

V I S I O N A R Y

DISCOVERY 2016
FOUNDATION
AWARDS



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The Discovery Foundation awards, which were launched in 2006 to support South Africa's public healthcare system, celebrate 10 years this year.

Over the past decade, the awards have supported the training and research of nearly 300 new medical specialists through financial grants totalling R160 million, with a focus on producing talent to address under-resourcing in rural areas, to further Academic Medicine, and increase the number of sub-specialists, particularly in the areas of greatest need.

The original vision to strengthen the country's healthcare system, and ensure all South

Africans have access to quality healthcare, is being realised through the various awards of the Discovery Foundation, including academic fellowships, sub-specialist awards, and excellence awards.

One of the greatest challenges facing young medical professionals is the workload both clinically, in terms of teaching, and the demands of academic research. There often isn't time to write reports, and not enough funding is given to full-time research. These awards, aim to carve out space for talented academics and clinicians to be able to

focus on training, so South Africans can all benefit from their skills and knowledge.

The Discovery Foundation awards represent significant investments in individuals in the medical profession, and are most often given in the early stages of doctors' careers. The effect of this is that doctors are propelled forwards in their academic and clinical ambitions, leading to subsequent grants and awards, which enable a focus on Academic Medicine, and in turn leads to the proliferation of original knowledge, novel techniques and methodologies, and best practices.

Research highlights

Hundreds of outstanding doctors in a variety of fields have received Discovery Foundation awards over the past 10 years. Many of them have tangibly improved health outcomes for the people and communities they serve, while others have influenced policy on a broader scale.

Visionary chronicles share the stories of some of the Discovery Foundation recipients of the past 10 years and recognises our new recipients of 2016. We celebrate their vision and commitment to healthcare in South Africa.

VISION TAKES TIME

Vision takes time to grow and nurture. With endless possibilities to change the way we think and act. In healthcare, with its building blocks of exact science, vision is what propels you forward. It lets you question the impossible. It encourages you to search for a cure where none exists.

To find novel ways of helping the people who entrust you with their health and lives.

We salute you, the many healthcare professionals in South Africa, for your commitment and dedication to improving the health of every South African.

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FOREWORD

Dr Vincent Maphai | *Chairperson of the Discovery Foundation*

I was recently struck by a quote I read by author Joel A Barker, who said, “Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world.” And changing the world, ambitious as it sounds, is exactly what the Discovery Foundation set out to do.

By following up our vision to build skills, training and Academic Medicine with specific, determined and committed action, year upon year, I’m proud to say we’ve arrived at a key milestone for the Discovery Foundation. In 2016, we mark a full 10 years of active commitment in supporting South Africa’s healthcare system and resources.

Milestones are not just a good time to reflect on how far we’ve come. They are also an opportunity to re-evaluate whether we have been faithful to the vision we set out to accomplish 10 years ago.

When we started our journey in 2006, we had a clear goal. We wanted to strengthen our healthcare system, which is a national asset, to ensure different communities can gain access to quality healthcare. We also wanted to develop our strong legacy of pioneering research and healthcare in South Africa. In addition, we believed in supporting the personal visions of individuals who chose, against

challenging odds, to dedicate their time, skills and energy to caring for the people and building our healthcare system.

And so, from its birth, the Discovery Foundation’s investment has focused on:

- Cultivating skilled medical professionals in all areas of healthcare, and especially in areas where there is great need.
- Training people and investing in medical education to support existing government programmes and to address the gaps.
- Building experienced specialist skills to ensure our country has the necessary skills to train the next generation of healthcare providers.
- Nurturing and keeping much-needed medical skills in rural communities.
- Improving environmental issues and infrastructure to support the training and development of medical professionals.

To do this, the Discovery Foundation set out to train 300 medical specialists for South Africa’s public sector over a 10-year period, and to invest in programmes that support all these aims. We are privileged to see that this has already led to an investment of over R160 million in grants towards education and healthcare excellence.

This beautiful publication celebrates 10 years of vision, excellence and commitment from the many doctors who have taken their passion for healthcare further through research, study and training. The Discovery Foundation is proud and humbled to be part of the journey of so many of our healthcare professionals. We are excited to see how the collective work done by all the recipients of Discovery Foundation grants is making an impact in our healthcare sector.

It’s important to remember that it can take years for systemic change to take place. And yet, in the same breath, we all recognise how crucial each moment of time is. The split second in which an accident can change a life, the nine months a mother carries her child, the meaningful moments spent consoling a patient’s family and, importantly, the time it takes to develop skill, expertise and vision.

Read more about the visionary doctors who know, as we do, that fulfilling a vision takes time. We acknowledge that the time they have committed to becoming the best of South Africa’s healthcare professionals is invaluable in the lives of their patients.

This publication shares more about the visionary doctors who know, as we do, that fulfilling a vision takes time. We acknowledge that the time they have committed to becoming the best of South Africa’s healthcare professionals is invaluable in the lives of their patients.

It is for this reason we invest in their future – we believe and trust that the medical education, programmes and initiatives the Discovery Foundation is involved in add remarkable value in the communities they touch. For us that is what it is all about – improving and building skills for bettering healthcare and access to healthcare.

Our vision has not faltered in the last 10 years. If anything, it has been repeatedly strengthened by the overwhelming evidence of positive change in the communities around the country. On this milestone anniversary, we commit to

continuing the good work of the Discovery Foundation, and to ensuring that the vision of many more incredible individuals is realised in the years to come.

SHAPING TOMORROW

Dr Jonathan Broomberg | CEO of Discovery Health

A critical reason for the establishment of the Discovery Foundation was to help address the growing shortage of medical specialists, in particular black medical specialists. Looking back over the past 10 years, significant progress has been made.

The need to address the critical shortage of doctors and in particular, specialists, was the main reason for the launch of the Discovery Foundation in 2006.

“This shortage of specialists is due to the combination of population growth, and growth in the disease burden of the country, both of which are increasing the demand for specialists well beyond the output of doctors. The evidence suggests that a diminishing proportion of medical school graduates go on to specialise, and there has been a consistent trend of many medical graduates leaving the country to work abroad,” says Dr Jonathan Broomberg, CEO of Discovery Health.

“Our idea was to use some of Discovery’s resources to try to address this critical shortage to some degree – we committed to contribute to the development of 300 new specialists for the country’s healthcare system.”

The Discovery Foundation awards Academic Fellowship and Sub-Specialist grants to individuals wishing to pursue Academic

Medicine or further specialisation, and Excellence Awards to organisations with ambitions to enhance their service to their communities.

“To assist incredible organisations who work in challenging circumstances with an award of R1 million each year is a privilege for the Discovery Foundation,” says Dr Broomberg.

“As people come to the end of specialisation, the financial support they receive through the awards enables them to pursue Academic Medicine, and to become part of the reproduction of more specialists,” he says.

This is where one of the greatest impacts of the Discovery Foundation is seen.

“Those who have specialised but want to do another year of sub-specialisation often have facilities or communities in need of their skills and teachers ready to train them, but no posts available to employ them. The Foundation is able to step in and fund these desperately needed posts. Those who undergo further training and

super-specialisation become a permanent resource for the country, whether they’re working in the public or private sector.”

But perhaps the most significant success of the Foundation is its collective impact.

“This has been tremendous,” says Broomberg. “In hard numbers, the Discovery Foundation has created a significant number of specialists, sub- and super-specialists who will go on to work, do research and train other specialists, serving patients right across our healthcare sector.

We have a large group of alumni now, and the Discovery Foundation brand is a strong one.”

This has helped raise the profile of and bring back a focus to Academic Medicine and a renewed interest in research. This significantly and directly benefits all South Africans through greater access to quality healthcare.

The Discovery Foundation has achieved what it set out to do in specific programmes, “but more than that it created a strong halo of institutions supporting Academic Medicine.”



DISCOVERY
FOUNDATION

EXCELLENCE

AWARD



CHILDSAFE SOUTH AFRICA

“Creating a safer world for children in South Africa”

Switch on the radio or open a newspaper – another child burned, drowned or died in a car accident. Many of them just starting school or even younger. Popular belief would be to think that illness causes the most deaths among children. But it is childhood injuries, most of them preventable, which actually leads to more children between the ages of one and 18 losing their lives each year. Part of the triple burden of disease in South Africa, not even the high incidence of gastroenteritis and respiratory infections affect children as much as injuries.

“As a country, we have the challenge to reduce childhood injuries. This can only be done with clear-cut safety promotion strategies,” says Professor Sebastian van As, Chair of the Childsafe Board, based at the Red Cross War Memorial Children’s Hospital in Cape Town. This hospital alone sees approximately 10 000 children annually presenting with injury.

Childsafe South Africa, an NGO established in 1978, works to reduce and prevent intentional and unintentional childhood injuries of all severity types. “Our research shows children, particularly those younger than six years, have certain limitations and cannot make decisions about safety. Many people, including health workers, caregivers and parents, are unaware of these limitations, and children are placed at great risk of being injured,” says Professor Van As.

Research by Childsafe shows children growing up in Cape Town, for example, have a 25 times greater chance of being admitted to hospital with any type of injury, compared to children growing up in Birmingham in the United Kingdom.

How is Childsafe working to try keep and more children safe from injuries? Through tireless research, education, environmental and legislative change, and extending their operations to reach more areas in South Africa. “Although we are closely linked to the Red Cross War Memorial Children’s Hospital, we are very excited to expand our activities by creating new partners all around South Africa,” Professor Van As says.

The three main programmes of Childsafe South Africa are:

1. Research on injuries.
2. Safety education and skills training.
3. Advocacy for injury prevention and safety promotion.

All of these aim to create awareness of the preventability of the three main causes of death among children: Road accidents, drowning and burns. This awareness, says Professor Van As, “will ensure South Africa becomes a safer country for all children, irrespective of their colour, race or cultural background”.

Childsafe now has the ambition to bring its child injury prevention strategies, programmes and workshops to more people around the country. A particular focus will be to undertake training workshops for healthcare professionals, such as special care nurses, general nurses and social workers, to educate and empower them to take comprehensive knowledge on childhood injury prevention into their communities. This programme will reach all provinces across South Africa and Childsafe hopes to see it result in a more child-protective society.

“This growth-phase is very exciting for us. We now have the opportunity to expand our activities and spread our message to help more people create safer environments for children. This will mean our children can grow up safely and prosper without the dangers of being injured,” says Professor Van As on behalf of Childsafe South Africa on receiving the Discovery Foundation Excellence Award.

“We’re working to help create a society in which all children can grow up safely and prosper without the dangers of being injured.”

~Prof Sebastian van As~



DISCOVERY
FOUNDATION

ACADEMIC

AWARDS



Developing paths to crime prevention: Mental health profiling of female offenders in the Eastern Cape

South Africa has the ninth largest population of prisoners worldwide. And the number of female prisoners is increasing faster than the number of males. "Yet, with women increasingly committing more serious offences and despite them having many female-specific needs, the research focus has remained on male offenders" says Dr Nagdee, Forensic Psychiatrist and Head of Clinical Department at Fort England Hospital in Grahamstown in the Eastern Cape. It's in this picturesque town associated with festivals and students joining hands on issues of the day where Dr Nagdee will explore

Also a teacher to undergraduate and postgraduate students, Dr Nagdee has always displayed a keen interest in his field, in growing his knowledge and in caring for his patients. With forensic mental health profile investigations, and in-depth interviews making up his research, Dr Nagdee aims to be the first to add to this particular body of knowledge in South Africa.

the impact of a history of victimisation, substance and other abuse, and mental health problems on South African women who find themselves accused of an offence and referred for psycho-legal evaluation. "I aim to complete the first South African study that specifically focuses on the mental health and characteristics of this vulnerable group," says Dr Nagdee.

His parents both being health professionals, Dr Nagdee gravitated towards the care of people from an early age. It's this serendipity, as he calls it, that paved the way to his research vision to investigate the social, clinical, demographic and forensic mental health characteristics of women charged with a range of offences. The Eastern Cape is the perfect "laboratory" for this study as the violent crimes statistics are elevated compared with many other parts of the country. Dr Nagdee, whose colleagues describe him as calm and level-headed, believes the elevated crime rate is partly attributable to social conditions. High unemployment,

poverty and inequity make female offenders, within this context, a particularly vulnerable, yet poorly understood, group.

He hopes his work can aid in efforts to "improve the understanding of female offending, and the forensic health issues of women who are imprisoned". Dr Nagdee also hopes the study, which will look at cultural and subjective experiences of women offenders, will have positive implications for crime prevention, mental health policy and legal practice in South Africa going forward.

He is scheduled to host a symposium on mental health of women offenders and to share preliminary results of his study in November 2016 at the World Psychiatric Association International Congress in Cape Town.

"With his clear academic vision, this promises to be a very useful study, given that data on this matter and group is sorely lacking," said Professor Michael Guilfoyle of the University of the Western Cape's Faculty of Education, who has a supervisory role in Dr Nagdee's research.

On what the future looks like, Dr Nagdee says "I look forward to exploring international research collaborations and publishing and presenting papers to make a difference in caring for the mental health needs of women offenders."

"I look forward to exploring international research collaborations and publishing and presenting papers to make a difference in caring for the mental health needs of women offenders."

~Dr Mohammed Nagdee~

~DR~
**MOHAMMED
NAGDEE**



A quest to relieve the pressure of maternal and infant mortality

Hearing you will soon be a mother is supposed to be a joyous time, and women are often considered to be at their most beautiful and healthy. The reality is that some face many threats before being able to hold or take home their babies, and some may not have that pleasure.

This, says Dr Cathy Cluver is what drives her to try and find solutions to causes of maternal and neonatal morbidity and mortality. "Being privileged to walk a path with patients, especially those who have lost babies or never believed they could have children of their own, and sending

"Having witnessed the tragedy of this disease during my registrar training, I have dreamed of finding a possible cure," she says. It's with her current PhD studies that she hopes to see this dream develop into a solution. A solution that will aid in safely prolonging pregnancy to ensure not only her own patients but many around the world can live free from the severe complications of the condition.

Dr Cluver's passion for healthcare developed early on. Spurred by the inspirational women in her life, her grandmother, a district nurse in Zimbabwe and her mother an Intensive Care Sister, her quest to find a cure for pre-eclampsia started in 2013. While completing her subspecialist training at Melbourne University, Australia, she had the opportunity to collaborate with a leading obstetrics group who identified a therapeutic agent (Esomeprazole, a proton pump inhibitor) to treat pre-eclampsia.



~DR~ CATHY CLUVER

"I would like to offer mothers the chance at having healthier pregnancies and stronger babies. If this trial shows that Esomeprazole can be used to treat pre-eclampsia, it would be the first treatment in the world for this life-threatening condition."

~Dr Cathy Cluver~

them home with beautiful babies, makes everything worthwhile."

One of the silent threats Dr Cluver sees many pregnant women face daily is pre-eclampsia, condition in pregnancy characterised by high blood pressure and end-organ damage. High blood pressure can generally be managed with lifestyle and medical interventions, but in pre-eclampsia that is not the case. It is life-threatening and there is no treatment apart from delivering the baby. Thousands of expecting mothers are confronted with this – having their babies delivered, whether they can survive outside the womb or not, to save their own lives.

"After HIV-related conditions, pre-eclampsia and hypertensive disorders are the most common causes of maternal mortality in South Africa," says Dr Cluver. Pre-eclampsia also causes countless cases of neonatal deaths and health complications.

This international collaboration has powered Dr Cluver to develop a paper on the 'trial protocol', which was accepted by BMJ Open for publication, a Cochrane Review, and leading trial studies in South Africa as the basis of her PhD.

The study is already in full swing and 56 of the required 120 study participants (women who develop pre-eclampsia before 32 weeks of pregnancy) have been identified. Dr Cluver is currently giving this first-of-its-kind study in South Africa her full-time attention and believes finding a treatment could be particularly valuable in South Africa's under-resourced settings where intensive care units are scarce.

The next dream? Dr Cluver wants to inspire young researchers, and wants to form an obstetric clinical trial unit with links to leading international institutions to test new therapies that can protect the lives of mothers and their unborn children.



Identifying therapeutic and preventive interventions in trauma and sepsis

South Africa and Australia are known as formidable opponents on sports fields around the world. Yet when it comes to solving medical puzzles to save lives, these two countries quickly come together as one. It's in this joining of minds from the University of Witwatersrand and University of Queensland that Dr Gladness Nethathe will get to take a deeper look at the role of various hormones and mediators excreted in the body during the stress response in the critically ill.

An anaesthesiologist and intensivist at Chris Hani Baragwanath Academic Hospital, Dr Nethathe will be part of a leading research team in the Department of Intensive Care, of the Royal Brisbane and Women's Hospital. Wanting to be a doctor as far back as she can remember, she hopes to identify hormone changes and responses that occur in patients with severe sepsis and multi-trauma, both responsible for thousands of patient deaths

globally. "The initial phase of the project is progressing well. We have started collecting data, and blood and urine samples from study participants with sepsis and multi-trauma at the Royal Brisbane and Women's Hospital. Data collection at Chris Hani Baragwanath Hospital Intensive Care Unit will be commencing soon," she says.

Dr Nethathe says, "These samples will be analysed for hormones excreted by the body and markers of inflammation." The aim is to try and distinguish between systemic inflammation related to trauma and inflammation related to infection in severely ill patients. Hormone presence and links to the severity of the disease or trauma, inflammation, and smoking status of patients will all come under her microscope. Her direct research supervisor, Professor Jeffrey Lipman, Head of Anaesthesiology and Critical Care at The University of Queensland, says he has every confidence in this "outstanding and ambitious doctor with great future potential and ability to achieve her research endeavours".

Why the interest in this field? "It's an area of medicine I was fascinated by as a medical student, and exposure to stimulating mentors in this field encouraged my interest further," says Dr Nethathe. Inspired by their house doctor as a child,

this young, critical care physician hopes that her research will provide therapeutic and preventive interventions as she compares the neuroendocrine changes that occur in severe sepsis and multi-trauma. She aims to find these answers by analysing and comparing selected hormones using novel analysis methods, including hormone receptor expression profiles with novel RNA isolation systems and inflammation markers. During this process she also aims to study the interaction of smoking with biomarkers of inflammation and oxidative stress.

With her team, Dr Nethathe wants to complete this important research, within the next three to four years. "South Africa in particular has a significant burden of disease from both sepsis and trauma. Therapeutic and preventive interventions identified from this research project will contribute towards improving the diagnosis and management of both these health challenges."

"It's an area of medicine I was fascinated by as a medical student, and exposure to stimulating mentors in this field encouraged my interest further."

~Dr Gladness Nethathe~

~ DR ~
**GLADNESS
NETHATHE**

A movie-inspired mission to fight a gastro-causing virus

Viruses often form the thrilling storyline of many futuristic movies. Underground laboratories, entire cities deserted and virus-ridden with one hero to identify a cure, and keep survivors safe from the threat of virus attacks. Viruses are real, and they can affect each of us. The heroes are also real, medical professionals who dedicate hours in the laboratory to find ways to fight these tiny, yet dangerous organisms.

Step in pathologist, Dr Marieke Brauer, a Clinical Virologist equipped with expertise and knowledge of most medically important viruses and diagnostic virology. Attracted to this field at the age of 16 after watching the movie *Outbreak*, her fascination with viruses kept growing during her studies and in clinical practice. With Ebola and Marburg first catching her eye on a movie screen, she knew this was a field of medicine with a great deal of new research and exciting developments. Brauer says she felt encouraged to help, "after seeing human suffering first hand". Having completed her MMed (Path) Virol degree in 2015, she can now "get behind the scenes and into the world of research".

"Viruses of particular interest to me include HIV, norovirus, mumps virus, cytomegalovirus and haemorrhagic fever viruses," she says. The virus she has in her target? Norovirus (NoV). It is the leading

cause of gastroenteritis in the world, and second after the rotavirus in children. These diarrhoea-causing viruses account for 9% of deaths in children younger than five, with the majority of them in Africa and South East Asia – regions with the highest burden of HIV in children. Previous studies showed NoV was present in 14% of specimens taken from South African children younger than five with severe gastroenteritis.

In her PhD research she will specifically target NoV and its prevalence and make-up in the HIV-infected. NoV has previously been found to cause severe and chronic NoV infection as well as greater viral diversity in immunocompromised patients. This data stems mostly from studies in transplant and cancer patients. What we don't know yet is the prevalence of gastroenteritis due to NoV in HIV-infected and HIV-exposed uninfected children, who are more prone to diarrhoea than others.

Antiretroviral treatment of HIV-infected pregnant women has led to a substantial decline in the number of infants newly infected with HIV, with a growing population of infants who were HIV-exposed but are uninfected. Recent studies, however, showed this particular group may experience higher morbidity and mortality due to other infectious diseases compared with unexposed children.

Dr Brauer and her co-investigators started their search for answers to these questions with sample collections in July 2016. Within these samples Dr Brauer and her team hope to find answers that could advise on intervention strategies to prevent repeated

infections with diarrhoea-causing viruses. These repeated infections have been associated with gut dysfunction, poor nutrient absorption, a weak immune response to oral vaccines, stunted growth, and impaired cognitive development in children.

"This research will be an important stepping stone for Dr Brauer to become an established researcher in the field of virology," says Professor Webber, Head of Department of Medical Virology at University of Pretoria.

"I hope to increase awareness of NoV and to encourage routine diagnostic testing in HIV-infected and HIV-exposed uninfected children presenting with acute or chronic diarrhoea."

Early identification of NoV will guide appropriate treatment and limit unnecessary use of antibiotics. Efforts are also underway to develop a vaccine against NoV. "Information about NoV from my research could help inform vaccine developers on which NoV strains to include in candidate vaccines," she says about the expected outcome.

While involved in this research, Dr Brauer also trains under- and postgraduate students, supervises registrars and manages an academic diagnostic laboratory. She says, "I enjoy sharing knowledge with fellow healthcare professionals to guide them to appropriate laboratory tests, result interpretation and management of certain medical conditions. In addition to my clinical and academic responsibilities, I look forward to reading for PhD."

~DR~ MARIEKE BRAUER

"I hope to increase awareness of norovirus and to encourage routine diagnostic testing in HIV-infected and HIV-exposed uninfected children presenting with acute or chronic diarrhoea."

~Dr Marieke Brauer~





Looking after the hearts of young people with HIV

In a country with a high prevalence of HIV infection, the focus is often on adults and babies, their treatment and curbing transmission rates. Young people are often forgotten in this fight. Young people who are affected in the first decade of life when HIV can be transmitted from mother to child and in the second decade when they become vulnerable to HIV with increased risky behaviour during adolescence. In 2014, there were an estimated 3.9 million young people between the ages of 15 and 24 living with HIV, also making up 34% of the newly infected.

Empilweni Services and Research Unit, situated at Rahima Moosa Mother and Child Hospital in Johannesburg, provides HIV care to over 1 600 children with a large number of them entering adolescence. It's these young people and their unique health needs that have inspired Dr Dwane's full-time PhD research. Knowing she wanted to be a medical doctor since the age of 11, her work will now involve young people with HIV who are barely older than that.

In the age group 15 to 24, changes in antiretroviral (ARV) therapy to account for body changes, and their adherence to treatment are just some of the complex matters to deal with. Added to this is evidence suggesting HIV infected young adults are at greater risk for hypertension, and the fact that cardiovascular disease in HIV-positive patients on ARV therapy has become a concern.

These are the main issues Dr Dwane's research aims to look at in adolescents, which she says is a "particularly neglected group". "There is a rising incidence of cardiovascular diseases in South Africa with obesity and overweight also adding significant health risks that begin in youth. ARVs can increase the risk of cardiovascular disease in adults, and the extent of the risk to young people is a growing area of research I aim to contribute to," says Dr Dwane who is in the process of collecting data and writing up the first paper for publication.

Data will include the medical history and all physical measurements of eligible young people between the ages of 15 and 24 who received treatment at Empilweni between 2004 and 2015. From this data and detailed interviews with participants, Dr Dwane, says, "I hope to describe the distribution of cardiovascular risk factors, related metabolic conditions, and the impact of ARVs in HIV-positive young people who have been receiving treatment for more than five years."

With close to 10 publications in local and peer-reviewed journals, Dr Dwane has extensive experience in large-scale research to bolster her current efforts. She is eager to establish herself as a clinical research scientist in this field and wants to "contribute to the growing body of knowledge in these areas by publication in peer-reviewed journals, presenting papers and conferences and being part of a global consultative group".

Once she has completed her research, Dr Dwane hopes it will provide an estimate of cardiovascular disease and associated risks in young people on ARV treatment. "My findings may also be applicable across



"I hope to describe the distribution of cardiovascular risk factors and the impact of ARVs in HIV-positive young people who have been receiving treatment for more than five years."

~Dr Ntabozuko Dwane~

other settings and regions in South Africa, and could inform policy and interventions, such as appropriate screening, to reduce health risks in the adolescent HIV-infected population," she says.

It is her goal to have input into HIV treatment and management guidelines to identify early signs of cardiovascular disease following long-term ARV use. In future, she wants to continue her focus on adolescent health issues, in particular developmental issues and other prevention and treatment programmes.

~DR~
**NTABOZUKO
Dwane**

A father's journey inspiring a vision of stroke prevention

Dr Eitzaz Sadiq was first attracted to the world of medicine and particularly neurology at the tender age of six from a very personal experience. "My father was diagnosed with a brain tumour and, being an engineer, he always explained the intricate circuitry of the brain and why he experienced certain weakness." As his father went through multiple operations and prolonged rehabilitation, Dr Sadiq says he became increasingly fascinated with the

human brain and how it works. Drawing the 'homunculus' – mapping the various body parts and their representation in the brain – became his favourite pastime.

