DISCOVERY 2015

FOUNDATION AWARDS

PIONEERS

DISCOVERY 2015
FOUNDATION AWARDS

PIONEERS

Inspired by the commitment and perseverance shown by doctors and other healthcare workers who are working every day to improve the lives of all South Africans, *Pioneers* is a collection of portraits of some of South Africa's leading healthcare professionals. In their quest to make a difference, they embark on ambitious research projects that will shed light on unique challenges in healthcare. Some are refining their expertise further in order to address a special need or shortages of skills, while others are developing solutions to meet critical healthcare needs in rural areas.

~OFTEN~

THESE HEALTHCARE PROFESSIONALS ARE PIONEERING TOMORROW'S MEDICINE TODAY.

It is not easy to be a pioneer –
but oh, it is fascinating!
I would not trade one moment,
even the worst moment,
for all the riches in the world.

~Elizabeth Blackwell (1821 – 1910), the first woman to receive a medical degree in the US and first woman registered on the UK Medical Register.~

TABLE OF CONTENTS

TABLE OF CONTENTS

FOREWORD

Dr Vincent Maphai
Chairperson of the Discovery Foundation

A plethora of persistent and complex diseases is severely impacting individuals, communities and families across South Africa. This is not unique to South Africa, and there are concerted efforts globally to meet the challenge head on.

Because of its legacy built upon incredible research done on HIV and Aids, and the related healthcare problems that came with it, South Africa is in a unique position to solve some of the most perplexing health and clinical challenges. This has led to the establishment of strong research infrastructure that needs more talent to use it. Our country's wide demographics also make it necessary for us to embark on new research that can change lives.

Committed to this potential, the Discovery Foundation is continuing in its pursuit of a bold vision to be a catalyst in making South Africa a centre of excellence of Academic Medicine. Since its launch in 2006, the Foundation has helped close to 300 doctors do further clinical research in key disciplines, or train further in a sub-specialty.

The beautiful book that you now hold in your hands presents not only the health problems faced by many families in both remote rural areas and under-resourced metropoles, but also portrays the passionate and talented pioneers in the health profession who are working hard to solve them.

Their unflinching commitment in the field and in solitary laboratories pursuing novel solutions for our healthcare sector, leaves me not only humbled but fascinated knowing that we have pioneers in our country who will make a difference in our healthcare sector.

Building on the successful completion of Dr Gogela's research, facilitated by the inaugural Massachusetts General Hospital (MGH) Fellowship Award in the United States, this year Dr Shrish Budree is at the same academic hospital, collaborating with some of the world's best minds on paediatric gastroenterology to develop novel therapies for child health. Closer to home, Dr Ahmad Haeri Mazanderani is finding ways to protect the health of infants with HIV, while Dr Boitumelo Mashitisho is devising new ways to treat Acute Kidney Failure.

As you will see, our renowned experts are not retiring but pushing right behind the new crop of healthcare workers, transferring to them the insights and skills to be able to deliver great healthcare, regardless of a lack of resources. Among them, Professor Emeritus Yosuf Veriava is an umbilical cord of specialised knowledge for rural health, and Professor Christoffel Grobler is pooling multiple resources to lessen the mental illness burden. These are just some of the examples of two pioneering doctors who are working for change in our country.

I am confident that in the following portraits and pages you will see hope in the stories of these pioneers.

My goal is to improve child and maternal health in South Africa. By furthering my career in Academic Medicine, I'll help to develop and train future doctors in the field of Paediatric Gastroenterology to the benefit of South Africa and the continent.

~Dr Shrish Budree~

~DR~ SHRISH BUDREE

"My desire to pursue a career as a medical doctor started at a very early age," says Dr Shrish Budree, a Paediatric Gastroenterologist and research fellow at the University of Cape Town. As far back as he can remember, he always had the desire to heal people. He says, "My parents were my pillars of strength and supported me to achieve my dream to become the first doctor in my family."

It was during his internship at Dr George Mukhari Hospital in Ga-Rankuwa and community service at Mankweng Hospital in Limpopo, that Dr Budree was exposed to the massive burden of disease affecting children in South Africa. He remembers clearly tending to many sick children through most of the night. Although sometimes exhausting, it was all worth it and helped determine the path his career would take.

This experience was the stimulus for Dr Budree to start his training in paediatrics. His journey started at Mowbray Maternity Hospital in Cape Town, but it was during his further training at Red Cross War Memorial Children's Hospital that his interest in paediatric gastroenterology flourished. He was inspired by the clinical and academic challenges of managing the health of young patients with complex gastrointestinal, liver, and nutritional diseases. In addition, the opportunity to learn new life-saving skills such as performing paediatric endoscopies and colonoscopies, appealed to him.

> Given the burden of complex gastrointestinal diseases in an environment of high HIV and tuberculosis infection rates, the field of paediatric gastroenterology requires significant skills development.

This passion for child health earned the 35-year-old Dr Budree, recipient of the Discovery Foundation Massachusetts General Hospital Fellowship Award, a qualification as a certified paediatric gastroenterologist in 2013. This made him one of only eight such certified specialists practicing in South Africa. He will have the opportunity to spend a year at Massachusetts General Hospital to further his research.

He jumped at the opportunity to work with world-renowned South African clinician scientist, Professor Heather Zar. Professor Zar encouraged him to consider research in child health. Presently registered for a PhD in paediatrics at the University of Cape Town, Dr Budree is investigating growth and nutritional risk factors for the development of childhood pneumonia in infants on the Drakenstein Child Health Study, under the guidance of Professor Zar.

Dr Budree is passionate about developing novel therapies and pioneering the way forward. On his chosen field and its possibilities, he says, "Internationally, it is a thriving sub-specialty focused on the management of and research into disease and nutrition in infants and children, but in South Africa, this field is only starting to develop now."

He plans to change this with the time he spends in the United States where he hopes to grow as a clinician scientist and to help build this body of evidence and future therapies.

His ultimate goal is to improve child and maternal health in South Africa. By furthering his career in Academic Medicine, he will contribute to the development of new treatments and to the training of future healthcare providers in South Africa and on the continent.

Along with building close ties for future collaboration during his research tenure at Massachusetts General Hospital, Dr Budree will work towards completing his PhD in paediatric gastroenterology.

Curious about finding ways to protect children against disease, Dr Budree says, "The intestine and the microbes or bacteria that live there undergo the most significant changes during the first three years of life and play a crucial role in how children develop, their overall health, and in how their immune systems fight disease." He believes this places paediatric gastroenterologists in a unique position to study the bacteria in stool and its relation to childhood disease. Dr Budree says, "I find this a fascinating, uncharted field of study, which requires further exploration."

His research at Massachusetts General Hospital will continue focusing on nutritional risk factors for the development of childhood pneumonia – the leading cause of death in children worldwide, with the highest number of pneumonia-related deaths reported in sub-Saharan Africa in 2011. To date, there have been no studies investigating the intestinal microbiome profiles of South African children or its relation to the susceptibility of respiratory tract infections or pneumonia.

Using the Drakenstein Child Health Study as the basis, Dr Budree will work under the supervision of Professor Ramnik Xavier, a global leading expert on intestinal microbiome research. At Massachusetts General Hospital, Dr Budree can access advanced equipment and learnings to identify the underlying causes and risk factors of childhood pneumonia. This will help to develop future treatments to reduce complications and unnecessary deaths related to this condition.

He will specifically investigate how the bacteria in stool influence the response to antibiotic treatment during pneumonia. The multidisciplinary South African birth cohort provides comprehensive maternal, child, and other clinical data, multiple health outcomes, and longitudinal biological specimens including infant stool, nose, throat, and skin swabs, urine and environmental exposure swabs. This will allow Dr Budree to study the microbiome in a broad array of environments and the association with nutrition, allergies, the immune system, and cognitive diseases.

As part of his research, Dr Budree will use the latest methodologies for conducting stool microbiome sequencing – extracting and identifying various types of bacteria through their DNA or rRNA signatures. This is the current gold standard for identifying microbial community composition. He will also learn how to analyse the complex and massive data outputs collected.

At present, there is limited capacity to conduct the complex bioinformatics analysis of this nature in South Africa. The Discovery Foundation grant will enable Dr Budree to pioneer in building the capacity to conduct further microbiome research and to analyse data.

It will ideally position Dr Budree to develop research treatments around manipulating the intestinal bacteria. He says by using the skills learned in the United States combined with his clinical background, he aims to establish himself as a leader in his field.

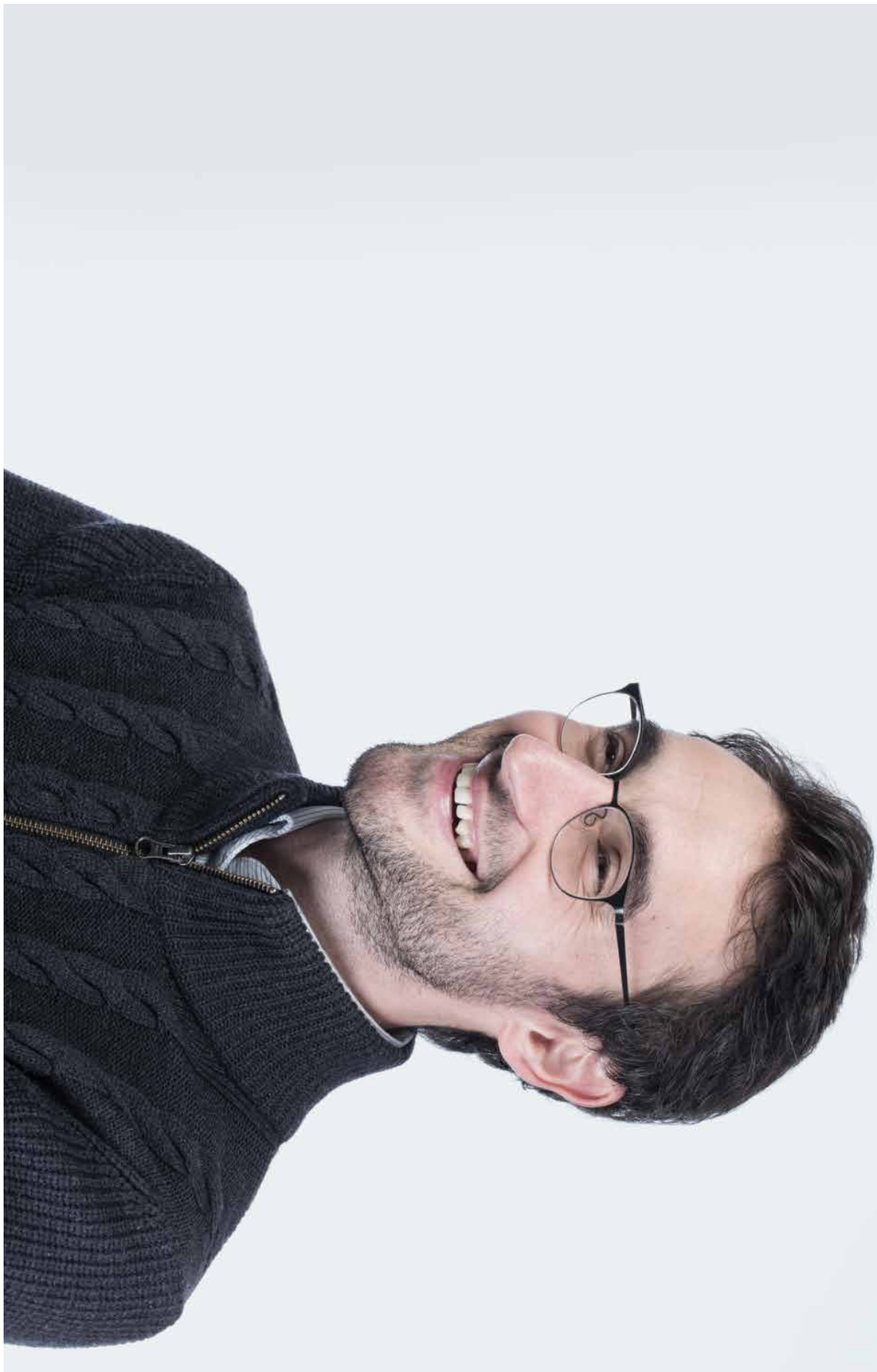
Dr Budree joined the team at Massachusetts General Hospital in July 2015. He has been warmly welcomed at the Center for Computational and Integrative Biology at Massachusetts General Hospital and the Broad Institute of MIT and Harvard where he will be based. He has already met with some of the leading researchers in this field with the aim of identifying unique research projects. He says, "This promises to be an exciting year".

The research will investigate the impact of antiretroviral prophylaxis on diagnostic sensitivity, and will inform local and international infant diagnostic practice.

~Dr Ahmad Haeri Mazanderani~

~DR~

AHMAD HAERI MAZANDERANI



The need to provide an accurate and timely HIV diagnosis in small children is a challenge that interests Dr Ahmad Haeri Mazanderani professionally and personally. As a registrar in the Department of Medical Virology at the University of Pretoria and National Health Laboratory Service, he has considerable experience with early infant diagnostic testing; both the science and the many practical challenges entailed.

One such challenge has been false-negative and indeterminate HIV results associated with the use of mother and infant antiretroviral prophylaxis. To create a better understanding and management around this, Dr Haeri Mazanderani, a 31-year old, Pretoria-based doctor, is undertaking a study aimed at investigating the impact antiretroviral prophylaxis has on diagnostic sensitivity. "Essentially, this research will inform diagnostic practices and could even assist in reducing HIV-associated childhood mortality rates," he says. HIV infant diagnosis, especially accurate diagnosis, is not a simple matter.

Essentially, this research will inform diagnostic practices and could even assist in reducing HIV-associated childhood mortality rates.

Early infant diagnosis (EID) of HIV and rapid access to treatment for those who test positive, has become the gold standard of paediatric HIV care. EID happens within the context of efforts to prevent mother-to-child transmission, which includes the provision of maternal combination antiretroviral therapy and infant antiretroviral prophylaxis in the form of a six-week course of daily Nevirapine syrup.

Although research has been done in this field, studies have yet to determine the accuracy of diagnostic testing in infants receiving daily Nevirapine prophylaxis.

Dr Haeri Mazanderani's study will describe missed diagnostic opportunities within the national HIV early infant diagnostic programme. It will determine the burden of false negative HIV PCR results associated with daily Nevirapine use and describe CYP2B6 gene mutations associated with slow metabolism of Nevirapine. The laboratory research includes determining whether there is an association between genotype and indeterminate HIV PCR results. The results form part of his PhD thesis and demonstrates his commitment to improving South Africa's healthcare in the paediatric area.

Besides the obvious pursuit for improving patients' health, the passion for Academic Medicine is not hard to detect in Dr Haeri Mazanderani. "The opportunity to work full-time on my research will not only expedite the findings and enable their quick dissemination," he says, "but it will also facilitate personal growth and professional development."

His supervisor, Professor Gayle Sherman, a globally renowned leader in this field, acknowledges Dr Haeri Mazanderani's dedication. "Dr Haeri Mazanderani has proved to be a committed researcher with an excellent track record in academic work," she says. "The research, which he is pursuing as part of a PhD, is critical to our understanding of effective early-infant diagnosis of HIV and the ability to evaluate mother-to-child transmission". This is regarded as a priority by the National Department of Health.

