eskom gebou en word deur die Provinsie onderhou. Dit maak voorsiening vir die hantering van mense wat in 'n kernongeluk beseer is en aan radioaktiewe materiaal blootgestel is, sê dr Groenewald. "Pasiënte kan persone wees wat by die Koeberg-kragsentrale beseer en radioaktief gekontamineer is, of dit kan beserings en besoedeling behels wat deur 'n sg. 'dirty bombs' veroorsaak is."

"Wanneer 'n ongeluk plaasvind, word die Provinsie se Rampbestuur onmiddellik in kennis gestel en 'n ambulans, wat spesifiek toegerus is vir noodgevalle van hierdie aard, word na die ongelukstoneel gestuur. Die ambulans vervoer die beseerdes na die stralingsongevalle-fasiliteit en die nodige mediese personeel – bv chirurge en narkotiseurs – word ingeroep om die pasiënte te behandel.

"Die fasiliteit het 'n spesiale buite-ingang vir die ambulans, waar die pasiënte ontvang word en dit is, onder meer, toegerus met 'n aantal Geigertellers, wat radioaktiwiteit meet. Wanneer pasiënte by die fasiliteit ingebring word, word hulle dadelik afgespoel en gedekontamineer voor hulle na een van die teaters in die fasiliteit geneem word vir verdere behandeling."

Groenwald sê daar was in die 25 jaar van Koeberg se bedryf, nog nooit 'n stralingsongeluk wat die aktivering van TBOF vereis het nie. Die fasiliteit bly egter deurlopend op 'n gereedheidsgrondslag en daar word twee keer per jaar spesiale oefeninge gedoen om te verseker dat alle betrokkenes paraat en toegerus is met die nodige kennis en vaardighede om noodgevalle vinnig en doeltreffend te hanteer.

Intussen word die teater in die Stralingsongevalle-fasiliteit weekliks deur klinici van Tygerberghospitaal gebruik vir kleiner ingrepe soos plastiese chirurgie.

Groenewald en De Villiers hoop om die fasiliteit mettertyd deur middel van REMACSA uit te brei en om veral ook ondersteuningsfunksies vir die bepaling van die betrokke radionukliede en bestralingsdosisse op hoogte te hou.

Die bostaande foto's is geneem tydens 'n spesiale oefening wat twee maal per jaar in die fasiliteit gehou word om te verseker dat betrokkenes ten alle tye op gereedsheidsgrondslag bly.

Foto's: Eskom

Preparing for disaster in a post-Chernobyl world

In the last thirty years, two events exposed our vulnerability regarding the dangers and threats that lurk in the shadows of the technologies that we have come to regard as part and parcel of our modern day world: the devastating accident at the Chernobyl nuclear power plant in Russia in April 1986 and the tragic events of 11 September 2001, when terrorists used passenger aircraft to fly into New York's twin towers and the Pentagon in Washington DC.

Prof Barney de Villiers and dr Wilhelm Groenewald at a REMPAN meeting in Kiev.

According to a brochure of the Euratom Research and Training Programme on Nuclear Energy, Chernobyl in particular, had a profound effect on emergency preparedness and post-accident management worldwide – so much so that considerable resources have been allocated to improve capabilities in this regard in countries across the globe. "However, more needs to be done and continuous effort is needed to ensure a timely and effective response to any future accident," the brochure says.

Emergency management has also received increased attention following the 9/11 attacks in the United States. The nature of these attacks have highlighted the dangers of so-called 'dirty bombs' or radiological dispersal devises (RDD) which spread radioactive material by aerosolising or dissolution in water reservoirs. In South Africa – where the Soccer World Cup will be held in 2010 – and in countries across the world, the dangers of these devices are currently under intense public, scientific and political scrutiny, says Prof Barney de Villiers of the Community Health division of the SU Faculty of Health Sciences.

As a member of the Province's Disaster Management Committee, De Villiers has been closely involved in new initiatives to ensure that the Province is prepared to respond timeously and effectively to disasters such as nuclear or radiological accidents or terrorist attacks – including during the 2010 Soccer World Cup.

One of the most important initiatives in this regard, was the acquisition of software packages and a comprehensive disaster management system, known as RODOS, that is in development in Europe and tested in Germany and will ultimately be used throughout Europe to provide an early well informed emergency response to nuclear and radiological accidents, as well as coherent support at all stages of such incidents – including scenario's to plan in advance, long term management and restoration of contaminated areas. The system also supports a wide range of useful countermeasures such as the sheltering and evacuation of people, distribution of iodine tablets, food restrictions, agricultural countermeasures, relocation, decontamination, restoration and others. It also integrates local and national radiological monitoring data and meteorological measurements and forecasts. Because the system will be used by some 20 countries in the European Union, Central and Eastern Europe and the former Soviet Union, it had to be designed for adaptation to local, regional and national conditions.

De Villiers discovered the system when he attended a special course on disaster management in Belgium and he subsequently convinced members of the Euronos project that RODOS could also play a vital role in emergency management in South Africa. As a result, the system, comprising of a computer programme, was provided/donated to Stellenbosch University under an agreement for use in South Africa and was recently installed at Tygerberg's disaster management centre.

"What we now need is resources and research to enable us to adapt the system for conditions in South Africa, i.e. data on the health service cost profile of the country, population density in various parts of the country, local agricultural and meteorological data, *etcetera*. This data will be used to populate the system and develop it as a comprehensive tool in emergency management. Thus the system provides a wealth of research opportunities for MSc students and even at PhD level," De Villiers says.

The process to adapt the system for South African conditions has already started with De Villiers working on the determination of variables. "Once we have the necessary information at our disposal, we can start working on scenario's that can be used by those involved in planning the country's response to emergencies and disasters. This will enable them to adapt their planning according to the system's predictions."

De Villiers recently accompanied the Western Cape Minister of Local Government, Mr R Dyantyi and a provincial and local government team on a fact finding visit to the RODOS centre in Germany. He explains that Chernobyl and its aftermath provided researchers in Europe with a first time opportunity to study the consequences of a nuclear accident, i.e. on various food chains, and to design an early and late emergency response system and appropriate countermeasures advisory system.

"In the past our reaction to the possibility of a nuclear accident was 'What if?'. Chernobyl has answered the 'what if?' questions and the RODOS system should enable those countries involved in the project, to provide coherent support at all stages of a nuclear or radiological accident or terrorist incident – before, during and after a release of radiological materials."

RODOS is a work in progress, with continuous improvements being made to the system. The RODOS brochure explains the various levels of decision support, provided by the system. They include:

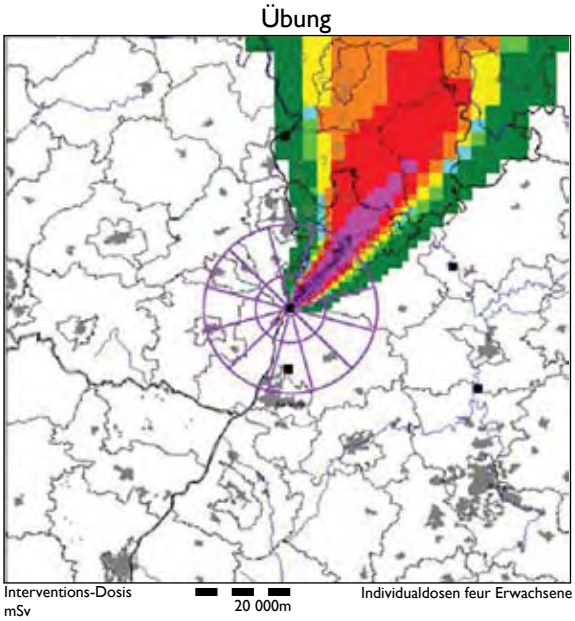
Level O:
Acquisition and quality checking of radiological data and their presentation, directly or with minimal evaluation, to the end-users, along with geographical and demographic information.

Level 1:
Analysis and prediction of the current and future radiological situation (i.e. the distribution over space and time in the absence of countermeasures) based on monitoring data, meteorological data and models, including information on the radioactive material released into the environment.

Level 2:
Simulation of potential countermeasures (e.g. sheltering, evacuation, issue of iodine tablets, relocation, decontamination and food bans, restoration) in particular, determination of their feasibility and quantification of their benefits and disadvantages.

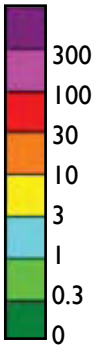
Level 3:
Evaluation and ranking of alternative countermeasure strategies by balancing their respective benefits and disadvantages (i.e. costs, residual dose, reduction of stress and anxiety, socio-psychological aspects, political acceptability etc.), taking into account the judgements and preferences of decision makers.

An example of RODOS outputs -

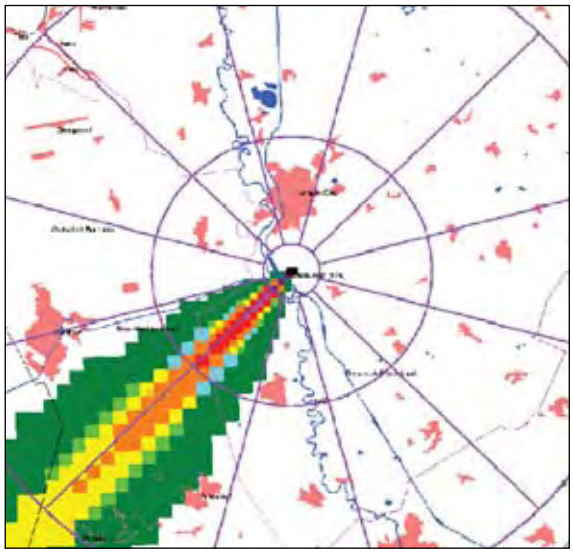


Measure: Sheltering

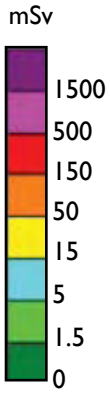
Effective dose for adults due to inhalation and external radiation, 7 days
Derl: 10 mSv



RunID: Philb 1
Standort: Philippsburg
Lauf erzeugt von: zentrale
Lauf erzeugt am: 14.04.2005 10:57
Betriebsart: Normal (Exercise)
Betriebsmodus : Interaktiv <Prognose>
Unfallzeitpunkt: 14.04.05 08:15
Freisetzungbeginn: 14.4.05 09:15
Prognosezeitraum: 14.04.05 09:15 - 15.04.05 09:15



Result: Intervention-oriented



Intervention level

ONDERWATERGENEESKUNDE - ’n unieke nisgebied

Onderwatergeneeskunde is internasionaal ’n algemeen-erkende dissipline in geneeskunde, maar in Suid-Afrika het studente oor die afgelope twee jaar vir die eerste keer die geleentheid gehad om gespesialiseerde opleiding in hierdie veld te ontvang – danksy die eerste BSc Honeursgraad in Mediese Wetenskappe (Onderwatergeneeskunde) wat die FGW se afdeling, Gemeenskapsgesondheid, sedert die begin van 2005 aanbied.