"Experiencing the effects of severe neurological impairment on my family and the sudden passing of my father from a massive stroke a few weeks before I graduated from Medical School spurred my passion for neuroscience further," says Dr Sadiq. He then began to wonder if catastrophic events such as strokes could be predicted, and even prevented.

Stroke often leads to severe debilitation and impaired quality of life. Many associate stroke with older people. But Dr Sadiq says that is not the case. As a junior Neurology

As many as 20% of South Africans between the ages of 15 and 49 are infected with HIV.

Although an association between HIV and stroke has been reported, the why and how remain uncertain. What is certain is that a high risk of stroke in this population group could have massive social and economic consequences for the country.

"We aim to recruit 300 patients with new-onset ischaemic stroke and perform a variety of specialised investigations. The hypothesis is that conventional risk factors for stroke such as high blood pressure, high cholesterol and diabetes are not the major contributors to stroke in HIV-infected South Africans." Dr Sadiq hopes to find what is, and suspects it relates to a chronic inflammatory process that may result in dysfunction in the walls of the arteries, leading to stroke.

"If indeed these changes are shown to be associated with stroke in HIV patients, it will help us understand it better, develop more effective therapeutic strategies, and have insight into how such strokes could be prevented." Dr Sadiq believes this insight is essential for our healthcare system, which is placed under great pressure

Head of Neurology at Wits, and Professor Gavin Norton, School of Physiology. Professor Norton says he has been impressed by Dr Sadiq's abundance of skills, his knowledge and his pure determination to become a high-profile Clinician Scientist. Professor Modi believes it is the passion for medicine displayed by Dr Sadiq that makes him one of the future medical leaders.

"We've made extensive progress with the data collection to date and plan to publish the first two papers with findings from the study by the end of 2016," Dr Sadiq says. Always ready for a challenge, he believes neuroscience is on the verge of a major research breakthrough, possibly as revolutionary as the discovery of antibiotics was to the fight against infectious diseases. "In my own small role, I am excited to be a part of a global research body that can revolutionise the way we treat neurological conditions."

A long way now from drawing the homunculus, Dr Sadiq says his vision goes far beyond his PhD. Dedicated to Academic Medicine, this opportunity has given him the gift of time to focus on his research and the exciting potential of



~ DR ~
EITZAZ
SADIQ

Registrar he was faced with many young people who had suffered strokes and were also HIV-positive. "What concerned me was that our treatment methods were the same for these younger patients as for an older stroke patient with diabetes and high blood pressure. This even when the reasons for the stroke appeared to be quite different." It's this questioning that set him on his course for his PhD research.

to care for stroke patients, who often require long-term care. The lack of inpatient stroke rehabilitation facilities in the state sector means many severely disabled patients are placed in the sole care of often impoverished families, resulting in dire social and economic consequences. Dr Sadiq says there is a desperate need for a focus on preventive strategies.

The research in this field is novel, and he will be guided by Professor Girish Modi,

furthering medical knowledge in South Africa. "A neurologist can precisely pinpoint what is wrong with a patient, but can often do nothing about it!" His determination to disprove this old adage and his inspirational father's health journey are what keeps Dr Sadiq, now himself a father of four little girls, motivated to find answers and solve some of the mysteries around matters of the brain.



"I want to be part of the healthcare revolution to deliver better quality healthcare for all people and I choose the classroom as my battlefield."

~Dr André Rose~

~DR~ ANDRÉ ROSE

Ensuring health and safety of professionals working with radiation

Walk into an X-ray department of any medical facility and you'll see signs to remove all jewellery, to let someone know if you're pregnant, and to follow the instructions of the person taking the images that aim to identify disease or injury. Patient safety takes a high priority when coming in contact with radiation. But what about the professionals who are exposed to radiation as part of their daily work?

"The eyes are of the most radiosensitive organs," says Dr André Rose, a Senior Researcher at the University of the Free State (UFS), Department of Community Health. He has just started his research, which aims to identify the prevalence of damage to the eyes and the associated risks among professionals such as cardiologists and radiologists. While these health professionals take every step to ensure patients are safe from the harms of exposure to radiation, Dr Rose wants to determine whether they understand their own risks due to ongoing radiation exposure. He will specifically look at their risk for developing cataracts. "People working with radiation are exposed to increased risk for cataracts, and I want to look at radiation safety practices and the use of personal protective equipment within my study group.

"I have worked in several disciplines in medicine, but have found myself especially driven to affect change at a macro level. This is why I chose a career in public health," says Dr Rose who calls himself a researcher and teacher at heart.

His PhD will be the start of his journey to focus on Academic Medicine. To establish himself in this field through this research, he is collaborating with professionals to look at the eye health of those working with and exposed to radiation. He says the effects of radiation on the eyes can range from burns, keratinisation (hardening) and yellow spots, to cataracts. The risk of developing cataracts is almost four times greater among these professionals than among other people. "Part of my research will also look at lens changes in the eyes among participants, their understanding of these risks, and their ability to mitigate these risks," says Dr Rose.

As part of this study, Dr Rose is collaborating with researchers in ophthalmology, community health and medical physics. His research includes participants from clinical imaging sciences, cardiology, and paediatric cardiology. Dr Rose will apply multiple research methods, including qualitative and quantitative methods. He will also conduct in-depth interviews and focus groups among these professionals to determine their perceptions about radiation safety and their use of personal protective equipment. This will include a survey and a cataract screening.

Professor William Rae, the Head of the Department of Medical Physics at UFS, is Dr Rose's designated supervisor.

Professor Rae says, "This topic of research is relevant in our setting because we have some of the best technology available, while the regulatory environment may not be as mature as the countries this technology comes from."

"Through my research and findings I hope to stimulate meaningful changes in the education and training of health professionals working with radiation in South Africa, and possibly to influence international radiation protection policy," Dr Rose says about what he hopes to achieve. Professor Rae supports this vision and believes Dr Rose is capable of making a significant contribution to this field, both locally and internationally.

Another passion for Dr Rose is to be involved in training future health professionals for South Africa. He says, "There is a desperate need to contribute to the improvement of the health systems of our country to give people the care they deserve. I believe it is possible through teaching, and I aim to be instrumental in making this a reality in the field of occupational health."

With numerous published studies, and experience in presenting academic research at global conferences, Dr Rose is praised by his peers for his passion and skills in this field. His vision for the future? He will publish the findings of his research in peer review journals and present at conferences to set his career on a path where he can continue to make a contribution to Academic Medicine for years to come. He says, "I want to be part of the healthcare revolution to deliver better quality healthcare for all people and I choose the classroom as my battlefield."

Two patients, the same condition, only one develops a 'second hit'

Surgeons are privileged to have the ability to treat physical ailments that arise in the human body. Some surgeons operate to remove cancer, others to correct deformities and others to prevent the spread of disease. Dr Thomson always dreamed of doing this and of becoming a surgeon. That dream has come true as he now operates at the third biggest hospital in the world, Chris Hani Baragwanath Academic Hospital in the Soweto area.

The hospital registers around 150 000 inpatient and 500 000 outpatient cases

"I thrive on solving the challenges one is faced with during surgery and being able to tangibly mend the human body is highly rewarding."

~Dr John Thomson~



~ DR ~
JOHN
THOMSON

each year. It is in this microcosm of South African society where Dr Thomson aims to also further his career in Academic Medicine. He wants to identify why so many patients develop septic complications or the so called 'second hit' following severe acute pancreatitis.

In the United States, acute pancreatitis leads to about 210 000 hospital admissions in a year. Although severe acute pancreatitis is not as common here, Dr Thomson says because Chris Hani Baragwanath Academic Hospital is a referral centre, numerous cases are seen. He says, "This form of pancreatitis is a public health burden associated with prolonged hospital admissions due to septic complications and requires intensive management across multiple disciplines with numerous interventions."

Dr Thomson became specifically interested in this condition following a varying response to treatment in two of his patients. He says, "I had two young male patients, both with acute severe pancreatitis. The one became critically ill with septic complications or the so-called 'second hit' requiring antibiotics, organ support and multiple surgical procedures. The other, despite having the same condition, made a fast, uneventful recovery. It was this clinical scenario that inspired me to try and identify why certain patients develop the 'second hit' in severe acute pancreatitis."

Patients who develop this illness can progress to develop significant septic complications. This dramatically increases their morbidity and mortality risk. Interestingly, says Dr Thomson, not all patients who develop acute severe pancreatitis develop septic complications. Why? Dr Thomson hopes following his research to answer this question. His main focus will be to identify markers or the immune responses that predominate over the period that septic complications occur. From this, he hopes to potentially recognise or predict the development of septic complications or the 'second hit' and pre-emptively apply the necessary therapeutic care.

Dr Thomson wants his research to address a void in the understanding of this condition. The research findings will help to identify patients who may develop complications to ensure early, targeted management is implemented. A change in this area of healthcare? "I would like to see the early identification and referral of patients suffering with severe acute pancreatitis. This is a complex illness that requires management in specialised centres to improve patient outcomes."

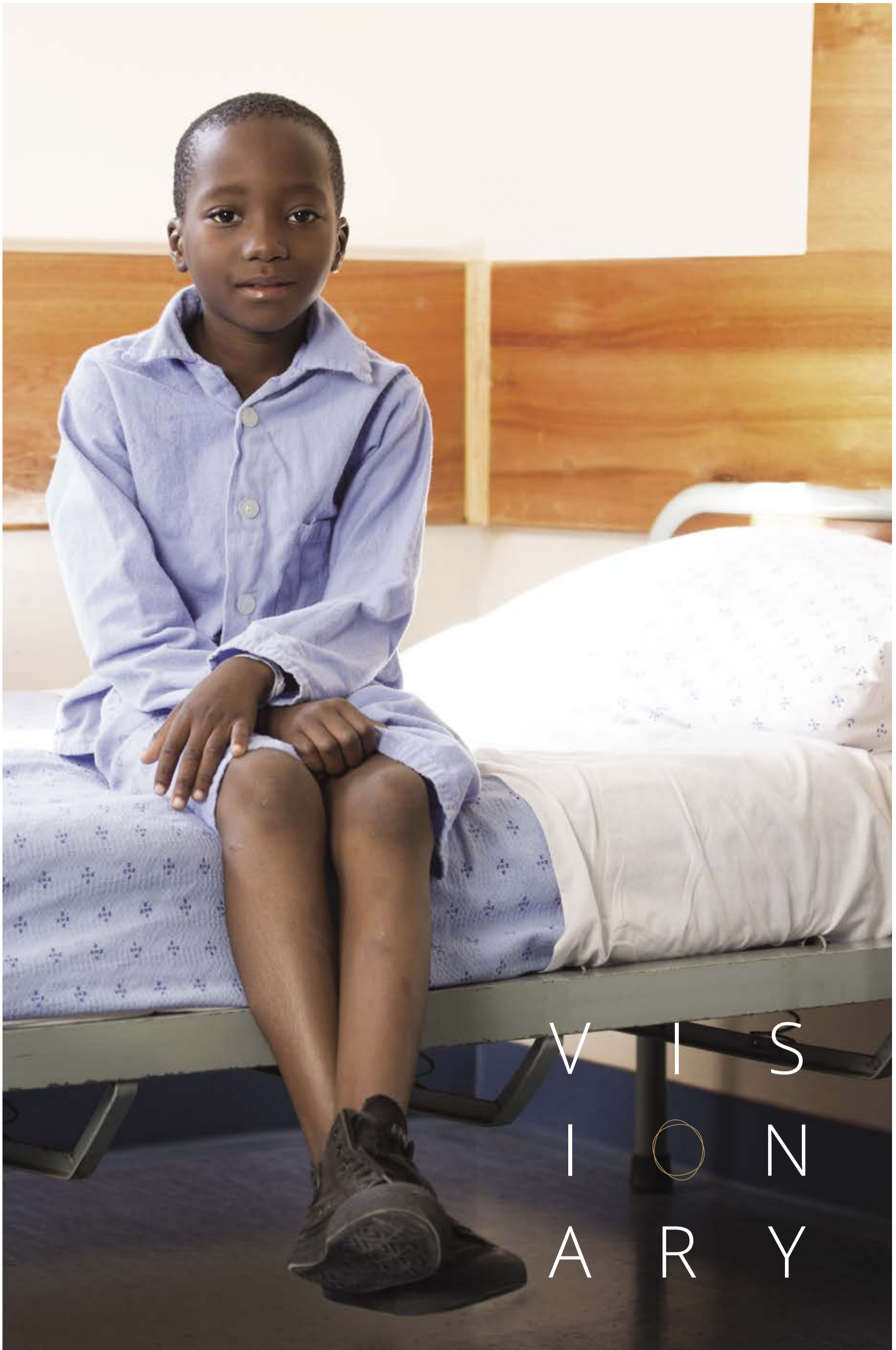
Dr Thomson also hopes his research, which is novel in this field, will stimulate further research in parallel areas, such as trauma, sepsis, burns and the body's inflammatory

response. Currently busy with sample collection, he plans to complete his PhD through publication when his research is complete.

Now being able to focus on this research full-time, he will complete various investigations during the time period that septic complications occur and correlate these results with the clinical course of the patients identified in the study. The laboratory investigations will include the measurement of cytokines, blood cells and certain genetic traits. These results will be compared with the patients' need for antibiotics, organ support, as well as endoscopic and surgical interventions.

Dr Thomson says being a surgeon gives him the opportunity to physically go in and fix the problem. "I have always enjoyed being able to use my hands. I thrive on solving the challenges one is faced with during surgery and being able to tangibly mend the human body is highly rewarding." On completion of his PhD, Dr Thomson says he hopes to also complete a subspecialty in gastrointestinal surgery. "I truly enjoy research and the stimulation that it provides, and believe it is an essential component in furthering not only my development as an Academic Clinician, but also healthcare delivery in South Africa."





V I S
I O N
A R Y

DISCOVERY
FOUNDATION

SUB-SPECIALIST

AWARDS

Giving more children a chance at treatment and survival

"When you hear about children with cancer you immediately have a sense of sadness. It is as if the battle is lost before it has even begun." These are the words of Dr Tanya Schickerling who is aiming her sights on qualifying as a paediatric oncologist. She feels this view of children with cancer often means this field of medicine is greatly misinterpreted. Yes, it is sad when children are faced with this long and challenging journey to recovery. But, says Dr Schickerling, "It is a challenge I embrace and a journey I share with every patient and family as a medical professional."

Dr Schickerling started her training in the Paediatric Oncology Unit at Charlotte Maxeke Johannesburg Academic Hospital in July 2016. Under the guidance of qualified paediatric oncologists and the Head of the Paediatric Oncology Unit, Professor Janet Poole, she aims to qualify within 18 months. Her main focus during this period will be stem cell transplants and the necessity for a paediatric transplant programme in a developing country. In other parts of the world, stem cell transplants save many children with high-risk malignancies. If not for this treatment, these children would not have survived.

A sad fact is that in South Africa, dedicated paediatric oncology units treat half as many children as the number believed to have cancer. Many children with cancer never see the inside of a specialty unit. "This can happen because their diagnosis is missed or they simply cannot reach one of the dedicated units," says Dr Schickerling. The survival rate of children with cancer in South Africa is patchy – ranging from 20% to 80% for even highly-treatable malignancies.

"I believe that stem cell transplants in South Africa have the potential to improve overall survival rates in children with high-risk malignancies. This will enable us to achieve more favourable outcomes," she says. Stem cell transplants to treat cancer are not performed as often as in other countries. This is mainly because this life-saving treatment is almost exclusively available to families who can afford to pay for it themselves. "Along with encouraging more people to qualify in this field of oncology and developing skills, we also need more of the stem cell transplant units." This, Dr Schickerling believes, will lead to more advances in treatment and give South African children similar event-free survival rates to those seen in other countries.

One such transplant unit, the Nelson Mandela Children's Hospital, is expected to open its doors for children needing specialist care. This means that more



qualified specialists will be needed to run the unit in efforts to offer therapy to children who, in the past, may not have been able to receive this treatment.

"I would also like to see the South African Bone Marrow Registry grow to have at least 400 000 potential donors," she says. This is the estimated number of registered donors that is required for our population so that every child who needs a transplant has a reasonable chance of finding a suitable donor.

Dr Schickerling hopes to practice as a paediatric oncologist saving lives of children with cancer from all walks of life. She also aims to continue her research endeavours in other fields of childhood oncology.

"I would like to see the South African bone marrow registry grow to have at least 400 000 potential donors."

~Dr Tanya Schickerling~

Dr Schickerling says we need to find more effective ways to raise awareness of childhood cancer for early diagnosis and treatment. The most rewarding outcome of completing her studies will be to see more children with cancer being treated and cured.

Always having her heart set on becoming a doctor, Dr Schickerling says, "We get to be with our patients through the deepest darkest times in their lives and then again through the happiest times. It's important to never stop caring."

UNIVERSITY OF
WITWATERSRAND
Sub-specialty: Paediatric Oncology and Child Health
~Dr Tanya Schickerling~

Building skills in KwaZulu-Natal to help people breathe easier

"I see the work that I do with every patient as my contribution to helping them improve their quality of life."

~Dr Dilshaad Fakey~

Patients with lung cancer, chronic obstructive pulmonary disease (COPD) and people with HIV-related respiratory infections all demand the attention of specialists in respiratory medicine. It may also be one of the branches of medicine with the highest number of patients in the foreseeable future requiring these specialists' care.

patients with cystic fibrosis, refractory asthma and many other lung and respiratory conditions.

"I have no doubt that she will succeed in her training and make an outstanding physician scientist, a skill that is rare and has to be nurtured in South Africa," says Dr M Suleman who will be supporting Dr Fakey's development as pulmonologist. Currently a trainee at the department of Pulmonology and Critical Care at the busy Durban hospital, Dr Fakey is also completing research for her MMed. This research investigates various aspects of people with HIV admitted to the intensive care unit with pneumonia.

It was a work experience during high school that made the decision to follow a career in medicine easy for Dr Fakey. "I had the opportunity to interact with people who received medical care at

Of every 10 people admitted to hospital with acute medical conditions, three experience problems with breathing or the respiratory system.

Dr Fakey says her hope is that this field of medicine will grow to make it available and accessible to more people. There are common conditions such as asthma and COPD that, when appropriately managed, can be controlled to avoid it progressing and becoming life-threatening. Being able to educate more people on how to control these conditions will help with this

and is another passion for Dr Fakey. "I would like to see a greater emphasis on prevention. Our country needs to do even more to educate people on the dire effects of cigarette smoke in causing respiratory diseases," she says.

She also wants to see early diagnosis and management of infections such as TB to prevent the devastating complications that can strike when treatment is delayed. Dr Fakey says her experience in rotation

UNIVERSITY OF KWAZULU-NATAL

Sub-specialty: Pulmonology and Critical Care

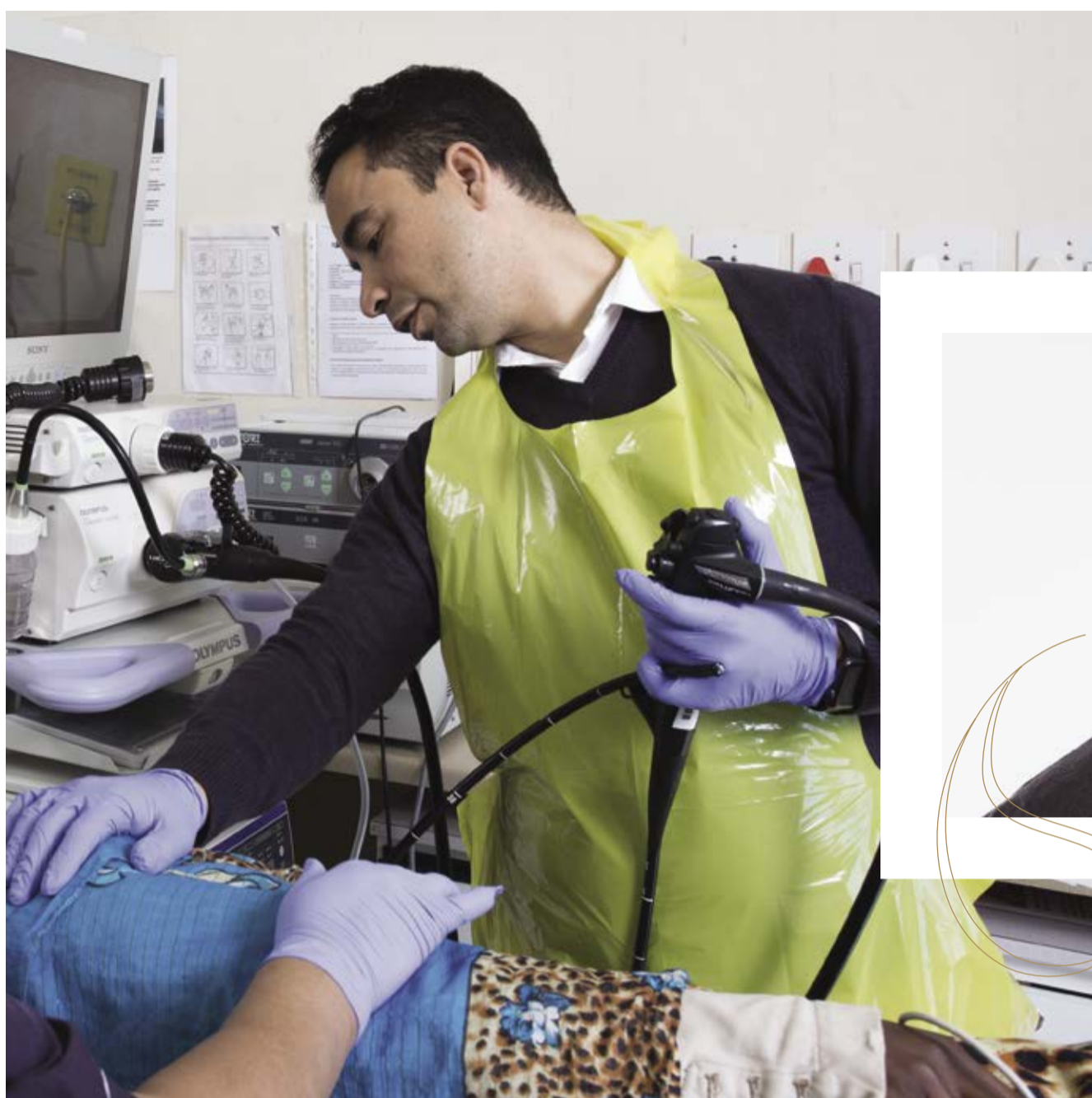
~Dr Dilshaad Fakey~



This need is especially high in KwaZulu-Natal, with the entire province's people having access to about 15 pulmonologists. On completing her training Dr Dilshaad Fakey will add one. As part of the dedicated team at Inkosi Albert Luthuli Central Hospital, this high achiever has made this subspecialty her goal as part of her career in Academic Medicine. Albert Luthuli Central Hospital has a flagship respiratory and critical care department. There, Dr Fakey will hone her skills in the 14-bed ward and critical care unit looking after

Umhlanga Hospital and returned to good health. Seeing them get better was one of the most rewarding experiences I had." This is also why she chose her specific field of specialisation. Diseases affecting the respiratory system can affect a person's overall ability to function. It's helping her patients control these conditions or curing them that Dr Fakey now finds rewarding. "I see the work that I do with every patient as my contribution to helping them improve their quality of life."

rounds in ICU has taught her that "life is precious". In caring for her patients she has pledged to never stop learning so that "new advances and updates I come across will mould me into a sensible and judicious physician". And sharing this knowledge is another dream for Dr Fakey who also hopes to train our country's doctors and specialists of tomorrow.



"The prevalence of health problems such as metastatic colorectal cancer, which was previously seen as a first-world health concern, is increasing."

~Dr Keno Mentor~

Joining a world-class team to treat people with liver diseases

Groote Schuur Hospital is situated on the slopes of Devil's Peak in Cape Town and has been a landmark since 1938, also famous for the first human heart transplant by Dr Christiaan Barnard. It is at this Heritage Site that Dr Keno Mentor will start the next phase of his training in surgical gastroenterology with the view to one day perform transplants himself.

He is particularly interested in the liver. An organ that filters blood, breaks down nutrients, rids the body of toxins and has a multitude of other functions. "The liver, with its unique anatomy and importance in the body, has been of interest to me since medical school," says Dr Mentor. When he started working in clinical surgery, he saw the varied and complex disease processes that cause liver disease, particularly the spread of cancer from other organs to the liver.

Dr Mentor, a Junior Consultant in Surgery, says, "With the westernisation of many South African communities, the prevalence of health problems such as metastatic colorectal cancer, which were previously seen as a first-world health concerns are increasing". In many patients with colorectal

cancer, the cancer spreads to the liver. "It's my interaction with many families and their loved ones who succumbed to metastatic cancer of the liver that made me want to focus my attention on this subspecialty in efforts to help more patients," he says about his passion for this field.