Dr Haeri Mazanderani's study forms part of a larger investigation of HIV and EID, and is supported by an extensive collaborative network of clinical and laboratory researchers from the Department of Medical Virology at the University of Pretoria and the National Health Laboratory Service (NHLS), the National Priority Programme Unit and National Institute for Communicable Diseases, and the departments of Paediatrics and Child Health at the University of Pretoria (Kalafong Hospital) and the University of Witwatersrand (Rahima Moosa Mother and Child Hospital). As a collaborative researcher, this environment will give Dr Haeri Mazanderani access to state-of-the-art laboratory equipment and laboratory data from the NHLS Corporate Data Warehouse and Roche Diagnostics.

"Through further research in the field of HIV infant diagnosis, I hope to expand on my preliminary findings," says Dr Haeri Mazanderani, "and work towards establishing better coordinated and coherent diagnostic practices that will have tangible benefits for HIV-exposed infants."

I see myself as a pioneer as I am working in an area that has huge potential to influence the existing HIV testing and treatment guidelines in South Africa.

~Dr Simnikiwe Mayaphi~

~DR~ SIMNIKIWE MAYAPHI

South Africa has come a long way in the management of HIV and Aids and has managed to improve the rollout of antiretroviral (ARV) drugs in recent years. This has been reported to be one of the contributors to an increased life expectancy.

The rate of new HIV infections has not changed much despite expansion of ARV rollout in South Africa. A 38-year old Pretoria-based doctor wants to change this.

Dr Simnikiwe Mayaphi, a Clinical Virologist at the University of Pretoria's Medical Virology department, is conducting a five-year study aimed at detecting primary and early HIV infections, and referring individuals with these infections for appropriate HIV management in order to curb further spread of the virus.

"The rate of transmission during primary HIV infection is approximately 26 times as high as that during established HIV infection," says Dr Mayaphi. "We aim to explore the feasibility of detecting the highly infectious individuals in a low resource setting to prevent further spread of HIV. These are the people who are still in the window period, who would therefore test negative on rapid HIV tests."

His focus is motivated by the fact that primary and early HIV infections are a driving force behind the spread of HIV infection as they are associated with very high HIV viral loads.

Titled, '*Molecular detection and characterisation of primary and early HIV-1 infections in an HIV hyper-endemic area*', the research will assess the burden of primary HIV infection in HIV counselling and testing clinics in the Tshwane region, and assesses transmission of HIV-resistant strains in the context of government's expanding ARV rollout.

This will be a prospective study enrolling about 10 000 patients in clinics in that region. He will determine how data from this project can influence the current practice of HIV diagnosis in South Africa.

The research focus is significant and the outcomes have the potential to address the crucial issue of new infections. A 2014 report by the Human Sciences Research Council revealed that there were over 400 000 new HIV infections occurring in 2012 alone. This puts South Africa in top place in the world in HIV incidence, making Dr Mayaphi's research fundamentally relevant. The Council also reported that in 2012, an estimated 12.2 percent of the population, (6.4 million people) were HIV positive, which is 1.2 million more than in 2008.

Dr Mayaphi and his team aim to ensure that this research has global relevance. They have established collaboration with researchers at the world-renowned Johns Hopkins University's School of Medicine in the United States. "I plan to do some laboratory work for this project at Johns Hopkins University," he says. "That could give me exposure to resources we don't have in our research laboratory."

With a passion for Academic Medicine and training, Dr Mayaphi plans to share what he will learn. "All the new knowledge and experience gained from this project and through collaboration will be shared with South African researchers through teaching, supervision of junior researchers or students, and practice of clinical medicine," he says.

His project is supported by experienced researchers from the University of Pretoria's Medical Virology department.

Professor Sheila Bowyer, a Senior Medical Scientist at the University of Pretoria sees significant relevance in the project and believes that the outcomes can make a difference locally. "The focus of his current research involves important health issues related to viruses endemic in South Africa," she says.

"In the time that I have known Dr Mayaphi, he has shown that he is capable of original thought and is able to assess the merits of the current literature," she says. "He has mastered the concepts of good research from the diagnostic and research laboratories to peer-reviewed publications and has shown that he is conscientious and hard-working."

With his research, Dr Mayaphi plans to offer a service in the areas where it is conducted. He will call back participants identified with primary HIV infection to provide HIV risk-reduction counselling and referral for relevant interventions.

The long term plan is to establish a surveillance unit for the detection of primary HIV infections in the Tshwane region, which could be expanded to other areas of South Africa.

The focus of this current research involves important health issues related to the viruses endemic in South Africa.

This study will provide unique insights into non-TB pericardial effusions in sub-Saharan Africa; this is a unique project. The subject of non-TB effusions has not been investigated in sub-Saharan Africa.

~Dr Zita Kerbelker~

~DR~ ZITA KERBELKER

Treatable, infectious diseases remain a challenge in vulnerable communities across the developing nations. The intersecting epidemics of Tuberculosis (TB) and HIV confront us as a major global health challenge. In sub-Saharan Africa, these two diseases account for dramatic mortality and morbidity.

Dr Zita Kerbelker, a Medical Registrar at the University of Cape Town's Department of Medicine, is one of the academic researchers directly addressing these health issues. This situation, she says, is unacceptable, and current interventions are suboptimal in terms of reversing and resolving the current health challenges that face certain population groups in Africa. "In our setting where HIV infection is so prevalent, extrapulmonary forms of TB, like TB pericarditis, have become more prevalent; and TB pericarditis is currently one of the leading causes for acute heart failure in Africa," says Dr Kerbelker.

In our setting where HIV infection is so prevalent, extrapulmonary forms of TB, like TB pericarditis, have become more prevalent; and TB pericarditis is currently one of the leading causes for acute heart failure in Africa.

Difficulties with accurate, up-front diagnosis of TB pericarditis remains one of the limitations to alleviating the devastating impact of this condition Dr Kerbelker says: "The challenge is there are persisting difficulties in accurately and rapidly diagnosing TB pericarditis." She further cautions that incorrect diagnoses can lead to inaccurate and inadequate management of TB or non-TB pericardial diseases.

To start on a path to solve this, she is undertaking a study that lends itself to guidance from the successful predecessor research project: *The Investigation and Management of Pericarditis (IMPI) trial* – the largest and most successful investigator-initiated study of *TB pericarditis in Africa*. The study was published in the New England Journal of Medicine in 2014.

The expected impact of the IMPI trial's outcomes is considered to lead to improved healthcare in this area, decreasing deaths, and disabilities.

Thus far, Dr Kerbelker has participated in key sub-studies from the IMPI trial that have had major implications in the diagnosis of TB pericarditis. Her latest endeavour, which forms the basis of her Masters in Medicine at the University of Cape Town, is a critical review of all patients thought to have TB pericarditis, but actually have a more sinister, non-TB cause for their pericardial disease – such as cancer or other serious bacterial infections.

"These patients present with the features of TB pericarditis, but inaccuracy in diagnosis cause delays in a correct, definitive diagnosis. As a sub-study of the IMPI," says Dr Kerbelker, "we plan to review the prevalence, aetiology, predictors and outcomes of non-TB pericarditis patients in high-TB prevalence settings."

Dr Kerbelker does not spare words when pitching this diagnostic system-driven healthcare challenge. "The majority of large pericardial effusions in sub-Saharan Africa are caused by TB," she says. "Current diagnostic strategies have the pitfall of missing non-TB pericardial disease, which has been shown to be an independent predictor of death at six months, with mortality rates higher than that of TB pericarditis."

Her method of approach to this study includes the development of TB pericarditis diagnostic and clinical scoring systems. These are aimed to aid with the identification of both TB and non-TB pericardial effusions.

Consecutive consenting patients with suspected TB pericarditis would be screened for inclusion in the study, and then undergo pericardiocentesis. Pericardial fluid will be collected for diagnostic testing. Participating patients will be split into three comparative groups including non-TB pericarditis; definite-TB pericarditis; or probable-TB pericarditis. The information will be sourced from participating patient's records and captured for interpretation and further study, with a view to assist with greater insight.

Dr Kerbelker plans to follow these patients for a year, focusing on the outcomes of death, tamponade and pericardial constriction. Results will be presented as an analysis of the cross-section concurrent cohort of non-TB pericarditis, definite TB pericarditis, and probable TB pericarditis patients, with review of the specific aetiologies of non-TB pericarditis patients.

"This study will provide unique insights into non-TB pericardial effusions in sub-Saharan Africa," says Dr Kerbelker. "This is a unique project. The subject of non-TB effusions has not been investigated in sub-Saharan Africa," says Dr Kerbelker. "And there are no contemporary data regarding the prevalence, aetiology, and outcomes of non-tuberculous pericardial effusions in the current HIV and Aids era". This data, she adds, will provide new insights into the diagnosis and management of non-TB pericardial disease.

~DR~ RENDANI MAFUYEKA

I would love to be part of the breakthrough in finding a cure for HIV one day. I believe that I can be part of this through my research.

South Africa boasts the largest and by far the most comprehensive antiretroviral programme in the world. This campaign has seen millions of people gain access to drugs that have changed their lives. These medicines, however, are not customised to deal with all strains of HIV. Although HIV-1 dominates the HIV pandemic in South Africa, HIV-2 is also an important cause of Aids globally, with the potential to impact South Africa as well.

Dr Rendani Mafuyeka, a 37-year old Registrar at the University of Pretoria intends to build a case backed by research. She says that the HIV-2 strain has previously confined to West Africa, with the highest prevalence of 8-10 percent. "But due to migration, this strain of HIV has been reported in many parts of the world, including South Africa," she adds.

HIV type-2 is a retrovirus which, morphologically, (epidemiological make-up) is similar to HIV-1.

South Africa reported its first case of HIV-2 in 1988. Since then, few cases have been documented. In 1993, the then Ga-Rankuwa Hospital reported one case of a patient from Maputo in Mozambique. "South Africa has limited research on HIV-2 and its impact on the HIV pandemic," she says.

In fact, the Tshwane region in Gauteng is one of the regions with a large number of immigrants, particularly from West Africa. "HIV-2 may be circulating in the region and contributing to treatment failure as the treatment of HIV-2 differs from that of HIV-1," she explains. "This type of HIV is resistant to some of the antiretroviral medicine used as the first line treatment in South Africa."

The challenge is that the methods of diagnosis currently used for HIV screening do not differentiate between HIV-1 and 2. This means every patient diagnosed with HIV will be treated as an HIV-1 patient. Because of limited knowledge, there is a need for research that can influence the development of guidelines for HIV-2 specific cases. "Through my research," says Dr Mafuyeka, "there is an opportunity to improve the future management of all patients who may be infected with HIV-2."

HIV has a significant global impact. For this reason, its management is critical to curb new infections and drug resistance. "Knowledge of circulating HIV strains or types and the rate at which they are detected is very important, especially for strategic planning for HIV pandemic control," says Dr Mafukeya, a mother of two.

"I am motivated to do this study because HIV-2 has a potential to cause difficulties in HIV prevention and management. This research has very good potential to expand in the future," she says. "We need more informative data on HIV-2 in South Africa."

Passionate about her focus on creating better insights into HIV-2, Dr Mafuyeka always opens herself to new learning. She attended the HIV Clinicians Society Conference 2014 and also presented preliminary results on *The Prevalence of HIV-2 in Tshwane*.

"This event was really an eye opener to a lot of opportunities in HIV research in South Africa," she says. "It helped me realise how I can improve my knowledge through research."

Still looking ahead to building a long career in Academic Medicine, her passion for research is hard to come by according to some of her mentors.

"During her training Dr Mafuyeka has shown a keen interest in research and training of other students," says Dr Simnikiwe Mayaphi, a Clinical Virologist at the University of Pretoria's Department of Medical Virology.

Her colleagues are confident in her research capabilities and her path to make a social difference. "She is a dedicated researcher with an interest in HIV medicine relevant to the South African infection and disease profiles," says Professor Lynne Webber, a Clinical Virologist and Head of the Department of Medical Virology at the University of Pretoria. "Importantly, she wishes to improve overall community health for each and every citizen of this country."

Her research focus and the expected findings are potentially a catalyst into the future of HIV management in South Africa. For Dr Mafuyeka personally, it is a career-shifting move. "This is a big step to forward my career in Virology," she says. "This research will yield good and reliable results with the help I have from qualified pathologists and scientists in the Department of Medical Virology."

This project holds potential to improve the quality and delivery of healthcare through capacity-building of staff and resources at Walter Sisulu University who serve communities in the Eastern Cape.

~Prof Parimalaranie Yogeswaran~

~PROF~

PARIMALARANIE YOGESWARAN

for Walter Sisulu University

Department of Family Medicine

Communicable diseases used to make up the bulk of research and public service announcements when their impact gripped the world. Today, the lion's share of research funding and thought leadership goes to non-communicable diseases as they have overtaken infectious diseases to become the foremost cause of death globally. There is, however,an increasingly complex burden of disease caused by HIV complications.

A prominent example is that HIV-positive patients with severe anaemia have a high mortality rate. Studies have pointed to a wide range of causes of severe anaemia in patients with HIV. Usually, these onsets include dyserythropoiesis, or simply, anaemia of chronic diseases and infections. Of these, Tuberculosis (TB), including extra pulmonary TB, is known to be the common treatable cause of severe anaemia in sub-Saharan Africa. Severe anaemia is associated with a high mortality rate in HIV patients, with up to 42 percent of them admitted to a general medical ward.

The challenge is that TB can be quite difficult to diagnose in this context. One reason is that TB manifests as an extrapulmonary infection in HIV patients. This complication of undiagnosed TB sees many HIV patients repeatedly treated with blood transfusion but not without huge economic costs as well as detrimental clinical outcomes. This became a dire situation for one Eastern Cape-based expert to peek deeper into.

Professor Parimalaranie Yogeswaran, Principal Family Physician at Mthatha General Hospital and Head of Department of Family Medicine at Walter Sisulu University (WSU) saw a research opportunity with potential outcomes that can help curb the dearth of knowledge in this field. Preliminary research so far has revealed findings showing that there is good reason to investigate further with potentially good results, including capacity building, improved quality of clinical care, and research.

To understand where Professor Yogeswaran is going with this, she reflects on a recent key study conducted by a medical registrar at Mthatha General Hospital. She explains that in a case series of 50 patients, results suggested that up to 65 percent of patients with HIV might be carrying undiagnosed extrapulmonary TB. This study, by Dr Mntonintshi revealed this and other interesting preliminary findings. A complex investigation is now needed to gain clearer knowledge of this. The investigation in the initial study looks at ultrasound examinations of the abdomen, heart and lower chest, Bactec Mycobacterium TB blood culture, and first-morning-void urine for TB culture.

Professor Yogeswaran plans to expand these findings with a more in-depth study. She aims to find evidence of the causes of severe anaemia in HIV positive patients consulted at rural teaching units of the Department of Family Medicine at WSU. Moreover, it will develop tools for use by other clinicians while enabling training in optimal investigations for diagnosing extrapulmonary TB; train rural doctors and expose final year medical students and nurse clinicians to the use of ultrasound to detect extrapulmonary TB at teaching sites; and to build capacity among Primary Health Care practitioners to address severe anaemia among HIV patients.

“This project could potentially improve the quality and delivery of healthcare by building the capacity of staff and could result in the purchase of additional medical equipment,” says Professor Yogeswaran. “It has an integrated research component, which will provide answers to some critical questions in the management of HIV patients with anaemia.”