Drr Sydney Carstens (links) en Jack Meintjes van die Afdeling Gemeenskapsgesondheid by die hiperbariese drukkamer wat aan die Fakulteit geskenk is vir opleiding in onderwater- en hiperbariese geneeskunde en pasiëntsorg.

Saam met Onderwatergeneeskunde is ’n kursus in Hiperbariese Geneeskunde terselfdertyd deur die nasionale Departement van Onderwys goedgekeur, maar sal eers van volgende jaar aangebied kan word, wanneer die drukkamer fasiliteite geinstalleer sal wees, sê dr Jack Meintjes, wat betrokke was by die ontwerp en samestelling van die twee programme.

Met die instelling van die programme, het die Universiteit Stellenbosch ’n unieke nisgebied in Suid-Afrika betree en tot ’n belangrike akademiese kundigheidsgebied in die wêreld toegetree. “Ons volgende stap is die instelling van ’n MSc met ’n sterk navorsingsinhoud, in beide vakgebiede.”

Opleiding in hiperbariese wetenskappe het ’n sterk teoretiese komponent, maar vereis ook praktiese opleiding in die bedryf en gebruik van drukkamergeriewe. “Navorsing op hierdie gebiede is baie moeilik sonder geredelike toegang tot drukkamerfasiliteite, sowel as betrokkenheid van toepaslike pasiënte wat in sulke fasiliteite behandel word,” sê Meintjes. Die hiperbariese inisiatiewe het ’n belangrike hupstoot gekry toe ’n maatskappy ’n drukkamer met ’n markwaarde van R750 000 aan die Fakulteit geskenk het.

“Een van ons belangrikste vennote, wat gehelp het om die skenking van die drukkamer te fasiliteer, is die *Divers Alert Network* (DAN), ’n organisasie wat groot belang het by die vestiging van internasionale kundigheid en geriewe vir die hantering van duikinsidente- en ongelukke”.

Weens die gewig van die drukkamer, wat agt persone kan huisves, sal dit op die grondvloer van die Onderwysblok ingerig word.

“In hierdie posisie is die fasiliteit toeganklik vir opleiding, navorsing en hiperbariese terapie aan staats- en privaatpasiënte. Benewens ondersteuningsfasiliteite om hoëdruk lug en suurstof te verskaf en te beheer, word daar ook fasiliteite ingerig vir bedryfspersoneel en nagraadse studente, sowel as ’n ontvangs- en hanteringsgebied vir pasiënte. ’n Parkeergebied vir ’n ambulans sal ook afgebaken word.”

Die totale waarde van die nuwe pasiënt- en opleidingsgeriewe beloop waarskynlik reeds meer as R2.5 miljoen.

Weens die tegniese en wetlike vereistes wat verband hou met die installering van hoëdruk-geriewe, is navorsingskapasiteit uitgebrei na die dierehuis wat baie naby die hiperbariese fasiliteit in die Onderwysblok geleë is.

“Op hierdie wyse kan ons die hoëdruk, tegniese ondersteuningstelsels vir die twee geriewe gemeenskaplik bedryf, met ’n algehele skeiding van die mens- en proefdierfasiliteite.”

Hoewel onderwatergeneeskunde ’n volspesialiteit in Europa is, was daar tot dusver geen spesifieke opleidingsprogramme van hierdie aard vir geneeskundiges in Suid-Afrika nie. Die programme wat Gemeenskapsgesondheid saamgestel het, is trouens die enigste van hul aard in die land. Beide programme is internasionaal geakkrediteer by die *European College of Baromedicine*, die *International School of Baromedicine*, die *European Diving Technology Committee* en die *Diving Advisory Medical Committee*.

Onderwatergeneeskunde

Volgens Meintjes was daar uit die staanspoor ’n lewendige belangstelling in die nuwe kursusse.

Onderwatergeneeskunde, wat sedert 2005 aangebied word, is ’n modulêre kursus wat gerig is op toestande soos dekompressiesiektes, wat veral duikers affekteer. Die eerste paar modules stel die student in staat om by die Departement van Arbeid te registreer as duikmediese dokter en hulle kan dus kommersiële duikers se mediese geskiktheid sertifiseer asook behandeling toepas. Die eerste twaalf studente, waarvan twee internasionale studente is, het aan einde van 2006 gegradueer. Daar is tans 27 studente vir die kursus ingeskryf, waarvan agt die graad aan die einde van 2007 sal voltooi.

Hiperbariese geneeskunde

Hierdie kursus behels suurstofbehandeling vir 'n verskeidenheid siektes wat verband hou met 'n suurstoftekort, byvoorbeeld duiksiektes, maar ook ander toestande waar suurstofbehandeling kan bydra tot beter genesing van, byvoorbeeld, wonde soos gekompromiteerde flappe, radionekrose (waar bestraling skade aan normale weefsel aanrig) en diabetiese voet- en ander wonde wat nie genees nie.

Daar is tans net een so 'n fasiliteit in die Wes-Kaap wat hiperbariese suurstofterapie as behandelingsmodus beskikbaar stel, en dit is in die private sektor. "Ons voorsien baie noue samewerking met die bestaande fasiliteit. Met die addisionele drukkamerfasiliteit op die Tygerbergkampus, word die terapie nou toeganklik vir beide private en staatspasiënte, en is dit tot voordeel van al die dissiplines in gesondheidswetenskappe wat hiperbariese terapie vir hul pasiënte benodig. Dit verteenwoordig ook 'n aansienlike uitbreiding van navorsingsgeleenthede in ander kliniese gebiede," sê Meintjes.

"Hiperbariese terapie wat ons hier wil toepas, sal 'n wetenskapgebaseerde behandelingstegniek wees wat slegs gebruik word in gevalle waar daar bewyse is dat dit medies-effektief en kostedoeltreffend is. Ons wil weg beweeg van die stigma van 'alternatiewe medisyne' en hierdie behandelingsmodaliteit her-instel in die hoof-stroom van medisyne – soos tans die geval is in Europa en die VSA. Die kursus is gerig op die opleiding van dokters op hierdie gebied, en dit behels die toediening van 100% suurstof in 'n drukkamer. Hiperbariese suurstofbehandeling voorsien hipoksiese weefsel van suurstof en dra so by tot genesing."Dit is 'n erkende geneeskundige tegniek wat wêreldwyd gebruik word en onderskei moet word van die ongetoetse aansprake van onkonvensionele praktisyns."

Die kursus is gedurende 2007 in samewerking met die *International School of Baromedicine* in Europa aangebied en sal plaaslik aan die begin van 2008 in werking tree. Studente-aansoeke word al sedert 2005 ontvang.

Meer inligting

Vir meer inligting oor die nuwe kursusse, besoek gerus www.divingmedicine.co.za en www.hyperbaricmedicine.co.za.

FAMILY MEDICINE - a new specialty

A Masters degree in Family Medicine, developed by the SU Faculty of Health Sciences, was the first medical degree in Africa to be presented entirely on the Web, in a virtual classroom. This degree will form the basis of the Faculty's training of registrars in the new Family Medicine specialty.

On August 17 this year, the Government published regulations in the Government Gazette to create the new specialty of Family Medicine.

This decision represents a major change in the health sciences in South Africa and it now puts Family Medicine on par with other specialties in Medicine. It also has major implications for this discipline, says Prof Bob Mash of the Family Medicine division in the SU Faculty of Health Sciences.

"While universities have been training family physicians for many years, the new regulations will regulate and improve the practical aspects of training by requiring doctors to train in accredited registrar posts in approved training complexes for a minimum of three years. In terms of the regulations, such a training complex must have two registrars to one supervising family physician."

In the Western Cape, the Universities of Stellenbosch and Cape Town and the provincial government are planning to enroll Family Medicine registrars in five new training complexes in January 2008.

Mash points out that universities will be responsible to train competent family physicians to meet the challenges of the country's district health system and the quadruple burden of disease – HIV and Aids, infectious diseases, trauma and chronic, non-communicable diseases such as asthma and diabetes.

Stellenbosch University have negotiated for four of the new training complexes: In Worcester, George, Paarl/Stellenbosch and an East Metropole training complex that will include the Helderberg District Hospital and the Karl Bremer Hospital. The University of Cape Town will have a training complex in the West Metropole. With two registrars at each training complex, Stellenbosch will have 14 registrars in Family Medicine next year, and UCT six.

Mash also points out that the family physician has been identified as a key part of the 2010 district health service. The FHS is geared to start with the training of family physicians next year. The academic content of the Masters degree in Family Medicine have been developed on line since 2002, when Mash pioneered the first medical degree in Africa to be presented entirely on the Web, in a virtual classroom. "The content of the programme will remain the same, but we will revise the structure to allow registrars to select 'best fit' regarding the different modules."

SA Family Practice Manual

The publication of the new *SA Family Practice Manual* will make a significant contribution to the training of specialist family physicians.

The manual is an initiative of the SA Academy of Family Medicine and Primary Care, together with FAMEC. It was edited by Prof Bob Mash of Stellenbosch University, with the assistance of Prof Julia Blitz of Pretoria University and involved collaboration of 47 authors from various parts of the country. The authors will receive no financial remuneration for their contributions; all royalties from the manual will go to the Academy for further educational activities.

The manual was designed to complement the *Handbook of Family Medicine* that describes the principles and practice of family medicine in South Africa. "By contrast, the manual is a book that focuses on practical, hands-on clinical skills. The golden rule in deciding the content of the manual was whether you could start the chapter title with the words, 'How to do something practical in the district health system.' It comprises 161 chapters – each dealing with a separate set of clinical skills. Although it was designed for the training of family physicians, the manual will also have relevance for nurse practitioners and doctors working in the district health system.