Surgical gastroenterology includes hepatobiliary (HPB) surgery, colorectal surgery and upper gastrointestinal surgery. Diseases that occur in these areas are quite complex and often difficult to diagnose and treat. Through the development of this subspecialty the health outcomes of many patients have vastly improved over time. Professor Kahn, who will be supervising Dr Mentor's training says, "There is a great need for surgical gastroenterologists in South Africa. The University of Cape Town is well-established to train more specialists to promote and establish these critical medical units across our country so that more people can benefit from developments in this field of surgery".

But Dr Mentor almost didn't get to fulfil this important role. He says although he was always interested in a career in medicine, he was directed into business studies. "But my passion for biology and medicine was

always there. So, after completing business school, I enrolled into medical school. The rest is history," he says, eager to start this next phase in his medical career.

A career in which he plans to focus on surgery of the liver and pancreas, and specifically transplantation. With further developments, more and more patients who would have been beyond cure, can now be helped with modern techniques. Treating cancer that spreads to the liver is a particularly fast-evolving topic, and continued research and growing expertise will ensure more patients survive.

Dr Mentor believes early detection is the key to a successful outcome in these patients. He hopes to see more effective screening programmes and the refinement of cancer identification to get people into treatment earlier.

Focused on the next step in his development, Dr Mentor has been working closely with the hepatobiliary surgery team in managing complex cases and started attending their meetings. He says his subspecialist training will lay the foundation for a long-term clinical career in liver surgery. "Currently, I am learning the techniques of liver surgery and endoscopy. I intend to develop my career in Academic Medicine further to liver transplants." This is a developing area of medical care at Groote Schuur Hospital and it is Dr Mentor's goal to be part of this pioneering transplant team that takes care of people with liver disease in South Africa.

UNIVERSITY OF
CAPE TOWN
Sub-specialty: Surgical gastroenterology
and hepatobiliary surgery

~Dr Keno Mentor~

SEFAKO
MAKGATHO
HEALTH SCIENCES
UNIVERSITY

UNIVERSITY OF
PRETORIA
Sub-specialty: Gastroenterology
~ Dr. Japhet Manda ~

Gaining and sharing knowledge to optimise patient care

Dr George Mukhari Academic Hospital (DGMAH), formerly known as Ga-Rankuwa Hospital, is situated about 15 kilometres north-west of Pretoria in Ga-Rankuwa. This hospital, built in 1972, has a catchment area of over 1.2 million people. DGMAH gained academic status in 2011. This was followed by the establishment of the new Sefako Makgatho Health Sciences University (SMU) on the legacy of the old Medical University of Southern Africa.

"I want to ensure patients at Dr George Mukhari Academic Hospital receive the best possible care for gastrointestinal conditions. Therefore, after I qualify as a gastroenterologist, I want to return to DGMAH and assist in setting up a functional gastrointestinal unit," says Dr Manda who is currently pursuing his subspecialty in gastroenterology through the University of Pretoria. Dr Kgomo, the Head of Gastroenterology at the University of Pretoria says, "Our division is the best-equipped in the country to train gastroenterologists. I am certain Dr Manda will make a very successful and competent gastroenterologist with the ability to train others who want to follow this career path."

Dr Manda is excited about this opportunity to qualify in this field and says he works with a "vibrant" team of gastroenterologists

at Steve Biko Academic Hospital. Skilling himself in all aspects of gastroenterology, Dr Manda says his responsibilities include the diagnosis and treatment of both in and out patients. In addition to learning practical procedures related to the discipline of gastroenterology, Dr Manda also takes part in other platforms of an academic nature. This includes weekly reviews of medical journals, articles and guidelines related to the excellence and practice of gastroenterology. "As part of the requirements to qualify, I will also be expected to complete and present a paper on a selected topic of academic interest at a congress," he says.

When asked why he decided to study gastroenterology, Dr Manda says, "A huge gap exists in the field of gastroenterology. This gap is even wider in hospitals serving the previously disadvantaged communities. The need for this specialised care is further magnified by the rise in gastrointestinal and liver diseases due to HIV. This is what made me choose gastroenterology."

For Dr Manda, becoming a doctor was a matter of when rather than how. "I learnt to work hard since my days in primary school. I was privileged to attend the competitive boys-only, Hillcrest Technical

Secondary School. This school had a very strong career and mentorship programme, which helped me have a clear vision about what I wanted to do."

His next milestone is to qualify as a gastroenterologist and to go back to his community.

Once there, he wants to contribute and use his new skills in many different ways. This will involve offering clinical services, outreach services to other hospitals, and training both undergraduate and postgraduate doctors and future gastroenterologists at Sefako Makgatho University Health Sciences University. "I want to be equipped with the relevant knowledge and skill to provide solutions to the current medical and academic challenges. This will ensure the best care for patients and help in building a thriving healthcare system," says Dr Manda.

He believes the best way to alleviate shortages in specialist care is to share knowledge and to transfer skills to others. And this is what he plans to do in future – to share his skills with others at Dr George Mukhari Academic Hospital and to use his skills in gastroenterology in a community where a great need exists.



"I want to be equipped with the relevant knowledge and skill to provide solutions to the current medical and academic challenges. This will ensure the best care for patients and help in building a thriving healthcare system."

~Dr. Japhet Manda~

Joining a handful who know best about treating little livers and pancreases

"I always enjoyed working with children, so becoming a paediatrician seemed a natural step to take in my career," says Dr Lesley Hendricks, currently halfway through her training in paediatric gastroenterology at Steve Biko Academic Hospital. For her, this career path came quite by accident as she

is growing day by day. This is important considering the burden of gut and liver disease among children in South Africa is growing at an alarming rate. Since establishing the unit in 2008 the number of outpatients have grown from a mere 100 to 1 500 in 2016.

"There are only a handful of paediatric gastroenterologists in the country, and while they do their utmost, there is particular need in the state sector to cope with the growing number of patients," says Dr Hendricks.

While completing her fellowship, Dr Hendricks is also interested in

the first candidate to complete the fellowship in Paediatric Gastroenterology in October 2010. She also established the Paediatric Gastroenterology and Hepatology Unit at Steve Biko Academic Hospital. "Dr Hendricks is an outstanding candidate. She is a conscientious clinician with a clear passion for children and for gastroenterology. She contributes to excellence in patient care and our high academic standards," says Dr Terblanche.

"Joining the team at Steve Biko Academic Hospital has been a fantastic learning experience," says Dr Hendricks. How does she approach her patients?

UNIVERSITY OF PRETORIA

Sub-specialty: Paediatric gastroenterology
~ Dr Lesley Hendricks ~



"There are only a handful of paediatric gastroenterologists in the country, and while they do their utmost, there is particular need in the state sector to cope with the growing number of patients."

~Dr Lesley Hendricks~

found herself pleasantly surprised by how much she enjoyed working with children with varied liver diseases or dysfunction of the gut and the pancreas.

"It is a challenging, yet stimulating field of medicine that allows us to work with complex matters as a member of a dynamic team," says Dr Hendricks. The Paediatric Gastroenterology and Hepatology Unit at Steve Biko Academic Hospital was established in 2008. Paediatric gastroenterology has become an established subspecialty over the past three decades and knowledge in the field

further research. She has done a study on sinusoidal obstruction syndrome in children. Dr Hendricks found many children presented with acute and chronic liver disease due to the use of herbal medicine. This is a preventable illness, which can have a profound effect on the quality of life of a child.

"I presented my findings at the European Society for Paediatric Gastroenterology, Hepatology and Nutrition conference in May 2016 and plan to publish it later this year." Dr Hendricks will also start another research project reviewing the use of Gabapentin in children with chronic liver disease and pruritus in early 2017. Currently most of the research in paediatric gastroenterology is done overseas. This research by Dr Hendricks therefore adds to knowledge about the unique profile of our country's children, which includes conditions seen in both developed and developing countries. This is something she hopes to continue doing.

Supervising Dr Hendricks during her training is Dr Alta Terblanche, who was

"My grandparents both had chronic illnesses and I saw the hard work the doctors and nurses put into their care. This inspired me to become a doctor and I try to emulate that compassion I saw from them in my own life and career." Dr Hendricks believes she can make a difference to the many children they see with liver disease, children who need transplants and others who have had liver transplants. Her qualification will not only give her a specialist skill, but will also "help make me a better general paediatrician".

Dr Hendricks says her time in this field has been very rewarding so far. "I look forward to continuing my education in this field that covers a massive burden of disease, and to care for and improve the lives of children and their families," she says. She hopes to see greater awareness of gastrointestinal problems and that more of their little patients who so desperately need new livers can get them.

UNIVERSITY OF THE
WITWATERSRAND
Sub-specialty: Nephrology
~ Dr Glen Tshakhuma ~

the fellows and Head of Department of Nephrology, Professor Graham Paget, at Charlotte Maxeke Johannesburg Academic Hospital. This is the busy teaching hospital in Parktown, Johannesburg, where Dr Tshakhuma is now based.

Chronic kidney disease is more common than people know. Around the world it occurs in about 10% of people, and in

dialysis, 171 patients who visit them for chronic dialysis, and 32 patients who require peritoneal dialysis. "The prevalence and incidence of renal problems are on the increase, particularly HIV-associated nephropathy. We need a very strong and dedicated renal team," says Professor Mntla, Head of Department Cardiology at Sefako Magathu University. With the number of patients needing care for

on the prevention of kidney diseases. As health professionals we have to educate other medical professionals and our patients on risk factors. This will help people stay healthy or get them into treatment earlier so fewer progress to chronic renal failure," he says.

While equipping himself with the skills he needs to treat patients with chronic renal

"I want to make sure patients get the specialist treatment they need, and I aim to train others in nephrology."

~Dr Glen Tshakhuma~



Giving patients access to specialist care and training others in treating chronic kidney disease

Dr Glen Tshakhuma says he starts his days by eight every morning with ward rounds and follow-up visits to patients with varying degrees of kidney disorders and end-stage renal disease. At any time there are about 100 patients between the ages of 20 and 60 under the care of

South Africa as many as 5 million people older than 20 have this condition. The main causes of kidney disease in South Africa are high blood pressure, diabetes, and more recently there have been links found between kidney disease and HIV. With the high prevalence of obesity, high blood pressure and HIV, the number of people with chronic kidney disease is on the rise in communities across South Africa.

The Dr George Mukhari Academic Hospital renal unit reflects this increase in patients needing care for kidney-related conditions. They have up to 10 kidney transplant patients, 16 patients receiving acute

chronic kidney conditions they need at least three to four nephrologists at Dr George Mukhari Academic Hospital. Yet they currently have none.

"I aim to complete the two-year programme at Charlotte Maxeke Johannesburg Academic Hospital, and return to the Dr George Mukhari Academic Hospital to fill a desperate need in patient care there. I want to make sure patients get the specialist treatment they need, and I aim to train others in nephrology," says Dr Tshakhuma.

Always having a mind for numbers and science, he first wanted to build and better systems, buildings and machines as an engineer. But he decided to listen to his uncle and rather pursued a career as a doctor. "I was a Medical Officer at the old Pietersburg Hospital (now Polokwane) when I first saw the effect of the shortages of specialists on patient care and outcomes. It was there that I decided to further my medical career and chose nephrology as my area of specialisation because of the dire shortage of this specialty, especially in the public sector," says Dr Tshakhuma.

"I want to give people the best therapeutic care. But I also want to see a greater focus

failure and transplantation optimally, he says treating chronic kidney disease is a collaborative effort. People have to be made aware of the benefits of saving lives through organ donation. "With the number of people needing dialysis increasing, we have to find ways to open available treatment spaces by identifying patients who are suitable for kidney transplantation. However, there is a shortage of donors and healthy organs to ensure patients across our healthcare sector can benefit equally," he says.

On qualifying in 2018, he plans to give his time to contribute towards the establishment of a renal care unit at Dr George Mukhari Academic Hospital. He says, "Our patients must have access to the highest level of patient care. I will also enable others to provide the same level of care, by training registrars and fellows in nephrology at a hospital where this service was not available before." Professor Mntla supports this view and says Dr Tshakhuma qualifying in this field will be a valuable investment as they start to strengthen the University's subspecialties and broadening patient access to specialist care at Dr George Mukhari Academic Hospital.



DISCOVERY
FOUNDATION

RURAL

INSTITUTIONAL AWARDS



Saving lives by building skills in resuscitation and basic life support

South Africa has a wide rural setting, with much of our population in KwaZulu-Natal living in rural and semi-rural areas. Bethesda Hospital is situated in one of the poorest rural areas in northern KwaZulu-Natal, and serves a population of around 110 000 people. It is these people that Dr Gloria Mfeka and her husband, Dr Cyril Nkabinde, both full-time Family Physicians at Bethesda Hospital, left their Durban home for in 2012. They relocated to this area to use their knowledge and skills to help improve the quality of healthcare provided to the people who visit this rural district hospital.

Dr Mfeka is a senior clinician who has pioneered the first Family Medicine decentralised rural postgraduate training site in KwaZulu-Natal. She says, "The National Department of Health is doing a remarkable job in increasing access to primary healthcare facilities within all communities, which helps ensure people don't have to travel long distances to obtain healthcare."

Ongoing development in rural areas mean many more people have access to local clinics in a medical emergency. Although this is positive, Dr Mfeka says many of

the nurses who are the patients' first point of contact are not confident in their resuscitation skills. "This is an area of care that you have to be confident in to save lives," she says.

"Unfortunately, our clinics around Bethesda Hospital have, for many reasons, been under performing when it comes to resuscitating patients," Dr Mfeka confirms. A major reason for this, she believes, is the limited knowledge and skills of nurses who face many different challenges, including being left to manage clinics on their own.

The aim is to train nurses at primary healthcare clinics, mobile clinics, ward-based outreach teams and school health teams in resuscitation skills. "With the thousands of people visiting Bethesda Hospital and its outlying clinics, we have to

find ways for service delivery to run smoothly. Medical doctors alone cannot care for all the people needing urgent medical care.

By giving nurses the skills to respond in an emergency, we can effectively and confidently meet some of the resuscitation healthcare needs of the community we serve together," says Dr Mfeka.

This training will give nurses the skills they need for basic resuscitation. When nurses have completed the resuscitation and basic life support training, ongoing reviews will look at the quality of care and the related outcomes from nurses applying their skills. "These reviews will help us monitor whether the training was effective, where we need

to make changes, and to measure the impact it has had on healthcare delivery in the Bethesda Hospital catchment area", says Dr Mfeka.

The basic life support course is an American Heart Association course, which teaches skills of cardio-pulmonary resuscitation (CPR) for people of all ages. "Having started a basic life support training centre at Bethesda Hospital and training more than 100 staff members in the past two years, we have noticed an improvement in awareness and readiness for performing resuscitations," says Dr Mfeka. She says the skills and willingness to assist in resuscitations have vastly improved.

It's these improved outcomes that have encouraged nurse practitioners at outlying clinics to show an interest in this training. With nurses often being the first to treat patients, they have to know how to perform basic life-saving measures, especially considering the likelihood of delayed transfers from clinics to district hospitals. "There has to be an emphasis placed on training of nurses working at clinics. They are expected to provide a generalist level of care to communities. It is certainly possible for our nurses to provide this care with the correct and ongoing training," says Dr Mfeka.

"We hope to purchase training manikins, audio-visual equipment and healthcare provider manuals to further support the effectiveness of the training," she says. Based on the success of this project at Bethesda Hospital, the aim is to roll it out to nurses in other hospitals and clinics in the district.

"By giving nurses the skills to respond in an emergency, we can effectively and confidently meet some of the resuscitation healthcare needs of the community we serve together."

~Dr Gloria Mfeka~

BETHESDA HOSPITAL

Basic life support and resuscitation training programme

~ Dr Gloria Mfeka ~



“Early recognition, prevention and infection control, and effective monitoring of therapy are essential steps to treat sepsis and to improve chances for survival.”

~Dr Seelan Pillay~

STANGER HOSPITAL

Acute Care for Africa Research and Training (ACART) programme

~ Dr Seelan Pillay ~

Equipping a district with skills to fight the complications of severe infection

Situated on the east coast of KwaZulu-Natal and made up of tribal areas where people farm for survival, is the Ilembe District. The main town Kwa Dukuza – place of the Zulu King – was founded by King Shaka. It's here where staff at the Stanger Hospital are equipping themselves with knowledge to fight an acute illness that causes many deaths, especially in the more rural parts of this region.

Stanger hospital has 500 beds and serves a community of 600 000 people, many of them with HIV, TB and related illnesses. These conditions also increase the risk of developing sepsis – a deadly complication of infection, which many patients from the outlying clinics and district hospitals already have by the time they are referred to Stanger Hospital. Sepsis isn't selective in its victims and can target anyone, but it is most dangerous in older adults or those with weakened immune systems, such as those with HIV or TB.

“Early recognition, prevention and infection control, and effective monitoring of therapy are essential steps to treat sepsis and to improve chances for survival,” says Dr Seelan Pillay. Dr Pillay is currently completing his MMedSci through the University of KwaZulu-Natal, investigating the predictors of mortality in patients presenting with shock. He is also representing Stanger Hospital as part of a dedicated team who will implement

Acute Care for Africa Research and Training (ACART) sepsis workshops to improve the management of sepsis at the hospital, and subsequently in the district.

He says the challenge to control sepsis is not unique to South Africa. Worldwide, it is a clinical, financial and logistical challenge. In South Africa, there is little data on the overall burden of sepsis. “However, the prevalence of HIV and other co-infections suggest that sepsis is a substantial contributor to mortality,” says Dr Pillay. This highlights the importance of finding local solutions to improving morbidity and mortality from sepsis and its complications he says about the implementation of ACART sepsis workshops in the district.

ACART is a collaboration between local and international partners, and seeks to improve health outcomes in Africa through a process of training and research. These sepsis workshops were first introduced to the district through a collaboration between ACART, the University of KwaZulu-Natal and the Ilembe District under the leadership of Professor Satish Bhagwanjee. With sepsis being a leading cause of death in the Ilembe District, the ACART sepsis workshops train health professionals over the course of a day to identify and manage patients with sepsis presenting to healthcare facilities. “By giving healthcare workers and professionals across the district this knowledge and the necessary checklists to assist with adherence to the care, communication and referral of patients, we can ensure the long-term sustainability of the programme, strengthen our health system and reduce the high mortality rate from sepsis”, says Dr Pillay.

The ACART sepsis workshop is evidence-

based, and dynamic. It was developed in KwaZulu-Natal for the experience in the area. Because the programme is dynamic, it can be adapted for different regions. “There was keen interest from healthcare workers in the district when the ACART sepsis workshops were introduced in 2015,” confirms Dr Pillay. He says they are ready to offer this training at other clinics and hospitals. At least 80% of healthcare workers from each facility will be selected to attend a sepsis care workshop. Following this training, Dr Pillay and the dedicated team will monitor and evaluate the quality of sepsis care algorithms. Dr Pillay says they also want to document the impact of this training on patient outcomes, measured by the effect of this intervention on the mortality and morbidity rates in the district.

In the end Dr Pillay and his team aim to tick these boxes:

- Train and educate healthcare workers to know and manage sepsis.
- Implement a simple algorithm for managing sepsis.
- Maintain training and education in the care of sepsis.
- Monitor the impact of these interventions through research.
- Improve morbidity and mortality from sepsis and related complications.

This is only the start. “If this project shows a significant impact on patient and other outcomes, we intend to develop similar projects for all districts in KwaZulu-Natal,” says Dr Pillay, who is helping Stanger Hospital to fulfil its vision to be the number one healthcare provider in KwaZulu-Natal, through this project.

Setting a high standard for emergency care in the Kenneth Kaunda District

At hospitals in North West province many health practitioners are managing emergencies without good theoretical framework or practical emergency skills. Emergency care forms part of the four main national health priorities, and an aligned intervention proposed by the Provincial Head of clinical services in North West has been available for the past seven years.

As an instructor in the advanced emergency skills training programme, Professor Van Deventer says, "BEST is critical to ensure a standardised level of emergency care in all facilities across North West."

BEST was originally developed in Australia for remote, rural areas and this training programme has been adapted to South African circumstances. Professor Van Deventer says, "It provides theoretical and practical postgraduate training in basic emergency medicine in a scenario-

based, practical two-day workshop." Although the training, which is done at the EMRS College in Orkney, is currently aimed at doctors, and especially those in rural areas, the intention is to give

all doctors, clinical associates and nurses who work in emergency departments and situations access to BEST.

Over the past five years, over 150 practitioners have been skilled in BEST and they are all required to meet an extremely high standard of 80% for the post-training exam.

"The approach to emergencies is generally inadequately evidence-based and we have found a lack of confidence in healthcare workers when confronted by emergencies," says Professor Van Deventer. BEST has a very simple algorithm that is extremely practical and she hopes that increasing the reach of BEST among health practitioners will pave the way to more evidence-based and informed emergency care in primary care settings.

"Sustaining BEST is critical to enable more health practitioners and even Primary Health Clinics across the province to confidently handle all emergencies and share evidence-based practice. A high quality of immediate medical care in an emergency ensures the best care for patients and the best outcomes for them," she says. Hundreds more doctors, clinical associates and nurses will be trained over the next three to four years, and an impact study for BEST is being planned.

Asked what Professor Van Deventer hopes to see over the course of her involvement with BEST, she says, "That emergency care and outcomes for patients improve across the province."

This skills enhancement intervention, BEST (Basic Emergency Skills Training), was adapted to make sure all healthcare practitioners working in emergency situations have the necessary skills to guarantee the best emergency care for patients in the province. One of the facilitators of this project is Professor Claire van Deventer, a Family Physician in the Dr Kenneth Kaunda District.

KENNETH KAUNDA DISTRICT

Basic Emergency Skills Training (BEST) programme

~ Prof Claire van Deventer ~



CAPE WINELANDS DISTRICT TRAINING COMPLEX

Stroke rehabilitation programme

~ Ms Elsje Scheffler ~

Reaching more survivors with stroke rehabilitation programme

Think of the Cape Winelands, and brandy, olives, craft beer, wine tours and some of the world's most opulent farms and landscapes spring to mind. Yet, many people living in this area are also dealing with one of the greatest causes of disability in South Africa – stroke. With more than 300 people admitted to hospitals in the area each year, it is a leading cause of hospitalisation in the Cape Winelands. Each stroke is different, and can leave survivors with varying degrees of debilitating after effects, such as paralysis, vision or speech impairment, memory loss or other behavioural changes.

Yet according to Ms Elsje Scheffler, a researcher in the Division of Family Medicine and Primary Care and lecturer for the Centre for Rehabilitation Studies, stroke survivors are discharged after an average of just under four days in hospital. Currently the Cape Winelands District has only 13 rehabilitation professionals and no primary-level stroke rehabilitation programme. Requiring specialised care, this high stroke rate not only places a load on doctors and hospitals, but rehabilitative care is often much too short or non-existing. “Most stroke survivors who also have typically high levels of physical dependency do not receive any rehabilitative care and their caregivers also have no information on how to care for them,” she says.

Rehabilitative care forms a big part of physical recovery following a stroke. Ms Scheffler says, “Without access to rehabilitation services or adequate information and training for caregivers, the stroke survivor’s dependency is prolonged.” She mentions that our country has committed to the provision of early, essential and appropriate rehabilitation services, also one of the four pillars of primary healthcare. The plan is to re-engineer who provides these services and where they are provided.

It's this plan that Ms Scheffler is aiming to put into action through a home- or community-based rehabilitation programme in the Cape Winelands District. By educating and improving the skills set of the more than 530 community health workers employed in the district, Ms Scheffler wants to not only alleviate the workload of hospitals and personnel, but also introduce the benefits of home- or community-based rehabilitative care to the area. Community health workers mainly focus on health promotion and disease prevention. “Out of necessity, they already provide basic home and palliative care to stroke survivors. Through this programme, I aim to supplement their basic skills with a focus on skills transfer and safety to empower family caregivers and enhance the independence of stroke survivors,” says Ms Scheffler.

Although home- or community-based rehabilitation of people with stroke has been long advocated in the literature, there is a lack of evidence for stroke rehabilitation in this context. Leading the way in doctoral level research into this complex issue, Ms Scheffler is also completing her PhD

study on this topic in two phases. In the first phase, the need for and the content of the home-based rehabilitation programme was established. The second phase will measure the impact of the programme on stroke survivors and families. This research will clarify how to develop focused and appropriate rehabilitation programmes for the primary healthcare context. Her proposed solutions will ensure access to basic training about rehabilitation care for caregivers, and access to rehabilitative care through community health workers for most patients in the area.

Ms Scheffler says when the programme is in place, it will also offer free, online resources for community health workers. “I would like to see rehabilitation being better integrated within primary healthcare and the development of further support for the role of rehabilitation professionals to reach all those who need this essential level of care,” says Ms Scheffler on what she hopes to see from her research and the implementation of the rehabilitation programme.

“Without access to rehabilitation services or adequate information and training for caregivers, the stroke survivor’s dependency is prolonged.”

~Ms Elsje Scheffler~





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RURAL

INDIVIDUAL AWARDS

Understanding malnutrition

The contrasts in the Umkhanyakude Health district are stark: natural beauty so breathtaking it carries World Heritage status, and multitudes of malnourished children, many of them dying from nutritional complications. It's the children that hold Family Medicine Registrar Dr Kelly Gate in thrall. "Healthy children are more likely to grow into healthy, productive adults able to contribute to a healthy, productive society," Dr Gate says.

Bethesda Hospital, founded in 1937 in Ubombo village in north-eastern KwaZulu-Natal by the Methodist Church and now run by provincial government, services more than 100 000 people spread over an area of some 1 500 square kilometres, including mountain villages that can only be reached by light aircraft or 4x4 vehicle.