WSU’s Faculty of Health Sciences is fully on board, supporting the study. “This project will greatly benefit us in building the capacity of rural doctors, nurses, and final year medical students,” says Dr Wezile Chita, Dean of the Faculty of Health Sciences at the WSU. “It will also improve the quality of service delivered to the people of the Eastern Cape.”

The project will be undertaken in the Eastern Cape’s King Sabata Dalindyebo community, a rural sub-district in the OR Tambo District. It is one of the most deprived districts in South Africa, ranked fiftieth out of 52 districts in the deprivation index in the District Health Barometer report of 2010-11.

The Academic Medicine project will be implemented in four Community Health Centres including Mbekweni, Ngangalizwe, Baziya, and Gateway, and at Mthatha General Hospital to the benefit of the people of the vulnerable community.

The impact of the study’s outcomes can be far reaching if Professor Yogeswaran has anything to do with it. Her plan is to also use the research findings to effect a policy shift that can save many lives. “Results of the study will be published in a peer reviewed journal and presented to the Provincial and National Health Departments as evidence for a review of the existing National Guidelines on HIV and TB,” says Professor Yogeswaran.

The project has an integrated research component, which will provide answers to some critical questions in the management of HIV patients with anaemia.

The research holds immense benefits for the immediate community of the Eastern Cape as well as nationally. On an organisational level, the study will make way for skills training for rural doctors and junior interns at Family Medicine Rural Training Teaching sites on ultrasound machines, and provide exposure to selected training for Primary Health Care Nurse Clinicians through task shifting. On a societal and policy level, it will improve the participating patients’ lives by diagnosis and management of undiagnosed TB, while the research will also pave the way to positively impact on the management of severe anaemia in HIV patients in South Africa.

WALTER SISULU UNIVERSITY

Department of Family Medicine,
Clinical Research Development Centre

For all its shortfalls on healthcare – which pioneering thinkers and government are working hard to improve – the Eastern Cape is known for its stunning beauty with the captivating wilderness, cultural, and historic significance, making it a draw card for tourists. This sparsely populated but idyllic province gave the world an icon and its famous son, former President Nelson Mandela. Today, it is steadily establishing itself as an Academic Medicine hub with its tertiary complex, the Walter Sisulu University (WSU) and its Faculty of Health Sciences while focused on rural health.

> The Centre will ensure a sustained timeous production of quality academic clinicians for our country.

Strategically located within the Eastern Cape Province, the WSU straddles a vast spectrum of the urban and rural divide of this region. "This context has then led the university to define its niche area as that of rural development and urban renewal," says Professor Parimalaranie Yogeswaran, Principal Family Physician at Mthatha Regional Hospital and Head of Department of Family Medicine and Rural Health at Walter Sisulu University (WSU).

The WSU has since its formation from a merger of three institutions, developed research centres of excellence including those under the banner, Academic Health Service Centres. This was with the aim to support academic clinicians, training of medical registrars, and the professional development of health workers across the Eastern Cape. It was, however, not enough to catapult the WSU clinical research capability to world-class standards where its leaders want it.

With the bar set higher, Professor Yogeswaran and her team in the Faculty of Health Sciences are working hard to establish a fully composited centre that will focus specifically on the promotion and support of higher research output and quality.

The new centre, the Clinical Research Development Centre (CRDC), will be a holistic platform where researchers can reach their potential. Supported by the Discovery Foundation, it aims to increase research infrastructure and the number of researchers; develop a capable research technical staff pool; recruit research and academic associates; enhance research outputs; and enhancing staff and student participation in conferences, seminars and workshops. "The current support falls short of providing the required training of clinicians in clinical research," says Professor Yogeswaran. "The CRDC will ensure a sustained timeous production of quality academic clinicians for our country."

It will be used by medical specialist-in-training and clinicians conducting clinical research. From a teaching perspective, the centre will give support to up-and-coming researchers on research methods, study design and statistical analysis techniques, management and analysis of data, training of under-graduate and post-graduate medical students on research methods, supervision of research training and computation skills.

As a result of its development and support, work done by new doctors will be of world-class standards. "This support will ensure that the MMed dissertations are of high quality, completed in record time, and published in addition to being submitted to the University for degree purposes," explains Professor Yogeswaran, who is also doing incredible research at the University. The significance of the centre is in its outcomes and it cannot be overemphasised. It is literally to get more doctors to find clinical and health systems solutions at a higher rate and best quality.

The CRDC will add to the Albertina Sisulu Centre for Global Health and Research with three sites, in Mthatha on the main campus; East London; and Port Elizabeth. This will ensure access for the province's clinical researchers. It will have state of the art tools to manage research work and facilitate the universities growing research network.

"The Faculty is now active in Clinical Research and collaborates with the Medical Research Council, World Health Organization, and the University of Cape Town on work including TB; HIV; vaccine; and effective care," adds Professor Yogeswaran.

In fact, the university is a global leader in TB pericarditis research. In 2014, it published research in the international publication, *New England Journal of Medicine*.

Increasingly, the WSU is drawing interest of leading research institutions in South Africa who are engaged in quality collaborative research in priority areas of the health system. This has seen the WSU establish a sound post-graduate medical registrar training programme. "There is a need to provide ongoing supply of properly trained academic clinicians to support emerging clinicians and create capacity to absorb clinical research collaborations," says Professor Yogeswaran.

The Centre will do its work with five staff. Led by Professor Yogeswaran, the team consists of three clinical research professors on each site, one health systems research professor, and one biostatistician.

Rural health, and therefore the local communities of the Eastern Cape, is always taken into context when developing the university's goals. The approach of the WSU's Faculty of Health Sciences is regarded as the pioneer in Problem Based Education and Community Based Education in South Africa. "It is committed to excellence in this approach and social responsiveness through the integration of community service into its learning programmes that involve innovative teaching and research with special emphasis on primary healthcare and sustainable rural development in partnership with communities and service providers," explains Professor Yogeswaran.

Because of its context, it has defined its niche as rural health. It is the first university in South Africa to train the entire class of MBChB in a district hospital for 20 weeks. "Service learning is a strategy used to deliver quality health to the rural people of the Eastern Cape," says Professor Yogeswaran. "This innovative training service delivery platform provides an enabling environment to conduct clinical research not only in the hospital but also in the community," she adds.

The faculty has graduated an increasing number of post-graduate students every year, including Honours in Medical Services, Masters in Medical Services, Master of Public Health, Master of Medicine, and Doctor of Philosophy. A good number of these doctors serving in the rural areas of the Eastern Cape, further alleviating the healthcare challenge in that region,

Professor Yogeswaran, together with other healthcare professionals in the region are highly motivated to solve the health challenges of the Eastern Cape and put it on the map, adding to its already intriguing profile. Soon, the province will raise its rank on the health deprivation index to be much better and complete its picturesque image of a beautiful region.

~DR~
OLOFUNSO SOGBANMU

The rising challenges and healthrisks in South Africa reflect the global reality of the impact of diseases, forcing governments to find new ways of dealing with the problem as increasing budgets fail to be the solution. To play their role, Academic Medicine researchers across the world and in sub-Saharan Africa are thinking smarter and working harder to find pioneering and affordable solutions to treat both communicable and non-communicable diseases.

Academic researchers across the world and in sub-Saharan Africa are thinking smarter and working harder to find pioneering and affordable solutions to treat both communicable and noncommunicable diseases.

Dr Olofunso Sogbanmu, Family Physician at Cecilla Makiwane Hospital, and a doctoral student at the Walter Sisulu University, is one of the dedicated Academic Medicine pioneers pursuing these healthcare solutions to serve mainly people in poverty-stricken rural areas. Concerned about the impact of co-morbidities in people with HIV, he is undertaking research that will help patients by revealing the relationship and impact on two highly prevalent diseases: Diabetes and Hepatitis C.

Titled, *Genetic characterisation of HIV-1 isolates and the nuances of co-morbidity with Diabetes and Hepatitis C virus in the Eastern Cape, South Africa*, the research is the subject of his Doctor of Philosophy of Microbiology at the University of Fort Hare.

The research outcomes will contribute a lot to the discussion on the diversity of HIV type 1 strain, evolution of HIV drug resistance, interaction between HIV, and both diabetes mellitus (a non-communicable disease) and hepatitis C (a communicable disease). "It will also offer insight into issues around acceptability of provider-initiated counselling and testing of HIV," says Dr Sogbanmu. "All this is expected to improve the holistic management of people living with HIV and Aids."

These envisioned benefits could be significant. The study holds the potential to generate information that could help in gaining a deeper understanding for vaccine development, give insight into issues around primary HIV drug resistance, and evolution of acquired drug resistance.

In collaboration with two other doctors, Dr Sogbanmu has already conducted a study that introduced him to the world of research. He investigated the factors that influence the uptake of provider-initiated testing and counselling of HIV at Baziya Health Centre, a primary healthcare centre in the Eastern Cape. He interviewed 96 women attending antenatal consultations between November 2010 and January 2011.

The results were useful in helping healthcare practitioners understand people's behaviour towards HIV. The study revealed that the uptake of routine HIV testing among pregnant women in Baziya was influenced by the level of educational attainment, group counselling, and the healthcare worker's involvement. Not surprisingly, stigma was found to prevent uptake of routine HIV testing. "The intervention strategies to maximise routine HIV testing, acceptance should focus on education level, group counselling, psychological status, and social support," recommends Dr Sogbanmu. "Measures should be implemented to protect against HIV-associated stigma."

One scientist who has worked with Dr Sogbanmu is not surprised at the invaluable research work this doctor does, but impressed by his deep desire for Academic Medicine. "Dr Sogbanmu has shown exceptional academic and clinical aptitude since joining the Family Medicine team," says Dr Luntu Galo, Manager of Medical Services at Cecelia Makiwane Hospital.

"His hunger for knowledge has earned him two Masters Degrees in Family Medicine and, recently, in Clinical Management of HIV and Aids."

About Dr Sogbanmu's current study, his mentor, Professor Daniel Goon says; "I must confess, I am overwhelmed at the pace at which he is moving in the programme. With his dedication, I expect him to have little difficulty completing the PhD programme in record time."

When not peering into interesting research data or doing clinical work, Dr Sogbanmu is consumed by his passion for teaching and training. He is developing a new crop of doctors to help fight the country's skills drought in healthcare. "I am tutoring medical students and mentoring junior doctors," he says. "I also conduct in-service and outreach training services for healthcare workers, especially in the clinical HIV management area."

He feels that more can still be done to encourage research to deal with the rising health care challenges we face today. "Identification of young researchers and research mentors is needed to support budding young researchers to contribute their quota to the field," he says.

An advocate of Academic Medicine, he believes in the prospects of local researchers. "The South African research community compares well to most in the developed world in terms of the quality of research output," he says. "However, there is a need to sustain this through efforts such as those by the Discovery Foundation." With improved research resources and focus, South Africa could rise up to the increasing challenges in healthcare to protect its people from disease, he thinks. "There's a need to focus more on research of non-communicable diseases with respect to areas of prevention, treatment, social impact, and their economics."

A passionate family man who makes a point to spend time with his young family, he was "surprised" to be a Discovery Foundation Award recipient and envisions new avenues opening up following this. "I was quite pleased and it is definitely a boost to developing my path in the field of clinical and laboratory research," he says. "The boomerang effect of this will be on my ability to contribute to the knowledge base within South Africa and the world, while rendering evidence-based quality care to my patients and the community that I'm presently serving.

~DR~ NTODENI NDWAMTO

Our team has an overarching role in clinical governance. The initial focus is to ensure a vast reduction in maternal and child mortality by giving all frontline health workers the clinical training and skills to deal with emergencies.

The national government has set targets to reduce maternal and infant mortality across South Africa. Research has shown that around four out of ten maternal deaths could have been prevented had women received adequate, high-quality care. Health facilities across South Africa are slowly improving the treatment of pregnant women and babies. However, addressing the high number of maternal deaths in districts and provinces will take a collaborative effort. That is what Dr Ntodeni Ndwamato and her team have set out to do in Limpopo.

> By giving everyone the skills to handle emergencies and provide quality care, we are increasing efforts to lower mother and child mortality rates in our districts and province.

This northern-most province of South Africa, with a population of over 5.4 million, is named after the Limpopo River that flows across it. It's here where the Provincial Clinical Specialist Team has been tasked with supporting the various districts with clinical guidance, mentoring, support, and training in specified clinical care. District teams supported by various training programmes identified by the task team include physicians, nurses, midwives, and paediatric nurses with obstetricians in two teams and a paediatrician in another. The task team is also involved in training under-graduate and post-graduate students in the intern programme.

Mining contributes to more than a fifth of the economy of the province and its rich mineral deposits include platinum, iron ore, and copper. These riches are in stark contrast to the time and funding available for development of critical health and emergency skills to address some of the issues identified in caring for the health of mothers and babies in the province. In 2013, South Africa cut the maternal deaths to 132.9 for each 100 000 births; however, the country is still far from meeting its global target to cut maternal mortality to only 38 for each 100 000 births. A key gap that has been identified in Limpopo as a major contributor to maternal, perinatal, and child deaths is the emergency care skills of frontline health workers.

That's where the newly formed Provincial Clinical Specialist Team, set up in 2014, comes in. This team is part of the National Department of Health's model of the Re-engineering of primary healthcare in South Africa, recommended by the Ministerial task team to the Minister of Health. This pioneering team will "have an overarching role, but the initial focus will be to ensure that overall maternal care is improved and that there is a vast reduction in the high mother and child mortality rates in the province," says Dr Ndwamato, who is in charge of Family Medicine, and also works with provincial specialists, Dr Baloyi (obstetrics) and Dr Robertson (paediatrics).

The task team will start by ensuring that every health worker in maternal, perinatal, and child health is fully skilled to handle emergencies. Training will be ongoing to ensure that these skills are maintained. The rural districts will also benefit from a visiting specialist to support clinicians in their place of work. "By giving everyone the skills to handle emergencies and provide quality care, we are increasing efforts to lower mother and child mortality rates in our province and districts," says Dr Ndwamato.

Under the guidance of Dr Ndwamato, Dr Baloyi, and Dr Robertson, the task team has trained instructors, and selected and developed training specific to the region. To address the constraints of time away from work, the training has been adapted to one-daysessions onsite or to include pre-reading and assessment. To ensure training also remains cost-effective, it is provided at local hospitals in the district. Working with the Discovery Foundation, the region has seen many success stories. With the 2015 Discovery Foundation partnership, this team will be running various paediatric resuscitation courses, which include emergency obstetrics, triage treatment, helping babies breathe, and paediatric emergency care.

Hundreds of community service doctors, qualified doctors and healthcare workers will benefit from this work and training planned by the team over the next two years. Their dedication to lowering the maternal mortality rates in the province is evident and every healthcare worker, nurse, and intern has committed to completing the required courses to improve their emergency-care skills to benefit moms and their babies.

MANGUZI HOSPITAL

Assessing and treating language development problems in children can be a challenge in itself, but for a speech therapist to do so in a language they have little grasp of can be daunting. This, including using English-based assessment tools for children who are not first language English speakers, can contribute to inappropriate treatment.

A passionate 25-year old Speech Language Pathologist on the border of Mozambique –in KwaZulu-Natal's remote Manguzi village – is spending a significant amount of time with isiZulu-speaking children to hear from them how best to help them pronounce words better at an early age.

It is a priority for healthcare workers in South Africa to develop assessments and resources that are both linguistically and culturally appropriate for their communities.