EDUCATION AND TRAINING

Medicine of the Emergency Room. Stellenbosch and UCT provide specialist training for ER doctors

Medical drama has always captured the human imagination – be it in fact or in fiction. In today's world, the fictional side of this drama plays itself out in the gritty realism of television dramas such as ER. At the same time, the popularity of emergency medicine within the medical profession is illustrated by the huge interest that was generated when the Universities of Stellenbosch and Cape Town joined forces to present the first degree in Emergency Medicine in South Africa.

Although thousands of emergency and trauma patients visit the casualty departments of South African hospitals every year, none of the academic institutions in this country offered training in the field of emergency medicine until 2004 when the universities of Stellenbosch and Cape Town introduced the first postgraduate programmes in Emergency Medicine – namely a MMed for registrars, a MPhil and a MSc. These were the first programmes of their kind in South Africa and they are proving to be extremely popular – so much so that the division could not accommodate all the applications when the first ten doctors were enrolled in the MMed programme in 2004. Two of these doctors have now graduated and thus became the country's first homegrown specialists in Emergency Medicine; the other eight will be graduating in January next year. To date, more than fifty postgraduate students have registered for the Masters degree. At the same time, the new programmes have greatly enhanced the academic offering of the SU and UCT Faculties of Health Sciences; South African experts who have been studying or practicing emergency medicine abroad, have already started to return to the country, where they now have the opportunity to develop their careers locally, says the head of the division, Dr Lee Wallis.

The Emergency Medicine division was formed in 2001 as a result of an open meeting at the College of Medicine of South Africa that was held in 2000. Under the leadership of the then interim head of the division, Dr Clive Balfour, the new postgraduate training programmes were developed from scratch and the Emergency Medicine Association of South Africa submitted documentation to the Health Professionals Council of SA (HPCSA) for the registration of Emergency Medicine as a specialty. Subsequently, in 2003, the College of Emergency Medicine was founded by the Colleges of Medicine of SA and SU and UCT joined together to present the new Masters degree to the first ten students, who registered for the degree in 2004. The newly qualified specialists will take up posts in Emergency units, mainly in hospitals in the Western Cape.

It is expected that this specialist training will have a significant impact on the practice of emergency medicine in South Africa, says Wallis, who came to South Africa from the United Kingdom, where he received his ER training in the Royal Navy. This included a tour of duty with the Navy in the Iraqi war.

***Photos above**: The Headquarters of the Western Cape's emergency medical services at Karl Bremer Hospital. On the right, Prof Lee Wallis, head of the new EM division at SU and UCT.*

Planes, trains and automobiles - and a helicopter or two. *The country's new specialists in Emergency Medicine will not be confined to the ER, but will accompany emergency service vehicles when necessary during rescue operations. With the exception of trains, the Western Cape's EMS use virtually all other vehicles and aircraft to provide transport and assistance during emergencies. In the photos left and below is a range of emergency vehicles, including ambulances, helicopters, buses and airplanes. In the picture at the bottom, EMS staff provide assistance at the site of an accident.*

He says training in emergency medicine in South Africa will be further entrenched on the academic level by the formalisation of undergraduate teaching modules at both Stellenbosch and UCT. Like other experts in the field, Wallis thinks the current, worldwide popularity of the discipline may be partly due to television programmes such as ER, which offers a most vivid glimpse into the emergency room where doctors and medical staff deal with cases ranging from rape to car accidents, drug overdoses and gunshot wounds. "Whatever the cause, South Africa seems to be riding the crest of this popularity wave."

The popularity of the discipline was reflected in particular by the interest generated by the international conference on Emergency Medicine that was organised in Cape Town by SU and UCT in October this year. The conference attracted some 650 delegates from countries across the globe and Wallis and the South Africans were especially heartened by the tremendous interest shown by countries from sub-Saharan Africa.

South Africa is riding the crest of the worldwide wave of popularity surrounding emergency room medicine, says Prof Lee Wallis, head of the country's first academic division for Emergency Medicine.

Since emergency medicine is a branch of medicine that is not only practiced in the emergency departments of hospitals, but also in the field by emergency medical services, a significant percentage of Wallis's work involves the improvement of emergency care for the Western Cape Provincial Health Department. At present, 30% of his work is devoted to academic activities at the two universities, while 70% involves the emergency services of the Health Department. It is also one of the stated objectives of the new division to promote a high standard of emergency care to patients in both the pre-hospital and in-hospital sectors of the discipline, while supporting a continuous line of good medical management from the time that the patient is in need, while being transported, through to receiving good medical attention in the most appropriate medical facility.

Lee Wallis first came to the Western Cape in 2002 to do research for the completion of his MD thesis at the Red Cross Children's Hospital. Instead of returning to the UK, he and his wife decided to relocate to South Africa "because the country represented such an interesting and challenging environment". They completed the move towards the end of 2003, after Wallis had returned from the war in Iraq. Since moving to the country, the couple has bought a wine farm in Wellington, where Mrs Wallis runs a guest house while her husband is helping to build the foundations for the youngest medical specialty in South Africa.

OTHER NEW ACADEMIC PROGRAMMES

Other new courses now offered by the SU Faculty of Health Sciences include:

MPhil in Health Sciences Education

This new programme was developed by the Faculty's Centre for Health Sciences Education, with the aim of -

- Promoting excellence with respect to education, research and community interaction in the field of Health Sciences Education on the African continent;
- Facilitating research and academic reflection to contribute to a body of knowledge in the field of Health Sciences Education;
- Ensuring a rich learning environment, including interdisciplinary participation and approaches and international inputs;
- Helping to develop Health Sciences Education leaders who can contribute to advancement of evidence-based practice in higher education in Health Sciences in Africa and thereby improve quality of health care.

Admission requirements

To be admitted to the programme in Health Sciences Education a student has to have a four-year degree (or longer) in a Health Sciences related programme and currently be employed in a Health Sciences environment; or an honours baccalaureus degree in Education or Social Sciences and currently be employed in a Health Sciences environment; or an equivalent qualification approved by Senate for the purpose, or he/she must have reached a standard of ability in his/her field of study by other means acceptable for the purpose, according to the judgement of Senate.

Learning outcomes of the programme

Students who complete this programme will be able to understand, critically evaluate and apply contemporary and appropriate educational approaches in the Health Sciences teaching and learning contexts; principles of professional practice, with specific reference to ethics, reflection and social responsiveness, to Health Sciences teaching and learning contexts. They will also have to present findings derived from international and particularly African research into Health Sciences Education within the context of diversity and varying levels of resources.

Assessment

All modules are subject to continuous assessment by assignments in which the student can apply the theoretical knowledge in their own work setting. In order to pass, a minimum mark of 50% has to be achieved in each module. The final mark is weighted according to the credit weighting. A student is required to submit a satisfactory research assignment demonstrating his ability to conduct an independent scientific investigation and to interpret the results of such an investigation. The research assignment will be assessed according to Stellenbosch University guidelines. In order to pass the research assignment a minimum of 50% has to be achieved.

A short compulsory residential period of one week, usually in February, introduces each study year. The rest of the programme is technology mediated. Learning is facilitated via structured study materials, written assignments and feedback and electronic contact.

Thesis option

The programme can be completed by research. Admission is subject to approval by the programme committee. The student has to submit proof of experience in an educational environment. If the student can not supply proof of knowledge of research in educational or social research, the following modules are compulsory:

- Educational Research for change in Health Sciences Education (10 credits)
- Research methodology (10 credits)

A student is required to submit a satisfactory research thesis demonstrating his/her ability to conduct an independent scientific investigation and to interpret the results of such an investigation, and make conclusions. This must be at a more advanced level than required for the research assignment of the structured programme. The research thesis will be assessed according to Stellenbosch University quidelines.

RPL – Individuals with considerable experience in health sciences education, can apply for recognition of previous learning via a tentamen (eg certificate and/or diploma in education, FAIMER fellows).

The course aims to develop leaders in the field of Health Sciences Education who can contribute to the advancement of evidence-based practice.

PhD in Health Sciences Rehabilitation

The Centre for Rehabilitation Studies will be offering a PhD in Health Sciences Rehabilitation from January 2008.

For the past nine years, the Centre has offered Masters and Honours programmes with 16 students obtaining postgraduate qualifications in disability and rehabilitation related fields. The Centre is now ready to take this cohort of learners and other Masters graduates from other institutions of higher learning to the next level of academic development.

The Centre is the first of its kind in Africa to offer comprehensive interdisciplinary programmes in the field of disability and rehabilitation studies with this PhD programme and aims to attract students who need to sharpen and mature their skills in disability and rehabilitation research within South Africa, the Southern African Development Community (SADC), the African region and internationally.

Requirements

The PhD graduate will be capable of:

- Producing a dissertation that places research within the broader context of the field and meets the criteria set for international academic peer review;
- Analysing existing disability and rehabilitation policies and developing new policies that will contribute to sustainable development, both in the local and global arenas;
- Creating a body of new knowledge by way of research and using this knowledge to transform existing, and develop new, services; and
- Assisting both the Faculty of Health Sciences and other Faculties within SU in curriculum reforms, with an emphasis on the production of generic interdisciplinary programmes that will prevent unnecessary duplication and free up both time and resources.

Empowering women

Women dominate the postgraduate rehabilitation field. Since the programme will be recruiting students with Masters degrees in Rehabilitation initially, it is envisaged that this programme will empower women to produce top quality research outputs within disability and rehabilitation.

Dialogue that cuts across the disciplines, both in SA and globally is necessary.

The type of researcher that the programme will produce will strive towards the development of interdisciplinary sustainable solutions, intent on facilitating the inclusion of those who might otherwise be restricted to the margins of worldwide sustainable development.

Such positioning will place Stellenbosch University (SU) at the forefront of any academic debate around the opening up of diverse opportunities to those most in need of enablement and rehabilitation. Such an offering will strengthen Stellenbosch University's position as a knowledge partner in terms of its agreement with the Department of Education.

LEERSTOEL vir opleiding in Radiologie

Radiologiese opleiding van internasionale gehalte het nuwe momentum aan die gekry toe die privaatsektor 'n nuwe leerstoel in Radiologie in die FGW geskep het.