Here, malnutrition's bedfellows are tuberculosis and other infectious diseases, HIV-related illnesses and malaria. "The complexity of the diseases we see here are associated with poverty," says Dr Gate. However, to tackle diseases like malnutrition, health authorities must first make an accurate assessment of the extent of the problem. "There is currently limited data about the nutritional status of children in this health district. Through our research we hope to determine the scale of malnutrition in our area, and to compare it with other areas, and the country as a whole. By having a better understanding of the degree of nutritional problems in our area, we will be able to focus scarce resources and be better at planning our medical care programmes," he says.

When malnutrition occurs in children it not only has negative effects on their health at the time, says Dr Gate, but also complicates their health as adults by predisposing them to numerous other health conditions.

"I firmly believe there needs to be more intense focus on children's health; society and other role players need to prioritise children's health, education, safety and wellbeing to produce healthy, productive, well-rounded adults."

To this end, he says, there needs to be expansion of school feeding programmes, better education, access to safe extramural activities and sports, free healthcare aimed specifically at pregnant women and children, strict adherence to laws protecting children and harsher sentences for people who break these laws.

"You can judge a society by how it looks after its most vulnerable members."

The financial support acquired through the Discovery Foundation will assist in growing the numbers of children reached, thereby improving the accuracy of the data and giving a better idea of the scale of the problem."



Dr Gate, who dreamed of being a doctor as a child, has worked at Bethesda Hospital for the past 10 years. "I love working in the rural areas where I feel my services are most needed." Three years ago he joined the Family Medicine training programme through the University of KwaZulu-Natal to expand his knowledge. "I will continue to serve impoverished communities and hope that the more I learn, the more I can benefit those who need it most."

In 2012, Dr Gate was awarded the prestigious Pierre Jacques Rural Doctor of the Year Award at the PHASA/RuDASA conference in Bloemfontein for his excellent job in improving health service delivery at the hospital.

When he joined Bethesda Hospital to do his community service, there was only one permanent doctor and three community service doctors. Five clinics, which fell under the hospital, had no access to doctors and as a result, patients had to travel more than 30 kilometres for consultations. Dr Gate left Bethesda after completing his community service but returned in 2010, making significant changes to the hospital, including increasing the number of doctors and ensuring that all clinics had regular doctors visits.

In 2013, as Bethesda's medical manager, Dr Gate became the first winner of the Best Overall Batho Pele Public Servant of the Year Award, presented by the Department of Public Service and Administration. He also bagged the gold award for Best Public Service Leader of the Year.

Colleague and former supervisor Dr Hervey Williams says of Dr Gate: "He likes working with rural communities. I guess this is what suits him the most. Some people like to work for small rural hospitals and make a remarkable difference."



"When malnutrition occurs in children it not only has negative effects on their health at the time, but also complicates their health as adults by predisposing them to numerous other health conditions."

~Dr Kelly Gate~

~DR~
**KELLY
GATE**



~ PROF ~
**PARIMALARANIE
YOGESWARAN**

Preventing kidney disease: a rural challenge

Oliver Tambo District is an area of great scenic beauty, with seemingly endless stretches of indigenous fauna bordering its 160km Eastern Cape coastline. Yet, it is also one of the most deprived districts in South Africa, at least where human development is concerned. Unemployment is high (almost 50% under the age of 34), its contribution to the economy is low and the disease burden is heavy; diseases like type 2 diabetes, hypertension and end-stage kidney disease predominate.

In the King Sabata Dalindyebo sub-district of Oliver Tambo District, too many among this

largely rural, Xhosa-speaking population present with advanced stages of chronic kidney diseases to already overburdened health facilities. These diseases could be prevented or delayed by appropriate intervention. Indeed, national statistics suggest that 70 to 80% of all chronic kidney failure is preventable.

For Professor Parimalarani Yogeswaran chronic kidney disease is an ailment that unnecessarily erodes rural communities of valuable resources, and she'd like to see that stopped. Kidney failure in South African adults is mainly due to inherited hypertension (60 to 65%) or type 2 diabetes (another 20 to 25%) and is four times higher in the black population than other race groups, primarily due to the high incidence of hypertension.

“Chronic kidney disease shares many common risk factors for cardiovascular disease and diabetes. Some cannot be changed – such as age, sex and genetics – but the modifiable risks are overweight and obesity, physical inactivity, poor diet, tobacco use, excessive alcohol intake, high blood pressure, high blood cholesterol and impaired blood glucose regulation,” Professor Yogeswaran points out.

National transplant statistics state that the current average waiting time for a kidney transplant varies from anything between six to 12 years.

Prof Yogeswaran who is Head of Family Medicine and Rural Health at Walter Sisulu University based in Mthatha, the primary town of Oliver Tambo District, has identified four goals for her research:

1. To measure the magnitude of the problem of chronic kidney disease in the King Sabata Dalindyebo sub-district.
2. To identify the population with risk factors for developing chronic kidney disease in the community.
3. To identify those who already have chronic kidney disease and to offer appropriate management.
4. To implement a community intervention programme to reduce the risk factors for chronic kidney disease.

“This project is primarily aimed at improving the quality and delivery of healthcare through capacity building of health workers – training general practitioners, nurses and community health workers in the early identification and management of patients with chronic kidney disease, while also educating the community on risk reduction.

“It also has an integrated research component that will identify the size of the problem which, in turn, will contribute to proper planning of healthcare provision and resources in this deprived rural area.”

Prof Yogeswaran, who followed her father into medicine and graduated from the University of Peradeniya in Sri Lanka, has headed the Department of Family Medicine at Walter Sisulu University since April 2015.

“Chronic kidney disease shares many common risk factors for cardiovascular disease and diabetes.”

~Prof Parimalarani Yogeswaran~





A smoking gun for HIV

No other disease in recent history has had such a profound effect on every individual in the community like HIV and Aids.

"One has only to look at the agony on the faces of old women nursing their daughters and sons, watching them slowly die, to understand the true horror of this pandemic," says Dr Olukayode Adeleke, "and that is why I want to make a difference in this field of medicine, particularly among rural communities."

Dr Adeleke's passion isn't in discovering new drugs or vaccines but in maximising the available interventions at a primary care level for the good of the millions of HIV patients who access health facilities every day. Changing HIV management guidelines is where he'd like to start.

"The tobacco epidemic is the single most preventable cause of death globally. Hundreds of thousands of South Africans (approximately 17% of the adult population) smoke tobacco but for people living with HIV, it not only poses the obvious threats to life – cancer, cardiovascular disease, stroke and diabetes – it also erodes those health gains that may have been achieved through antiretroviral therapy. Yet there is no provision in HIV management guidelines for programmes to help people to stop smoking.

"In people living with HIV, smoking has been shown to reduce the efficacy of highly-active antiretroviral therapy (HAART) and to increase their risk for opportunistic

and non-opportunistic infections, and contracting non-Aids-related malignancies."

Across the country thousands of people living with HIV visit antiretroviral clinics daily but nowhere are they counselled on the dangers of smoking. "Primary healthcare workers are ideally placed to encourage quitting," says Dr Adeleke, a Specialist Family Physician and clinical manager at Settlers Hospital in Grahamstown.

"I am hoping that my study will demonstrate whether this kind of intervention is equally effective among HIV-positive patients. I am also hoping that it might provide the motivation for health authorities to consider including structured smoking cessation programmes into routine HIV and Aids management guidelines at primary healthcare level.

"I believe it will improve the quality of care provided at primary healthcare facilities and serve to build capacity among healthcare workers."

Dr Adeleke's study will be conducted in four primary healthcare clinics in Grahamstown – Settlers Day Hospital, Joza Clinic, Raglan Road Clinic, and Middle Terrace Clinic. These clinics provide services to all population groups in the town. A training workshop to teach healthcare workers how to conduct motivational interviews is included in his plans.

Dr Adeleke has completed two diplomas and a Masters degree in HIV management, and his MMed (in Family Medicine)

A recent study involving tobacco-smoking and tuberculosis patients showed that a brief motivational interview by lay health workers was effective in helping these patients to quit.

"In people living with HIV, smoking has been shown to reduce the efficacy of highly-active antiretroviral therapy (HAART) and to increase their risk for opportunistic and non-opportunistic infections."

~Dr Olukayode Adeleke~



~DR~
**OLUKAYODE
ADELEKE**



~ DR ~
**FUNDISIWE
CHONCO**

The co-infection that keeps on killing

At Wentworth Hospital, a neat, low-slung face-brick building above the Bluff Nature Reserve in Durban, there is an antiretroviral clinic called Masibambisane. It operates five days a week from 7am to 4pm drawing patients from Cato Manor, Woodlands, Seaview and beyond.

HIV is a pandemic in South Africa, Hepatitis B is endemic and co-infection is significantly high. The resistance to drugs that treat both diseases is also high and the cost implications of treating co-infections is prohibitively expensive. "Preventing Hepatitis B in HIV-infected patients by vaccination has proven cost-effective in the long-term management of HIV and South Africa could most certainly benefit," says Dr Chonco.

Unfortunately, there are very few local studies that have looked at the sero-immunology of patients infected with HIV.

and at Vusithemba ARV clinic at Prince Mshiyeni Memorial Hospital in Umlazi. I'll review the files of 1 064 HIV-positive patients who have started HAART with the central focus being to highlight the number of Hepatitis B immune vulnerable patients in this population."

Dr Chonco hopes her research will lead to ongoing quality surveys and guidelines for better care of HIV patients.

Prince Mshiyeni Memorial Hospital in Umlazi, a sprawling regional facility of 1 200 beds serving a wide community up to and including part of the Eastern Cape, is where Dr Chonco performed her community service after graduating from the University of Cape Town. Prince Mshiyeni is one of the sites of the daily ARV clinic, Vusithemba. It is one of the largest in the region making it the perfect Petri dish for Dr Chonco's research. The clinic offers holistic HIV management by a multi-disciplinary team. Patients here are mostly black African with restricted resources and socio-economic status.

HIV infected and the pilot study proved my concern.

"I can't wait to show the need to vaccinate this vulnerable population and I sincerely hope that the outcome of my study will positively motivate for the vaccination of Hepatitis B and HIV co-infected patients."

A personal clinical audit conducted here by Dr Fundisiwe Chonco has revealed that 47% of patients starting antiretroviral therapy lacked immunity to the Hepatitis B virus, yet there is a safe and effective vaccine against this disease.

Dr Chonco, who is at the end of her specialist training as a Family Medicine Physician, is motivated by practical research that identifies local health problems

and helps to solve them using available resources. "I also want to get involved in developing young South African researchers. My research experience from Harvard School of Public Health (USA) in 2009 has skilled me to be passionate about research," she says.

Dr Chonco hopes that this innovative study will help facilitate opportunities for other research projects too. "I look forward to making a valuable contribution towards better health for all South Africans."



"While working at these hospitals I recognised a missed opportunity to improve the management of the HIV infected. The pilot study proved my concern."

~Dr Fundisiwe Chonco~



Those that have been done were primarily among pregnant women and excluded men and children. This is partly due to the lack of data describing the large number of HIV-infected patients vulnerable to Hepatitis B.

Dr Chonco wants to change that. "My study aims to describe the immune status of patients starting highly-active antiretroviral therapy (HAART) at this clinic

At Wentworth Hospital, which services around 5 000 people annually, patients are primarily middle-class brown, Indian and white. "The two clinics serve different populations; this will exclude selection bias and also allow better generalisation of the results," Dr Chonco points out.

"While working at these hospitals I recognised a missed opportunity to improve the management of the

Breaking barriers to breastfeeding

The sickly two month old had had nothing but sugar water to feed on for two weeks, her grandmother told Dr Lungile Hobe. The baby formula was finished and the family could not afford to buy more. "Yet breastfeeding is free. I couldn't understand why so many mothers of infants were not breastfeeding, especially as malnutrition in the village of Ubombo where I worked was rife."

According to World Health Organization statistics (2010), fewer than 10% of babies were being exclusively breastfed at the age of six months in South Africa. "This is very disappointing, especially when our legislature has changed to accommodate mothers who work and want to continue breastfeeding, and when there have

fact that they cannot afford enough formula to meet their growing babies' needs.

"I want to know why they don't breastfeed," Dr Hobe says.

It is her search for answers like these that prompt her passion for community medicine. As a little girl growing up in rural Mseleni, not too far from Ubombo, she realised the importance of the local hospital and its doctors as a resource to the community, and not just for its medical services. "Often, the hospital is the only resource available to the community for all sorts of things. Doctors who work there need to also assist with things like water provision, gardens and ideas on how to deal with poverty. I understood from an early age that a doctor was a vital resource to have in a community."

That, and her mother's near-fatal car accident, encouraged her career in medicine. "My mom was a nurse, now

we can better practice preventive medicine. I believe prevention is better than cure."

Ultimately she would like to see more mothers become breastfeeding champions in communities; more healthcare workers being supportive to new mothers; and the establishment of support groups for breastfeeding rolled out in poor and underprivileged communities.

"I dream of being the person who brings change not only to the community, but also to the way medicine is practised, especially in the areas of primary and community health."

~Dr Lungile Hobe~



~DR~
**LUNGILE
HOBE**

been so many campaigns to promote breastfeeding including the MBFI (Mother Baby Friendly Initiative).

"The Department of Health is currently in the process of rolling out breast milk banks yet we still don't have a clear picture as to why more mothers don't breastfeed," Dr Hobe says.

"We know from various studies that exclusive breastfeeding is beneficial to both the mother and the infant and could assist in decreasing infant mortality yet there are very definite, but as yet unidentified, barriers to breastfeeding".

Malnutrition is a huge challenge in Ubombo in the north eastern corner of KwaZulu-Natal. In spite of its abundant natural beauty, a significant number of people here are unemployed and as a result, food insecure. Yet caregivers continue to choose formula over breast milk, regardless of the

retired, but her dream had been to become a doctor, which she wasn't able to achieve for a number of reasons.

"I wanted her to have a doctor in the house, and then it wasn't long after this decision that she was involved in an almost fatal car accident and I saw how useful it was to be a doctor. Had it not been for the doctors that treated her, she wouldn't have survived the accident to put us through school."

Dr Hobe, who is in her third year of registrar training working as a senior at Bethesda Hospital, plans to write her finals in 2017 after which she would like to focus her energy on community health.

"I dream of being the person who not only brings change to the community but also change to the way medicine is practised, especially in the areas of primary and community health – finding solutions to strengthening healthcare systems and how

These goals require the following questions to be answered:

- Are healthcare workers providing enough support to assist the decision to breastfeed?
- Are communities talking about breastfeeding or is it taboo to talk about it?
- Are the fathers of these infants involved in making decisions around the feeding options available to their children?
- Do working mothers know their rights to breastfeed as they work?

"Only once we identify the barriers to breastfeeding can we know what the challenges are barriers. Only then can we address those to increase the uptake of breastfeeding," Dr Hobe says.

~DR~
**OLADELE
ADENIYI**

Highly-active antiretroviral therapy and HIV: mother-to-infant transmission

Sub-Saharan Africa still experiences the world's highest burden of mother-to-child transmission of HIV; statistics from 2013 show that more than 90% of the 3.2 million children under the age of 15 living with HIV are in this region, and that breast milk remains a major source of infant infection.

In South Africa, and many other sub-Saharan African countries, significant success has been achieved with the provision of highly-active antiretroviral therapy (HAART) to pregnant women. However, there remains a paucity of data on the rate and timing of HIV transmission from these mothers to their exposed infants. Whether exposure risks through breastfeeding from HIV-infected mothers are completely obliterated with HAART has not been investigated.

Dr Oladele Adeniyi holds a joint establishment appointment as a lecturer in the Department of Family Medicine at Walter Sisulu University and a Specialist Family Physician at Cecilia Makiwane Hospital in Mdantsane, East London. It is his role as supervisor to the PMTCT programme and adult HIV care in the Buffalo City and Amathole districts – catchment areas for Cecilia Makiwane Hospital – that prompted his interest in the genetic diversity and resistance profile of HIV in peripartum women; a risk assessment of mother-to-child transmission in women on HAART. “I receive referrals of pregnant, peripartum and postpartum women with virological failure on first-line and second-line treatment regimens. I realised there are gaps in our current practice, which suggests that clinicians are not sufficiently equipped to deal with the challenges of managing HIV resistance in the context of mother-to-child transmission”.

“The probable risks of transmission of HIV-resistant strains to infants and the pattern of mutations from mothers on HAART to their infants have not been

documented. The overall implications of resistant mutations in the prevention of mother-to-child transmission of HIV, including the choice of prophylaxis for the HIV-exposed and the HAART regimen for the infected infants have not been investigated,” he says.

In addition to the identified gaps in the context of mother-to-child transmission, there is concern about the evolution of diversified strains of HIV in different regions of South Africa as foreign nationals flood the country. The transmission of such diversified forms of HIV in exposed infants has not been adequately investigated. Peripartum women and their infants provide a unique opportunity to further understand the pathogenesis and diversity of HIV in South Africa. “At present, despite the initiation of HAART in the majority of HIV-infected pregnant women, the incidence and timing of infant HIV transmission are not clear. In addition, there is no sufficient evidence on the transmission of mutated or resistant viruses to infected infants from their mothers.”

Dr Adeniyi hopes that his research will lead to a proper evaluation of the true prevalence of virological failure and identified viral mutations in peripartum women on HAART and that it will pinpoint the incidence and timing of infant HIV infections.

“I believe that future studies on vaccine development, guidelines on mother-to-child transmission, infant prophylaxis and the HAART regimen in HIV-infected infants in sub-Saharan Africa might be influenced by the outcomes of this study.”

Dr Adeniyi grew up in the south-western part of Nigeria and was intrigued by the doctors visiting the health centre in his small home town. “My passion for medicine grew from there, a passion supported by my parents.”

“It was while working in the deeply rural Appelsbosch Hospital in KwaZulu-Natal in 2007 that my interest in primary healthcare and rural medicine evolved. There, I was exposed to the burden of disease in a rural setting and realised there were gaps in knowledge among the clinicians working there. That was my motivation for furthering my studies in Family Medicine.

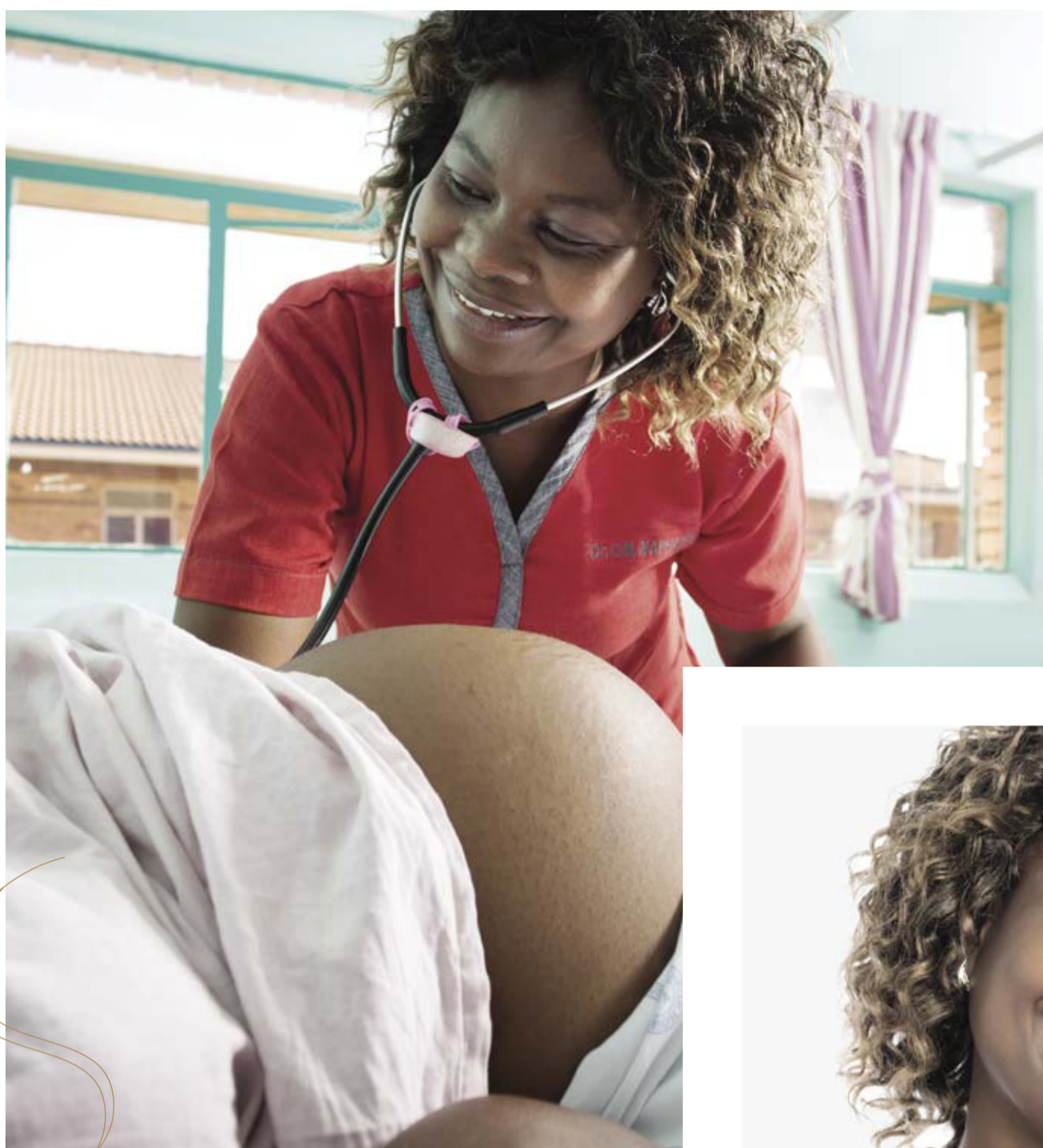
“My hope is that my research project – Diversity and Resistance Profile in PREGnancy (PREGDR Study) – will generate robust evidence to be shared with the scientific community and disseminated to all stakeholders for policy implementation. I also hope the results will be included in the training of nurses and doctors to enhance their clinical knowledge,” he says.

“Essentially, we still do not know how to address the challenges of perinatal HIV resistance with regard to effective prophylaxis and treatment if the infants are infected with resistant mutations. We are not adequately equipped knowledge-wise to handle the inevitable problem of HIV resistance in the perinatal period.”

“We still do not know how to address the challenges of perinatal HIV resistance if infants are infected with resistant mutations. We are not adequately equipped to handle HIV resistance in the perinatal period.”

~Dr Oladele Adeniyi~





"The goal, of course, is fewer birth complications and no avoidable deaths".

~Dr Olga Maphasha~

~DR~ OLGA MAPHASHA

A death too many

In rural communities haunted by poverty, giving birth carries high risk. Every day, approximately 830 women around the world die from preventable causes related to pregnancy and childbirth, and 99 percent of those deaths occur in developing countries.

In South Africa the maternal mortality ratio (MMR) is thought to be around 138 deaths per 100 000 live births, and even higher among rural women.

For Dr Olga Maphasha, one death is one too many.

She's had first-hand experience of watching mothers and babies die when their deaths could have been prevented.

"I was based in the maternity section of rural Odi Hospital in Mabopane and experienced the devastating effects of prolonged and obstructed labour; neonates born with birth asphyxia, others dying because a healthcare worker failed to identify red flags on the partogram," she says.

These experiences propelled her to apply for funding for research into how the partogram can be better utilised in hospitals like Odi so that fewer mothers and babies die.



"The goal, of course, is fewer birth complications and no avoidable deaths," she says.

Her cross-sectional study will make use of a self-administered questionnaire directed at doctors and nurses working in the labour and post-natal wards at Odi, a district hospital with 198 usable beds, 49 of which are dedicated to maternity. She will present the results of her study at the Sefako Makgatho University Research day, at Odi's own research day and at the 19th Annual National Family Practitioners Congress.

Family health is Dr Maphasha's passion. "This developed while I was posted at Odi doing my community service. Family Medicine is the only specialty that is able to focus on an individual holistically, not just the clinical aspect. It does not discriminate between young and old, males and females," she says.

"Partogram is very important in the district and rural areas; there is a high MMR here and the correct use of partogram has been shown from other studies to reduce maternal and perinatal mortality by preventing prolonged and obstructed labour.

"Nurses and doctors with adequate knowledge of the partogram are able to correctly interpret the abnormal partogram and act or refer the patient timeously," she says.

The partogram is recommended by the World Health Organization in all labour wards and for all women. If there is any deviation from the normal progress of labour, the partogram will alert the attendant medical team to it. Dr Maphasha wants to know how skilled Odi's medical personnel are in applying the partogram. "Ultimately, I would like my research to culminate in a situation where all nurses and doctors are able to use the partogram; to identify those who are not confident in using it and to supply in-service training for them.

Dr Maphasha sees her future in rural obstetrics. "Currently I am a registrar in Family Medicine rotating through different specialties like surgery, medicine, anaesthesia, the HIV clinic and the emergency department.

"I always wanted to be a doctor but unfortunately coming from a poor background, my parents could not afford to pay for my tertiary education. So I did nursing (BCur) in 1993, paying my fees with the stipend we earned, and completed my degree. It did not fulfil me in the way I hoped so I registered in 2003 to study medicine which I completed in 2008."