This, she argues in her research proposal, will culminate in language-specific assessment tools that will assist therapists and rural health researchers while benefiting the assessment of isiZulu language development in rural areas."Many first language English-speaking Speech Language Pathologists complete their community service in areas where they are not competent in the first language of that community," says Zenia Jeggo, a Speech Language Pathologist at Manguzi Hospital.

One important area of focus for a Speech Language Pathologist is to assess and treat children who have phonological difficulties. This, for example, could include an inability to say certain sounds correctly. The English language has standardised assessments to determine the age at which a child should have acquired various sounds. "As every language is different and the order and frequency of sounds vary, the age of acquisition of each sound differs," she says. This inspired Zenia to look into language development for isiZulu-speaking children.

While working in rural KwaZulu-Natal where the predominant language is isiZulu, Zenia noticed a lack of isiZulu language resources. The language is the widest spoken but does not have matching assessment tools. What concerns her is that without appropriate assessments and norms for age of acquisition, therapists will be unable to correctly determine a delay in phoneme acquisition. The challenge, she explains, "is that because there are no standardised assessments, these therapists base their assessments on English norms, rendering most of the assessments unreliable and not evidence-based". The research aims to address this mismatch and develop an assessment that will be culturally and linguistically appropriate and can be used by speech language pathologists in similar areas. "It is a priority for healthcare workers in South Africa to develop assessments and resources that are both linguistically and culturally appropriate for these communities," she says. "The need for studies to gain a better understanding of this is significant."

Her two-year long study aims to determine the order and age of acquisition of isiZulu vowels and consonants while establishing the development of syllables in isiZulu. At the same time, it will detail the age of elimination of phonological processes in this language. "I am aiming to assist with developing norms in order to improve the level of assessment of this population," says Zenia.

This will see her develop an isiZulu single word phonology assessment which will contribute towards norms for the development of phonemes in first language isiZulu-speaking children. This forms her Masters degree in Speech Language Pathology with the University of Cape Town.

The research, which will involve a review panel including linguists and first language isiZulu therapists, will enrol and observe a group of 32 normally developing first language isiZulu-speaking children attending schools and crèches in Manguzi. They will be allocated to six months interval age groups and will be assessed at school. A 'developmental screener' will be completed by the caregiver of each participant in order to ensure that there are no developmental delays.

With her supervisor and hospital hosts, Zenia is convinced that the long-term benefits of this investigation will assist in the development of reliable norms for the acquisition of sounds in isiZulu. Manguzi Hospital's Maryke Bezuidenhout says, "Zenia's research is important as it will assist in identifying speech delays in isiZulu-speaking children. This means we will be able to identify the delays early and address them appropriately, allowing us to help children communicate to the best of their ability."

Dr Michelle Pascoe, Senior Lecturer at the University of Cape Town's Department of Health and Rehabilitation Science has been impressed by Zenia's passion and enthusiasm since her honours project in 2010. "Although new to research, her approach to the project, proposal writing, ethics, were of extremely clear thinking, astute, and mature," she says.

There is a great need for research of this nature in South Africa and the implications are relevant for parents, teachers, speech and language therapists, and other professionals. "Zenia is strongly driven to make a difference to children, parents, and teachers, and to change the system in which the speech and language therapists work," concludes Dr Pascoe.

SEFAKO MAKGATHO UNIVERSITY

Bojanala Regional Training Centre

The aim of the Bojanala Regional Training Centre is to enhance skills with simulation training for healthcare professionals.

Bojanala Platinum District Municipality is the second largest of the four districts of the North-West Province. Home to 1.6 million people, the district makes up 43 percent of the province's population. Driven by the prevalence of non-communicable diseases and other health problems, the region is experiencing an increase in demand for skilled healthcare and related services. The district is, however, not optimally equipped to cope with this demand due to capacity constraints. The current headcount of healthcare workers, and the skills of some, poorly match the growing medical needs of people in both rural and urban areas.

The district's communities access comprehensive health services through 127 health facilities. These include a regional hospital, district hospitals as well as primary healthcare facilities. Capacity development of Healthcare Professionals is provided at the regional training centre, supported by Sefako Makgatho University in the Limpopo Province.

Known as the Bojanala Regional Training Centre, the skills development facility was established in 2011 in Swartruggens as a partnership between the Sefako Makgatho University, and the Department of Health in the North-West Province. It provides training and development in health-related programmes to clinicians, allied health practitioners, community health workers, and health science students, rotating through the district training platform.

Because the centre has become key in building capacity through training, there is a need to add to its infrastructure and teaching resources. Currently, the centre runs all of its work with four offices, a boardroom, one conference hall, two seminar rooms, one computer laboratory, and 10 houses for accommodation of trainees. "There is a need to increase the resources in the centre and install a well-equipped skills laboratory, library, and academic programmes specific to the various categories to improve quality," says Dr John Tumbo, a District Family Physician in the Department of Family Medicine and Primary Health Care at Sefako Makgato University and a supervisor of the project.

Eight healthcare workers from the district and just under 50 percent of the training programmes at the centre are funded by a conditional grant from the North-West Province's Department of Health. "There is, however, a long list of unfunded training programmes that have been identified by the district as critical to the improvement of quality of health service," says Dr Tumbo.

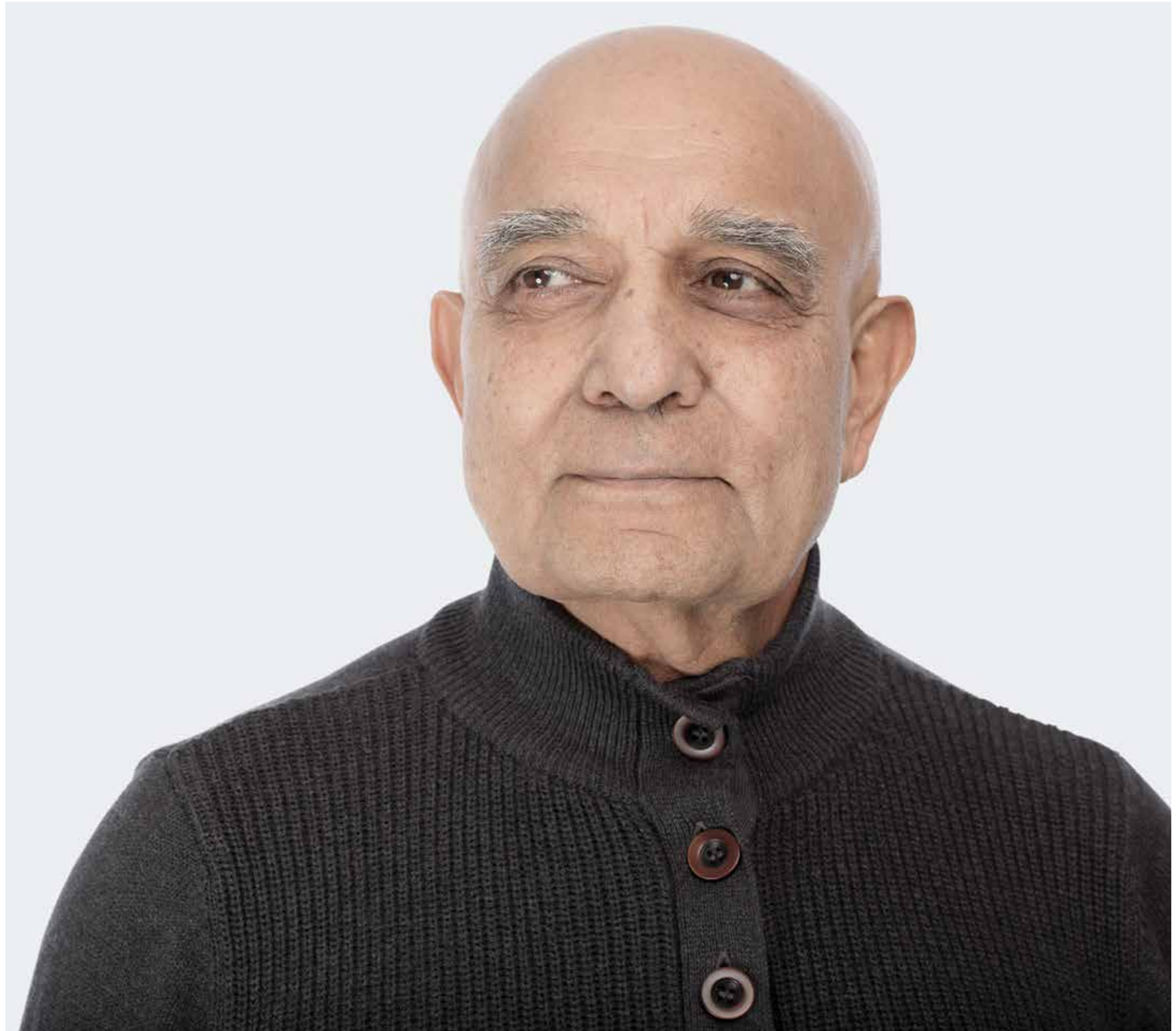
In order to expand on the project and its capacity-building programme, the centre needed funding. The Discovery Foundation entered the existing partnership to fund the centre and the University for additional infrastructure and curriculum development. The new laboratory will be fully equipped with skills training tools including newborn, baby and adult maniquins; pelvis dolls; automated external defibrillator (AED) demonstrations and endotracheal (ET) tubes. New skills courses to be added to the programme include: Basic Emergency Skills Training for doctors and nurses; advanced emergency skills, and Ultrasound skills for district and Primary Health Care clinicians; clinical skills simulation for community health workers, ethics of clinical practice; and basic computer skills for clinical personnel.

The programme will be phased in over a three-year period from 2015. The large scale project will benefit 345 doctors, 20 clinical associates, 1 600 professional nurses, 800 community health workers, 250 allied health professionals, 300 medical students and 12 post-graduate students from the University each year. "The aim is to enhance skills with simulation training for healthcare professionals," says Dr Tumbo.

~PROF EMERITUS~

YOSUF VERIAVA

Even though there is a well-developed hospital and clinic referral system, the majority of the nearly 900 000 people in the Ngaka Modiri Molema District Municipality are uninsured and do not have suitable access to quality health services. This is especially the case with specialised services.



Non-communicable diseases have become the staple healthcare problem in many communities across the world. Among these diseases are cardiovascular and diabetes conditions, which are ravaging the sparse but large community of Ngaka Modiri Molema District Municipality in the North-West Province. These conditions, according to a Johannesburg-based expert, account for the majority of non-infective conditions in that area.

A University of the Witwatersrand retired expert Nephrologist, Professor Yosuf Veriava, says that the area has a critical demand for specialised service to treat these chronic conditions at primary care level. This would ensure that adequate treatment is in place to prevent complications. "It will help to manage the complications set off by these conditions at secondary level and beyond," he says. "The district healthcare service is faced with the full complexity of diseases. But often, this is exacerbated by a lack of access and delayed contact with healthcare facilities."

The district reflects the national disease profile, with major reasons for visits to facilities other than HIV and Aids, being cardiovascular and diabetes conditions.

To alleviate this serious healthcare problem, which is both clinical and institutional, Professor Veriava plans to visit numerous healthcare facilities in the district to improve the overall healthcare body of work ranging from ward rounds to management systems. The area, which he has been re-invited to as a Distinguished Visitor, is vast, with a complexity of healthcare challenges.

The primarily rural area spans over 110 000 square kilometres and has just under a 100 villages. Public facilities are spread far apart, and the road infrastructure is still underdeveloped. Healthcare challenges, however, are not just spatial in this northern-most part of the province. "Even though there is a well-developed hospital and clinic referral system, the majority of the nearly 900 000 people in the district are uninsured and do not have suitable access to quality health services," adds Professor Veriava. "This is especially the case with specialised services". It is common knowledge in the healthcare sector that this deficiency is largely the result of the decline in clinical human resource capacity, regardless of a good referral system.

For example, the district has one specialist physician who is overburdened and cannot take on outreach programme or support other facilities in the district. Mafikeng Provincial Hospital is the only main centre for specialised care. "With the challenge to fill vacancies, there is a known shortage of posts to run all these busy facilities," says Professor Veriava. "This means the real shortage is much higher."

This resources deficit is significant considering that the district gives comprehensive primary healthcare services through an extensive network of 91 health centres and clinics, with Mafikeng Provincial Hospital and Bophelong Psychiatric Hospital being the secondary referral facilities.

Professor Veriava will make two-day monthly visits to the district for a period of a year. Intent on making an impact with each visit, he will bring consultants and internal medicine registrars to support his training work in the district.

"Because of his personal commitment to the district, the hope is that the foundation that he has set up can further improve training in the district, strengthen the district referral system, and ultimately address the human resource challenge," says his host, Professor Ian Couper, Director of Rural Health at Ngaka Modiri Molema District Municipality.

His extensive itinerary will see him and his team do ward rounds on complex cases at district hospitals and bed-side teaching for doctors and other learners; lead clinical audits and case presentations; and facilitate a Continuing Professional Development-accredited seminar for about 40 doctors from across the district. On institutional development level, he will give advice on protocol development, implementation, and monitoring. This will see him support projects to improve case management and record keeping in the district.

During all these activities, there will be a focus on skills transfer and the training of local health professionals. The district hosts final-year medical students and clinical associates students, employs interns, community service health professionals, and recently qualified clinical associates. All these groups are in need of ongoing support and teaching. "His visits will provide an important supplement to the district programmes," says Professor Couper.

The district's healthcare leaders are excited and confident in his continuing work across their communities.

"Professor Veriava has, over the past years, demonstrated that he has the experience and specialised skills to strengthen local capacity by conducting regular visits to the district," says Professor Couper. "As a distinguished visitor he has been involved in organising and supporting learning in the district through group sessions in the clinical setting."

To date, he has mentored local senior doctors, including the specialist physician at Mafikeng Principal Hospital. He has been a mentor to doctors involved in post-graduate studies – especially family medicine registrars – and host of various health groups in the district. "Continuation of these activities will develop specialist and senior doctors that are well supported, trained, and motivated to deliver quality internal medicine services to the rural community," adds Professor Couper.

Another important aspect of this distinguished visitor programme has been Professor Veriava's availability to advise on complicated cases that are pre-selected for presentation during his visits. This involves patients that would not have been adequately assessed at their local facility. "These contact sessions provide opportunities for local transfer of clinical assessment and interpretative skills to doctors," says Professor Couper.

His record of intervention is impeccable in the impact he has had on the district's healthcare system. "He has removed barriers for referrals to tertiary and quaternary centres where he is held in high esteem," says Professor Couper. He is referring to the linkages which today ensure that patients from the district can access services such as renal transplants, cardiac surgery and other highly-valuable services from major suppliers such as dialysis machines," adds Professor Couper.

To measure the project's success, Professor Veriava hopes to see monthly scheduled supervised consultant ward rounds at all four district hospitals and the renal unit; establishment of referral pathways for cardiac, diabetic, and renal patients; support of at least 10 evening seminars on relevant medical and ethical topics; establishment of regular district morbidity and mortality forum meetings; support for the training of final year medical students and clinical associates in the district; and support for local research.

~DR~ RICHARD SPENCE

Approximately two billion people in low- to middle-income countries lack access to emergency and essential surgical care. There is growing evidence of the role of surgery in achieving the Millennium Development Goals.