Prof Jan Lotz, 'n vooraanstaande private radioloog en ou bekende in die Fakulteit, is gesekondeer om dié pos te vul. Hy was 'n medeprofessor in Radiologie aan die US toe die privaatsektor hom in 1986 gevra het om die eerste Magnetiese Resonanseenheid (MR) by die *City Park* private hospitaal in Kaapstad te vestig en sedertdien het hy 'n leidende rol gespeel in die groei van MR-beelding in die private gesondheidsorgomgewing in Suid-Afrika. Die dissipline het trouens gegroei tot so 'n integrale element van private gesondheidsorg, dat die opleiding van kundiges van kritiese belang geword het, sê Lotz. "Met die geweldige vordering wat deurlopend op tegnologiese gebied gemaak word, moet studente op internasionale standaard wees wanneer hulle die praktyk betree.

"As gevolg van die finansiële en ander krisisse wat oor die afgelope dekade akademiese geneeskunde gekniehalter het, het daar kommer ontstaan oor die standaard van radiologiese opleiding in die land. By Tygerberghospitaal het die situasie, veral ten opsigte van toerusting, egter oor die afgelope paar jaar ingrypend verbeter en beskik die Radiologie-afdeling vandag oor die nuutste apparaat en toerusting, onder meer magnetiese resonansie en rekenaartomografie. Dit het bygedra tot die besluit van radioloë uit die privaatsektor om die nuwe leerstoel aan die FGW te vestig."

StellMed spreads its wings

In recent years, the role of StellMed in the SU Faculty of Health Sciences has evolved from a CPD data base to a vital link in the Faculty's rural outreach and CPD programmes.

The StellMed office was initially established to administer StellMed Updates, a data base developed by the FHS to enable health practioners to earn CPD points without leaving their home towns or practices. StellMed allows subscribers to access an exstensive electronic data base of authorative articles on aspects of the health sciences, for self study. A set of questions is appended to each article and the user must answer these electronically to earn CPD points.

This unique service has not remained static. Over the last two years the StellMed office has facilitated courses for health practitioners in all parts of the Western Cape and even in other parts of the country or beyond our borders.

Rural doctors, attending workshops arranged by StellMed on behalf of the MoComp project. A doctor and health staff, attending a workshop on obstetric anaesthesia in Beaufort West, and right, doctors practising incubation techniques during a skills workshop in Oudtshoorn.

MoComp

In 2005, the faculty's rural health centre, Ukwanda, asked the staff of StellMed to assist with Maintenance of Competence project which was designed to improve the knowledge, skills and overall competence of rural health professionals; improve job satisfaction and reduce staff turnover, and improve the quality of health service delivery. Working closely with StellMed and the faculty's Clinical Skills Centre, the project developed and co-ordinated various training courses aimed specifically at the health needs of health care practitioners in rural hospitals. Included were courses on anaesthesia, emergency medicine, pathology, basic life support, small surgical procedures and many others.

Training courses

In 2007 the Provincial Department of Health indicated that they wanted to include the project as part of their routine Human Resources Development Programme and Ukwanda handed the initiative back to the Province to sustain the current momentum and increase its scope. However, the faculty's involvement in the project continues and StellMed, with the assistance of the Clinical Skills Centre and faculty staff, is continuing to arrange short training courses in various parts of the province.

A number of short course workshops have been finalised for 2008, comprising a wide variety of subjects while others will be finalised in due course.

Anyone interested in attending these CPD-accredited courses, can contact the StellMed Office at Tel: 021 938 9532 • Fax: 086 517 9916 • e-Mail: stellmed@sun.ac.za.

Programme for 2008

The following course dates and venues have been finalised:

- Gynaecological Surgery Symposium: Laparoscopic Surgery - 7 & 8 Feb 2008 at the Vincent Palotti Hospital, Cape Town.
- Head Injuries: Clinical Perspectives, Classifications and Grading of Head Injuries, as well as Management of Head Injuries - 22 February 2008, George.
- Clinical Holistic Medicine: 21 & 22 Feb 2008, Cape Town.
- Quality of Life Medicine: 23 February 2008, Cape Town.
- Drug Abuse: Amphetamines (Tik); Cocaine; Heroin; Cannabis (Dagga) - 07 February 2008, Worcester.
- 11-14 weeks Ultrasound Workshop: 07 February 2008, FHS, Tygerberg.
- US Skills Training Course: Eye Examination; Approach to X-rays; Joint Examination; ECG interpretation - 14 February 2008, FHS, Tygerberg.
- Neurosurgical Emergencies: Aneurism; Spinal Injuries; Paediatric Head Injuries - 16 April 2008, Malmesbury.
- Opknappingskursus vir Algemene Praktisyns: (Afrikaans) - 7, 8 & 9 Mei 2008, Tygerberg.
- Integrative Medicine: 29 & 30 May 2008, Cape Town.
- Basic Ultrasound Workshop: 06 June 2008, FHS, Tygerberg.

Other courses for 2008

The following courses will be presented, but the dates and venues are not yet finalised:

- IMCI for doctors.
- Management of TB.
- Gynaecological Workshop.
- Basic Life Support.
- Papsmear and Cervical Carcinoma.
- Acute Poisoning.
- Radiology in the Emergency Department (ED).
- Conscious Sedation for Procedures in the ED.
- Airways.

Training to manage HIV and Aids in Africa

Paediatric HIV is a preventable disease but in sub-Sahara Africa, 1 800 children under the age of 15 are infected with the virus and a further 1 400 die of Aids every day. HIV experts from the FHS are now training health professionals to improve treatment initiatives in various African countries.

Paediatric HIV and Aids experts in Stellenbosch University's FHS launched various initiatives in 2006 in an effort to 'transform training into performance and service delivery' in African countries.

One of these initiatives was the *South-to-South* partnership - a comprehensive paediatric HIV care and treatment programme, aimed at health workers from African countries. The project is funded by the United States Agency for International Development (USAID).

At the launch of the South-to-South project were, from the left in front, Prof Marietjie de Villiers, deputy dean of Education and Prof Mark Cotton, S2S director. From the left, at the back: Prof Elaine Abrams of Columbia University, Dr Helena Rabie, executive director of S2S and Dr Liezl Smit, manager of the project.

The reason why such large numbers of children in Africa are infected with HIV and why so many of them die of Aids every day, is mainly because few countries in the region have been able to prioritise the treatment of children, says Prof Mark Cotton, head of paediatric infectious diseases and director of the KID-CRU research unit in SU's department of Paediatrics and Child Health.

"It is estimated that only 10% of children who require antiretroviral treatment are currently being treated, mainly because of the lack of trained health care workers, the overwhelming impact of the pandemic and the complexity of treating HIV-infected children."

Through their research and involvement in the treatment of peadiatric HIV for more than a decade, Cotton and his team are at the forefront of ART initiatives in Africa and South Africa. In 2006, they launched the *South-to-South* programme with the specific aim of transforming HIV/Aids treatment theory into practice for African health care professionals, and to enhance and develop the technical and practical skills that they need to successfully initiate and implement comprehensive HIV/Aids services, using a family-focused model of care.

Although the programme was only launched towards the end of 2006, the *South-to-South* team have already trained groups of eight to ten health care professionals from rural areas in the Eastern and Western Cape and from Mozambique, Ethiopia, Nigeria and others.

Various groups are due to receive training in 2008– including groups from Tanzania, Rwanda and Zambia and other African countries. The programme manager, Dr Liezl Smit, says training is provided by HIV experts from the SU Department of Paediatrics and Child Health, the pharmacy and social work department at Tygerberg Hospital as well as experts from Groote Schuur and the Red Cross Children's Hospital. KID-CRU has also established a community-based training site in Khayelitsha near Cape Town in 2007.

The training comprises theoretical work, focused on key aspects of the care and treatment of babies, children and adolescents with HIV/Aids, as well as practical experience in the paediatric HIV clinic at TBH. In 2006, professional staff of KID-CRU also trained nurses in the basic management of HIV; Sothemba counsellors on adherence issues regarding children with HIV and various other training and outreach initiatives in the Eastern Cape.

***South-to-South ICAP International* conference**

Representatives from various African countries and the United States attended a South-to-South training conference held in Durbanville, Cape Town, in 2007. From the left are Neena Phillip (USA), Bazghina Semo (Tanzania), Aziz Abdallah (Tanzania), Eric Lugada (Nigeria), Elaine Abrahams (USA), Fatima Tsiouris (USA) and Liezl Smith, S2S programme manager.

PENNEVRUGTE UIT DIE FAKULTEIT

Akademici uit die Fakulteit Gesondheidswetenskappe was oor die afgelope jaar betrokke by die publikasie van handleidings wat elk 'n besondere bydrae tot 'n betrokke vakgebied lewer. Benewens die handboeke, het prof Piet Oosthuizen van die Departement Psigiatrie ook vir die lekeleser 'n boek oor depressie geskryf wat uit die staanspoor landwyd aandag getrek het en die onderwerp van bespreking was in radioprogramme en in koerant- en tydskrifartikels.

VIR DIE LEKELESER

Piet Oosthuizen:
Ontsnap van Depressie (Tafelberg, ©2007)

"Daar is min siektes bekend aan die mensdom wat so misverstaan, verkeerd gediagnoseer, gestigmatiseer en misken word as depressie," skryf Oosthuizen in sy inleiding tot hierdie boek. "Dit is inderdaad so dat baie mense (waaronder sommige medici) se opvattings oor depressie nie veel gevorder het van die Middeleeue af nie."

Hy wys daarop dat depressie reeds in 1990 in die *Global Burden of Disease*-studie geïdentifiseer is as die vierde belangrikste bydraer tot die wêreld se siektelas, "en die voorspelling is dat dit teen 2020, naas hartsiekte, die grootste oorsaak van siektelas in die wêreld gaan wees." Dit was ook in 1990 reeds die grootste oorsaak van ongeskiktheid (oftewel *disability*) by mense ouer as vyf jaar. In Suid-Afrika is neuropsigiatriese toestande trouens reeds saam met MIV/Vigs, die grootste oorsaak van ongeskiktheid."

Op die kliniese vlak besef psigiaters soos Oosthuizen toenemend dat onbehandelde depressie net erger word en selfs breinbeskadiging kan veroorsaak. En net soos hartsiektes 'n risikofaktor is vir depressie, is depressie 'n groot risikofaktor vir hartsiektes. Hy sê algemene praktisyns behoort daarop te let dat baie mense wat met onverklaarbare fisiese simptome presenteer, in werklikheid aan depressie ly. "Die dokter moet derhalwe soek vir depressie in sulke mense."