Dr Maphasha's supervisor, Professor Indiran Govender, describes her as an intelligent, hard-working and responsible team player who already contributes to primary healthcare in South Africa by working in the community healthcare clinics in the Tshwane district and by working after hours at Odi Hospital.

~ DR ~
**PHUMZILE
MAHLANGU**

Protecting the most vulnerable

South Africa is home to the largest concentration of people living with HIV anywhere in the world. Almost 20% of all HIV-positive persons globally live within our borders and women remain at the highest risk.

Their vulnerability to HIV is attributed to a number of factors: biological, behavioural, social and structural. Women also have increased vulnerabilities to other HIV-related co-morbidities such as tuberculosis.

At Odi Hospital in the North West Province there is still a large number of women who appear to have little knowledge of how HIV is transmitted or of the complications this killer disease might pose.

Young women (15 to 24 years) contribute a disproportionate 24% to all new HIV infections in South Africa – more than four times that of their male peers, says the South African Medical Journal. Those most likely to acquire infection are typically from socio-economically deprived households in high HIV-prevalence communities, have limited or no schooling, engage in transactional sex or other high-risk coping behaviours, and have a history of sexually transmitted infections (STIs) or pregnancy. Despite the imperative to prevent HIV acquisition in young women, there is a dearth of evidence-based interventions to do so.

For Dr Phumzile Mahlangu this is of great concern.

Dr Mahlangu has worked at Odi for four years. She is currently a second year registrar in the Department of Family Medicine and Primary Health Care attached to Sefako Makgatho Health Sciences University and has developed a deep love for primary healthcare, particularly where it impacts rural communities.

Her study, 'knowledge, attitude and beliefs of child-bearing women at Odi Hospital regarding sexually transmitted infections,' hopes to uncover why so many women remain ignorant of HIV transmission with a view to improving their knowledge and therefore slowing transmission.

"This study will contribute to existing knowledge on sexually transmitted infections, their transmission and complications, and identify where further research is needed. It will also greatly improve my own knowledge," says Dr Mahlangu. Dr Mahlangu hopes to present the findings of her study at the National Family Physician Conference in Cape Town.

"This study will contribute to existing knowledge on sexually transmitted infections."

~Dr Phumzile Mahlangu~



IPT: a reluctant uptake

South Africa is a tuberculosis hothouse. We carry one of the greatest disease burdens globally, and more HIV-positive people die here of tuberculosis (TB) than anywhere else in the world. Yet, it is known that providing Isoniazid Preventive Therapy (IPT) to people living with HIV prevents TB. The World Health Organization reports that IPT can reduce the overall risk of active TB among people living with HIV by up to 62%.

"Although IPT uptake is increasing, fewer than 25% of people living with HIV, and who are in care, are receiving it," says Dr Adewuyi Abdulrazak, a first-year registrar in the Department of Family Medicine and Primary Health Care at Sefako Makgatho Health Sciences University in Ga-Rankuwa.

This is also true of patients attending Odi Community Hospital in neighbouring Mabopane. Odi is a 227-bed hospital about 54km north-west of Pretoria where, hospital records show, only 520 patients of the 1 299 initiated on antiretroviral therapy (ART) in 2014 were also initiated on IPT. "At the end of the third quarter of 2015, only 295 out of 557 patients on ART were on IPT. In fact, there is significant anecdotal evidence countrywide of clinician resistance to using IPT."

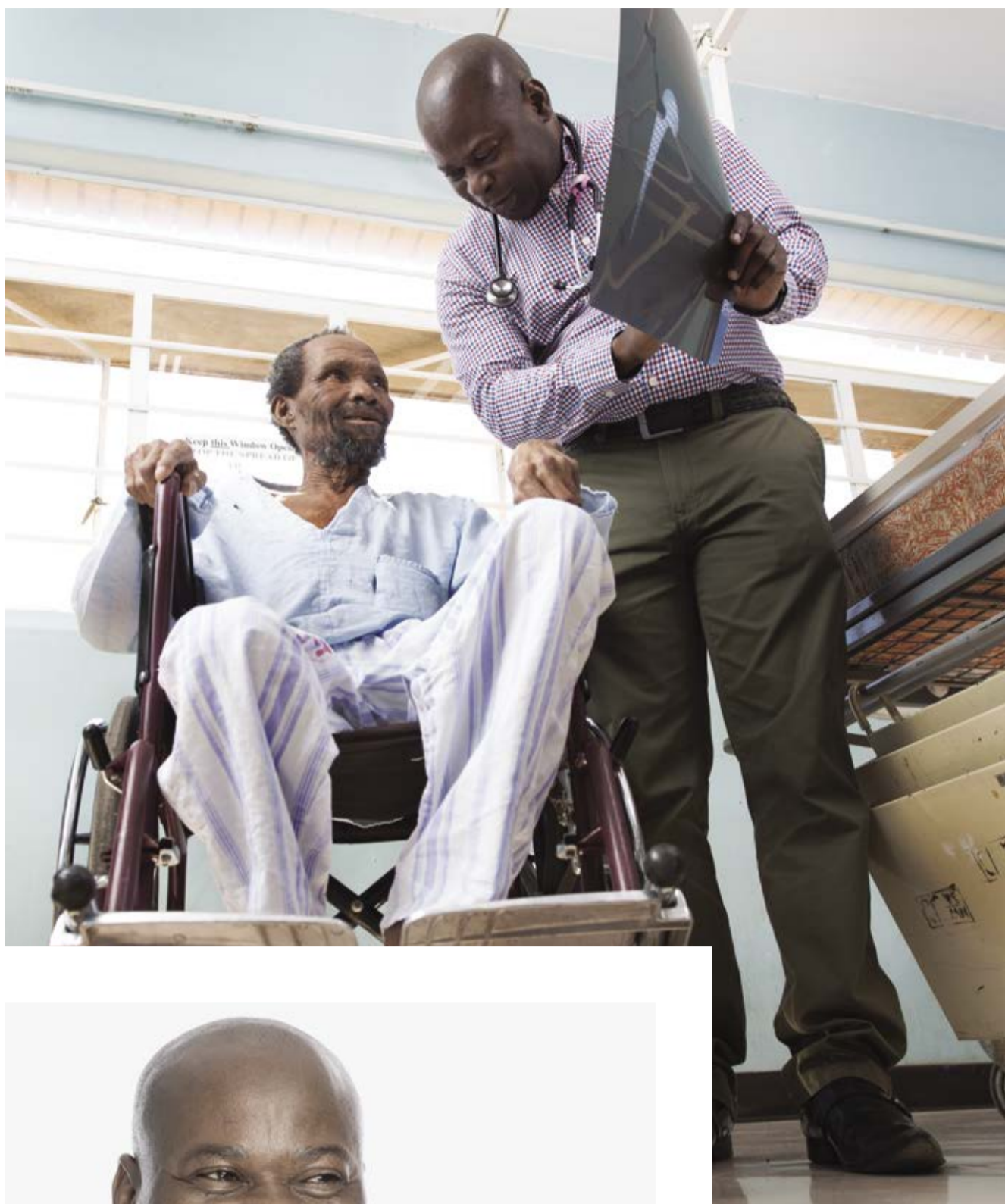
Yet, says Dr Abdulrazak, there is evidence that giving IPT for at least 36 months (as a surrogate for lifelong treatment for people living with HIV) is beneficial in communities with a high prevalence of TB and a high likelihood of transmission, for example in mines and prisons. The effects of IPT also augment the effects of ART on reducing the incidence of TB.

Why are doctors at Odi not administering IPT more frequently? "I want to determine their awareness of the therapy, their practices and their attitudes towards implementation of this therapy in line with current South African guidelines."

"I am hoping that this study will not only contribute to the existing knowledge of IPT but also encourage doctors to implement it.

"Of course patients will also benefit as the chances of those living with HIV contracting TB will be reduced."

Dr Abdulrazak, who was inspired by his father to study medicine, obtained his MBBS from the University of Ilorin Teaching Hospital in Nigeria. "My grandfather was a traditional healer and my father wanted me to emulate him, but by becoming a medical doctor. Medicine is a noble profession. I would encourage young people to pursue it as a career and to work hard towards attaining its highest levels," he says.



Dr Abdulrazak's heart lies with community healthcare. "I believe passionately in improving healthcare delivery to people living in rural communities; I want to work in areas of South Africa that are in the greatest need of care. In rural areas, primary health and family medicine provision are an essential need.

"I think that the greatest impact on this country's healthcare will be in delivering specialist family medicine to this group of people."

He dreams of the day when HIV and TB are eradicated.

"I am hoping that this study will not only contribute to the existing knowledge of IPT but also encourage doctors to implement it."

~Dr Adewuyi Abdulrazak~

~DR~
**ADEWUYI
ABDULRAZAK**

~ DR ~
**SELVANDRAN
RANGIAH**

The ER imperative

Accident and emergency rooms are probably the busiest units in hospitals around the world, which makes them a popular focus for breathless, life-or-death TV series, whether playing out in real-life documentaries or dramatised fiction.

In the 24-hour-a-day cycle of blood and trauma in South African hospital emergency rooms too, life or death is the measure by which overworked emergency doctors are judged. And too often death wins – not for lack of effort or commitment on the part of medical staff.

“Patients die every day in emergency rooms,” says Dr Selvandran Rangiah, Specialist Family Medicine Physician and lecturer at the University of KwaZulu-Natal in Durban. “But many deaths in emergency rooms are avoidable. The critical shortage of doctors coupled with limited emergency medicine training for general medical officers only worsens the problem.”

Dr Rangiah, who is certified internationally at several levels of advanced life support and trauma management and has served as Head of the Accident and Emergency Department at Durban’s Addington Hospital, has undertaken a project to look into emergency medical treatment. His project aims to assess, improve and standardise emergency medicine skills among ER staff in rural and urban areas in KwaZulu-Natal.

“My current workload of teaching undergraduate and postgraduate students, coordinating a new Postgraduate Diploma

in Family Medicine and doing service delivery at a district hospital was a challenge to completing my research,” he says of receiving the Discovery Foundation award.

Victims of accidents, criminal violence and other traumatic incidents who are delivered to emergency rooms probably care little about the training or skills behind the hands of the first-line medical responders helping them. Yet, more tightly focused and standardised training and treatment methods could save even more lives in the ER, Dr Rangiah believes.

It would equip all doctors working in emergency units with “relevant and appropriate skills that will give them the confidence to deal with the unique emergencies that we see in our communities”.

“Trauma is one of our major health burdens,” he says. “But doctors working in emergency units are seldom equipped in terms of knowledge and skills to manage patients safely and effectively. So it’s vital that our frontline doctors are equipped with the relevant and appropriate skills to handle this burden.”

“Emergency units have always been staffed by general practitioners (GPs) with minimal formal training in emergency medicine,” he observes. “As a result, protocols and procedures differ widely in various institutions. These protocols are adapted from European or American guidelines without reference to local circumstances.”

“There’s no doubt that the knowledge and skills of generalists working in emergency units have to be sharpened. The basic

emergency skill set required for rural and urban practitioners has not yet been determined in South Africa – the only opportunities for up skilling rely on international guidelines.”

And there seems to be no consensus in South Africa on appropriate basic emergency medicine skills among medical first responders. Dr Rangiah hopes his research study will help to define basic emergency skills needed in South Africa. He wants to compare this need with international standards and use it to guide future policy on the establishment and maintenance of emergency care standards in KwaZulu-Natal, where he is based.

He also hopes to develop a guide to curriculum planning and standardising basic emergency skills taught at tertiary institutions in South Africa through producing a handbook.

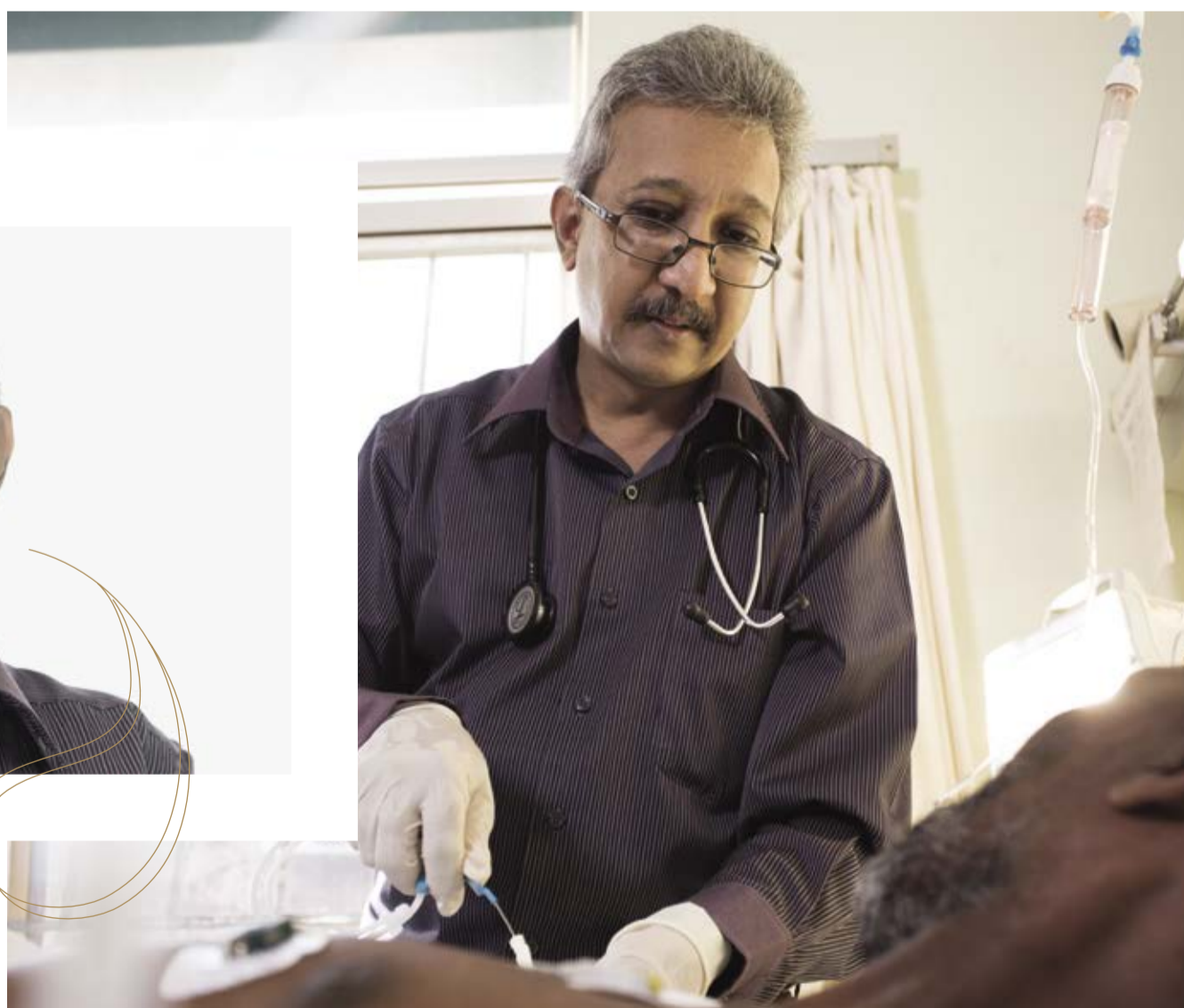
“There is no better reward than saving lives,” Dr Rangiah says, reflecting the essence of medical professionals’ work. “But I have come to learn that saving lives does not require heroics; it involves simple, careful observations and rapid appropriate action to prevent people from dying.

“It’s widely known that many deaths are avoidable if appropriately managed by adequately skilled healthcare workers. It’s no longer the traditional ‘golden hour’ that is vital but the ‘platinum 10 minutes’ that is fundamental in saving lives.”



‘Many deaths in emergency rooms are avoidable.’

~Dr Selvandran Rangiah~





V I S
I O N
A R Y

DISCOVERY
FOUNDATION

RURAL

DISTINGUISHED VISITOR AWARDS



ST PATRICK'S HOSPITAL

Neonatology improvement programme
~ Dr Lucy Linley ~

'I particularly relish working with neonatal staff on the ground, and seeing them realise potential they did not know they had.'

~Dr Lucy Linley~

My aim: improvement in newborn survival and outcome

In common with many other rural parts of South Africa, the north-east of the Eastern Cape is a place of great scenic beauty – its physical splendour almost writes itself into tourism brochures, and not least in the Alfred Nzo District which has its municipal seat in Mount Ayliff.

Read, for instance, that “this district is known for spectacular mountain scenery in the southern Drakensberg, idyllic, sandy beaches along the Wild Coast and a multitude of attractions in between”.

The high mountains of its northern border with Lesotho, its lush pastoral uplands and spectacular coastal beaches make the area a road-tripper's dream.

But behind the physical splendour rural life holds harsher realities: unemployment, few work opportunities, low education levels and very low business growth. Then there's the perennial problem of inadequate health services, a need that most keenly affects babies and young children.

“Infant mortality is high,” is a common observation among official and independent assessments of the region's health profile.

“The Alfred Nzo District has been identified by the Eastern Cape government as having one of the highest neonatal morbidity and mortality rates in that province,” says Dr Lucy Linley, recipient of a Discovery Foundation Distinguished Visitor Award that is underwriting her part-time two-year neonatology improvement programme in the Alfred Nzo District, where she will be working at St Patrick's Hospital.

UCT-trained Dr Linley is currently engaged full-time as Head of the Neonatal Unit at Mowbray Maternity Hospital in Cape Town (which is allied to the Division of Neonatal Medicine of the School of Child and Adolescent Health at the University of Cape Town).

“Lack of good neonatal care in a number of areas of South Africa remains a major problem,” she says. “In the rural areas it has been an enormous problem for many years, although this is slowly but steadily being addressed by the National Department of Health.”

Through her outreach programme of skills transfer and training, “I would love to see an improvement in the number of healthy and well newborns entering the community each year.”

Dr Linley will support the healthcare team in the Alfred Nzo District to ensure an improvement in the quality of neonatal care delivered in their district by capacitating the staff and providing technical support.

“This will improve the neonatal skills base and organisation of newborn services in the Alfred Nzo District with a resultant decrease in referrals of newborns to the Mthatha tertiary neonatal service which serves this district.”

Dr Linley was in Grade 9 at Cape Town's Rustenburg Girls' High School when she decided she wanted to pursue a career in medicine.

“My mom was a nurse and my dad a pharmacist,” she recalls. “I loved the idea of being a doctor from when I was very young but I'd always said I wanted to be a nurse as I thought we couldn't afford medical training. In my grade 9 year I started asking questions, and realised I could get a loan, which I could pay back once I'd qualified.”

She studied medicine at UCT, graduating in 1979. “I trained as a paediatrician at UCT, based at Red Cross War Memorial Children's Hospital, and subsequently trained as a neonatologist in the same hospital complex and was certified in 2000. I have been working full-time in neonatology since 1990, both in the community and in a level 2 maternity hospital (Mowbray Maternity Hospital) in Cape Town.

“For me neonatology presents the opportunity to enormously impact the quality of the newborn baby's life and health, not just in the newborn period but also as the child grows to realise their full potential as a human being.”

GREATERTAUNG HEALTHDISTRICT

Clinical skills and HIV patient management

~Dr Ndiviwe Mphothulo~

"I was influenced by people like Dr Nthato Motlana and Dr Abu-Baker-Asvat, who used medicine as part of community work and human rights activities."

~Dr Ndiviwe Mphothulo~

New lion of Taung

Taung has for decades been a familiar word to anthropologists who associate it with the Taung Child, the fossil skull of an early hominid discovered there in 1924. But to South Africans Taung is no more than a pinprick on the map, a speck in a large rural area of North West Province.

Yet, that's where Dr Ndiviwe Mphothulo has focused his professional career since undertaking community service at Taung District Hospital in 2003. The Distinguished Visitor programme he proposed seeks to expand and improve the treatment of HIV patients by taking clinical skills and patient-management to outlying areas.

Located in the Dr Ruth Segomotsi Mompoti District about 100km south of Vryburg, the 365-bed Taung District Hospital services a rural population of about 177 000 people. Its geographic location and rural circumstances – a high rate of HIV and related TB, no full-time doctors, unemployment, tough basic living conditions, transport difficulties reflect the health-management challenges experienced elsewhere in rural South Africa.

"This rural district has 106 villages and two small townships," Dr Mphothulo says. "It is vast; some villages are 100km from Taung District Hospital, making it very expensive to commute there.

"The population has a high unemployment rate – more than 40% – and depends mostly on government grants and remittances from people working in the cities and mines."

treatment, and identifying and managing side effects.

"My skills as a clinician with more than 10 years of HIV medicine experience will benefit the health system in general and nurses and patients in particular," Dr Mphothulo says. "Nurses will benefit by learning how to manage difficult patients, and how to initiate highly-active antiretroviral therapy (HAART).

(MDR-TB) units at Taung District Hospital and a general practitioner based in Taung.

"TB is a neglected field, although it has been a number one killer in South Africa for more than 10 years," he says. "I saw a gap in the TB, MDR-TB field. My interest in the HIV field was as a result of many TB patients being infected with HIV."



These circumstances, coupled with the absence of full-time doctors, emphasise the contribution his programme could make to HIV management in the area.

This year, 40-year-old Dr Mphothulo, who was voted SA's Rural Doctor of the Year in 2015, wants to criss-cross the Taung Health District, visiting its three community centres, 25 health clinics and 78 places served by six primary health mobile units. "This will greatly relieve the burden on patients who have to travel long distances to get access to a doctor," he says.

The programme emphasises localised care, giving many more patients access to a visiting clinician. It ensures best possible management of their conditions, providing focused care to "difficult" HIV patients (those with additional conditions such as kidney failure, mental health problems and TB, among others), improving anti-retroviral

"Patients will benefit by receiving care from an experienced clinician and not having to travel to Taung District Hospital, which is expensive and time consuming, to be seen by a doctor."

Dr Mphothulo grew up in Soweto and was inspired to become a medical doctor by visits to Baragwanath Hospital. "I was influenced by people like Dr Nthato Motlana and Dr Abu-Baker-Asvat, who used medicine as part of community work and human rights activities," he recalls.

He graduated from Medunsa in 2001, did an internship at Cape Town's Groote Schuur Hospital in 2002, then started community service at Taung District Hospital in 2003. He established his own practice in 2004 and set up two others in partnership with another medical practitioner. Dr Mphothulo is currently Medical Officer in charge of the TB and multi-drug-resistant TB

He is studying for a PhD through the University of Cape Town – "my research topic focuses on improving TB treatment outcomes through social mobilisation." In addition he's involved in advocacy work through the Rural Doctors Association of Southern Africa (RuDASA) and is a member of the board of the Southern African HIV Clinicians Society.

He's the author of a book – TB Cases from Taung – and received service excellence awards as one of the Best Performing Doctors in North West Province (2013) and for Medical Community Building from the SA Medical Association (SAMA) Trade Union in 2014.



Fostering hope

The road to St Patrick's Hospital carries the name all pregnant women who come here carry in their hearts: Hope. For the several hundred rural women who walk this road and enter these gates each month to give birth, St Patrick's represents the comfort of a medically-supportive confinement.

The mortality and morbidity rates here associated with neonatal and paediatric complications are still unacceptably high due to lack of specialist intervention. The nearest referral hospital is Nelson Mandela Academic Hospital, a three-hour drive away.

St Patrick's has 245 beds, including a

31-bed paediatric unit and a small neonatal unit comprising six beds, and is staffed by nine doctors. The hospital's catchment area has a population of around 200 000 people and is mostly rural.

Of enormous benefit to the staff, and to the patients who come here for help, would be the advice and support of a paediatric specialist whose knowledge and training will broaden resident expertise and by extension, lessen the burden on Nelson Mandela Central Hospital in central Mthatha.

"Our doctors would gain vast experience and valuable learning tools from a well-run outreach programme," says Dr BN Majeke, clinical manager at St Patrick's. The outreach programme will bring

Many of these mothers-to-be have travelled many dozens of kilometres from their rural homes in search of health professionals who will be at their side when their babies enter the world for the first time. But, like St Barnabas Hospital in Libode and St Elizabeth's Mission Hospital in Lusikisiki, St Patrick's can do only so much.

paediatrician, Dr Zolile Mlisana, to St Patrick's, St Elizabeth's Mission Hospital and the 169-bed St Barnabas for three to four days each month.

Dr Mlisana, specialist paediatrician and Head of Paediatrics at Bheki Mlangeni Hospital in Soweto, Johannesburg, will conduct ward rounds in the paediatric and neonatal wards at these institutions, train staff, and assist with improving management skills.

"It is a fact that district hospitals are managed by medical offers with no specialist expertise and most neonatal and paediatric deaths occur at these hospitals," says Professor Verona Karaire, domain manager of Paediatrics and Child Health at Nelson Mandela Central Hospital. "This outreach programme will most certainly impact mortality and morbidity, and improve the general quality of care given to patients."

ST PATRICK'S HOSPITAL

Paediatric Unit

~ Dr Zolile Mlisana ~

Breathing new life

The difficulties of both providing and accessing primary healthcare in South Africa's rural areas are frequently a topic of academic research and assessment. Those who live in under-developed and under-resourced areas are keenly aware that reaching professional medical assistance is a great deal more arduous than the average suburbanite's visit to a doctor.

'He inspired me to study medicine to alleviate suffering amongst poor people'

~Prof Gerhard Theron~

Hospital in Lusikisiki district in the Eastern Cape.