Surgery has long been treated as the neglected stepchild of global health practices in the scope of neglected diseases. Recent incremental evidence has, however, come to reveal that a significant numbers of diseases require surgical intervention. This is critical as last year alone, there were 234 million operations performed globally.

"Approximately two billion people in low- to middle-income countries lack access to emergency and essential surgical care," says Dr Richard Spence, Senior Registrar at the University of Cape Town and Groote Schuur Hospital's Department of Surgery. When analysed on a country level, the disparity between higher health expenditure countries and poor countries remains striking: four billion people undergo 96.5 percent of all surgical procedures, whereas the poorest 2 billion people undergo only 3.5 percent of all surgical procedures.

Another low estimate holds that 11 to 15 percent of the world's disability is due to surgically treatable conditions. In 2010, an estimated 16.9 million lives (32.9 percent of all deaths worldwide) were lost from conditions needing surgical care. This well surpassed the number of deaths from HIV and Aids (1.46 million), tuberculosis (1.20 million), and malaria (1.17 million) combined. Injuries alone cause 5.7 million deaths each year. "There is growing evidence of the role of surgery in achieving progress towards universal health coverage," he adds.

During the past 10 years, there have been increasing efforts in defining the role of surgical care as part of global health priorities. This is a key development in an era when countries are struggling to create comprehensive healthcare packages to fight morbidity and rising mortality.

For South Africa, this deficit in the healthcare system demands that more research be conducted to determine the role of surgery in addressing the national disease burden. Understanding this field better will also align models and practices in order to increase quality of care for patients, among other benefits.

With the widespread recognition that surgical outcomes vary by provider, surgeons and hospitals across the world are increasingly asked to provide evidence of the quality of care they deliver. "With our health system addressing a quadruple burden of disease, I feel we need to be more calculated about the surgical care that we provide locally," says the 32-year old doctor.

This is especially relevant in South Africa, where the rates of injury and non-communicable diseases that need surgical intervention are increasing. "As an academic surgeon in training, I want to contribute to better define this role in the South African context," says Dr Spence.

The fact that surgical units in the developed world are using statistical models to predict post-procedural risk of complications, death, Intensive Care Unit admission, and length of stay in their own hands, means that local surgeons can do the same. Dr Spence is concerned that currently, there is no hospital in South Africa that provides risk-adjusted benchmarked outcomes for the surgical care they provide. "The expertise to do this in our country is lacking," he says. "This needs to change."

"There's an opportunity to leverage our recently-implemented registries that are now over 12 000 patients strong," he adds. "The data in this motivates my study as it will help to improve surgical outcomes and to deliver on my objective."

The surgical improvement study will be conducted at Groote Schuur Hospital in Cape Town. The institution, a chief academic hospital of the University of Cape Town, is a landmark surgical institution with a global profile. It is renowned for the world's first heart transplant operation in 1967 and the site of the world's first HIV-positive renal transplant programme. To demonstrate its performance magnitude, it houses one of the busiest trauma referral units in the world, with an estimated 12 000 patients seen in the trauma unit annually. About 10 000 operations are performed annually at the hospital's state-of-the-art theatres.

It is in this mind-boggling undertaking that Dr Spence sees an opportunity to build a better understanding of surgery. "The challenge is that the outcomes of these surgeries are not formally audited or known," he explains. His research aims to develop a system to statistically document this. This carries unprecedented potential for healthcare-related to surgery.

Asked how the research will achieve this, Dr Spence says that the project will study a wide array of surgical systems globally. It will investigate various facets of the *National Surgical Risk* study including the *Multiple Trauma Outcomes* study, the *Patient Safety in Surgery* study, *Quality Improvement Programmes* such as the *American College of Surgeons Trauma and Surgical Quality Improvement Programme*, the *UK's Trauma and Audit Research Network*, and the World Health Organizations' guidelines for safe surgery. This will enable him to design and implement a surgical quality improvement programme that is applicable for a referral academic hospital in sub-Saharan Africa.

"The fact that surgical outcomes centres are being implemented throughout the developed world, particularly in the UK, Canada, and significantly in the United States, must indicate that this is meaningful research with significant public health implications for our country," says Dr Spence, who also studied in Argentina and is fluent in Spanish.

As part of his research, which makes up his PhD, Dr Spence will spend a year abroad at the Codman Centre in Boston. The Centre is in a city admired worldwide as the global capital for surgical outcomes research and the birthplace of the emerging field of Global Surgery housing two iconic institutions, the Massachusetts General Hospital's Codman Centre for Clinical Effectiveness in Surgery (MGH CCCES) and the Bringham and Women's Centre for Public Health and Surgery.

His hosts and supervisors, Dr David Chang and Matthew Hunter, are excited and confident about his visit. "We are very impressed with Dr Spence's academic records and what he has done in promoting surgical quality in South Africa. We are happy to accept him as a research fellow in the MGH CCCES."

The two, directors of these teaching centres, say that the research can have a widespread impact. "The experience in helping developing countries produce and implement quality improvement programmes will not only benefit them in their home countries, but can have potential implications for us here in the United States, especially for similarly resource-constrained settings such as rural hospitals," they say. "We are therefore very excited for the opportunity to develop collaboration with South Africa through Dr Spence."

On what the future holds, Dr Spence says in the long term, he aims to use his research to gain the expertise to become a leader in Global Surgery in sub-Saharan Africa.

LIVINGSTONE HOSPITAL

Rheumatology programme

Rheumatic diseases make up part of a group of multiple common causes of death especially in sub-Saharan Africa's impoverished communities. Rheumatic Arthritis, for instance, causes considerable suffering and death in these communities, requiring specialist management. There is, however, a shortage of rheumatologists in many areas of South Africa, particularly in deprived communities where they are most needed.

Dr Emma Gardiner, Specialist Physician at the Livingstone Hospital in Port Elizabeth, says that there are currently no rheumatologists in the Eastern Cape's public sector hospitals. The reality is at odds with the needs of the province, it ranks high on the deprivation index, and serves "a huge population of people requiring specialist care and assistance," adds Dr Gardiner.

To bridge the gap and help the community, Dr Gardiner focused on facilitating a visiting rheumatologist programme at the "extremely busy" hospital. Passionate about quality of service and access in one of South Africa's poorest provinces, colleagues say she is deeply committed to the care of the Eastern Cape people.

Dr Gardiner's endeavours to ensure access to rheumatology services is building on a strong legacy created by Dr Thozama Dubula, a Rheumatologist who established the Rheumatology Clinic at Livingstone Hospital in 2012 to meet the growing demand for rheumatology services in Port Elizabeth and the surrounding areas. The unit conducts two clinics per week and an in-patient facility. "Sadly, Dr Dubula relocated to KwaZulu-Natal in November 2013," says Dr Gardiner.

Dr Gardiner, who completed her Fellowship with the College of Physicians in 2013, learnt a tremendous amount from Dr Dubula. He sparked her interest in the field of Rheumatology. Since Dr Dubula's departure in 2013, she continued the Rheumatology service in difficult circumstances. She did so not only for the benefit of the patients in the Eastern Cape but also to ensure adequate training of the registrars and medical officers in our department. "It was imperative to continue the work done by Dr Dubula as the impact of the improved care was tangible" says Dr Gardiner.

Instead of discontinueing the service at the expense of the community, Dr Gardiner teamed up with colleagues to sustain this.

Together with Livingstone Hospital's Intensive Care Unit Head of Department, Dr Lizette van der Merwe and nursing sister Dolly Davids, they ensured the clinic continued to function. Today, "expertise and advice on complicated patients are received via support from the University of Cape Town Rheumatology Department and Dr Dubula," says Dr Gardiner. The clinic serves a huge number of patients with many complex ailments requiring specialist care.

She has invited Rheumatologists from throughout South Africa to the Livingstone Hospital's Rheumatology Unit as Distinguished Visitors with the aim of expanding Livingstone Hospital's institutional knowledge through this teaching and assistance. Their expertise and guidance continue to provide the framework for her training and therefore facilitate the growth and development of Rheumatology in the Eastern Cape in conjunction with her research proposal.

"The benefits of this programme are innumerable," says Dr Gardiner. "This will open many doors for research and enhance the sustainability of the Rheumatology Unit at Livingstone Hospital and subsequently Port Elizabeth and the Eastern Cape in general."

To enable expansion of Rheumatology in the region, Dr Gardiner developed a personalised, sustainable academic programme that includes training and research. "This programme aims to ensure the clinic continues with its work, provides earlier diagnoses, improved care, and training," says Dr Gardiner. This will also provide a platform for its possible expansion to other parts of the province.

~PROF~

LIONEL SMITH

Livingstone Hospital
and Walter Sisulu University
Rural Doctor Anaesthetic Outreach Training Programme

It is gratifying to see rural area doctors embrace the training and implement what they have learnt at their hospitals.

Receiving necessary anaesthetic to undergo an operation can be daunting for anyone. The very nature of anaesthesia is that life-threatening complications can occur extremely fast. When a natural birth progresses in such a way that an emergency caesarean section is required, having a doctor with the right training, knowledge, and skills is essential to prevent danger and ensure the best outcome for the mother and baby.

This quality is expected and considered a given in big city hospitals. In rural areas of the Eastern Cape, people often have to travel long distances on poor-quality roads to see doctors. Expectant rural mothers are consulted by trained community service doctors or doctors from foreign countries. However, at these hospitals, needing anaesthetic when a caesarean section is required can be "stressful for the patient and doctor", says Dr SJ Venter, Specialist Anaesthetist and Rural Outreach Portfolio Leader.

Although these rural area doctors are fully trained and passionate about caring for mothers and their babies, they have very little or no training in anaesthesia. With poor-quality roads, and hospitals being far apart, there is also no time for mothers to be transported to other hospitals in the district with expertise in anaesthesia. This can mean those requiring emergency caesarean sections are left in the hands of doctors who find themselves ill equipped or without support to ensure the absolute safety of mothers and babies during the procedure.

With South African community service doctors receiving only about two months of post-graduate anaesthetic training (in their intern year) and foreign doctors possibly not at all, this adds to the alarming anaesthetic-related death rate in rural areas. Doctors who have not had adequate training are required to perform anaesthesia without supervision, which currently contributes to the fact that the mortality rate for mothers undergoing caesarean sections in rural Eastern Cape hospitals exceeds what is considered an acceptable standard of care.

But the district is taking action and already seeing their Rural Doctor Anaesthetic Outreach Training Programme, which was started in 2004 and supported by the Discovery Foundation since 2014, bear fruit. It prioritises anaesthetic training for doctors in rural areas and was initiated by Professor Lionel Smith in response to National Maternal Mortality reports.

Coordinated by Professor Smith, this outreach programme has become important in improving health service outcomes in the Eastern Cape.

Through funding from the Discovery Foundation, Livingstone Hospital can continue to offer their Rural Doctor Anaesthetic Outreach Training Programme. The programme enables rural doctors to attend weekend seminars for anaesthetic training and in-theatre training in their hospitals. This training equips rural doctors with knowledge and skills to recognise and attend to anaesthetic emergencies that may arise so they can make timeous referrals or consultation to prevent severe outcomes.

Professor Smith has over the years made a considerable contribution to the training and education of healthcare providers. He is as committed as ever to serving his community and the doctors who take care of them, so he makes time to also provide telephonic anaesthetics consultation services to doctors in rural areas. He says, "Each case is recorded as well as the advice and outcome." These records also formed the subject of a research project done through the Nelson Mandela School of Medicine by Dr Onke Nqala.

Along with providing telephonic support, the programme incorporates day lectures and theatre training, seminars in specific regions and visits to rural hospitals.

A total of 5 000km were travelled in the past year of the outreach programme. This distance is expected to increase as the programme reaches out to the most distant hospitals beyond the Western regions of the Eastern Cape. This need was identified from hospitals requesting training and from doctors who have participated to gain some experience in anaesthesia and time in theatre.

Applying the Discovery Foundation funding to specific training requirements, the Rural Doctor Anaesthetic Outreach Programme will continue to provide support to new and experienced doctors in the district.

The response from delegates on the immense impact of this programme has been positive. It has been so successful in equipping more doctors with skills to provide quality healthcare for the best outcomes that it forms part of the anaesthetic registrar rotation scheme. As many as 60 newly graduated nurses have also completed a one-month training course and are now based at referral as well as rural hospitals in the district.

For Professor Smith, education of the next generation of healthcare providers is key to ensuring a sustainable healthcare system where all patients get the high-quality care they deserve. He works hard to achieve this in his daily work, which can take him from Umtata to hospitals in the Karoo.

~DR~

THULJA TRIKAMJEE

University of Cape Town
Department of Paediatrics and Child Health

Allergic diseases are common and cause a massive burden of disease at primary level. It is the most common non-communicable disease in children.

Maternal and child health remain a key healthcare challenge, with approximately six million children worldwide not reaching their fifth birthday.

The majority of those affected are in sub-Saharan Africa, according to the United Nation's Millennium Development Goals (MDGs). Goal four of the MDGs aims to reduce child mortality. This makes child health a significant focal point.

One of the common chronic conditions among South African children is allergic rhinitis. Although it is still commonly considered to be a trivial disease (as with other allergies), it is the number one cause of death in children, making it a serious condition. It is known to have severe symptoms and complications that cause persistent suffering in children.

Allergic diseases are an increasing cause of chronic illness in South Africa that affects one in five people.

"Allergic diseases are an increasing cause of chronic illness in South Africa that affects one in five people," says Dr Thulja Trikamjee, Consultant Registrar at the University of Cape Town's (UCT) Paediatric Allergology department. "They affect the sufferers' quality of life, cause absenteeism from school and work, and life-threatening allergies cause a large clinical burden at primary care level."

Despite this significant impact, there is very little development in South Africa to build capacity to understand and treat allergies. UCT is the only allergology training unit in the country with only nine registered sub-specialists across South Africa.

The challenge with this lean capacity is that there is little understanding of allergies, which are often under-diagnosed and inadequately treated.

Understanding them is becoming critical as their spectrum is changing from minor to severe and complex illnesses.

Dr Trikamjee, 32, and a team of Academic Medicine researchers at UCT, led by Professor Michael Levin, Senior Medical Scientist and Dr Trikamjee's supervisor, are working towards improving research and creating capacity in this sub-specialist field.

"I will be spending an equal amount of time acquiring clinical and research skills," says Dr Trikamjee. Her two-year fellowship draws her into the extensive South African Food sensitisation and Food Allergy study (SAFFA), aimed at a larger and in-depth understanding of allergies.

Key areas of allergy practice include food allergy, drug allergy, insect venom allergy, anaphylaxis, angioedema, contact allergy, immunology and immunotherapy, aerobiology, chronic urticaria, asthma, allergic eye disease, rhinitis, eczema, autoinflammatory syndromes, and others.

The 'grandfathers' of this discipline are concerned about the lack of development in understanding and managing these conditions as part of mainstream medicine. They argue that while the sum total of conditions treated by allergists is perhaps smaller than that of larger disciplines, there is no doubt that allergies are the most common of chronic diseases in both childhood and adulthood. "Severe, life-threatening conditions are becoming common and we find ourselves called in more and more by our colleagues to attend to patients with drug allergies," says Professor Levin. "Even the food we eat may be deadly to our patients and there are literally only a handful of medical practitioners countrywide who have the competence for these conditions."