Teen hierdie agtergrond het Oosthuizen en sy uitgewers besef dat daar 'n groot behoefte in Suid-Afrika is aan 'n gesaghebbende gids vir die lekeleser oor die simptome, oorsake en uitwerking van depressie. "Die enigste inligting oor die onderwerp is 20 jaar oud en dit is nie deur mediese kundiges geskryf nie."

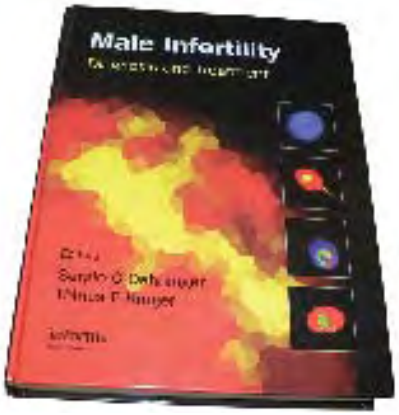
Die inligting in die boek is dan ook streng gebaseer op bewysgebaseerde geneeskunde, en fokus op die jongste navorsing oor die toestand sowel as die behandeling daarvan en maniere om dit te beheer en uiteindelik te oorkom. Dit is in toeganklike taal en 'n gemaklike styl geskryf en dit neem alle aspekte van die siekte onder die loep – onder meer depressie en geslag; depressie by kinders en adolessente en by ouer mense, seisoenale depressie en die effek van lig, en die rol van depressie in ander siektes.

In die hoofstukke oor die behandeling van die siekte, beklemtoon Oosthuizen medikasie as een van die hoekstene van die behandeling van gemoedsiektes en hy verduidelik in gemaklike leke-taal die gebruik van anti-depressante, kalmeermiddels en gemoedstabiliseerders. Hy beskryf ook die gebruik van psigoterapie en stroop elektrokonvulsiewe behandeling van mites en bangmaakstories. Terselfdertyd fokus hy die soeklig op die aktiewe deelname van die pasiënt in die hantering van die siekte – onder meer deur leefstylaanpassings, oefening, slaap en dieet. "Selfmoord is 'n tragiese maar voorkombare probleem. Dit is gewoonlik die gevolg van 'n siektetoestand soos depressie en daarom behandelbaar. Die vroeë herkenning en behandeling van psigiatriese siektes is van groot belang om die stille pandemie te stuit," skryf hy.

Oosthuizen beklemtoon deurgaans dat depressie – en ander gemoedsiektes – 'n mediese probleem is en soos enige ander siekte en behandeling moet op die gebied van die geneeskunde gesoek word. Hy sê te veel mense het 'n eiertjie te lê oor hoekom 'n persoon kwansuis bedruk is en hoe dit behandel behoort te word – en dit terwyl die brein 'n veel komplekser orgaan as bv die hart of uterus is. "As iemand wil kommentaar lewer oor gemoedsiektes (trouens, oor enige siekte) moet hy sy kwalifikasies uithaal en wys. 'n Wyse man praat met groot omsigtigheid oor dinge waarvan hy min weet. Diegene wat sulke sterk menings huldig dat depressie nie werklik 'n siekte is nie, praat deur hul nek en hoort in die span wat dink Elvis verkoop nou tweedehandse motors en dat die aarde plat is."

Ontsnap van Depressie is by boekwinkels dwarsdeur die land beskikbaar.

Male Infertility – Diagnosis and treatment



The editors of this comprehensive handbook were Prof Sergio Oehninger of the Jones Institute for Reproductive Medicine, Eastern Virginia Medical School, and Prof Thinus Kruger, head of Obstetrics and Gynaecology at Stellenbosch University and head of the Tygerberg/Stellenbosch Reproductive Biology Unit. It provides a comprehensive, in-depth overview of the diagnosis and treatment of male infertility. Members of the Stellenbosch/Tygerberg Unit, who are internationally acknowledged experts in the field, contributed several chapters to the book, particularly with regard to sperm physiology and pathology, as well as the diagnosis of male infertility.

Handbook of Family Medicine and the SA Family Practice Manual

A second edition of the imposing *Handbook of Family Medicine* was also published in 2006. The first edition of the textbook - edited by Prof Bob Mash of Family Medicine and Primary Care - was published in 2000. Aimed at undergraduates from their second year and widely used throughout the duration of their studies, the *Handbook of Family Medicine* is a prescribed standard text book at all eight SA medical schools. Although it was written for undergraduates, the textbook is also used by postgraduates at entry level, especially students who did not study in SA. It is thus widely used by postgraduate students in the sub-Saharan countries.

The textbook was commissioned by the Family Medicine Education Consortium (FaMEC), which comprises representatives from the country's eight medical schools. Seven of these schools were involved as co-authors of the book.

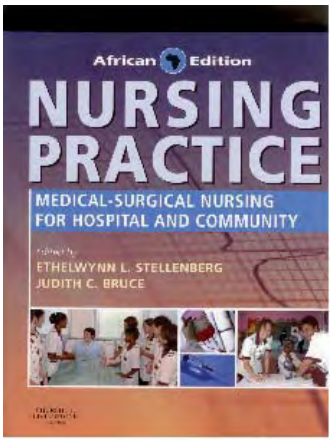
Additions to the book include new sections on chronic and palliative care, communication skills, family assessment, and critical appraisal of relevant research. Recent changes in government policies regarding the emphasis on primary health care, the dispensing doctor and practice management were also incorporated, as well as updated case studies based on real life experiences.

Mash was also the editor of a second textbook on family medicine, namely the *SA Family Practice Manual*. This manual comprises 162 chapters and was compiled on behalf of the SA Academy of Family Practice (see p. 29)

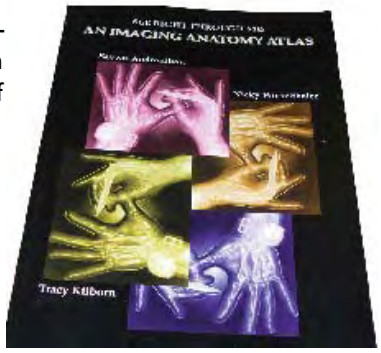
Nursing Practice: Medical-surgical nursing for hospital and community

This is the first international textbook written by South African nurses for the African market.

The task of compiling an African edition of the international nursing textbook fell to Dr Ethelwynn Stellenberg of the Nursing division in the FHS. She was asked by the Elsevier publishing house some two years ago to convert a UK textbook to address diseases, conditions and cultural practices in Africa. Stellenberg asked Prof Judith Bruce, head of Nursing at the University of the Witwatersrand, to help her with the project. As co-editors, they consulted with nursing departments at other South African Universities, as well as the private sector to get specialist inputs from the various areas of nursing. The result was an imposing textbook, comprising 37 chapters that can serve as a 'bible' for nursing students from their first to their third year of training.



See right through me: An imaging anatomy atlas



This stunning handbook of radiological images of the human anatomy was the brain-child of Prof Savvas Andronikou of the Radiodiagnosis division of the SU Department of Medical Imaging and Clinical Oncology. Sponsored by the Radiological Society of SA, the book is locally produced and locally relevant, using modern, state of the art imaging to provide a 'geographical atlas' of the human body in the form of radiological images, produced by a range of imaging modalities. Registrars and consultants from Radiology departments from across South Africa contributed to the book which will be provided free of charge to all new Radiology registrars in the country. Andronikou and co-authors Nicky Wieselthaler and Tracy Kilborn – both paediatric radiologists at the Red Cross Children's Hospital – included a unique section on paediatric radiology. Andronikou points out that most imaging atlases are outdated and he and his co-authors wanted to ensure that new registrars in South Africa have free access to the latest and most relevant material in their field of study. Free copies of the book were given to all delegates attending the first international Radiology conference held in South Africa in 2006.

Vorm en funksie in REKONSTRUKTIEWE CHIRURGIE

Met sy aanstelling as die nuwe hoof van Plastiese en Rekonstruktiewe Chirurgie aan die US se Fakulteit Gesondheidswetenskappe en Tygerberghospitaal, het prof Frank Graewe in 2006 die sirkelroete voltooi wat hom uit Duitsland na Suid-Afrika gelei het om sy MBChB-graad hier te doen, en hom toe met etlike kronkelpaaie teruggeneem het na Duitsland en ander dele van die wêreld – net om weer met 'n Kaapse draai op die Tygerbergkampus te eindig.

Prof Frank Graewe het vir die eerste keer met Suid-Afrika kennis gemaak kort nadat hy sy matriekstudies in Duitsland voltooi het.

Dit was in die eerste plek die land en die sonskyn wat sy hart gesteel het, maar 'n besoek aan 'n vriend van hom - wat destyds sy diensplig by 'n Suid-Afrikaanse hospitaal kom doen het – het aanleiding gegee tot 'n verreikende loopbaanbesluit van die jong Frank Graewe. "My vriend het my vertel hoe goed mediese opleiding in Suid-Afrika is en dit het my uiteindelik laat besluit om my studies in Suid-Afrika, eerder as Duitsland, voort te sit. So het dit toe gekom dat ek aansoek gedoen het vir toelating tot die MBChB-kursus by een van die plaaslike universiteite, en hoe dit gebeur het dat ek my voorgraadse studies aan die Universiteit Pretoria voltooi het."

Dit was die begin van 'n lang verbintenis met Suid-Afrika.

Na afloop van sy huisdokterjaar in KwaZulu-Natal het Graewe se voete hul pad Kaap toe gevind en die Universiteit Stellenbosch en Tygerberghospitaal het gou 'n tweede tuiste geword. Dit was ook hier waar hy sy spesialis-opleiding onder die leiding van prof Bennie Zeeman, voormalige hoof van Plastiese en Rekonstruktiewe Chirurgie – voltooi het.

"Met die hulp van prof Zeeman het ek daarna 'n genootskap in kraniofasiale chirurgie by die bekende dr Daniël Marchac in Frankryk begin doen, en by dr Francoise Firmin, destydse president van die Franse plastiese chirurge. Vandaar het ek na München in Duitsland verhuis en by die eweneens-bekende prof Mühlbauer gewerk en onder sy leiding, my verdere opleiding in kraniofasiale chirurgie gedoen".

Sedertdien het Graewe ook 'n genootskap (fellowship) ontvang om saam met 'n wêreldkenner op die gebied van kraniofasiale chirurgie en veral die rekonstruksie van gesplete verhemeltes, dr Ken Salyer, in Dallas, Amerika te werk.