Professor Theron's two-year teaching and mentoring programme will take his extensive medical knowledge, wide experience and specialist skills to junior doctors – mostly doing post-qualification community service – and foreign graduates who generally make up most of rural hospitals' professional staffs.

The core purpose of his part-time

perinatal deaths has been slow and negligible," that report noted.

Professor Theron, who received his MBChB from Stellenbosch University in 1975, was inspired during his secondary school years to dream of studying medicine after reading about the legendary Dr Albert Schweitzer, the doctor, theologian, author and Nobel Prize winner. Dr Schweitzer spent much of his professional life as a medical missionary in Lambarene in present-day Gabon. "He inspired me to study medicine to



ST ELIZABETH'S HOSPITAL

Department of obstetrics and gynaecology

~ Prof Gerhard Theron ~

Pregnant women are particularly affected, and especially so in parts of the country such as the Eastern Cape, where central hospitals are distant and even reaching regional hospitals and local clinics requires bus or taxi journeys on often uncomfortable roads, at a cost that is heavy to people already burdened by unemployment and poverty.

Once there they face the additional frustration of queuing to be examined by the few medical staff available – most rural health facilities can only dream of adding to their complement of doctors.

So when professional assistance is volunteered it's gratefully and enthusiastically accepted – even more so when mentoring experience is offered at the level of a medical professor and head of a specialist department at a major teaching hospital.

In this way Emeritus Professor Gerhard Theron, retired Head of the Department of Obstetrics and Gynaecology at Tygerberg Hospital, the University of Stellenbosch's teaching hospital, has gladdened hearts, raised spirits and boosted healthcare standards at the regional St Elizabeth's

mentoring and teaching intervention, he says, is "improving the knowledge and skills in obstetric care and reducing perinatal and maternal deaths. Specific focus points will be improving health of HIV-positive pregnant women and reducing deaths due to non-pregnancy-related infections. This measure will also result in reducing mother-to-child transmission of HIV." Professor Theron hopes to see a reduction to less than one percent of mother-to-child HIV transmission in South Africa within a few years.

The World Health Organization defines perinatal deaths as "a combination of foetuses that are born dead (stillbirths) and babies that die in the first week after birth (early neonatal deaths)".

Statistics South Africa said in 2013 that "a significant proportion of perinatal deaths are preventable because they occur as a result of place of delivery and the quality of care received during delivery". Globally, public health interventions such as immunisation and treatment for infectious diseases have seen infant and child deaths decline, but "progress towards reducing

alleviate suffering amongst poor people," Professor Theron says.

Professor Theron's interest in obstetrics and gynaecology developed when he was a young doctor working at Nkhoma Hospital in Malawi and Rietvlei Hospital in rural Eastern Cape.

"I became aware that simple medical-care measures and improving knowledge and skills of midwives resulted in a reduction in both maternal and perinatal deaths. I also read the papers published on this topic by Professor Hugh Philpott, an obstetrician who worked in Harare and King Edward Hospital in Durban. Specialising in obstetrics and gynaecology with the aim of improving obstetric services rendered to poor communities became my chosen career path."

More than 40 years after initially qualifying as a doctor his research continues and he's now also working to improve knowledge and skills in obstetric care and ultimately building the self-confidence of the staff at St Elizabeth's Hospital.

Healthcare going closer to home

Millions of South Africans in rural areas rely on district hospitals and their satellite clinics for medical care at every level, from the simplest assistance to life-saving emergency treatment.

Yet these vital institutions are too often overburdened, under-resourced and insufficiently served by specialist medical professionals. This affects the quality of care and treatment of patients already burdened by the cost and hardship of travelling long distances to get there.

Port Shepstone-based Dr Selvarajah Saman is out to change all that through his Distinguished Visitor outreach project, regularly taking his specialist skills and experience across the KwaZulu-Natal border to St Patrick's District Hospital in Bizana in north-eastern Eastern Cape Province.

"This is a physician-led programme to improve rural healthcare," says Dr Saman, who is Head of the Department of Internal Medicine at Port Shepstone Provincial Hospital on the KwaZulu-Natal South Coast,

transport makes referring patients there a nightmare for resident doctors when they are most in need of senior assistance."

Dr Saman, who received his MBChB in 1975, says, "An urgent priority is to develop health systems to improve the standards, the reach and the extent of care in the rural developing world."

To this end, his programme has multiple aims across the spectrum of primary and secondary preventive and curative care among rural patients. The project is based on a programme he piloted successfully at Port Shepstone Provincial Hospital. "St Patrick's faces similar problems and I intend to reproduce this success there using the same methods."

Dr Saman's visiting programme at St Patrick's encompasses sharing specialist opinion and advice during:

- Frequent medical information sessions that focus on the medical management of patients with complex medical conditions and on medical emergencies. Audiences at these sessions are doctors, nurses and other professionals in allied healthcare fields.

nearest to patients' homes. Patients are encouraged to self-care, enabled by informed lifestyle choices and backed up by diagnostic, treatment, rehabilitation and social services."

At St Patrick's he hopes to conduct a strength-and-weakness analyses, improve doctor-patient response in the first 24 hours after admission (when most deaths occur), train staff for a four-bed high-care unit, and improve the skills of nurses and doctors to manage critically ill patients. In addition, he wants to ensure sound discharge planning to reduce time spent in hospital.

"This hospital and district level pilot project is timely in South Africa as the rest of the world grapples with ideas for democratisation of national health services to fit legal frameworks and promote social stability and economic prosperity," Dr Saman says.

Aiming to reduce costs and workload and improve efficiency and morale, his programme will see the rotation of medical officers between Port Shepstone Hospital and St Patrick's. It will also include the provision of telephone- and WhatsApp-based supervision and support. Ensuring good record-keeping to reduce litigation is another focus.

"The initiative is specialist-led and aims to upgrade and expand services nearest to patients' homes."

~Dr Selvarajah Saman~



about 75km north-east of Bizana. "Rural South Africa is seriously underserved by health services in taking care of patients nearer their homes."

St Patrick's Hospital, funded by the Eastern Cape provincial government, serves the Mbizana local municipal area in Alfred Nzo district which has a population of around 300 000 people. The nearest Eastern Cape referral hospital is Nelson Mandela Academic Hospital in Mbatha, about 200km away.

In support of Dr Saman's project, Dr Thozama Dubula, specialist physician at Nelson Mandela Academic Hospital, says, "St Patrick's provides care to complex medical patients without any specialist supervision. The distance to Nelson Mandela Academic Hospital, poor road infrastructure and lack of regular hospital

- In-ward and outpatient reviews of patients with complicated conditions to provide advice on assessment and further medical management.
- Regular bedside sessions with doctors involved in internal medicine, particularly those wanting to pursue a career in internal medicine.

Fundamental successes shown by the Port Shepstone pilot project were a continuing reduction in patient deaths and the average length of hospital stays, with huge attendant reductions in costs to the hospital.

"At the core of the model is an integrated plan for primary and secondary preventive and curative care," Dr Saman says. "The initiative is specialist-led and supported by strong organisational and management leadership to upgrade and expand services



ST PATRICK'S HOSPITAL

Department of internal medicine

~ Dr Selvarajah Saman ~



DR MALIZO MPHEHLE MEMORIAL HOSPITAL

Department of anaesthesia

~ Dr Aurence Mladla ~

Breathing new life

To more than 150 000 people in semi-rural Mhlontlo, Dr Malizo Mpehle Memorial Hospital (DMMM) offers a life line. The residents of towns and villages like Qumbu and Tsolo with their smatterings of shops and dusty streets, travel long distances for the specialist and emergency treatment here that cannot be found at their local clinics.

DMMM has two fully-equipped theatres and around 200 monthly confinements, including up to 60 babies delivered by caesarean section. But it faces some serious challenges. Theatres are under-utilised because there are not enough doctors trained in anaesthesia. Very few minor urological, general surgical and gynaecological procedures are performed

of knowledge is an important contributor to maternal mortality.

"It is known globally that we are facing an increasing burden of diseases that require surgical treatment. Additionally, this region has a high maternal mortality rate – 199 in every 100 000 (2014/15) – compared with the national average of 133 in every 100 000.

"District hospitals have been identified as areas where most anaesthetic-related complications occur and staff training is needed," Dr Mrara says.

Ectopic pregnancies, retained placentae, appendicitis, burns and abdominal stab wounds – all relatively common conditions at DMMM – also require general anaesthesia.

"The World Health Organization recommends a strengthening of surgical procedures at district hospitals but this

Dr Mladla, who grew up in KwaZulu-Natal, is an anaesthesiology and intensive care specialist and is a former Head of Charlotte Maxeke Johannesburg Academic Hospital's cardiac anaesthesia unit. He currently works in two cardiac surgical practices at private hospitals. Dr Mladla has special interests in peri-operative echocardiography and heart transplant anaesthesia and in extracorporeal membrane oxygenation in respiratory and cardiac failure, with expertise in cannulation and patient retrieval. "During my years as a specialist anaesthetist I've had numerous questions and challenges related to rheumatic cardiac surgical patient management, especially timing of surgery and current outcomes (quality of life in the short term, and death in the long term). My theory is that with early surgery, we would have better results in the short and long term."



"I have an appetite to share knowledge and learn from others, to educate and to grow a community of collaborators."

~Dr Aurence Mladla~

as a result and caesarean sections are performed under spinal anaesthetic.

"This is a major problem if the doctor giving the anaesthetic is not skilled in managing the complications of spinal anaesthesia and converting to general anaesthesia" says Dr Busisiwe Mrara, the Head of Anaesthesia at Mthatha Hospital Complexes, on behalf of DMMM. This lack

can only be done if anaesthetics training programmes are in place."

In steps cardiac anaesthetologist, Dr Aurence Mladla. Based in Johannesburg, Dr Mladla will travel to the Eastern Cape monthly to conduct training sessions in anaesthesia and offer support to the 14 doctors at DMMM. He will also hold seminars and discussions on common clinical problems, helping medical officers acquire the skills necessary to earn their diplomas in anaesthesia, and check theatre equipment and medicines.

This will greatly improve staff competency at the hospital, affording maximum utilisation of its theatres and equipment and relieve the overburdened regional and tertiary hospitals to which cases requiring anaesthesia are currently referred.

"Our referral hospital, Nelson Mandela Central Hospital is overcrowded and this pressure limits admission of critical patients. Sometimes district hospitals like ours are told to simply observe the patient and discuss the case later. In some cases this comes too late and complications set in," says DMMM CEO Sylvia Sotsopo.

He hopes that this Rural Distinguished Visitor programme will allow him to grow a meaningful teamwork set up at DMMM, where responsibilities are distributed widely and every member of the team is empowered to add value to patient outcomes. "In this type of relationship, failures and accomplishments belong to the team."

"There are many in private practice who are keen on teaching and sharing information. This support makes such endeavours meaningful and less stressful to those interested in skills development.

"I have an appetite to share knowledge and learn from others, to educate and to grow a community of collaborators. This support will enable me to achieve my goals," Dr Mladla says.

Building skills, improving lives

Early treatment for rheumatoid arthritis could avert the need for invasive joint replacement surgery yet, in the Eastern Cape where thousands of people suffer from this chronic inflammatory disease, there are only two rheumatologists serving the entire community.

"This reality is at odds with the needs of the province, which ranks high on the deprivation index and which serves a huge population of people requiring specialist care and assistance," says Dr Emma Gardiner, specialist physician based at Livingstone Hospital in Port Elizabeth.

It is her vision that a visiting rheumatologist programme at Livingstone Hospital will, to some extent, alleviate this problem. The programme includes inviting trained rheumatologists with experience, expertise and specialist training to assist in improving the current skills set of medical professionals based here, and the management of patients in the Nelson Mandela Bay Metropolitan and surrounding areas.

"Rheumatological conditions form a large part of a group of diseases that contribute to death and disability especially in sub-Saharan Africa's impoverished communities. These diseases cause considerable suffering with impact on quality of life, often in younger people.

"Optimum care and treatment frequently requires specialist assistance but there is a shortage of rheumatologists in many areas of South Africa, particularly in deprived communities where they are most needed."

Four years ago, Dr Thozama Dubula, a specialist physician and rheumatologist, set up a Rheumatology Unit at Livingstone Hospital, a sprawling multi-story hospital serving a considerable residential population. More than 70 000 patients are treated at Livingstone each year. This Unit heralded great progress for the hospital, Dr Gardiner believes, as patients could now access earlier referrals, accurate diagnoses and reviews, and correct often complex treatment plans.

"I was able to continue this Unit after Dr Dubula's relocation to KwaZulu-Natal in 2013," Dr Gardiner says, and funding by the Discovery Foundation in 2015 allowed dedicated visits from skilled rheumatologists from other parts of the country. These Distinguished Visitors trained Dr Gardiner and other doctors and members of the multi-disciplinary teams working with rheumatology. But the demand for rheumatology services in this region continues to grow and Dr Gardiner wants to keep up this Distinguished Visitors programme.

"Their visits are invaluable," she says. "They have strengthened my knowledge base of rheumatology and through their training and support, allowed for further fostering of my deep commitment to the patients of the Eastern Cape; that they continue to receive the best care available and that I continue to give this care with improved confidence and skill.

"This programme has also allowed for improved training and skills transfer to other specialists and registrars in the department; for improved understanding of patients' conditions and treatment options and has, in many cases, saved lives due to improved confidence in treatment decisions."

This, Dr Gardiner points out, has had a tremendous impact for patients with far improved outcomes, and importantly a deeper understanding of these outcomes.

"The benefits of this programme are innumerable. It will open many doors for research and enhance the sustainability of the Rheumatology Unit at this hospital and subsequently Port Elizabeth and the Eastern Cape in general."

This year the Distinguished Visitors are: Dr Dubula, who is currently specialist and honorary lecturer at King Edward VIII Hospital in Kwa-Zulu Natal; Dr Kavita Makan, consultant specialist rheumatologist at Chris Hani Baragwanath Academic Hospital; Professor Asgar Kalla, the Isaac Albow Professor of Rheumatology at the University of Cape Town; Professor Mohammed Tikly, Principal Specialist Physician and Academic Head of the Division of Rheumatology in the Wits Faculty of Health Sciences; and Dr Jenny Potts, a rheumatologist based at Greenacres Hospital in Port Elizabeth. These doctors will rotate through Livingstone's Rheumatology Unit every four to six weeks.

"The clinics are structured around challenging cases with a teaching focus. There is also a 'grand round' where we have the opportunity to present cases to our Visitors, and there is often a presentation or talk which allows all the doctors to benefit," says Dr Gardiner, who hopes to continue this project until the end of 2017.

As a result of this programme, many other rheumatologists affiliated with the South African Rheumatology and Arthritis Association have expressed an interest in visiting Port Elizabeth.

LIVINGSTONE HOSPITAL

Department of rheumatology

~ Dr Emma Gardiner ~

"There is a shortage of rheumatologists in many areas of South Africa, particularly in deprived communities where they are most needed."

~ Dr Emma Gardiner ~



“My long-term goal would be to employ additional specialists here, to equip them with the necessary resources and to develop this hospital into a teaching centre.”

~Dr Luvuyo Mzingeli~



Raising the bar at Frontier

The worst of South Africa's disease burden lands on Frontier Hospital's doorstep. Tuberculosis, HIV and all of its complications, cardiovascular and renal ailments, hypertension and diabetes all demand attention from this hospital's medical personnel who strive valiantly to cater to a predominantly rural population of more than 800 000.

But even the most dedicated junior doctor needs specialist help, and at Frontier Hospital there is none. The staff complement is made up primarily of medical officers and Cuban doctors, and physician input is via referral to East London, 200km away.



FRONTIER HOSPITAL

Department of internal medicine

~Dr Luvuyo Mzingeli~



Too many patients here suffer unnecessarily, or die, because of the lack of specialist support. This leads to delays in diagnosing and managing patients with complex illnesses, some of whom end up with long-term disabilities or they die, opines Dr Thozama Dubula, specialist physician and Head of Rheumatology in the Department of Internal Medicine and Therapeutics at Nelson Mandela Academic Hospital.

Frontier Hospital is in Queenstown in the Eastern Cape. It has 474 beds but only 297 are in use due to infrastructural changes. It serves as the main referral centre for the Chris Hani District Municipality comprising Lukhanji, Inxuba Yethemba, Emalahleni, Sakhisizwe, Intsika Yethu and Engcobo municipalities. Patients come here too from as far off as Barkly East.

“Some of them require intensive care management in the intensive care unit, while some require transfer to the East London Hospital complex for specialist physician review and further management,” Dr Dubula says.

With Discovery Foundation support, a Distinguished Visitor programme would bring a specialist physician to Frontier Hospital to assist junior and inexperienced doctors.

“This would help junior doctors to identify and aggressively manage complicated patients, thus reducing the likelihood of long-term disability and mortality. Having the support of a specialist would have the added benefit of reducing the number of patients referred to the tertiary institution in East London,” Dr Dubula points out.

difficult cases. “I would like to improve patient management skills so as to reduce unnecessary referrals to already overburdened tertiary institutions.

“My long term goal would be to employ additional specialists here, to equip them with the necessary resources and to develop this hospital into a teaching centre,” Dr Mzingeli says.

In addition to empowering junior doctors and other healthcare workers, Dr Mzingeli's fortnightly visits to Frontier Hospital will include regular visits to the ICU to provide assistance in the management of acutely ill patients and to participate in regular departmental meetings to share his skills.

“His former employment as a medical officer in Cofimvaba makes him an ideal candidate for this role as he has vast experience of this region and the difficulties it faces with specialist care,” says Frontier's CEO, Ms ES Tywabi.

Frontier Hospital provides both secondary and district hospital services as there is no district hospital in Queenstown and its Department of Internal Medicine occupies up to 90 beds, a figure that will rise when infrastructural changes to the hospital complex are complete.



He has proposed Dr Luvuyo Mzingeli for the job.

Dr Mzingeli is a graduate of the University of the Transkei and is currently working at a private hospital in Queenstown. He is an internal medicine specialist with a particular interest in nephrology.

At Frontier, he will focus on regular ward rounds teaching medical officers and making himself available to help with



V I S
I O N
A R Y

CLOSING THE GAP TO BECOMING A CLINICIAN SCIENTIST IN

PAEDIATRIC GASTROENTEROLOGY

One of the key milestones of the Discovery Foundation over the past 10 years was the launch of an Academic Medicine partnership with Massachusetts General Hospital (MGH) in Boston, United States. The Discovery Foundation MGH Fellowship Award is valued at R2.1 million over a one-year period and provides recipients with the opportunity to take part in a clinical research project or train further at one of the world's leading teaching hospitals. The aim is to boost South Africa as a leading clinical research hub globally that builds on our legacy of clinical excellence and innovation.

2015
MGH
FELLOWSHIP
AWARD ~ Dr Shrish Budree ~

Dr Budree received the Discovery Foundation MGH Fellowship Award in July 2015. He has been in the United States since then, to conduct further research through the Discovery Foundation's partnership with MGH. Dr Budree aimed to study the role of microbes that reside in the intestinal tract and how these microbes relate to the immune system and diseases during childhood. His field of research is established at MGH, and he was excited about the prospects of developing novel therapies to establish healthy bacterial communities in the body to prevent or treat disease in children. He is determined and says he will "use his knowledge and bring this expertise to South Africa to build capacity in his UCT lab" on his return.

Dr Budree received additional third-party funding and has extended his research period. We caught up with him on his research and stay in the United States.

What has been your experience of the approach to research in the United States?

The Discovery Foundation MGH Fellowship has provided me with a unique experience to delve into the vast research world in Boston. I have had the opportunity to interact with world-renowned researchers within the microbiome field and have significantly increased my knowledge and skills around molecular biology and microbiome computational analysis.

The drive for research and progression in science at institutions within Boston, such as MGH, the Broad Institute of MIT and Harvard are astounding. Coupled with this, is the enormous amount of resources channelled into scientific and medical research. I have had the opportunity to interact with researchers from all over the world, and the opportunity to provide an African perspective on disease and research.

What specific studies have you been involved in while at MGH?

During my time at MGH and at the Broad Institute, I have been predominantly involved in microbiome research. I have had the chance to watch groundbreaking research in the microbiome field evolve from conceptualisation of the novel research question to eventual publication in some of the journals with the highest scientific impact.

My current projects include:

1. Investigating how early-life exposures, such as breastfeeding and tobacco exposure during infancy, influence the intestinal microbiome in patients with inflammatory bowel disease.
2. Investigating the role of the intestinal microbiome in the development and severity of childhood pneumonia in a South African birth cohort.
3. Helping to develop a research protocol involving the use of faecal microbiome transplantation in the treatment of severe acute malnutrition.

Other novel studies that I have been exposed to at the MGH microbiome lab and the Broad Institute:

1. A study investigating how differences in the intestinal microbiome of children from contrasting socio-economic backgrounds predispose them to the development of type I diabetes.
2. A study describing factors associated with longitudinal microbial colonisation of the infant intestinal tract and the response of the gut bacteria to repeated episodes of antibiotic treatment.

How are you progressing on your research?

I have two projects that are of high priority:

1. The early-life determinants of the gut microbiome in inflammatory bowel disease patients: The data for this study was provided by my current





supervisor, Professor Ramnik Xavier. I have processed the raw sequence data, using various computational pipelines. We are completing analysis of the sequence data and will start writing up the manuscript within the next month.

2. The role of the intestinal microbiome in childhood pneumonia. There is evidence from animal studies to suggest that the gut microbiome plays a significant role in susceptibility to childhood pneumonia. We are in the process of sequencing the microbiome of infants, based on the Drakenstein Child Health Study in Cape Town. Once this is done, I will analyse the sequence data in collaboration with Professor Xavier's laboratory at the Broad Institute.

Has the process of sample collection and sharing run smoothly?

There are logistical issues that need to be resolved before data can be shared between investigators in South Africa and here in Boston. Me being here in Boston has facilitated the negotiation process.

Have there been challenges to your work or personal life while doing this research so far from home?

I am currently still based in Boston and am continuing my microbiome research and developing my computational analysis skills. I believe that this is probably the best place in the world to develop these skills, given the vast amount of expertise and microbiome research that is happening. However, the cost of living is very high. I have had to obtain some additional funding from sources here in the United States, which will enable me to continue my research in Boston for an additional year.

What has been the most exciting for you in terms of your research and learning experience?

I have learned to code and program in statistical software packages during my time here in Boston. Coming from a clinical background with little computational capability, this has been a challenging, yet exciting experience. Using these newly acquired skills to analyse my own sequence data has been very exciting.

How do you think this experience will affect your view on research and your work?

I know for certain that this experience has changed my perspective regarding research in medicine. I believe that there is huge potential for cutting-edge microbiome research within the South African context, in both adult and paediatric diseases. Using our unique disease profiles and clinical settings, we can fill large knowledge gaps within the microbiome realm. Most studies in this field have emerged from high-income countries with a paucity of studies from low- and middle-income settings. My aim is to merge the clinical aspects of medicine with basic science and academic research. I believe that I am significantly closer to achieving my aim of becoming a clinician scientist in South Africa.

What would you like to see for South African research in the coming years?

I would like to see greater focus placed on basic science research during medical training, both at an undergraduate and postgraduate level, coupled with additional resources channelled into research in South Africa. Regarding microbiome research, I believe that in the near future

we will be able to establish a centre for microbiome research in South Africa, where all microbiome sequencing and analysis will be conducted.

What inspires you to keep learning and what are your plans for the future?

My mentors, Professor Heather Zar, Professor Bongani Mayosi and Professor Ramnik Xavier have played substantial roles in my life decisions to continue down this academic route. I have found the academic research world to be inspiring and invigorating, particularly after being exposed to some of the fascinating research that is going on at the Broad Institute and MGH. I have now joined a team of researchers who conduct research in faecal microbiome transplantation (FMT), which is essentially a method used to manipulate the microbiome with the aim of restoring the normal microbial communities, thereby improving health outcomes. Through my mentors, I have had the opportunity to interact with leading clinician researchers across the United States, who conduct microbiome research and I am now involved in numerous FMT research projects across the United States and globally. I am hopeful to produce numerous research outputs during the course of this year.



2011
PHINDILE
~ DR ~
GINA

Leading the way in affordable, rapid TB testing

Growing up in small-town Jozini in the Umkhanyakude district of KwaZulu-Natal, internal medicine physician Dr Phindile Gina developed a passion for medicine as a result of being exposed to the activities of the local clinic near her home. "I saw the difference medicine made in my community," she says.

With over 9 million new cases and almost 1.5 million deaths each year, tuberculosis has overtaken HIV as the world's leading cause of death. In South Africa the double burden of TB and HIV co-infection presents a major public health crisis.

"Failure to identify and diagnose TB in HIV-positive patients is a key problem responsible for the high death rates here. Creating innovative – and rapid – diagnostic tools in this field is a global public health emergency," says Dr Gina.

As an internal medicine specialist, she enjoys the ability to treat each patient

as a whole – handling the broad and comprehensive spectrum of illnesses that affect adults. "As physicians we are not limited to one type of medical problem or organ system; internal medicine physicians often care for patients over the duration of their adult lives and thus have an opportunity to establish long and rewarding personal relationships with them."

"We are equipped to deal with whatever problem a patient brings – no matter how common or rare, or how simple or complex. We are specially trained to solve puzzling diagnostic problems and can handle severe chronic illnesses and situations where several different illnesses may strike at the same time. This is where art of medicine lies."