Dr Trikamjee's role in the project is to investigate and identify aeroallergens in house dust mites. "House dust mites are a common cause of asthma and allergic symptoms worldwide," she says. Her study, which is conducted within the SAFFA project, hopes to reveal the importance of searching for and controlling house dust mites in the long-term management of eczema and other allergenic diseases. "There is rigorous evidence of an increase in allergenic diseases such as asthma, eczema, and rhinitis," she adds.

Her case control research within the elaborate study will look at 1 200 urban Cape Town children and a rural cohort of 400 Xhosa children in the Eastern Cape. The aim is to determine the prevalence of food sensitisation and challenge-proven IgE-mediated food allergy to seven common food allergens.

Allergies now occur in all socio-economic classes. They are increasing significantly in both rural and urban settings. There is, however, a larger increase in rural environments. It is likely that these trends will continue as rural or traditional people adopt a Western or urban lifestyle.

The Durban-born doctor and keen traveller believes that her training fills a massive unmet need. This is because of a scarcity of knowledge and skills in provinces such as KwaZulu-Natal. "Having studied and lived in Durban all my life, my training will hopefully start communication between the two centres and help in the long-term goal of establishing a dedicated unit in my hometown," she says.

Specialist pulmonology service in the rural areas of KwaZulu-Natal is almost non-existent. This situation severely limits the options for patients with little resources to travel and delays treatment for patients who are already suffering.

~Dr Shinu Abraham~

~DR~ SHINU ABRAHAM

Stellenbosch University
Department of Pulmonology

Lower respiratory infections and chronic lung disease, rank in the top five causes of mortality in the world. The numbers reported by the World Health Organization in 2014 reveal that a staggering 3.1 million people across the world die from lower respiratory disease while trachea bronchus and lung cancers collectively kill 1.6 million people.

Not out of place with these statistics, South Africa is experiencing a massive increase in respiratory diseases, adding to an already burgeoning disease profile brought on by a set of non-communicable diseases. Medical experts say this respiratory disease problem is aggravated by HIV, Tuberculosis, and smoking. This has resulted in a growing demand for specialist pulmonologists trained in tackling this healthcare challenge, especially in rural areas where resource constraints are the norm.

In recent years, the capacity to train pulmonologists in South Africa has decreased due to reduced funding of training posts.

The prevailing challenge in addressing this, is that training capacity in the specialty has dropped, leaving a gap in healthcare, explains. Professor Elvis Irusen, Head of Division of Pulmonology in the Department of Medicine at Stellenbosch University's Faculty of Medicine and Health Sciences. "In recent years, the capacity to train pulmonologists in South Africa has decreased due to reduced funding of training posts," he says.

Compounding the problem is an alarming gender imbalance where fewer women are attracted to the field in South Africa.

"There is also a major shortage of female pulmonologists in this country," adds Dr Abraham, previously stationed in Pietermaritzburg and currently working at Tygerberg Hospital.

Various factors contribute to the increasing lack of training in this busy specialty. For example, in a two-year period, UKZN's pulmonology training unit has seen two senior pulmonologists leave. "This has severely affected training," says Dr Abraham. At the same time, a historical background has also influenced this specialty's deficit. This has not helped the already dire situation, leading to a knock-on effect in this area. "There have only been a few successful trainees and markedly limited training opportunities," adds Dr Abraham.

This shortage affects vulnerable communities in areas where healthcare access is already limited. One of these communities is the rural uMgungundlovu District Municipality in KwaZulu-Natal. The vast coastal area is serviced by one pulmonologist while its sister demarcation, eThekwini District Municipality, has only three such specialists battling against a rising respiratory disease burden.

"Specialist pulmonology service in rural areas of KwaZulu-Natal is almost non-existent," says Dr Abraham. "This situation severely limits the options for patients with little resources to travel and delays treatment for patients who are already suffering."

Dr Abraham wants to use her passion in rural health to help put brakes on this developing pattern. She will be visiting the unit to help with training and clinical work in this area of KwaZulu-Natal. The number and wide spectrum of patients in the KwaZulu-Natal area provide opportunities for expert training of pulmonologists.

Her hosts are keen on the visit. "An awardee that is able to offer academic and service opportunities to UKZN's Pietermaritzburg campus and the wider community would have a major impact especially on disadvantaged communities," says Professor Jimmy Volmink, Dean of the Faculty.

Dr Abraham will have wide exposure as the unit is well resourced with international links. In addition, the division provides expert respiratory service and manages the intensive care facilities for medical patients at Tygerberg Hospital. "It is arguably the best training unit in the country with regular visits by physicians from South Africa and abroad attempting to improve their clinical interventional and research skills," says Professor Irusen.

"We have periodically held interventional pulmonology courses which are the only ones of their kind to be hosted by any academic centre in the country."

The division's leaders say Dr Abraham would add critical skills and help the division to increase the quality of its service and improve outreach at a community level. "This would provide a service at the point of care so that not all patients need to come to the tertiary hospital," says Professor Irusen.

Dr Abraham will also assist and develop research, contributing to the academic capital of the country and will also be engaged in training the trainee under- and post-graduate students as these numbers have also increased at the University. "It is through such activities that learning is also reinforced," adds Professor Irusen.

The unit also simultaneously trains intensivists. "We've had two trainees who have been successful," says Professor Irusen. One is now in the private sector in Stellenbosch and another at Livingstone Hospital in the Eastern Cape.

Over the past decade, we have dramatically expanded services and improved the quality of care that we provide at Zithulele Hospital.

~Dr Hans Hendriks~

~DR~ HANS HENDRIKS

Zithulele is a quiet seaside community in the rural Eastern Cape with a rich missionary history. Its residents, sparsely located alongside rolling hills, live off subsistence farming; trade; and work in nearby towns. The villagers here have little to sustain themselves, let alone enough to afford healthcare services. They depend on a local hospital that traces its roots back to the period of church missions.

Zithulele Hospital started in 1956 as a mission of the Dutch Reformed Church. However, the small hospital struggled soon after the missionaries left and went through a difficult time, which included the inability to attract doctors, especially during the 1980s. This deprived the community of a critical service.

The first year that marked a breakthrough for the community was in 2004 when the hospital started receiving community service doctors allocated by the Eastern Cape Provincial Department of Health.

Bolstering capacity, senior doctors arrived in mid-2005 with a long-term plan to build the hospital to become a centre of excellence in rural healthcare. "The new doctors helped to improve the standards and enthusiasm levels substantially," says Dr Ben Gaunt, Clinical Manager at Zithulele Hospital.

Serving a community of 130 000 people, Zithulele Hospital is now a reliable facility that has increased beds from 55 to 146 and has managed to bring down mortality rates. The government plans a substantial rebuild which is in the advance planning stages.

> We adopted a vision to provide high quality healthcare to our community despite the deeply rural setting.

The calibre and attitude of the people at the hospital make it an ambitious institution. "We adopted a vision to provide high-quality healthcare to our community despite the deeply rural setting," says Dr Gaunt. "Over the past decade, we have dramatically expanded services and improved the quality of care that we provide." One of the contributors to this was the development of a multidisciplinary team which includes professionals from most disciplines, ensuring that the care provided is comprehensive.

Some of these healthcare professionals are experts in their fields, visiting from well-resourced hospitals. Dr Hans Hendriks, a Family Physician from Ceres Hospital, is one of them.

Drawn by his passion for rural health, he will take a three-month sabbatical from his resident hospital in the Western Cape to contribute his expertise to Zithulele. In 2004 he considered moving from Ceres to do work in another rural hospital. "I was eager for a new challenge and to experience a difference in another part of the healthcare system by using my skills and gaining new perspectives," says Dr Hendriks. Attached to Ceres Hospital, he first postponed the departure as he also did not want to be separated from his family.

It was not until 2006 that the passionate family man, a recipient of the Discovery Foundation Distinguished Visitor award, would find a place that would compellingly draw him to a new community. "It has long been my dream to work at Zithulele Hospital," says Dr Hendriks. "I believe that by creating an exceptional hospital such as Zithulele Hospital in a province where the health system is struggling, one can create the hope and belief that positive change is possible and I would like to contribute to this."

Before arriving, long conversations have helped him figure out how to help make a difference in this impoverished area. He took stock of the community and hospital needs. He chatted to the various doctors who have an extensive grasp of the prevailing challenges. Following this, he decided to focus mainly on establishing a neonatal Continuous Positive Airway Pressure service, a modality of care which he will help to train local staff to understand and use. This will see him incorporate a clinical governance system at the hospital to monitor intervention, assist in planning for undergraduate medical training, and for Family Medicine registrars.

Dr Hendriks, who received a Discovery Foundation Distinguished Visitor award for his sabbatical work at Zithulele Hospital, has two other important goals. First, he will use his knowledge to help management streamline the day-to-day operation of the hospital based on practices that succeeded in the Western Cape. This will be based on fostering service delivery improvement through LEAN management principles. The focus will be on augmenting recent changes that help to optimise the flow of work as well as separating the out-patients department from casualty to increase efficiencies. Simultaneously, he would contribute to clinical services, relieving an already burdened system at Zithulele. A second key goal is to assist Dr Gaunt and newly arrived Family Physician Dr Kevin Pasio to plan for the imminent expansion of under-graduate medical training, and implementation of Family Medicine registrar training at the hospital.

He is not new to helping implement operational plans and programmes that assist in over-hauling the performance of a hospital. As a passionate Family Physician in Ceres Hospital, he led a team that was instrumental in developing a sub-district health service and hospital plan. "Ceres Hospital functions and adapts well, providing multiple services effectively," says Dr Hendriks.

Some of the services he developed at Ceres Hospital, which he is using as a blueprint at Zithulele Hospital, include neonatal Continuous Positive Airway Pressure for neonatal respiratory distress syndrome. "This was a first in a rural district hospital in South Africa," he says. The programme was developed as part of Dr Hendriks' Masters in Family Medicine.

His current and former colleagues have only commendations for Dr Hendriks, saying that his experience and skills set will benefit Zithulele. Dr Hoffie Conradie, Principal Family Physician at Worcester Hospital and Associate Professor at Stellenbosch Univesity's Faculty of Medicine and Health Sciences, says that Dr Hendriks was one of the pioneers of the newly formed Family Physician posts through the University.

With Professor Conradie, he helped pioneer the Ukwanda Rural Clinical School where he (Dr Hendriks) was the first Family Physician to supervise final year medical students in a district hospital. "Dr Hendriks is a rural family physician at heart and has become one of the icons of rural Family Medicine," says Dr Conradie.

He also has experience as an efficient member of a multidisciplinary team. In his role as the Family Physician for the Witzenberg sub-district in the Western Cape, he is credited with significant contributions in the district hospital of 86 beds and nine Primary Healthcare Clinics. These facilities covered a full spectrum of diseases from acute care to long-term chronic care in the Witzenberg sub-district.

The district has a high burden of TB and HIV, coupled with target organ disease due to non-communicable disease. "Dr Hendriks has shown good clinical knowledge and skills in managing these diseases," says Dr Colette Gunst, Family Physician at Cape Winelands District. "His commitment to patient care means that he often works long hours clinically, with little time left for some of his administrative work, although he always manages to complete those tasks that will improve care for the community which he serves."

Critically ill patients commonly show Acute Kidney Injury either as a consequence of the critical disease itself, such as sepsis, or from interventions used to deal with the critical illness.

~Dr Boitumelo Mashitisho~

~DR~

BOITUMELO MASHITISHO

University of KwaZulu-Natal
and Sefako Makgatho University
Department of Internal Medicine

Acute Kidney Injury is a sudden loss of kidney function which can lead to illness or death. Hypertension, diabetes, heart disease, sepsis and some lifestyle diseases are known to be common risk factors for Acute Kidney Injury. About 25 percent of South Africa's population suffers from hypertension; while diabetes affects about 15 percent of South Africa's population.

> Currently, the South African context lacks understanding in proper kidney care caused in this way. This leads to poor outcomes in many patients and high costs.

A good number of these cases are due to pregnancy-related disorders, especially septic abortion and pre-eclampsia. These account for up to 15 percent of the cases that require dialysis. A lot of medications also contribute to the burden of Acute Kidney Injury. HIV infection and some medicines used to treat it are also identified risk factors for Acute Kidney Injury. Herbal preparations and many over-the-counter medicines have also been implicated in Acute Kidney Injury.

Dr Boitumelo Mashitisho, Specialist Physician at Dr George Mukhari Hospital and Sefako Makgatho University is undertaking a study that will provide more insights into the common causes of Acute Kidney Injury. Currently, the South African context lacks understanding of proper kidney care. This leads to poor outcomes in many patients and high costs of medical care. This is the problem that her research will lay the foundation towards resolving.

Asked how she got so keen on finding research-backed solutions for a challenge affecting so many South Africans, Dr Mashitisho, a 48-year old mother of three, says her curiosity about this started during her nephrology rotation while a registrar in Internal Medicine. "It became evident during this time that the Dr George Mukhari Hospital did not have a trained and dedicated nephrologist," she says. This need attracted her, putting her on a new path to train as a nephrologist after she completed her basic physician training. "Far less research into and teaching on these conditions are done at our institution than what is actually required to meet patients' needs," she adds.

In her research, titled: *Acute Kidney Injury (AKI) in critical disease in resource limited settings*, she will compare different treatment modalities in managing or treating critical Acute Kidney Injury. "The spectrum of diseases we see on a daily basis is mainly renal insults from different sources, including HIV, toxins, metabolic diseases, and connective tissue diseases," she reflects. With her study's findings, she will then develop the safest and most cost-effective solution to deal with the condition. "Research in this area will also assist in finding the most cost-effective means of managing these patients," she adds.

Her research includes renal and HIV medicine, HIV impact in Renal and Endocrine systems, and Occupational Health and Medicine and their impact on Acute Kidney Injury.

Although experts say that Acute Kidney Injury in low- and middle-income countries is generally a community-acquired disease and affects mainly young and healthy individuals, the problem is not uniquely South African. A global specialist organisation, the International Society of Nephrology (ISN) is even championing a way to end this worldwide. However, tackling the Acute Kidney Injury burden not only calls for rallying support across the globe, but also bold moves and big picture thinking.

At its biennial conference held in Cape Town in early 2015, the ISN announced an ambitious worldwide plan to end this painful disease. The strategy, aptly called *0by25*, aims to galvanise the international nephrology community in the objective of putting a blunt end to Acute Kidney Injury morbidity and mortality, moving the numbers from a current and unacceptably high to zero by year 2025. In a local, but critical way, Dr Mashitisho's research will contribute to the body of knowledge in making this bold vision a reality.

When not focused on clinical and research work, Dr Mashitisho pursues her passion of teaching and developing a new crop of healthcare practitioners and researchers. "I coordinate the MBChB final-year programme, clinical undergraduate, and post-graduate teaching in Internal Medicine at Dr George Mukhari Hospital," she says.

She feels that the Discovery Foundation Award has added new meaning and drive to giving back to Academic Medicine. "With this award, new doors of development were opened. I have always wanted to pursue an academic career and help unleash the untapped, hidden potential in youth who are soon to be our predecessors," she says. "That needed funding and the award came just at the right time. With proper mentoring, no human being should be a failure. For my patients, it's a step towards the betterment of their lives."

On completing this study, Dr Mashitisho plans to serve as a Nephrology Consultant to general medicine and other medical sub-specialities. She will give advice to specialty services such as Intensive Care, Urology, Obstetrics, and Surgery, about kidney diseases and renal manifestation of systematic diseases.