Terug in Duitsland, het hy oor 'n tydperk van twee jaar 'n besige privaatpraktyk as plastiese chirurg in München gevestig. Hy het hierdie praktyk net stewig staangemaak toe US hom gevra het om aansoek te doen vir die pos as afdelingshoof van Plastiese en Rekonstruktiewe Chirurgie, wat vakant gelaat is met Zeeman se aftrede.

Graewe vertel dat hy lank oor die aanbod nagedink het, veral omdat die pos groot uitdagings bied en dit moeilik sou

Rekonstruksie van die oor
Volledige of gedeeltelike rekonstruksie van die oor met kraakbeen van die rib is tussen 2006 en 2007 op tien pasiënte by Tygerberg gedoen.

wees om 'n florerende praktyk agter te laat. Sedert hy egter die aanbod aanvaar en teruggekeer het na Tygerberg, vind Graewe dat sy pasiënte in Duitsland geredelik na Suid-Afrika kom en dat hy die kosmetiese operasies wat hy dàár vir hulle sou doen, nou in Suid-Afrika doen. "Vir die pasiënte beteken dit dat hulle kosmetiese chirurgie met 'n vakansie in Suid-Afrika kan kombineer".

'n Groot deel van die werk wat Graewe in privaatpraktyk gedoen het, het kosmetiese chirurgie behels, maar hy beskou rekonstruktiewe, en veral kraniofasiale chirurgie as 'n verdere spesialiteit. Hy en sy span doen gereelde rekonstruksies by Tygerberghospitaal, veral as gevolg van tumore, aangebore letsels, skietwonde en motorongelukke, en hulle sit die werk voort wat prof Zeeman en sy span gedoen het op die gebied van kraniofasiale chirurgie – veral geboorte-afwykings soos skedelmisvorming en gesplete verhemeltes.

"Een van die belangrikste ontwikkelings in die afgelope tyd is ons hantering van borsrekonstruksie ná 'n mastektomie vir borskanker. In die eerste plek word borsrekonstruksie tans vir alle kankerpasiënte by Tygerberghospitaal aangebied en die meeste doen dit. Anders as in die verlede, word daar ook nie meer gewag met borsrekonstruksie nie, maar word dit direk na afloop van die mastektomie, gedoen. Dit beteken dat die kankerchirurg die mastektomie afhandel en die plastiese chirurg neem dan by hom oor en doen die borsrekonstruksie. Ons gebruik ook nuwe en beter flappe wat oor die afgelope paar jaar ontwikkel is. Dit bestaan net uit vel, vet en bloedvate en nie meer spierweefsel nie."

Tussendeur doen Graewe en sy span ook plastiese chirurgie vir die hantering van velkankers, brandwonde, gesigtrauma en 'n bietjie handchirurgie.

Hy wys daarop dat rekonstruktiewe chirurgie vorm sowel as funksie behels.

"Wanneer 'n persoon 'n vorm het wat afwyk van die norm, word so 'n persoon 'n teiken vir die samelewing. Dit is ons taak om sy of haar 'vorm' sover as moontlik te normaliseer sodat die persoon met vertroue in die samelewing kan funksioneer."

Hoewel die grootste deel van hulle taak in die Fakulteit en by Tygerberg rekonstruktiewe chirurgie behels, kry Graewe se kliniese assistente ook toenemend blootstelling aan die private sektor waar hulle 'n aantal kosmetiese operasies per jaar doen as deel van die opleiding in Plastiese Chirurgie.

Intussen bly Plastiese en Rekonstruktiewe Chirurgie een van die gewilde dissiplines in die FGW. Behalwe vir 'n groot aanvraag na kliniese poste in die afdeling, is dit ook een van die gewildste dissiplines onder elektiewe studente. Graewe en sy span hoop om binnekort ook uit te reik na perifere hospitale waar hulle een of twee keer per maand klinieke sal aanbied.

Hoewel Graewe eers in 2006 sy pos by die Fakulteit opgeneem het, het hy en sy afdeling reeds vanjaar hul eerste Suid-Afrikaanse Plastiese Chirurgie-kongres gereël.

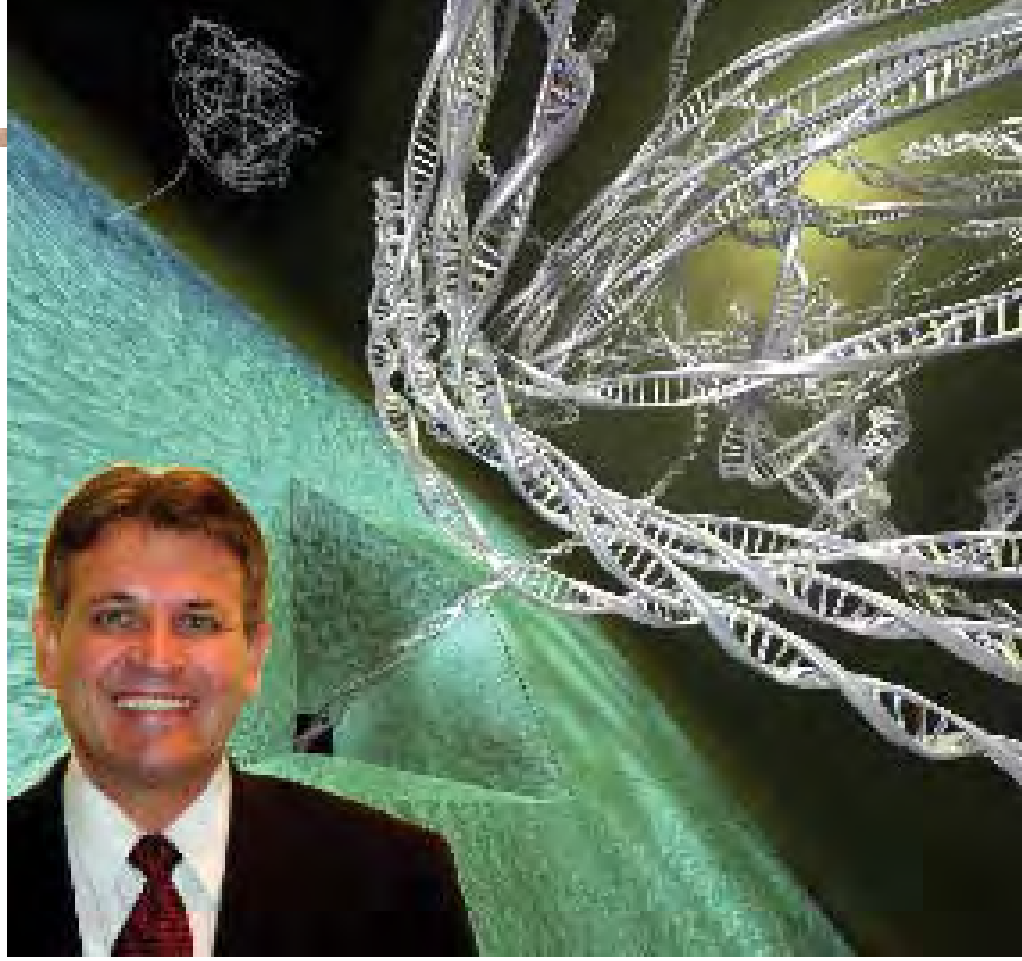
Op 'n vraag oor sy goeie beheer van Afrikaans, sê Graewe dat hy dit nie net aan sy lang verblyf in die land te danke het nie, maar ook omdat sy eggenote, Juanita, Afrikaanssprekend is. Dit was trouens een van die faktore wat dit vir hom makliker gemaak het om die penne in München op te trek, en na Suid-Afrika terug te keer.

Foto's verskaf deur prof Graewe

REKONSTRUKTIEWE CHIRURGIE BY TYGERBERGHOSPITAAL

***Foto's bo**: Rekonstruktiewe - en veral kraniofasiale chirurgie - is een van Graewe se spesialiteitsrigtings. Op die foto's bo is 'n pasiënt wie se ken herbou is om 'n kongenitale afwyking te herstel.*

***Foto's links:** Danksy nuwe ontwikkelings, word borsrekonstruksies op pasiënte wat mastektomies ondergaan het, tans gedoen terwyl die pasiënt nog in die teater is nadat die mastektomie gedoen is. Graewe en sy span gebruik ook nuwe en beter flappe wat oor die afgelope paar jaar ontwikkel is. Die foto's toon die resultate wat behaal word met die nuwe tegniek wat bekend staan as DIEP - oftewel 'deep inferior epigastric artery perforator flap'.*



André Nel and the SCIENCE OF SMALL THINGS

As "one of the most brilliant students to emerge from Stellenbosch University", it seems entirely appropriate that the former medical student and clinical researcher, Prof André Nel, has established himself in the United States as a trail-blazer in the field of nanomedicine – an emerging new discipline that promises to bring revolutionary advances to medical diagnosis and treatment.

Nel – who is described by the dean of the former Faculty of Medicine, Prof Jan Lochner, as one of the Faculty's most brilliant alumni – was recently appointed head of the newly established division for nanomedicine at the University of California, Los Angeles (UCLA) School of Medicine. A major mission of this new division is to educate and train physicians in the principles and application of nanoscience and nanotechnology in medicine.

After completing his MBChB-degree at the SU Faculty of Medicine in 1975 and a doctorate in Medicine in 1987, Nel did post-doctorate research at the Medical University of South Carolina between 1983 and 1985. In 1988, he joined UCLA to do clinical immunology and allergy training. Today he is a tenured professor and practicing allergist/immunologist at the University. He also runs the Cellular Immunology Activation Laboratory in the Johnson Cancer Centre at UCLA. As a keen researcher, his chief interests include nanomedicine and nanobiology, including the relationship between nanomaterial properties and their possible adverse interactions with biological systems. One of his particular areas of interest is the role of air pollutants in asthma, with emphasis on the role of oxidative stress in the generation of airway inflammation and airway hyper reactivity, as well as the role of oxidative stress in immune senescence. He is the principal investigator of the Asthma and Immunology Disease Center, co-director of the Southern California Particle Center and director of the University of California Nanotoxicology Research and Training program. He served as Chair of the Allergy Immunology Transplant Research Committee at the NIAID and is Chair of the Air Pollution Committee in the AAAAI.

The science of miniaturisation

Nel explains that nanoscience and nanotechnology emerged as a new scientific field in the 1980's and has since then enabled the development of a new generation of scientific and technological approaches, as well as new research and clinical tools and devices. In essence, this field – that encompasses a wide range of disci-

plines - focuses on techniques executed on a nanoscale, that is one billionth of a metre. In medicine, this means nanotechnological operations that are carried out in the human body to treat illnesses and injuries. "This science is widely regarded as the new industrial revolution and it is expected to have a major impact on the biological sciences and on medicine," says Nel.