Dr Gina is driven to find a way to prevent the spread of TB and accelerate treatment. "My biggest motivators are the patients I treat daily, many of whom become disabled or die from the scourge of TB."

Dr Gina received a research fellowship from the Discovery Foundation in 2011, which funded her study into strategies to improve the sensitivity of the LAM test: which detects the LAM antigen (lipoarabinomannan) in urine samples, enabling screening for active TB in HIV-positive patients.

"Our multi-country study demonstrated that using cheap bedside urine tests for TB results in fewer deaths when compared with other available diagnostic tools. Implementing this strategy will prevent high mortality in affected countries." Currently, 74% of TB-infected people die in South Africa, she says.

Following the parent study, which Dr Gina co-authored, the LAM test has been endorsed by the World Health Organization.

Dr Gina presented her work at two conferences organised by The International Aids Society in July 2016 in Durban, and her research has been published in The Lancet. Her Master's research is soon to be published in the journal BMC Infectious Diseases.

Dr Gina graduated with MMed in June 2016 from the University of Cape Town, and remains committed to Academic Medicine, super specialising in pulmonology. This year (2016) she embarks on a PhD training programme to become a research scientist

Dr Phindile Gina improves the sensitivity of bedside tests to reduce TB mortality. specialising in the field of immunology. "I'll be studying immune responses

in the human lungs. This is novel and an exciting departure from previous studies that have relied on animal models such as mice. In South Africa TB is a national health priority, being the primary cause of adult death. During my PhD I will be trained in a number of technologies and analytical methods which will equip me well for my future career in science.

"With support for science we'll be able to solve global problems like tuberculosis."

2010
 ~DR~
**RAVEEN
 PARBOOSING**

On science's cutting edge

"I was attracted to virology because it is at the cutting edge of medicine. The burden of disease caused by viruses, including HIV, has an immense impact globally, but particularly in sub-Saharan Africa," says Dr Raveen Parboosing, a virologist based at Inkosi Albert Luthuli Central Hospital in Durban.

Dr Parboosing's research focus on nanoparticles to inhibit HIV was inspired by his interest in novel ways of looking at entrenched problems. Curiosity and a thirst for knowledge were early characteristics: "When I was 12, I read Paul de Kruif's 'Microbe Hunters', acquired a microscope, and knew right then that I wanted to be a virologist," he says.

"I am always looking for fresh ideas and out-of-the-box approaches to create new drugs to treat viral infections, particularly

Pioneering Dr Raveen Parboosing engineers nanoparticles to block HIV.

HIV. Nanotechnology is a field with great promise. Viruses and nanoparticles are roughly in the same size range, but more importantly, nanoparticles can potentially be engineered to mimic some of the properties of viruses. The central concept in my thinking is that one can

create a nanoparticle to imitate a virus in some crucial way and use this to disrupt the viral replication cycle."

"The engineered nanoparticle in my research had only modest anti-HIV activity, but the lessons learnt in the process of designing and synthesizing the nanoparticle are crucial for the success of any research that uses a similar approach. There were significant findings about the stability of the nanosystem when exposed to a biological environment and important data about the efficiency and toxicity of the system."

Some of the challenges of the research process were technical. "It's a complex field of study, in which there were processes and techniques that I attempted that have not been documented in the scientific literature before. There were many more failures than successes. Nanomedicine is a field that is still in its infancy in South Africa (and in many ways, globally too).

"The highlight was witnessing the inhibition of HIV by the drug that I designed and created (even though this was in the laboratory and very far from being useful in patients)," says Dr Parboosing.

"Hopefully the lessons we learnt will help us improve the design of the system so that it has more potent anti-HIV activity. I already have several ideas lined up to

pursue over the next few years! I think it is essential that we are always searching for ways to expand the armamentarium of medicine available to treat HIV, and indeed other microbial infection, because of the spectre of drug resistance."

Dr Parboosing is in the process of submitting papers for publication, and his thesis for examination, and hopes to complete his PhD through the University of KwaZulu-Natal by the end of 2016.

"The project would not have been possible without financial assistance from the Discovery Foundation. The funding enabled me to obtain expensive reagents, equipment and supplies that were essential to the success of the project. It allowed me to experiment freely and make new findings by trial and error," says Dr Parboosing.

A passionate researcher, Dr Parboosing is currently a virologist at the National Health Laboratory Service. "I will continue my research in antiviral drug discovery. I am in the process of refining the approach so that the system I designed has increased anti-HIV potency. The next big leap is to create a particle that specifically targets the cells that are HIV infected, thus sparing non-infected cells from the toxic effects of drugs. I have already initiated some exciting work in this direction."

~Past Recipient~





Working towards cleaner air to reduce children's respiratory illnesses

Pneumonia remains the leading cause of childhood mortality in low- and middle-income countries. Although the exact reasons for these deaths is unknown, many children grow up in sub-optimal home environments, with high exposures to tobacco smoke and indoor air pollutants from a number of sources.

This inspired paediatric pulmonologist Dr Aneesa Vanker to investigate the causes, patterns and effects of these exposures and their impact on childhood respiratory illnesses. Exposure to tobacco smoke in African infants has not been well studied previously, despite the high burden of

childhood respiratory disease in these communities.

The study, a sub-study of the Drakenstein Child Health Study, was the first African birth cohort study aimed at investigating the early-life determinants of childhood respiratory diseases.

"Despite improved housing overall, a significant portion of the population still lives in sub-optimal housing with many communities on the urban outskirts made up of informal homes with limited access to electricity, which is often unaffordable," she says. As a result, people use wood fires, gas and paraffin for cooking and heating their homes. While the prevalence of tobacco smoking is decreasing in some high-income countries, the true prevalence of tobacco smoking is often under-reported in low- and middle-income countries resulting in high-levels of household tobacco smoke exposure.

The work explored the home environment of two peri-urban low socio-economic communities: Mbekweni and Newman in the Paarl district, 60km from Cape Town. Pregnant women were enrolled at 20-24 weeks and two home visits were conducted one antenatally and one postnatally (4-6 months). The purpose of home visits was to document the home environments and to measure indoor air pollutants.

"We found that almost a third of participants were of the lowest socio-economic status and the majority of homes (65%) lacked two or more basic dwelling category dimensions including: informal versus formal, primary building material (brick or cement versus other materials), water supply (piped into dwelling or yard), toilet facilities (non-

communal flush), kitchen type (separate room in house) and ventilation in the kitchen area (pipe or duct to exterior).

Most households had electricity (92%), however, fossil fuels were still used for cooking (19%) and heating (15%) in homes. Fossil fuel use (mainly paraffin then gas, wood, coal) was also associated with an increase in measured pollutants.

"We also looked at maternal smoking and exposure antenatally by using questionnaires and validated this using urine cotinine measures collected in the mother antenatally or during delivery and in the infant at birth.

"We found a very high smoking prevalence among pregnant women, particularly in the Newman community (51%) and an overall prevalence of 32%. Further there was high exposure to tobacco smoke with almost 60% of infants being exposed to tobacco smoke in utero and 18% of infants being born with urine cotinine levels equal to that of a smoker. Maternal smoking in pregnancy was associated with decreased birth weight in infants. Further we found high levels of household exposure to tobacco smoke with a number of family members also smoking."

"These findings raise a number of public health issues that urgently need addressing," says Dr Vanker. The very high smoking rates in pregnancy, and the high household exposures, require public health interventions to raise the awareness of not just smoking but also the harms of second hand tobacco smoke exposure. Further, there is a need for accessible smoking cessation programmes. The long-term impact of these exposures is also important

with increasing evidence of early-life exposures impacting in long-term and even adult chronic diseases such as asthma and chronic obstructive pulmonary disease," she says. Better housing structures with improved ventilation would also help to prevent many childhood conditions.

Highlights of the research process for Dr Vanker's include successfully completing a very large number of home visits. "This is the first study to achieve this in an African setting, with more than 800 antenatal and 600 postnatal indoor air pollution measures collected," she says. "I have also learnt that good quality research takes time with many unavoidable delays!"

Dr Vanker is completing her PhD thesis by publication, having had two articles published (in Science of the Total Environment and the International Journal of Tuberculosis and Lung Disease), and three more in process.

"Without the Discovery Fellowship, none of this research would have been achieved. It has also allowed me to pursue a career as a clinician scientist combining clinical work in paediatric pulmonology with research." Dr Vanker is currently a paediatric pulmonologist at the Red Cross War Memorial Children's Hospital in Cape Town.

"I plan to continue developing an academic career and am committed to remaining in the public health sector. I intend to continue long-term follow-up of this cohort and I am sure that there will be many more relevant findings which will hopefully translate in to public health changes and improvements," she says.

2010
ANEESA
VANKER
~DR~

Shaping the future of TB diagnostics

The incredible burden of disease, the many unanswered scientific questions and the lure of a future with personalised medicines and targeted therapies are among the attractions of internal medicine for Dr Jonathan Peter, a sub-specialist in allergology and clinical immunology.

Dr Peter's MMed (2012) and PhD (2013) research through the University of Cape Town focused respectively on delirium screening and improved diagnostics for tuberculosis patients co-infected with HIV. "The daily challenges of diagnosis and the huge burdens of TB and HIV in South Africa make this research question very urgent," says Dr Peter.

The success of the patient-level pragmatic randomised controlled trials that Dr Peter was involved with at evaluating diagnostic impact have been recognised by international policymaking bodies such as the World Health Organization (WHO), and have helped set new standards for the recommendations that guide new diagnostics.

Dr Peter was invited to the WHO expert guideline meeting for the Xpert MTB/RIF assay in Geneva in 2010, and was part of the WHO evidence synthesis group for the LAM guideline development group in 2015. Dr Peter has also been recognised as an emerging global leader in diagnostics.

Dr Peter was nominated as a finalist for a National Science and Technology Forum award, and also received an MRC silver award in 2015 in the Emerging Researcher category. He has over 50 publications in international and local journals, an H-index of 20, and serves as an editor and regular reviewer for a number of publications, including the local South Africa allergy journal, *Current Allergy and Clinical Immunology*.

"The Discovery Foundation fellowship provided invaluable support very early in my research career. It provided the launch pad funding for all my subsequent achievements and ongoing research successes," says Dr Peter.

After completing a two-year Oxford Nuffield Medical Fellowship in Clinical and Laboratory Immunology at the John Radcliffe Hospital, Dr Peter resumed his current post as a specialist physician in the Division of Clinical Immunology and Allergology at the University of Cape Town.

Recognising a need in Southern Africa since his return, Dr Peter established and chaired the first Clinical Immunology and Allergology discussion group to support clinicians across Southern Africa with complex cases.

He hopes to take over as head of the division from November 2016. "My focus is on addressing neglected areas

of allergology and immunology of local relevance. For example, with colleagues in dermatology and infectious diseases, I have started the first multidisciplinary drug hypersensitivity clinic on the African continent," he says.

"We focus on unravelling complex and often life-threatening severe adverse drug reactions, the biggest burden of which relates to antiretroviral and anti-tuberculosis therapies. In addition, I will focus on training and inspiring younger colleagues in immunology and allergology topics as this discipline remains nascent compared with developed country settings, yet we have similar and growing burdens of allergic, autoimmune and primary and secondary immunodeficiencies beyond HIV infections," says Dr Peter, a committed teacher.

His current clinical and research interests include the management of immune-related pathologies, particularly drug and food additive allergies, and primary immunodeficiency; and the development and validation of field-friendly diagnostics for use in resource-limited, high HIV-prevalent settings.

Internal medicine sub-specialist, Dr Jonathan Peter, is guiding policy on new TB diagnostics and pushing boundaries on immune-related pathology.

2007
~ DR ~
**JONATHAN
PETER**



~Past Recipient~

Serving South Africans from the lab

"Growing up with a medical person in the house is very inspiring for a young person, and can easily cultivate in them a vision to one day be able to be the same. In my case, the role model was and still is my father, whose excellent clinical and surgical skills have impacted many lives over the years.

Dr Kerusha Govender establishes a threshold value for diagnosis of a viral disease in children.

"After volunteering at a hospital over school holidays I realised that I might have what it takes to be a healthcare worker. Once in medical school, undergraduate lectures piqued my interest in virology. However, the exposure to virology there and even in clinical practice is limited. I worked in clinical medicine for a short time before being drawn to virology. I haven't looked back," says Dr Kerusha Govender.

"From my first few weeks working in a diagnostic virology laboratory, a problem that stood out to me was the complex and tricky diagnosis of cytomegalovirus (CMV). This is actually a common childhood infection and virtually all of us have had it. However, when a person's immunity is low, it can cause severe disease such as pneumonia. I postulated that reporting on how much CMV is in the respiratory tract (i.e. quantifying it) might be a good diagnostic tool and my research aimed to evaluate that."

"Pneumonia is a leading cause of childhood mortality and this research has public health importance. My main finding is that determining the levels of CMV in lower respiratory tract specimens is more predictive of CMV pneumonia than the levels found in the blood. I established a threshold value that clinicians may use to guide their diagnosis. I also determined that the laboratory assay may be done directly on the specimen, without additional laboratory methods which examine the other contents of the specimen itself," says Dr Govender.

"The results of this research are especially applicable to HIV-exposed infant populations in South Africa and globally. The drug treatment of CMV is expensive with potentially serious side effects. Therefore, the selection of patients for treatment has to be done with utmost certainty. I hope that this research will lead to more appropriate use of this antiviral."

"The highlights of the research process are at the beginning and the end, with challenges in between. At the start you are occupied with developing your idea and reading literature around the topic. This can be a very exciting time of learning. The more obvious highlight is the day you see a finished product, which should ideally be a concise paper describing the

purpose, method, results and significance of your work in a nutshell. The most difficult challenge for me was all the paperwork that had to be done to do the actual research. Nothing worthwhile comes easy!"

Dr Govender is currently a virologist at Inkosi Albert Luthuli Central Hospital in Durban. "With our burden of HIV and other infectious diseases, I am honoured to be able to serve the patients of our public health sector by overseeing the molecular diagnostic section of the laboratory."

As Dr Govender continues with her PhD research on CMV, some of which is currently under peer review with the Journal of Medical Virology, she plans to add to that work and expand it further in the next two years. She hopes to always be able to teach and mentor undergraduate and postgraduate students as she contributes to medical education.

"The current generation of medical professionals has a responsibility to educate those who come after us. It is a part of the oath we have taken. If we encourage pride, passion and excellence in the students we teach, it will surely set the scene for the high quality healthcare our country needs."

2009
KERUSHA
~DR~
GOVENDER





Creating mental health plans and policies

"Psychiatry is a dynamic field of medicine. It is at the interface of neuroscience and society. It allows you to understand the interplay between behaviour and the brain. I am interested in public mental health and social psychiatry; this allows me to assess and develop efficient and equitable plans for mental health systems, especially in low resource settings," says psychiatrist Dr Kiran Sukeri, who studied through the Walter Sisulu University in Mthatha.

The Eastern Cape presents many challenges when it comes to mental health service planning and delivery: 70% of its population lives below the poverty line, and 90% depend on public health services, yet the province has no mental health policy or plan in place.

"My research set out to collect data on the public sector mental health service provision to develop an evidence-based mental health policy and plan for the province," says Dr Sukeri. Data included staff, bed availability, admissions and discharges, access to psychotropics, diagnostic equipment, electroconvulsive therapy, and implementation of the Mental Health Care Act 17 of 2002, and communication with the Directorate of Specialised Services.

Key findings of Dr Sukeri's research were poor access to services, especially in the

Eastern district, a high dependence on long-term institutionalisation, the absence of community psychiatric services, limited collaboration between sectors, no primary or district mental health services and the lack of professional staff at all levels of mental health. "There is no co-ordinated forensic psychiatry service, nor is there a child or adolescent psychiatric service in the province," he says.

Dr Sukeri developed a multi-phase plan including rational deinstitutionalisation – or facilitating independent living – the development of mental health services and inter-sectoral collaboration aimed at improving services between the public and non-governmental sectors. It also provided a feasibility study for the application of the National Mental Health Policy Framework and Strategic Plan 2013-2020 in the Eastern Cape.

Dr Sukeri lists the highs of the research process as having two eminent psychiatrists as his supervisors, Professor Orlando Alonso-Betancourt (former Head of Department of Psychiatry at Walter Sisulu University) and Professor Robin Emsley (Head of Research at the Department of Psychiatry, Stellenbosch University). "They utilised their vast experience in psychiatry and research to guide and nurture me to develop a sound scientific thesis," says Dr Sukeri.

He presented at the World Association of Social Psychiatry Congress in Lisbon, Portugal, in 2013 and in the course of his doctoral research, Dr Sukeri had five publications.

Following the completion of his PhD, Dr Sukeri is currently Head of Department of Psychiatry at Tower Psychiatric Hospital and Psychosocial Rehabilitation Centre in Fort Beaufort in the Eastern Cape. "This institution has been in existence since 1894 and is the only public sector long-term care facility in the province. I believe if the provincial authorities want to implement community psychiatric services, then it is here at Tower that that process should start. My focus for now is obtaining donor funding to set up a learning centre

at Tower Hospital to train medical personnel in mental health to increase staff within this field for the province and improve the flagship of our hospital which is psychosocial rehabilitation and recovery in psychiatry."

"We need to prioritise mental healthcare such that paper plans are translated into practical and realistic solutions. Advocacy is integral in any mental health plan. We need to involve all parties, especially families, in the development of community psychiatry. This will involve education, stigma reduction and community involvement at all levels," he says.

2009
~DR~
**KIRAN
SUKERI**



Fighting TB heart disease with novel vaccines

"I was in the middle of high school when I decided to pursue a career in medicine.

Internal medicine specialist Dr Mukesh Chhiba tests a vaccine to fight TB-related heart disease.

2011
**MUKESH
CHHIBA**

~DR~

I was always passionate about helping other people and my career guidance counsellor and general practitioner encouraged me to study hard and pursue medicine," says internal medicine physician, Dr Mukesh Chhiba. It was during his undergraduate training that Dr Chhiba identified a passion for cardiology.

"I am fascinated by the heart and the diseases that affect it. Working in the clinics and hospital wards and reading medical literature, I soon realised and appreciated the burden of cardiovascular disease in our community and country and was astonished by the shortage of cardiologists in the public sector. There is a great need for research in our country," says Dr Chhiba.

Sub-saharan Africa, including South Africa, has the highest incidence and prevalence

of HIV/AIDS in the world. HIV affects the cardiovascular system in a number of ways; "often with very serious clinical manifestations and complications for our patients. The most effective treatment for HIV/AIDS is HAART, but there is still much to learn about how it impacts on HIV-associated cardiovascular disease," he says.

Then there is the double burden of HIV and TB co-infection: Patients with TB pericarditis often have concomitant HIV. Despite antituberculosis therapy, mortality and morbidity remain high. Mortality is as high as 26% at six months but it is even higher (approximately 40%) among persons with HIV.

"My research project is aimed at determining how the Mycobacterium vaccine works on the immune system. I am trying to determine if it has a therapeutic role in TB. There have been no immunological studies performed to date to understand how this vaccine works on the immune system. My research project will provide a novel understanding of how this vaccine works. It has a potential role in the fight against TB pericarditis."

"In order to answer the research question, I recruited patients from the ongoing landmark IMPI trial and collected blood samples for special immune studies in the South African TB Vaccine Initiative Lab at UCT Medical School. In total, I collected multiple blood samples from 64 patients and I have about 1 024 blood samples frozen in liquid nitrogen. I still have to stain all these samples with antibodies and then analyse the data to achieve the objective of my research project," he says.

Dr Chhiba has also undertaken an intense three-year subspecialty postgraduate training programme to become a cardiologist. Dr Chhiba writes his final exams in October 2016 and plans to resume his research after that. He hopes to publish data by June 2017 to complete his MMed by dissertation.

"Highlights of the research process include recruiting and following up with patients with TB pericarditis and, on a personal level, participating in a South African landmark clinical trial."

Dr Chhiba hopes to find a permanent post in a state hospital to practice clinical and interventional cardiology and to continue doing research in cardiovascular medicine.

Preventing the transmission of HIV drug resistance

"The possibility of achieving an AIDS-free generation through prevention of mother to child transmission (MTCT) prompted me, as a budding clinical researcher, to look at HIV drug resistance as a hurdle to achieving this future," says virologist Dr Ramokone Maphoto.

Originally from a small village called Kromkloof, in Mokopane, Dr Maphoto is the first female medical doctor from her village. "My interest in medicine started when I was in high school. I used to go to work during holidays with my mother, who was a nurse at that time, and I would sit and talk to the doctors. That encouraged me and made me want to pursue a career in medicine. Even though they would mention the burden of work and long hours, I was not deterred," she says.

Dr Maphoto's research work funded by the Discovery Foundation concluded with her achieving her MMed Virological Pathology, through research, investigating HIV drug resistant outcomes in children with maternal exposure to various MTCT interventions at Dr George Mukhari Hospital near Ga-Rankuwa.

"I found that exposed children presented with evidence of transmitted HIV resistance." The emergence of HIV drug resistant strains among children could have an impact on future antiretroviral drug regimens.

Recent national HIV treatment guidelines have taken into consideration the possibility of transmitted HIV drug resistance, which is supported by Dr Maphoto's research, "where children who were exposed to some form of MTCT preventive regimen (either in utero or via infant prophylaxis), particularly to NNRTI-based ARV, should start with a NNRTI-free regimen," she says.

Virologist Dr Ramokone Maphoto investigates the emergence of HIV drug resistant strains among children born to HIV positive mothers on ARVs.

This is preferable because NNRTIs are known to develop resistance much more quickly than other ARVs, as they have what is called a low genetic barrier (only one mutation is necessary for the drugs to develop resistance).

In terms of future treatment of HIV-positive children, Dr Maphoto recommends that baseline transmitted HIV drug resistance surveillance be strengthened particularly in children; and that policy makers consider

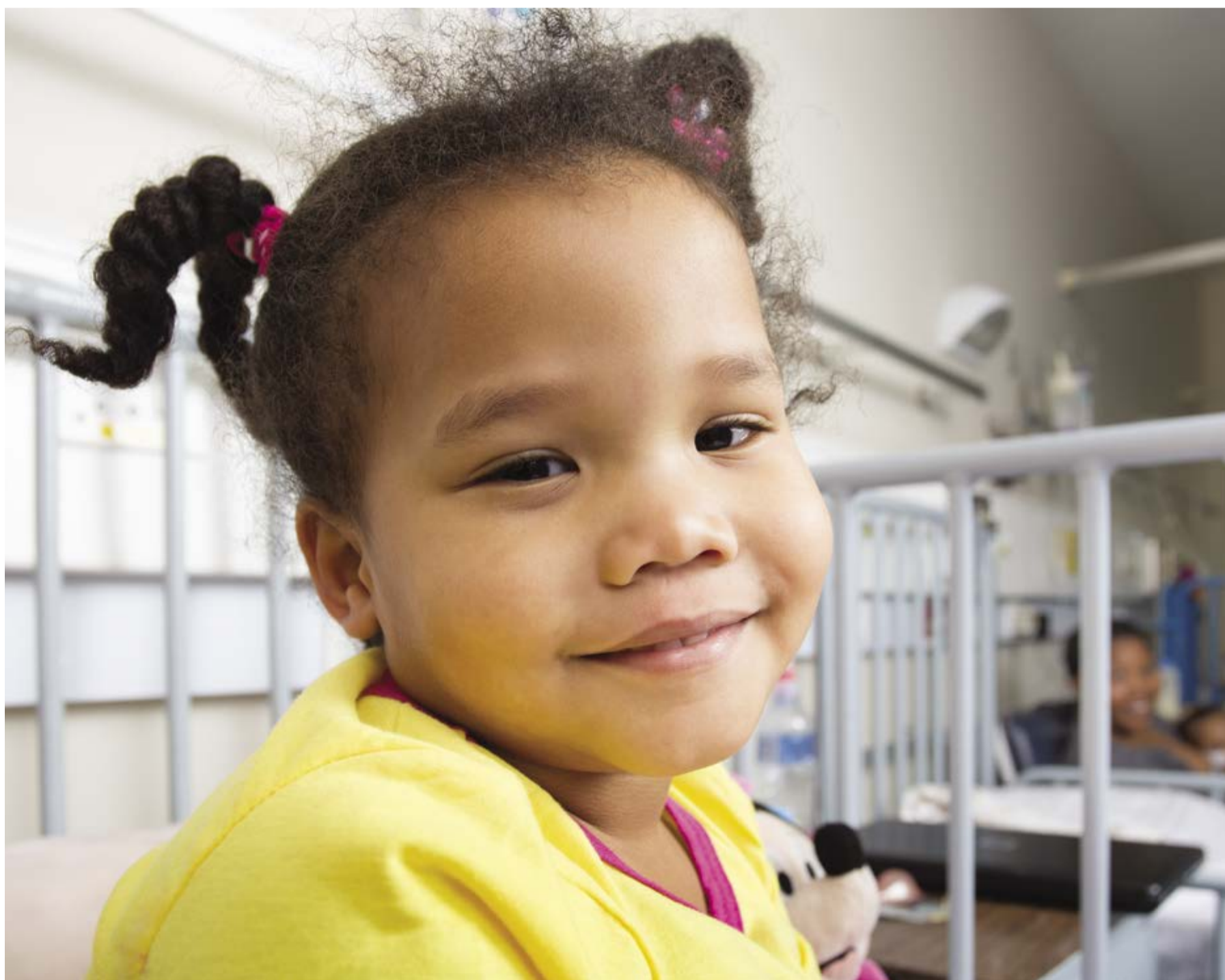
baseline HIV genotyping as one of first pre-treatment tests. Also, "the pharmaceutical companies' research and development divisions need to come up with a broader range of safe and effective ARVs for the paediatric population," she says.