~DR~ KWAZI NDLOVU

The shortage of nephrologists in South Africa is enormous while the burden of kidney diseases is growing especially in association with the HIV epidemic.

Renal disease is common across South Africa with startling numbers, particularly in black communities where there are higher incidences of hypertension. This is not unique to South Africa. Across the world, 10 percent of people suffer from some form of kidney disease, according to the National Kidney Foundation. Treatment of this widespread health problem is becoming ever more critical with challenges rising to surpass solutions. This is fuelled by the lack of resources in the public health sector.

In South Africa there is a critical shortage of available haemodialysis equipment and slots, while the reality is that many patients are diagnosed with severe renal failure requiring dialysis. The challenge is that not all of them can be accommodated by the available haemodialysis machines.

This resource deficit has dire consequences for many patients, but more so for HIV infected ones. Patients with uncontrolled HIV infection are excluded from the state-funded dialysis programme in South Africa because of dialysis resource shortage and related constraints. This leaves patients vulnerable while there is little research into this special patient population.

"This compounds the bias against HIV-positive, renal failure patients," says Dr Kwazi Ndlovu, Nephrologist, Nelson R Mandela School of Medicine, University of KwaZulu-Natal. "This results in a disproportionate number of deaths from lack of dialysis in this special population group."

In addition, management of renal failure in the setting of HIV infection is under-studied especially as renal replacement therapy is not widely available due to limited resources. For Dr Ndlovu, this presented an opportunity to research and develop a novel but simple method of dialysis for HIV positive, renal failure patients.

His project, which also makes up his PhD, will inform on a cost-effective solution for expanded access, and provision of an easily available "dialysis modality" aimed at HIV positive, renal failure patients. "Insights from this will also lead to an increased understanding of the implications and complications of peritoneal dialysis in the setting of HIV infection," adds Dr Ndlovu.

The renal failure management project, which is already underway, is not short of supporters. Professor Alain Assouga, Head of Nephrology at the University of KwaZulu-Natal's Nelson R Mandela School of Medicine is confident about this. He appreciates the significance of Dr Ndlovu's research focus. "The shortage of nephrologists in South Africa is enormous while the burden of kidney diseases is growing, especially in association with the HIV epidemic," he says. "Dr Ndlovu has chosen an important topic which evaluates treatment for chronic renal failure. This approach, technically, is the easiest to introduce and monitor in a resource limited setting."

Specifically, the study examines the outcomes of continuous ambulatory peritoneal dialysis (CAPD) in the management of renal failure associated with HIV infection. This will see Dr Ndlovu study, as well as compare 70 HIV positive patients against 70 HIV negative control patients admitted to King Edward VIII Hospital and Inkosi Albert Luthuli Central Hospital in Durban. He recruited the last 13 participants in early 2015 and by August 2016, he would have completed the 18-month follow-up of all the recruited patients to conclude the research. During the follow-up period, Dr Ndlovu and his team will assess the outcomes of CAPD, the catheter patency rate, mortality, admission rates, as well as mechanical, and infective complication rates of the technique.

Since the start of the project, the data produced promising results. "It has to date revealed exciting results and may contribute to an improvement in the way patients with HIV and chronic renal failure are managed," adds Professor Assouga.

The study is at an advanced stage and some of its outcomes have been shared with industry peers at home and internationally by Dr Ndlovu. Preliminary results have been presented in poster format at the 15th Congress for the International Society for Peritoneal Dialysis in Madrid, Spain, as well as an oral presentation at the South African Renal Society Symposium in August 2014. Two abstracts from the study have also been presented as a poster at the 2015 World Congress of Nephrology held in Cape Town, where Dr Ndlovu received second prize in the ISN clinical poster category.

The penultimate goal of the study is exciting and may give the healthcare sector an affordable but lifesaving invention. Insight and considerations from the research will be used to develop a smart mobile dialysis tool that is user-friendly. "This can have a significant impact on the targeted patients," adds Dr Ndlovu. "CAPD offers a dialysis modality that is relatively easy to teach, with convenient mobility, and requires no complex machine."

The research will also lead to increased knowledge about the applicability of peritoneal dialysis for HIV positive patients, creating Academic Medicine evidence for related healthcare improvements in this area. "This is especially critical in limited resourced areas such as sub-Saharan Africa," says Dr Ndlovu. "It will also reveal information about the risk factors for adverse outcomes of this modality".

Passionate about Academic Medicine research and teaching, the Durban-born doctor is looking to expand his research involvement in the future. "I believe that the academic route is the best vehicle for me to contribute to society," he says. "My long-term career objective is to develop a sound methodological and theoretical background that will allow me to run my own research group in the future."

Paediatric Infectious Diseases are responsible for more than two-thirds of deaths in children under five years. Data has shown that these diseases are also the most common reason for consultation at all levels of health service.

~Dr Fikile Mabena~

~DR~

FIKILE MABENA

University of the Witwatersrand

Department of Paediatrics and Child Health

Paediatric Infectious Diseases is a relatively new sub-specialty in South Africa and in other parts of sub-Saharan African countries. Still in its developing stages, the sub-specialty is not growing at the rate required to match the new infectious diseases burden faced by children. Closer to home, in Johannesburg for example, there are only three registered Paediatric Infectious Diseases Sub-Specialists making it important to train new sub-specialists.

I am grateful for the opportunity to study in this regard and be able to contribute to high quality patient care in the management of infectious diseases in children.

"Infectious diseases are responsible for more than two-thirds of deaths in children under five years in developing countries like South Africa and they are still the most common reason for consultation at all levels of health service," says Dr Fikile Mabena, a 38-year old Paediatrician at the University of the Witwatersrand's Department of Paediatrics and Child Health.

Some of these infections develop in children during hospital admissions, making it necessary to understand and manage them. "At times, these infections may be resistant to conventional therapy and difficult to treat," she says, citing a study published in *Clinical Infectious Diseases*.

A mother of three children herself, she sees hope for the many children in South Africa, especially in Johannesburg, who will benefit from further developments in this field. She says that Infectious Disease Specialists' interventions in hospitalised children are associated with improved patient outcomes. "Patients are less likely to die in hospital and after discharge," she continues. "They have a shorter hospital stay, are less likely to be re-admitted, and money is saved in the process."

Asked to explain exactly what a Paediatric Infectious Diseases Specialist does, she says it is an expert in the diagnosis and treatment of all kinds of infectious diseases. These are caused by different micro-organisms that include bacteria, viruses, fungi, and parasites in children. Paediatric Infectious Diseases specialists also have a particular insight into the use of antibiotics, immunology, epidemiology, and infection control.

The three Paediatric Infectious Diseases specialists are all committed, leaving a gap in practice at the various hospitals. One is Professor Shabir Madhi, who is involved in full-time research; another, Dr David Moore, has recently returned to the University of the Witwatersrand following a two year absence while performing his PhD research; and the third is in full time clinical medicine practice at Rahima Moosa Mother and Child Hospital.

Dr Reubenson, Paediatric Infectious Disease Specialist at the University of the Witwatersrand says there is a need for a Paediatric Infectious Diseases sub-specialty trainee within the unit. "The unit is well situated to provide the required training. In the absence of such training, the Paediatric Infectious Diseases need of the University, hospitals, the province, and the country will not likely be met," he says.

The training unit, which was formally recognised in 2012 through the leadership of Dr Reubenson, has not yet trained a Paediatric Infectious Diseases sub-specialist. "Although there has been allocated posts for this, there has been no funding available and the Discovery Foundation Award has made it possible for me to train," says Dr Mabena.

She will undergo training in this sub-specialty at Rahima Moosa Mother and Child Hospital for two years until end of 2016. Her training will see her divide her time between 18 months of clinical work in Paediatric Infectious Diseases and six months of Microbiology laboratory work.

This will take place at various sites including the University of the Witwatersrand's Department of Paediatrics, Rahima Moosa Mother and Child Hospital, Chris Hani Baragwanath Academic Hospital, Charlotte Maxeke Academic Hospital, the paediatrics ward at Sizwe Tropical Diseases Hospital, and the Microbiology Laboratory at Helen Joseph Hospital. Dr Mabena will be exposed to all aspects of South African paediatric infectious diseases as the unit is well represented across three academic hospitals in Johannesburg.

This tenure will see her dabble with focus areas of the sub-specialty such as HIV management; TB; Nosocomial Infections dealing with multi-drug resistant pathogens; Outbreak Identification and Appropriate Response Infection Prevention and Control; and Antimicrobial Stewardship.

Excited and looking forward to add to the new crop of Infectious Diseases professionals, Dr Mabena believes the field will steadily gain ground with the support that it is starting to attract. "I am grateful for the opportunity to study in this regard and be able to contribute to high quality patient care in the management of infectious diseases in children," says Dr Mabena.

~DR~ JANA ROSSOUW

I am motivated to expand my knowledge and clinical skills in order to benefit health outcomes of women and children in South Africa.

Stellenbosch University
Department of Obstetrics and Gynaecology

Dr Jana Rossouw is living her career and academic dream. She aims to do impactful research and to care for the health of expecting mothers and their babies during the most crucial stage of human development – in utero. Twice voted as most caring, first as an Intern and again as Medical Officer at Karl Bremer Hospital, she is equally as "loved by the patients who flourish in her heart-felt care for them," says Professor David Hall, Programme Coordinator in Maternal Fetal Care in the Department of Obstetrics and Gynaecology at Tygerberg Hospital.

It is at Tygerberg Hospital where Dr Rossouw will next make her mark as she focuses her research and efforts on Maternal Fetal Medicine as a recipient of a Discovery Foundation Sub-specialist Award.

She says, "This grant will give me an opportunity to not only build my career but to further research developments in a field where knowledge and skill have an enormous and often immediate influence on the improved health of mothers and their babies."

Known as someone who is always willing to learn and eager to broaden her knowledge, she is extremely excited to embark on this new path. With a love for gardening and growing things, it's just natural that she also loves growing her academic and research skills. Dr Rossouw says, "I am motivated to expand my knowledge and clinical skills in order to benefit health outcomes of women and children in South Africa."

During her study period at Tygerberg Hospital, Dr Rossouw plans to do an audit on all the stillbirths that occurred in women with diabetes mellitus during pregnancy (also known as gestational diabetes). The aim of this study will be to try determine the factors that played a role in this poor outcome and identify avoidable factors for future pregnancies. Local data analysis would give insight into preventative interventions not only to Tygerberg Hospital, but also to other secondary and tertiary hospitals in South Africa. Dr Rossouw says the motivation behind her hard work is, "Seeing a happy, content mother leaving hospital with her healthy, loved baby."

Determined to help place South Africa as a research leader, her current study will provide leading-edge information into a prevalent health problem in South Africa. However, she also acknowledges that solving the problem of stillbirths in women with diabetes mellitus may need management changes combined with addressing overall patient motivation. Some of the important factors are patient knowledge and adherence to their treatment plan. In Dr Rossouw's experience, a motivated patient will attend all her clinic visits, which enables healthcare workers to continually monitor the pregnancy and make adjustments where needed.

A reality in South Africa is that socio-economic factors often influence a patient's ability to attend healthcare services – this may also add to the occurrence of poorer outcomes.

But, says Dr Rossouw, regular contact with the mother, emphasis on the condition, and explaining the possibility of complications may lead to improved care and choices in patients.

At a young age, she is experienced in research and its immeasurable value to move healthcare forward. Her first study has been published in the International Journal of Gynaecology and Obstetrics and has been cited in recent articles published by the American College of Obstetricians and Gynaecologists. It's also this study that she will be presenting at the FIGO World Congress – *"considered the "Olympics" in obstetrics, gynaecology and women's health"* – in October 2015 in Canada.

In this study, which included a cohort analysis on 1 123 patients, Dr Rossouw investigated factors influencing caesarean section incision-to-delivery time and the immediate effect of this on the baby. This study concluded that repeat procedures, adhesions, and obesity prolonged the time for caesarean deliveries. The effect of these factors on babies, based on the 5-minute Apgar score, was minimal.

The data on stillbirths and management interventions from Dr Rossouw's latest study at Tygerberg Hospital will enable healthcare professionals to access information specific to the South African population, their lifestyles and socio-economic influences. Dr Rossouw hopes health professionals will use this data to provide expecting mothers with the best care and knowledge for the management of their overall health during the pregnancy term. Dr Rossouw foresees that by using her research as a reference at hospitals and health facilities across South Africa, fewer mothers will have to experience the heartache of stillbirth related to a medical condition.

Dr Rossouw supports the efforts of the Discovery Foundation and other institutions to promote research in the medical field by awarding grants to researchers. She says, "Research is imperative to improve healthcare continuously. It also makes international institutions notice our hospitals and universities as possible partners in global health initiatives."

Dr Rossouw not only develops herself on a professional level. She recently learned to crochet and also wants to start playing another instrument. Inspired by research and its role in determining where the future of healthcare is headed, Dr Rossouw says, "Innovation in healthcare can only happen with adequate research funding and infrastructure. Our country and its health professionals have to identify opportunities and collaborations at every opportunity." She also believes that a culture of research has to be encouraged and says, "Educational institutions need adequately structured courses in research methodology to enable high-quality research."

Do what you can today because you never know what tomorrow will bring. With that in mind, I try to fill my days with as much as I can.

~Dr Amith Keshave~

~DR~ AMITH KESHAVE

University of KwaZulu-Natal
Department of Paediatrics and Child Health

Dr Amith Keshave, a Paediatric Consultant at Inkosi Albert Luthuli Hospital, has a great passion for sports. He's played rugby, soccer, tennis, and squash and is equally comfortable in the water playing polo or body boarding. His love for sports is only trumped by his intense fascination with the human nervous system, which started with his medical training.

As time went by, this fascination grew into a passion for Paediatric Neurology – where he has since identified the need for further research into the impact of epilepsy and its related conditions that are often neglected in children.

His research will add South African statistics to the body of studies in Europe and the United States, which show that 37 percent of children there with epilepsy have neuropsychiatric symptoms. There are many conditions that can go hand-in-hand in children with epilepsy. These range from attention deficit hyperactivity disorder, depression, conduct disorders, autism, oppositional defiant disorder, to emotional problems. Dr Keshave says, "With only four Paediatric Neurologists serving up to 10 million people in the local populations of KwaZulu-Natal and parts of the Eastern Cape, there is a great risk for compromised care of even the most common neurological conditions".

Overtly aware of the escalating burden of neurological conditions among children since working in rural regional hospitals, Dr Keshave, from the Eastern Cape, will be the first to do research on the effects or prevalence of epilepsy-related conditions in the South African population. Through the research he hopes to raise awareness of the prevalence of epilepsy, and to develop screening and intervention strategies to improve the care children receive.

Last year he combined two of his passions, sports and paediatric care, when he completed the 94.7 Cycle Challenge. Cycling the distance, he raised awareness and funds for the Paediatric Palliative Care Unit at Chris Hani Baragwanath Hospital.

Soon to be a father himself, he says he is honoured to dedicate his time and efforts to serve and improve the lives of children with developmental delays, epilepsy, stroke, cerebral palsy and HIV-associated neurological complications. "The gap in services and treatment for children with these conditions in rural areas is apparent and serious," he says.

A man who takes action for the care of children, Dr Keshave has established a cerebral palsy clinic at Stanger Hospital. "This clinic offers patients all-round care and management services. I hope to expand the care to include paediatric neurology outreach programmes," he says.