The long-term aim of the new division that he heads, is to establish new paradigms for the diagnosis and treatment of illnesses that are currently not possible with existing technologies.

However, as head of a main campus programme of UCLA, which is responsible for the safe implementation of nanotechnology in the state of California, Nel is acutely aware of the potential adverse effects of nanomaterials on human health and the environment – and he has established himself as one of the leading experts in this field – known as nanotoxicology. His laboratory has developed a testing method to help manufacturers monitor and test the safety and health risks of engineered nanomaterials and in 2006 he published a groundbreaking review article in the journal, Science, on the potential toxic effects of nanomaterials and the urgent need for developing safety testing.

"There is currently no existing system to measure toxicity of nanomaterials, but our techniques can be used to measure damage done by the oxidative properties of the nanoparticles," he says.

Diseases induced by air pollutant particles

Apart from his work in the field of nanomedicine, Nel is also involved in various other studies – particularly in the field of pollution – that generated worldwide interest in medical and scientific communities.

His laboratory was the first to link diesel exhaust to atherosclerosis, or hardening of the arteries, which significantly increases the risk for heart attack and stroke. The study explains how fine particles in air pollution conspire with artery-clogging fats to switch on the genes that cause blood vessel inflammation and lead to cardiovascular disease.

"When you add one plus one, it normally totals two," Nel says, "but we found that adding diesel particles to cholesterol fats equals three. Their combination creates a dangerous synergy that wreaks cardiovascular havoc far beyond what's caused by the diesel or cholesterol alone".

In 2003, he also published a study that showed, for the first time, that diesel exhaust particles alone may be enough to induce acute asthma flares. A new testing method in an animal model helped Nel and his team to better isolate the effects of diesel exhaust particles – a component of air pollution - on asthma.

"Previously, we thought that air pollution alone was not enough to incite acute asthma attacks, but also required the presence of allergens such as pollen or house dust mites to establish airway inflammation and allergic responses in the airways," he said at the time. "However, this new experimental study shows that we need to pay closer attention to the intrinsic abilities of the air pollutant particles to induce asthma."

Nel and his family live in Los Angeles, a city known for its high levels of pollution. He is married to Margaret Gardiner, the only South African to have won the Miss Universe contest.

The couple met at a social function on the Tygerberg Campus in the late 1970's. While his career went from strength to strength at UCLA, Margaret established herself as a free-lance journalist in the field on entertainment and has subsequently been elected as a member of the Foreign Press Association. The couple has a son, Brandon, who is an avid scholar, great debater and good sportsman.

Jo Barnes -

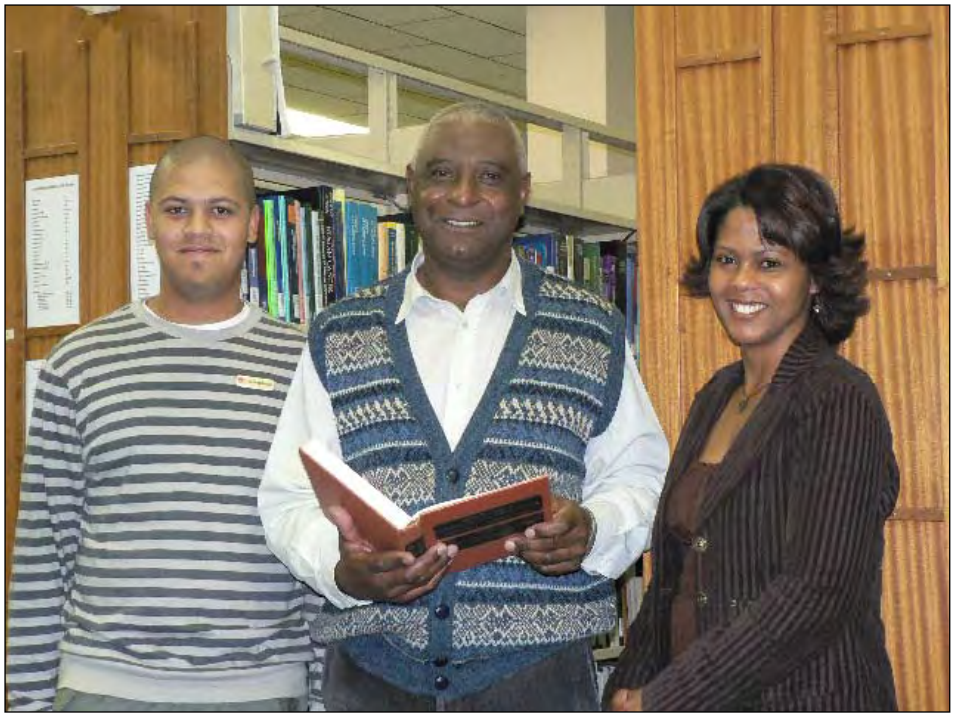
Vrou aan die voorpunt

In September vanjaar het die SA regering die Orde van die Disa aan dr Jo Barnes toegeken vir haar navorsing op die besoedelde waterbronne en riviere wat deur woongebiede in die Wes-Kaap vloei. Sy is vir etlike jare reeds aan die voorpunt van navorsing oor die besoedeling van riviere en waterbronne.

Dit was tweede toekenning wat sy in 2007 ontvang het vir haar werk op hierdie terrein. Sy is ook deur die Departement Waterwese en Bosbou en Eskom as 'Vrou van die Jaar' aangewys in die kategorie Vroue in Waterwese, Sanitasie en Bosbou (Onderrig en Bewusmaking) - spesifiek omdat haar werk so 'n merkbare verskil gemaak het in geaffekteerde gemeenskappe - onder meer deur werkskepping en opleidingsgeleenthede.

Dr Barnes vertel dat sy getref was deur die hoë voorkoms van kindersterftes as gevolg van die siektes wat deur besoedeling veroorsaak word, veral in informele woongebiede. Sy het derhalwe 'n paar jaar gelede begin om haar navorsing toe te spits op die besoedeling in die waterbronne en riviere wat deur hierdie woongebiede vloei. Haar navorsing het in 2003 in Kayamandi buite Stellenbosch begin en het sedertdien uitgebrei na ander woongebiede rondom Kaapstad.

’n Leeftyd in die diens van boeke



Steven Fredericks (in die middel) se kinders Julian Fredericks (links) en Lydia Meyer (regs) voel net so tuis tussen die boeke soos hul pa.

Enige dosent of student wat oor die afgelope 35 jaar iewers langs die pad ’n boek of ’n artikel in die US se Gesondheidswetenskappebiblioteek loop soek het, het waarskynlik ’n geheuehokkie waarin Steven Fredericks stewig staangemaak is.

Dié groot, vriendelike man se verbintenis met die biblioteek is op sigself ’n blokkie in die groter legkaart van Fakulteitsgeskiedenis. Dit strek terug tot 14 Februarie 1972 toe hy as ‘biblioteekhulp’ by die Fakulteitsbiblioteek op die destydse Karl Bremerkampus aangemeld het – en só die eerste spore in die biblioteekwese getrap het waarin twee van sy kinders later sou volg.

Steven vertel dat hy by die Chryslerfabriek werksaam was vòòr hy die pos by die nuwe bibliotekie by Karl Bremerhospitaal aanvaar het. In dié dae het hy net ’n st 8-sertifikaat gehad, maar hy is so geïnspireer en gemotiveer deur die studente wat in die biblioteek kom studeer het, dat hy besluit het om self ook skouer aan die wiel te sit en matriek te skryf. So het dit gekom dat Steven hom in 1985 by die Suksesskollege ingeskryf - en twee jaar later sy matriek behaal het. Hy was op daardie stadium reeds die pa van ’n gesin.

Sy sukses op matriekvlak het Steven aangespoor om sy akademiese visier hoër te stel en met die aanmoediging van die destydse hoof van die biblioteek, Matthew Syphus, het hy by Universiteit Wes-Kaapland geregistreer vir die laer diploma in Biblioteekkunde.

Steven het die kursus deeltyds aangepak en hy moes aand na aand – ná ’n volle dag se werk – na UWK ry om lesings by te woon. Hy het nietemin sy studies so goed bemeester dat een van sy dosente, prof Isabel Cilliers, hom aangeraai het om sy kursus te verleng en vir die vierjaar BBibl.-graad in te skryf.

Hy vertel dat sy hoofde in dié tyd baie ondersteunend en tegemoetkomend was. In sy finale jaar moes hy bv in die dag klas bywoon en in die aande gaan werk. Hy het egter vasgebyt en in 1994 het hy, op die ouderdom van 47, sy graad behaal.

Hy is deur die jare bevorder van biblioteekhulp tot senior bode; van hoofbode tot hoofassistent en van junior bibliotekaris tot bibliotekaris. Vandag is hy senior bibliotekaris en adjunkhoof van die biblioteek.

Deur dit alles heen het die biblioteekgogga ook twee van sy kinders gebyt. Sy dogter, Lydia Meyer, het haar graad in Biblioteekkunde aan die Universiteit Stellenbosch voltooi en is tans werksaam by die US se Bestuurskool. In Januarie 2003 is sy jongste seun, Julian Fredericks, aangestel as biblioteekassistent in die Gesondheidswetenskappebiblioteek, wat 1973 na die nuwe Tygerbergkampus verskuif het.

Steven vertel dat die akademiese pad wat hy vir homself in die biblioteekwese oopgekap het, nie altyd sonder probleme en struikelblokke was nie, maar dat hy kon volhard met die aanmoediging van sy familie en kollegas. Boonop het hy nog altyd geglo dat ’n mens dit wat jy aanpak, moet voltooi en hy het uit die staanspoor groot vreugde geput uit die werk wat hy doen. “Ek hou daarvan om soggens op te staan en werk toe te gaan,” vertel hy. “Ek hou van my werksomgewing en ek hou van die studente.”

Die veranderings wat oor die jare op die kampus en in die biblioteekwese plaasgevind het was ook vir hom interessant en stimulerend – veral met die koms van die elektroniese revolusie en die rekenarisering van die biblioteek. Die transformasie van die student van gister tot vandag bly steeds vir hom fassinerend. “Die studente wat ons vandag in die biblioteek sien, is gemakliker en minder formeel as destyds toe ek begin het en die gemak waarmee hulle met die nuwe elektroniese hulpbronne omgaan is steeds vir my ’n bron van verwondering.”