Dr Maphoto lists the highlights of the research process as interacting with some of the mothers and children to understand their background and demographics ("Though this was not part of the study, one could not resist showing compassion towards the mothers and their children," she says); and attaining laboratory skills such as HIV genotyping and bioinformatics.

As a clinical virologist in the Virology Lab division at the Dr George Mukhari Hospital, Dr Maphoto is committed to furthering her research in the field of HIV.

"It's known that South Africa trains some of the best doctors in the world, there is no doubt that we have a future of continuing to produce excellent medical talent, we need to encourage more people to choose medicine as a career."

2011
~ DR ~
**RAMOKONE
MAPHOTO**





2011
~ DR ~
ALTA
TERBLANCHE

Fighting for
children with
chronic liver
disease

Chronic liver disease and cholestatic jaundice are significant problems in South Africa, yet there is very little local research. "Paediatric gastroenterology poses vast possibilities in the research field as most information comes from abroad, and there are definite differences in what we see here," says paediatric gastroenterologist, Dr Alta Terblanche, recipient of both an Academic Fellowship and Sub-specialist award from the Discovery Foundation.

As paediatric gastroenterology was a relatively new field in South Africa and Dr Terblanche was the first formal fellow in this subspecialty, paediatric-specific gastroenterology training was not available in South Africa. "The Discovery Foundation gave me the opportunity to complete and enhance my training as a paediatric gastroenterologist with a range of outstanding courses and international learning experiences. It also enabled me to develop the Paediatric Gastroenterology

and Hepatology Unit at Steve Biko Academic Hospital; but also to cover urgent patient needs such as a palliative service, through my completion of the Palliative Care Diploma at the University of Cape Town," she says.

Currently Dr Terblanche has six studies focusing on chronic liver disease in infants and children, including international collaborative studies. These may form the basis of her PhD studies.

Some of the highlights of her research process include giving a quality service, making a difference to her patients, and making a difficult and interesting diagnosis. Being able to provide much-needed

Paediatric gastroenterologist, Dr Alta Terblanche, investigates chronic liver disease in children and establishes end-of-life care programmes.

palliative care for her paediatric chronic liver disease patients and support for their families has been a great achievement. "I had one particular patient, Kgothatso, who had mitochondrial disease. After years of looking after him, his end came closer. The day before he died he was so weak he could not talk any more. He reached out and kissed me on the forehead. In one

second all the other challenges and low points were worth it," she says.

"Seeing myself grow in the field, seeing the unit develop and the small victories in gaining ground for paediatric gastroenterology all remain highlights. Also teaching others and seeing them achieve is extremely rewarding.

"With the expanded services and now trained sub-specialists, there is a dire need for permanent posts to continue the service," says Dr Terblanche. Future plans include further development and expansion of the unit at Steve Biko Academic Hospital. "An outreach programme to the colleagues in Mpumalanga and Polokwane is a

further dream, as there are no paediatric gastroenterologists in these areas. Once again the workload and available hands are limiting, but we hope to take on the challenge in future," she says.

"To cure sometimes, to relieve often, to comfort always," are words Dr Alta Terblanche lives by. (Hippocrates)

Growing the next generation of medical talent

"I grew up in a Christian home and pursued medicine out of a sense of calling – of wanting to serve in areas of need. I went to Mosvold Hospital in the Ingwavuma district of Kwa-Zulu Natal in 1989 after meeting Dr Iain Croften Briggs, an English doctor working there. Iain and his team had ideas and enthusiasm about how the healthcare

service could develop to meet the needs of the local population.

At that time, I was one of four doctors at the hospital, which has 249 beds and serves

a community of 110 000 people," says family medicine specialist Dr Andrew Ross.

One of the most immediate challenges at Mosvold was finding and keeping qualified staff. "When I arrived at Mosvold there

was no dentist or dental therapist and I learnt how to do extractions! There was no pharmacist and we depended upon the pharmacy assistant to keep adequate stock of important medication. In 1992 three out of five doctors left the hospital leaving only two of us to run the services," he says.

Dr Ross was inspired by the idea of developing local healthcare professionals who understood the language and culture and who were committed to providing a service in their communities.

Dr Andrew Ross has facilitated the training of more than 500 medical professionals from rural backgrounds to address the skills shortage in public healthcare

"In 1998 I started to raise money for a scholarship scheme, named the Umthombo Youth Development Foundation.

We invited high school students to work hard and achieve the marks needed to secure a place in medical school, and we promised to take it from there." In a community where children don't wear shoes, schooling is

dismal, and their only career prospects were cow herding or mining, the odds were stacked against them. Yet several students grabbed the opportunity: Without a maths teacher, one young man achieved a B on higher grade. How did he do it? "If you put a challenge to people, and you make the steps very clear, amazing people step up and do amazing things," says Dr Ross.

"Our big break came in 2007 when the Discovery Foundation gave us R1 000 000 as an excellence award," he says. With the financial boost Dr Gavin MacGregor joined the team as its full time director and has taken the organisation from supporting 53 students in 2007 to supporting 234 students in 2015. In total, Umthombo has now supported and mentored more than 500 students, with 254 graduates, and 180 students currently enrolled in university.

After qualifying, graduates are obliged to return to their community hospitals (there are now 17 participating hospitals) as part of a work-back arrangement. More than 60% of those who have completed

their obligations have stayed to work in rural areas. The emphasis has been on staffing a district hospital and helping to provide a comprehensive service and not just on training doctors. This is the great success of the Umthombo Youth Development Foundation, and Mosvold itself has benefited in a very real way: There are currently 10 doctors (two through Umthombo), plus: 10 nurses, four social workers, three physiotherapists, one occupational therapist, one dentist, two dental therapists, one dietitian and one optometrist, all of whom were supported by Umthombo.

Optometrist, France Nxumalo, who was one of the early graduates of the programme, has worked steadily through the ranks, bringing vision to rural South Africans. He recently moved to the Department of Health to coordinate eye services nationally.

"I am amazed and grateful to be part of something like this. To have a pass rate in excess of 90% despite the students' schooling background, to have 254 graduates – it's absolutely amazing!" says Dr Ross. "But, it also highlights for me the enormous wasted potential in South Africa. If we have been able to do something like this, imagine the possibilities if the human capital in South Africa could be developed to its full potential – what a game changer that would be!"

Dr Ross received the highest citizen award in South Africa, the Order of the Baobab, from the office of the Presidency in 2015 in recognition of his endeavours. He is currently a trustee for the Umthombo Youth Development Foundation, and a full-time lecturer in the Department of Family Medicine at the University of KwaZulu Natal, where he is responsible for coordinating a fifth year clinical module, postgraduate research supervision, and some clinical duties at Wentworth Provincial Hospital. He continues to mentor many of the medical students supported by Umthombo at UKZN.



2006
~ DR ~
**ANDREW
ROSS**

GETTING BEHIND SOUTH AFRICA'S

UNSUNG HEALTHCARE HEROES

Local researchers and non-profit organisations are helping keep South Africa at the cutting edge of global HIV/Aids prevention and treatment, supplementing vital state healthcare services in vulnerable, poorly served, low-income communities such as seasonal farm labourers.

The country is punching well above its GDP weight among its BRICS counterparts (Brazil, Russia, India and China) in efforts to combat HIV and TB, shaping global health research and policy, while its health activist and NGO communities remain universally admired. Research and development has increased steadily from R39 billion in 2008 with a current government goal of 2% of GDP by 2018. A state-funded translational health research agency was recently launched with a R648 million budget, including a Drug Discovery and Development Centre and several clinical trials.

Yet smaller inspirational examples like the individual healthcare workers who have identified desperate need and whose selfless work ethic and caring now serve

both employers and employees in the remote but huge commercial fruit and nut farming regions of Limpopo and Mpumalanga, are everywhere. In laboratories and hospitals across the country, scientists and clinicians passionate about making a population-level difference to HIV care

– and perhaps even one day finding a cure – are hard at work. At community level, Discovery has carefully scanned the terrain for outstanding, transformative projects and stepped in to financially bolster NPO and research efforts, becoming a powerful force for social good.

The not-for-profit projects, Hlokomela (or protect/arm yourself) in Hoedspruit, Limpopo and the Africa School of Missions, (ASM), in Komatipoort, Mpumalanga are two outstanding examples of Discovery-supported healthcare projects that began 10 and 26 years ago respectively. They provide HIV peer-education and nursing training, mobile primary healthcare and farm clinic services to communities with HIV prevalence that is now finally dipping from a base level of between 30% and 40%, while pivotal knowledge of HIV status among seasonal farm workers has rocketed upwards, from close to zero to about 90%.

Christine Du Preez is the nursing sister who began the Hlokomela Programme in 2006 after working in the Hoedspruit area years earlier and encountering shockingly high HIV/TB prevalence plus a variety of chronic illnesses among the estimated 20 000 seasonal mango and citrus pickers. Setting up a clinic on Richmond farm after easily convincing its owner, Mr Michael Scott that healthier workers would

improve productivity, she soon won over neighbouring farmers. Hlokomela today has health and educational development initiatives across 72 local agricultural and tourism businesses. With 3 000 workers now attending her original clinic on a monthly basis, she has formed the Hoedspruit Training Trust, a non-profit organisation that “seeks to empower commercial farm workers and their families with a greater sense of responsibility for their personal health, spiritual, and educational development”. Hlokomela’s ‘Nompilo’s’ (or Mothers’ of Life) – as its’ growing cadre of newly-trained peer educators are colloquially known – are trusted change-agents in the communities they serve, which include several arterial roadside informal trading markets. Several farmers truck their workers to and from Hlokomela’s more permanent clinics on a weekly basis. When Du Preez began in 2005, hardly any labourers knew their HIV status. By 2012 some 16 200 fruit pickers had been tested, with those diagnosed as HIV positive referred for treatment. The goal is to have 30 000 tested this year. “We cannot prove it, but I really think 90% of them now know their status,” says du Preez proudly.

Her success, especially via the Nompilo initiative, is partially explained by the now oft-repeated slogan and newly instilled ethic; “Farm workers care for each other”.

Paul and Carol Alexander started Africa School of Missions (ASM) in 1985. Later on, ASM started a mobile clinic with Jenny Holtzhausen joining as a student in 1991. The mobile clinics were started to take healthcare to the far-flung areas of Bushbuckridge in Komatipoort, Mpumalanga. The closest public clinics to the local mainly citrus, macadamia nut, banana and avocado producing farms are 20 to 45 kilometres away, posing a time and income-sapping barrier to seasonal labourers whose harsh work and living conditions make preventative and general healthcare a low priority. Every Wednesday, nursing sister Yvonne Woods drives out of their Auxiliary Nurse Training campus in White River in a bakkie pulling a trailer full of medical supplies, picking up helpers between farm destinations. Today her permanent ASM Spioenkop farm clinic caters to 3 000 labourers from 14 surrounding farms, while the mobile clinic continues to service



those who can't get to it, reducing overall patient pressure.

A fascinating research study into employer knowledge, attitudes and practices in the two areas served by these NGOs (also funded by Discovery), came to some far-reaching conclusions. While the findings were based on a set of intrinsic contradictions and underlying structural issues that keep the employer mediating health outcomes, they found that no HIV-related standards were enforced on the farms. This was in spite of significant levels of farmer compliance with both international and domestic certification and regulatory standards (such as Occupation Health Standards, (OHS)). Employers associated the health of labourers with productivity and absenteeism and predominantly engaged on a risk-management basis rather than based on corporate responsibility values. The researchers found that the two

NGOs played a vital role in protecting worker health – even providing a potential National Health Insurance, (NHI), farm-labour model. They recommend that the Department of Labour integrate OHS standards with primary healthcare and point to the potential for creating powerful corporate social responsibility initiatives via public private partnerships. Their study bolsters the anecdotal reports from the pioneering nursing sisters – i.e. the HIV prevalence in the respective farmlands

The researchers found that the two NGOs played a vital role in protecting worker health – even providing a potential National Health Insurance, (NHI), farm-labour model.

is actually three times as high as in the local communities. The researchers put this down to casualised and transactional sex, especially with low housing provision (most winter seasonal workers live elsewhere, commuting to and from farms).

Of the two agricultural areas, Limpopo has the larger farms and greater numbers of permanent and seasonal workers, but with limited housing. Farmers were found to be working to tight financial margins with their futures uncertain as wages and Eskom costs rose, with ongoing land claims and the introduction of mechanisation. This left little opportunity for additional social responsibility increments. The farmers' biggest concerns remained absenteeism and the time taken to access

health services. They nevertheless made ad hoc donations of food, transport and money to respond to the consequences of poor health. Most farmers reported an average of two to three days off for each person in the season due to ill health.

The farmers were acutely aware of what HIV infections cost them. Among their biggest complaints was the low quality of public health services which resulted in huge amounts of lost production time with the end result being the ineffectual dispensing of Panado pills. The study also found that few farmers "made the connection" between HIV and the lack of basic access to education and healthy food and low/minimum wages. While there was compliance with international and local OHS regulations there was little mention (by farmers) of worker dehydration, back-ache, muscular problems, exhaustion, coughing, fungus on the hands and feet and pack-house ventilation causing dry eyes – all issues routinely reported to the healthcare NPOs. The Discovery-backed study was satirically labelled "The Paracetamol Problem".



SOUTH AFRICA'S PUBLIC HEALTHCARE SECTOR ALCHEMISTS –

DARING TO DREAM

The average South African, fed a daily media diet of dysfunction and avoidable deaths in our hard-pressed public healthcare sector, misses an almost perfect paradox: it's a rough and tumble crucible that produces some of the world's most innovative physicians and researchers.



These dedicated healthcare workers have built random islands of excellence and havens of hope across the country, attracting funding, expanding expertise and drawing in colleagues, eager to be at the cutting edge of solutions and innovation, from around the globe. Collectively, they've saved tens of thousands of lives and will save thousands more, creating healthier future generations to grow our economy and build communities. South Africans with health challenges are performe tough.

They may be dealing with islands, but they know how to swim, and, if necessary, tread water until they reach a welcome, shallower shoreline. Here are but a few of South Africa's island-building organisations and individuals of excellence.

NGOs like Medicins' Sans Frontiers (MSF, or Doctors without Borders) and the Treatment Action Campaign, worked clandestinely with hundreds of public sector doctors and nurses to provide antiretroviral drugs during the Mbeki/Tshabalala-Msimang AIDS denialist years (1999–2008). Collectively they saved thousands of lives, long before the undeniable science, backed by civil society pressure, forced the government's hand. While over 300 000 people lost their lives to AIDS as the denialists dithered, tens of thousands more were (belatedly) saved when the court-ordered ARV roll-out began. South Africa now has the largest ART programme in the world – and our clinicians and researchers are the go-to people globally for HIV/AIDS – and for tuberculosis which inevitably accompanies it. Our prevention field is rich in globally-relevant innovation, whether it

be hugely-promising, women-empowering HIV infection prevention gels (still under development), TB and human papilloma virus (HPV) 'test and treat' technologies or the ever-elusive HIV-vaccine. From 2018 onwards, a three-month version of a microbicidal vaginal ring, also requiring less commitment for adherence, may become available, according to Dr Zeda Rosenberg of the International Partnership for Microbicides. This could also reduce bacterial vaginosis, which makes young women more susceptible to HIV infection, adds local collaborator, CAPRISA director Prof Salim Abdool Karim, whose wife Quarraisha, is at the forefront of local research into the vaginal gel and microbicidal ring development.

These dedicated healthcare workers have built random islands of excellence and havens of hope across the country, attracting funding, expanding expertise and drawing in colleagues, eager to be at the cutting edge of solutions and innovation, from around the globe. Collectively, they've saved tens of thousands of lives and will save thousands more, creating healthier future generations to grow our economy and build communities. South Africans with health challenges are performe tough.

The National Department of Health (NDoH), has redeemed itself when it comes to HIV/AIDS, and significantly in several other areas too where it battles a quadruple burden of disease, critical staff shortages and operational inefficiencies which lead to, (for example), unacceptably high maternal, infant and child mortality rates. Vaccination of children has improved vastly; with two new vaccines, rotavirus for diarrhoea and pneumococcal conjugate vaccine for

pneumonia, (diarrhoea and pneumonia being two of the biggest baby killers), introduced into the immunisation schedule for infants in 2009. Since then, more than 95 percent of eligible children have been vaccinated. These vaccines have reduced child mortality by at least five deaths per 1 000 births, while the ART-induced drop in mother-to-child HIV infections went from 9.6% of children HIV-positive at six weeks old in 2008 to below two percent at this age today.

Working in virtually unmapped territory where HIV and TB bacteria affect the cardiovascular system, (causing serious clinical problems and complications for patients) is internal medicine specialist, Dr Mukesh Chhiba, recipient of a Discovery

Foundation Academic Fellowship. Passionate about helping others since his high school days, Dr Chhiba was intensely fascinated by 'the heart and the diseases that affect it, and remembers his astonishment at first discovering the shortage of cardiologists in the public sector – and the relative paucity of research. His research project is aimed at exploring how the Mycobacterium W vaccine works on the immune system. I want to conduct

studies to find out if it has a therapeutic role in TB – there have been none to date and if I can provide a novel understanding of how this vaccine works, it will have a potential role in the fight against TB pericarditis". Patients with TB pericarditis often have concomitant HIV and in spite of drug therapy, mortality among co-infected patients is estimated as high as 40% after six months of treatment. Busy preparing for his final post-graduate cardiology exams this October, Chhiba is aiming to publish data for his MMed dissertation by June next year. He'll continue to recruit and follow up on patients with TB pericarditis for this truly landmark clinical trial before seeking out a permanent post in a state hospital to practice clinical and interventional cardiology, while continuing research.

Another Discovery Foundation Award Fellow, Dr Mosa Moshabela, has returned to his rural roots where his academic prowess in skipping a grade and matriculating at 16 saw him offered an opportunity to study medicine at the Nelson R Mandela School of Medicine in KwaZulu-Natal. Witnessing first-hand the challenges rural patients had in accessing healthcare while doing his community service in Sekhukhuneland, Moshabela grew determined to address the huge lack of data around this. "My overall goal is to identify strengths and weaknesses of the rural health system, taking into account informal methods. But most importantly I want to view these factors through the eyes of HIV/AIDS patients," he says. The gravitas of his work lies in the bare existing facts: In spite of ART coverage having increased 13-fold since 2004, only

half of the people who need it are getting it. One third of ART patients are lost to follow-up within two years of starting treatment, with rural areas having the lowest treatment coverage. Moshabela wants to address this with strategies to improve ART initiation, adherence, introducing more decentralised, humane and high-quality care and support, and enhancing patient self-efficacy. He also wants to incorporate traditional healers into the formal system and find innovative ways to reduce financial barriers to care. He has an empathic departure point: he was hospitalised with tuberculosis and malaria after a visit to Mali.

On the cervical cancer front, Professor Lynette Denny, Head of the Department of Obstetrics and Gynaecology at the University of Cape Town's Faculty of Health Sciences and Principal Specialist at Groote Schuur Hospital, is well on her way to perfecting "test and treat," HPV-detecting technology. This stands to drastically reduce, if not help eliminate HPV within 10 to 15 years. With 6 000 new cases of (mostly HPV-caused) cervical cancer diagnosed annually, half of whom will die and most of whom are black, that's a big deal.

Once rolled out, her team's technology will complement the 659 339 Grade IV girls (nine years and older), whom the NDOH has already vaccinated for HPV (by the beginning of this year) via HPV detection and treatment in all willing adult females. The government's HPV vaccination goal is to cover all 18 000 primary schools in order to prevent this most common cancer among South African women from taking hold. Denny's complementary, universally-implemented adult "test and treat" programme at primary healthcare facilities would catch incipient HPV early for successful treatment in the older unprotected group of women.

On the TB front 350 GeneXpert machines are being used nation-wide to detect Rifampicin resistance to TB treatment, hugely reducing drug resistance testing turn-around times (though improved specific assay multiple drug resistance laboratory testing is sorely needed). The boundaries on immune-related pathology are also being pushed with a Discovery Foundation Fellow, Dr Jonathan Peter, guiding new policy on TB diagnostics. Peter, a sub-specialist in allergology and clinical immunology at the University of Cape Town, (UCT), is focusing on delirium screening and improved diagnostics for TB patients co-infected with HIV. The daily challenges of diagnosis and the huge burden of HIV/TB co-infection makes his research vital. His evaluation of diagnostic impacts with patient-level pragmatic randomised controlled trials has been recognised by the World Health Organization, (WHO), and sets new standards for recommendations guiding new diagnostics. Peter's team focuses on 'unravelling' patients with

complex and often life-threatening severe adverse drug reactions, the biggest burden of which relates to antiretroviral and anti-tuberculosis therapies. He is also training and inspiring younger colleagues in these disciplines.

With government efforts to turbo-charge the output of doctors from our oversubscribed eight medical schools via the Cuban training programme and the controversy-ridden foreign qualified doctor management programme falling way short of requirements, one ordinary GP has made a huge difference. Dr Andrew Ross of Mosvold Hospital in the Ingwavuma district of KwaZulu Natal has facilitated the training of more than 500 medical professionals recruited from his own backyard. Awarded a Discovery Foundation Fellowship and a Discovery Excellence award totalling R1 million in 2007 to kick start his project, Ross, a vocation-driven generalist, recruited Dr Gavin MacGregor to help run his now universally-admired Umthombo Youth Development Foundation. Together they single out promising local high school pupils, encouraging them to achieve the marks needed to get into medical school. "It's amazing what people with very few prospects can achieve when you put a challenge to them and make the steps very clear," he says. From supporting 53 students in 2007 to 234 eight years later, with more than 500 (254 graduates and 180 currently enrolled in university), it's an inspirational model. Graduates are obliged to return to their community hospitals (17 hospitals currently participating), as part of a 'work-back' arrangement. The retention rate of doctors now working in their areas of origin stands at 60%, unmatched in healthcare worker recruitment anywhere in the country.

Ross, whose enthusiasm and commitment are infectious adds; "This highlights for me the enormous wasted potential in South Africa. If we've been able to do

something like this, imagine the possibilities if the country's human capital could be developed to its full potential. What a game changer that would be!" Game-change, however, needs consistency and on-site leadership, never better illustrated than by the 180-bed Madwaleni Hospital in the country's 8th most-deprived Mbashe sub-district some 100km from Mthatha in the Eastern Cape. Here Dr Richard Cooke, recipient of two Discovery Foundation awards watched his six-year investment in staff, equipment and outreach programmes literally fall apart after he left to marry and take up a multi-faceted Wits University academic post. He and the hospital matron, Ms J Vinjwa, who was long past retirement age, left at about the same time. Without these central pivots and wily veterans to overcome Bisho's bureaucratic obstacles, all the remaining (mainly community service) doctors left at the end of 2011 – in spite of Cooke returning for a six-month stint to try and pull things right.

Two valleys across from Madwaleni and snagged in a web of rutted roads atop a coastal hill, lies the 146-bed Zithulele District Hospital, which by comparison, is a beacon of hope to patients and healthcare workers alike. The reason is simple – a young committed UCT-trained couple, Ben and Taryn Gaunt, invested their hearts and souls, attracting over the years, a clinical team of 29 people, including 10 full-time and three part-time doctors, three physiotherapists, two occupational therapists, a speech therapist, audiologist, social worker, dentist, two pharmacists and two dietitians. This core group partnered with five NGOs to bring the professional skills of 50 people to the 143 000-strong local community. Together with another UCT-trained doctor

couple, Karl and Sally le Roux, they set up the Jabulani Rural Health Foundation, an NGO that provides them with translators, counsellors and assistants while dealing with ARV down-referrals. Seeded with their own money, the foundation has raised R2.5 million from major corporates to expand staff living quarters (including for local teachers), to start two pre-schools and open a library. Their peri-natal mortality rate has plummeted to under 20 deaths per thousand (remarkable for a district hospital as the latest official Saving Mothers report so alarmingly shows), survival for the first time of extremely premature babies (birth weights under 1000g), the rapid

All of these projects initiated by highly motivated individuals working in the 'dysfunctional' public sector crucible who've learnt the art of alchemy – simply because they dare to dream of how it could be different.

expansion of the ARV programme and the first-ever hearing aids fitted at the hospital. Paediatric ward mortality dropped from 8% when the Gaunt's arrived to below 2% by 2012. Outpatient numbers topped 27 000 by 2012 with an estimated 4 000 people attended to at outlying clinics.

It's not just at district health level that individuals are making a difference, getting corporates and other big funders to come to the healthcare delivery party.

On the Tygerberg campus of Stellenbosch University, (SU), a R120 million state-of-the-art surgical skills simulation laboratory opened this July, replicating real-time theatre scenarios and turbo-boosting healthcare for the entire sub-Saharan region. It is geared to train 1 200 physicians in its first year of operation. Professor Ian Vlok leads the three-man neurosurgical team at Tygerberg Hospital which initiated a collaboration with sponsors, Medtronic, a top global surgical equipment supplier. Medtronics MD for Africa, Mr Peter Fuller, says the R120 million equipment costs would be "amortised" over the long term.



V I S
I O N
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