Steven sê hy hoop om tot op die ouderdom van 65 aan te bly in die biblioteek wat 35 jaar gelede vir hom ’n tweede tuiste geword het. “As ’n mens graag lees, soos ek, en jy is ’n rustige mens, dan pas jy in ’n biblioteekomgewing.”

Steven Fredericks het oor 35 jaar as mens en bibliotekaris saam met die Gesondheidswetenskappebiblioteek op die Tygerbergkampus gegroei.

IN MEMORIAM

Over the past 18 months, the SU Faculty of Health Sciences has lost not only members of staff who were still in the service of the Faculty, but also well-known former academics and one of our bright young students. We remember them with sadness and compassion, but also with appreciation for their contributions to this institution and Medicine in general.

Prof Attie de Kock

The celebrated internist and former head of Internal Medicine in the FHS, Prof Attie de Kock (78) died in Paarl in June 2006.

Prof De Kock was a South African pioneer and world-renowned expert on diseases of the lungs and wrote a number of books on the subject. As head of Internal Medicine at the US and Tygerberg Hospital, he treated a number of heads of State, amongst them Mr John Vorster, Mr PW Botha, Mr FW de Klerk and Mr Nelson Mandela, when he contracted tuberculosis as a prisoner on Robben Island.

De Kock, an excellent teacher and researcher, completed his medical degree at the University of Pretoria and his specialist training at Karl Bremer Hospital. He also completed a doctor's degree in San Francisco in the United States. He spent his retirement on the West Coast. De Kock is survived by a son, two daughters and six grandchildren.

Dr Abrie Schmidt,

one of the foremost andrologist in South Africa and a member of the Urology division, died in a car accident between Aberdeen and Beaufort West on 7 July 2006. Dr Schmidt completed his medical studies at the US and since his appointment as clinical assistant and in 1985 as consultant in Urology, he has made an enormous contribution with regard to clinical service, teaching and research. He was in charge of the kidney transplant programme at Tygerberg, in cooperation with Nephrology, handled all dialysis procedures, family transplants and surgical complications in kidney transplant patients. However, his main interest was andrology, specifically erectile disfunction and infertility. He was an executive member of the International Society of Sexual Medicine (ISSM), president of the African Society for Impotence Research (ASIR) and a member of the Pan African Urological Surgeon's Association and the American Urological Association. He is survived by his wife, Lyn and two children.

Prof Manie Breytenbach is op 19 Oktober 2006 in die Strand, nà 'n lang stryd teen kanker oorlede. Hy het hy hom destyds by die nuutgestigte Fakulteit Tandheelkunde van die Universiteit Stellenbosch aangesluit as die eerste hoof van Maksillofasiale- en Orale Chirurgie. In Julie 1974 is hy aangestel as die eerste dekaan van die nuwe Fakulteit Tandheelkunde aan die Universiteit van die Wes-Kaap. Hy het hierdie pos vir vyf jaar beklee voor hy teruggekeer het na Stellenbosch as die eerste professor in Diagnostiek en Kliniese Tandheelkunde – 'n pos wat hy gevul het tot en met sy aftrede in 1993. Hy het egter vir baie jare nà sy aftrede steeds in 'n deeltydse hoedanigheid, onderrig by die US gegee. Manie en Wonnie, sy vrou en metgesel vir meer as 'n halfeeu, het enkele jare gelede na 'n aftree-oord in die Strand verhuis.

Prof Andries van Zyl, eerste hoof van die Departement Farmakologie, is op 2 Augustus 2006 in Kaapstad oorlede. Hy was as dosent aan die universiteite van die Witwatersrand en Kaapstad verbonde vòòr hy in 1965 as hoof van Farmakologie aangestel is. Sy navorsing op Afrikanerbeeste met 'n genetiese kropgeswel het soos 'n speurverhaal gelees. Deur sy inisiatief is 'n kudde van die beeste na die Elsenburg proefplaas verskuif en honderde ure se navorsing is gedoen om die fundamentele genetiese letsel te ontbloot. Die geheim is uiteindelik ontrafel en internasionaal gepubliseer. Andries was nie net bekend as voortreflike navorser nie, maar ook as iemand met 'n groot liefde vir die digkuns en sy kollegas onthou die tientalle staaltjies wat hy in 'n tipiese Swartlandse brei vertel het. Hy word oorleef deur sy eggenote, Fenetta, vier kinders en kleinkinders.

Prof Hellmuth Weich,

professor in Kardiologie en eerstydse hoof van die harteenheid van Tygerberghospitaal, is op 14 April 2007 oorlede. Hy het homself aanvanklik as ingenieur aan die Universiteit Stellenbosch bekwaam, vòòr sy lewenspad na medisyne gedraai het. Na die voltooiing van sy mediese graad aan die Universiteit Pretoria, het hy hom aangesluit by die personeel van Karl Bremerhospitaal waar hy onder die leiding van professor Andries Brink opgelei is as kliniese assistent in interne geneeskunde. Sy opleiding as kardioloog het begin in 1973, die jaar waarin die opleidingshospitaal van die Universiteit Stellenbosch verskuif het van die Karl Bremerhospitaal na Tygerberghospitaal.

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Weich en sy gesin het in 1975 na die Johns Hopkins Hospitaal in Baltimore, VSA vertrek om verdere opleiding in kardiologie te ondergaan onder leiding van Dick Ross. Kort na sy terugkeer in 1976 voltooi hy sy doktorsgraad in kardiologie. Sy aanstelling as hoof van die harteenheid van Tygerberg Hospitaal in 1979 en as Professor in kardiologie aan die Universiteit van Stellenbosh in 1981 het 'n era ingelei wat oor 17 jaar gestrek het en die Weich-naam sinoniem gemaak het met die harteenheid by Tygerberghospitaal. Hy was vir twee termyne president van die destydse Suider-Afrikaanse Hartvereniging (*Cardiac Society of Southern Africa*), vandag bekend as die Suid-Afrikaanse Hartvereniging (*South African Heart Association*).

Sy aftrede by die Universiteit van Stellenbosh en Tygerberg Hospitaal in 1996 was nie die einde van sy professionele loopbaan nie. Ten spyte van 'n lewensdreigende niertumor wat in dieselfde jaar nog by hom gediagnoseer is, het Helmuth steeds voortgegaan om in die privaatsektor te praktiseer, en ook om pligsgetrou een dag per week 'n sessie te doen in Tygerberghospitaal waar studente en pasiënte nog vir die volgende tien jaar gebaat het uit sy breë kennis en ryke ervaring.

Dr Pierre Bredenkamp. Dr Pierre Bredenkamp, resident housemaster of Hippokrates and co-ordinator of extended graduate programmes, lost his long battle with leukemia on 16 June 2006. He died in his quarters in Hippokrates, shortly after he was released from hospital. Pierre was extremely popular, especially amongst the students. This was reflected in their moving tributes after his death. "His involvement on the Tygerberg Campus was not limited to academic inputs only - he became intensely involved in the vicissitudes of the students on Campus. Even during his terminal illness, Dr Bredenkamp never complained and his focus remained with the students and their well-being," they wrote. His funeral service was held in the student centre on the Tygerberg Campus.

The Faculty shares in the loss of his wife, Karen and their two young sons, Jean and Pierre-Louis.

Mr William de Lilly - Barely two weeks after the death of Pierre, two popular members of Campus Security died in a tragic traffic accident on their way to work.

Mr William de Lilly, who has manned the security desk in the foyer of the Clinical building since June 1998, was a well-loved and highly regarded member of our staff - so much so that the Faculty was overwhelmed with tributes and flowers that streamed in when his death became known. With his kind and friendly disposition and inherent courtesy, the Faculty could not have had a better 'ambassador' at the reception desk where visitors signed in. At the same time, he had a friendly word for everyone and knew virtually all the staff by name. The Faculty has truly missed him. William left his wife, three grown children and their families.

Mr Lukas Nieuwenhuizen - With William in the car, on the day of the fatal accident, was Mr Lukas Nieuwenhuizen, who worked in the Faculty's animal facility for more than 30 years before his retirement. Mr Theuns Zuurmond, who worked with Lukas in the animal facility, remembers him as a person with an exceptional ability to work with animals. He also became an extemely efficient assistant during operations - so much so that he was an indispensable member of the clinical team. Despite a brief illness after his retirement, Lukas returned to the Faculty and joined the security staff. He worked mainly at the Kerkenberg hostel, where he became a popular personality amongst the students. Lukas leaves his wife, six children and six grandchildren.

Ms Vuyelwa (Vu) Nkomo - At the end of June 2006, a promising 6th year medical student, Ms Vuyelma Nkomo, died in an accident during the winter holidays. Her death was not only a sad loss for the University and the medical profession in South Africa, but also for her two younger sisters for whom she was the primary caretaker. The Faculty and student body will rember Vuyelwa but we also think of her siblings with sadness and compassion.

Mnr Dirk Cornelis (Nelis) Swart, wat vir meer as 30 jaar aan die US verbonde was, is op 25 Julie 2006, op die ouderdom van 63, onverwags tuis oorlede.

Weens sy jarelange betrokkenheid by sport op die hoofkampus sowel as die Tygerbergkampus, en as inwonende hoof van Hippokrates vir tien jaar, was Nelis aan duisende oud-Maties landwyd bekend.

Nelis het op Stellenbosch skool gegaan en sy BA-graad aan die US behaal. Hy het as student reeds by Matie-atletiek betrokke geraak en daardie betrokkenheid het voortgeduur nadat hy aangestel is as administratiewe beampte in die US se kursusafdeling, en later ook toe hy by Akademiese Administrasie op die Tygerbergkampus aangestel is. Hy was vir bykans agt jaar die US se atletiekorganiseerder, en het tientalle toekennings van atletiekorganisasies in die Wes-Kaap ontvang. Op die Tygerbergkampus, was Nelis vir 'n dekade lank 'n gewilde inwonende hoof van Hippokrates. In 2003 het hy, op aandrang van die studente, erekleure vir diens van die Tygerbergse Studenteraad ontvang - 'n rare toekenning wat personeel selde te beurt val. Nelis het in 2004 afgetree, maar hy tot 2005 as koshuishoof van Hippokrates aangebly. Hy laat sy eg-genote, Elize, en drie seuns agter.