Research in this field is vital as related health conditions in children with epilepsy can lead to poor social development, hindering academic and cognitive advancements, and can affect their abilities at work and in later life. Dr Keshave not only wants to make a difference in the lives of his patients, he is always looking for ways to improve care. During his time at Stanger Hospital, this young doctor developed treatment processes to improve intervention for and prognosis of critically ill children. With this understanding of the importance of nurturing emotional wellbeing, he has been involved in teaching mothers how to make toys from recycled materials. Because of this, every child leaving hospital now has a toy to take home.

Warming hearts and little bodies, he has also started a programme to teach mothers how to knit. By sharing skills, he has helped to empower mothers to provide clothes for their babies. He has a great passion for people and teaching, which shows in his involvement in outreach programmes, sharing knowledge with those around him and assisting in rural clinics in his free time.

He makes the most of his time by living in the words of his grandmother, who said, "Do what you can today because you never know what tomorrow will be like." With that in mind, he tries to fill his days with as much as he can. His busy routine starts with early morning gym sessions, normal daily activities at the hospital and in the community and ends with late-night studies and preparation for the next day.

His wife has supported his dedication to medicine. Dr Keshave says receiving the Discovery Foundation Sub-specialist Award has made his life-long dream to train in Paediatric Neurology come true. He will be placed at Inkosi Albert Luthuli Hospital with the aim of addressing the serious shortage of skills in this much-needed specialty. His study will not only focus on co-morbidities in children with epilepsy, but also on the effects of adherence to treatment and other factors, such as taking certain medicines, which may place patients at increased risk for related conditions.

Knowing how important complete care is for long-term wellness, Dr Keshave hopes that, through his research, he will be able to draft protocols for screening and treatments of patients with epilepsy here and around the world. On completion of his research, he aims to have a clear road map to provide families and children with epilepsy and associated conditions with steps to improve independence, employment, and quality of life.

He is a strong supporter of evidence-based clinical medicine and says, "This opportunity to sub-specialise will not only help fulfil my personal goals, but will also allow me to make a difference to research on a global scale while pursuing another passion – giving back to my community." He adds that he has his parents to thank for the heights he has reached in life. Dr Keshave is very excited about his future contribution to build up South Africa's research strengths and capabilities in Paediatric Neurology.

By conducting this study, the community and the health system will be aware of the impact of malnutrition in our hospital. It will enable us to work together to develop facilities and services such as malnutrition units, which will assist us in taking care of children affected by malnutrition.

~Dr Bob Makanda Itaka~

~DR~ BOB MAKANDA ITAKA

More than one third of child deaths across the world are due to malnutrition, according to a report by the World Health Organization. The United Nations World Food Programme estimates that 925 million people, including children, in the world do not have enough to eat. To put this in perspective, these numbers amount to the combined populations of the United States, Canada, and the European Union. Most of the people facing malnutrition are mainly in developing countries (including South Africa), where one out of four children under five-years old are underweight.

In South Africa, 15 percent of infants are born with a low birth weight due to malnutrition, while another report estimated in 2008 that out of 10 million children's deaths, 5.6 million can be linked to malnutrition. The problem is that, if it does not cause suffering by itself, malnutrition can trigger more serious health problems such as anaemia, pellagra, and iron deficiency with complications that can even lead to death. This makes malnutrition an area of medicine urgently demanding more research to find solutions to protect children. This subject is so critical that the United Nations put it first on the list of its global development goals. The first goal on the Millennium Development Goals 2015 is to eradicate extreme poverty and hunger.

> Malnutrition is one of the most common public health problems in my area. Hence my research is focused on this in order to learn how to address it.

A young doctor in Taung, a rural area in the North-West Province, is doing research to contribute to alleviating the effects of malnutrition in South Africa. His study aims to understand why malnutrition is prevalent in the Taung sub-district community and what can be done to solve it. The area is one of South Africa's communities with a good number of malnourished children, with cases of complications constantly reported to health facilities. "Malnutrition is one of the most common public health problems in my area. Hence my research is focused on this in order to learn how to address it," says Dr Bob Makanda Itaka, a Medical Officer at Taung District Hospital and a Family Medicine registrar at the University of the Witwatersrand.

Malnutrition generally affects people in poor and low-income areas who are already the most vulnerable of society. Reflective of the persistent image of poverty in many South African rural areas, Taung has countless needy families, some not having enough to eat or not getting enough nutrients from their daily recommended diet.

The added challenge for the vast Dr Ruth Segomotsi Mompati District Municipality (which includes the Taung sub-district Municipality) is that none of its hospitals have malnutrition units. "By conducting this study, the community and the health system will be aware of the impact of malnutrition in our hospital and work together to develop facilities and services such as malnutrition units, which will assist us in taking care of children affected by malnutrition," says Dr Itaka.

A father of two children himself, Dr Itaka wants to understand this better. To pursue his passion for rural health, he joined the University of the Witwatersrand's Family Medicine registrar programme in 2013 to increase his knowledge in this area. "I have a great interest in rural medicine and dedicated myself to improving the quality of life in the community of Taung," he says. "To do this, I have been conducting research projects for the purpose of understanding the community's problems and addressing them."

His study, which constitutes his Masters in Medicine degree, investigates the prevalence of malnutrition among under five-year old children admitted to the paediatric unit at Taung District Hospital.

He is excited about completing the study as he envisions its outcomes will shed insights into the consequences of malnutrition on children and what actions can be taken to address it. "It will help to improve on the quality of care and the quality of life of the community, particularly of the children," he adds.

Supporting Dr Itaka's study, his supervisor, Dr Sunny Abizu, Chief Family Physician at Dr Ruth Segomotsi Mompati Hospital says: "This research will be of great benefit as malnutrition still constitutes a significant problem in greater Taung sub-district community."

In the four-year period that he has worked with Dr Itaka, Dr Abizu has found him to have impeccable qualities as an aspirant researcher in rural health. "In this period, he showed consistency in his sensitivity towards the needs of his patients, an appreciation of the challenge of rural medicine, and a good personality in interactions with his colleagues," adds Dr Abizu.

Asked how he feels to be one of this year's recipients, Dr Itaka says, "it is an excellent achievement in my career, a reward for my work, and for my community of patients. It actually shows that I'm not alone in this process of improving their quality of life." With this support, Dr Itaka emphatically believes that he can lay the foundation to protect the children of Taung against malnutrition through the impact of Academic Medicine research.

~DR~ MARK JACOBY

Children, especially from the rural areas, remain a vulnerable part of society and an extra effort needs to be made to ensure that they receive quality healthcare.

Healthcare professionals and experts are concerned about the number of people that become blind especially due to cataracts, which account for just under 50 percent of the cases across the world. The World Health Organization (WHO) estimates that nearly 80 percent of blindness is preventable or treatable with medical interventions, while this affordable help does not reach many patients in low-resource settings.

South Africa is one of the developing countries battling with this problem. About 400 000 South Africans are blind from cataracts. This continues despite interventions which see a high cataract surgery rate compared to most African countries. Although such surgeries are on the rise locally, experts say the rate is still far from the WHO's Vision 2020 goal of 2.5 million such surgeries per population.

Dr Mark Jacoby, Head of Department of Ophthalmology at the Port Elizabeth Provincial Hospital, wants to change this for the impoverished people of the Eastern Cape. His hospital's Ophthalmology department aims to make a difference in this area. "It is focused on eliminating treatable and preventable blindness in our community by improving service delivery and training junior doctors and allied professionals," he says. "This is in accordance with the 2001 National Department of Health's Policy of Prevention of Blindness and the WHO Vision 2020 project."

With his focus on paediatrics, he is most concerned about the impact of diseases affecting children's eyesight. "The concept of 'blind years' makes this sector of the population an extremely important target of service delivery across the region," says Dr Jacoby, himself a father of two young boys. "Children, especially from the rural areas, remain a vulnerable part of society and an extra effort needs to be made to ensure that they receive quality healthcare."

Dr Jacoby is completing his Fellowship in Paediatric Ophthalmology and Strabismus at the Rotterdam Eye Hospital in the Netherlands. He is excited about the prospects that his visit holds for the Eastern Cape community. "The Fellowship is aimed at improving the eye-care service we offer to the children of the Eastern Cape," he says. "The ripple effect the Fellowship will have on registrar teaching will broaden its impact in the region."

The visit will see him broaden his clinical and surgical expertise in Paediatric Ophthalmology and Strabismus. "The pathology in children often presents differently and the management of the problems can be complex; this makes Fellowship training more desirable," he says.

To slice through this complexity, particularly in children, and help prevent blindness, Dr Jacoby will learn different clinical and surgical techniques and observe management styles, patient flow, and referral systems in a large national quaternary unit which he can then adapt for implementation in his home department. "I want to further build international networks to improve our service locally and enhance our WHO Vision 2020 programme in our region, by strengthening the Paediatric service and supporting our outreach work," he adds.

Most of the causes of preventable and treatable blindness in the Eastern Cape have been shown to be cataract, glaucoma, diabetic retinopathy, refractive error and paediatric ophthalmology, all of which Dr Jacoby will be equipped to deal with and train other doctors on. "Paediatric eye disease is one of the top five causes of reversible or preventable blindness in South Africa," he adds.

Passionate about improving healthcare in general, he aims to make a wider impact using research. When not focusing on outreach initiatives or spending time with his family, he carries out other interesting healthcare investigations. "I am busy with an audit on the challenges of developing a *Retinopathy of Prematurity screening programme* in a South African state hospital," he says. "I am very excited about novel ways of extending this service to the district hospitals." With his team, he found that the key aspects to develop such a screening service calls for an interlinked application of education, human resources, adequate equipment, and combined responsibility between different disciplines.

I feel empowered to do more and I feel more optimistic about my career in the South African health system. I hope that my patients will benefit from the new ideas I am exposed to and I hope to effect change in the way we manage childhood eye disease.

DORA NGINZA HOSPITAL

The Eastern Cape Province is known for extreme scarcity of medical professionals, Academic Medicine experts, and healthcare infrastructure. Persistently high maternal mortality rates across several districts in this coastal province are evident, leaving women facing a hard reality with little options for care.

To save these women, hospitals pursue various efforts that often fall short of addressing the underlying problem. Healthcare leaders in the province say that women needing surgery for gynaecologic cancers have to be transferred for assessment and possible surgery from Port Elizabeth's Dora Nginza Hospital to the Western Cape Province. The result of this inter-provincial referral is long waiting periods; treatment delays; and often late, sub-optimal or no treatment, exposing vulnerable women to endure pain that often ends in death. "Major and radical surgery is performed at a hospital far from home, family and friends, adding to the trauma of the experience," says Dr Bukelwa Mbulawa-Hans, a Clinical Governance Director in the Eastern Cape's Department of Health and supervisor of an outreach programme to Dora Nginza Hospital.

An outreach programme at Dora Nginza Hospital offers clinical intervention and training of nurses and doctors in gynaecological oncology.

Although data on women's cancer in the Eastern Cape suggests high prevalence of the disease, Dr Mbulawa-Hans says this often meets with poor outcomes and unsatisfactory treatment. With these challenges, the province cannot undertake training in gynaecologic oncology. "Because there is no sub-specialty expertise in gynaecologic cancer management in the Eastern Cape, knowledge transfer and local training is not possible," she says.

Hope for thousands of these women now comes far from home in Pretoria in the form of medicine outreach. The University of Pretoria started an outreach partnership with the Dora Nginza Hospital to provide clinical intervention and training of nurses and doctors in gynaecologic oncology several years ago. In early 2014, a programme, casually called the 'Visiting Gyn Onc', was added to the partnership to serve the patients visiting the busy Dora Nginza Hospital.

Professor Greta Dreyer, Professor Leon Snyman, and Dr Arnold Mouton, all from the University of Pretoria's Gynaecologic Oncology Sub-specialty Unit, make up the current team which visits the hospital every two months. "Members of the team at Pretoria have convincingly demonstrated their commitment by offering services free of charge and self-funding most aspects of the visits," says Dr Mbulawa-Hans.

The team has now partnered with the Discovery Foundation to continue their critical work. Despite operating in a challenging and sometimes difficult environment, the hospital has over the years developed to cater for a large and growing population.

This has seen it fast become a teaching hospital for specialist healthcare services, particularly for maternal health. Based in the Zwide township, Dora Nginza Hospital is a tertiary hospital forming part of the Port Elizabeth Hospital Complex. At its start in 1979, it only consisted of dental, paediatrics, antenatal, postnatal, and family planning units, serving a mere 10 000 outpatients each month.

Several expansion projects performed over time and following the re-organisation of the Port Elizabeth hospitals into a unified complex in 2004, Dora Nginza Hospital became an important healthcare centre for the area. "The hospital receives patients from the entire Eastern Cape region as a result of the specialised services on offer," says Dr Mbulawa-Hans.

Today, it serves a population of more than 1.1 million people. The re-organisation of the hospitals led to the centralisation of Paediatrics, Obstetrics and Gynaecology, and maternity services at Dora Nginza Hospital. "This resulted in an influx of patients and a dramatic increase in staff numbers and services at the hospital," adds Dr Mbulawa-Hans. "It has 570 commissioned beds, but because of demand needed, 670 beds are in use."

The hospital serves as a practical training institution for entry level nursing staff and medical officers from rural hospitals regularly receiving in-service training. Higher qualified registrars also undergo their training at the hospital.

The visiting team is key to unlocking cervical healthcare opportunities in the Eastern Cape. The progamme will see two specialists from the mother unit of the University of Pretoria visit for a day or two to train doctors in pre- and intra-operative care.

The visit will also include pre-operative ward rounds to confirm staging of cancer, assess patients for surgery needs and surgery where necessary. "In the short term, this outreach programme renders excellent clinical care to patients diagnosed with pelvic cancer, by offering appropriate surgery to the patient in the regional hospital," explains Dr Mbulawa-Hans. "In addition, the programme offers post-graduate training to Registrars and Fellows in Gynaecologic Oncology." Research collaboration between the sites is already on-going and envisaged to increase over time. Dr Mfundiso Mabenge, from the Eastern Cape, is already undertaking a study in cervical cancer screening methods.

As part of this programme, learning gynaecologists from Dora Nginza Hospital will visit the University of Pretoria for two weeks per visit to do research, to train in surgical procedures, and in radiology.

The long-term goal is to establish an independent Gynaecologic Oncology sub-specialty service at the hospital that can serve the needs of patients from Zwide and the referral areas. "The Unit in Pretoria is committed to continued support to the specialists at this hospital for as long as that may be needed," says Dr Mbulawa-Hans.

Early booking of antenatal care creates an opportunity to start counselling, screening, and treatment to promote the wellbeing of the mother and foetus.

~Dr Ramprakash Kaswa~

~DR~
RAMPRAKASH KASWA

Antenatal care services are the gateway for the integrated management of several conditions that adversely affect the mother and unborn foetus.

In its report, titled *Opportunities for Africa's Newborns*, the World Health Organization gave an approval nod to Africa's antenatal care programmes. At the time of the report's release, the evidence showed that two-thirds of pregnant women (69 percent) have at least one antenatal care contact. But the international health body called for focused antenatal care. This would help in achieving the 'full life-saving' potential that antenatal care promises for women and babies. The goal is also to get more expectant women to take up antenatal care as early as possible as it is a significant health intervention.

There are good reasons for this call. It has been proven that early visits to an antenatal clinic can address several conditions such as HIV, TB, STIs, and some nutritional deficiencies that are prevalent in South Africa. "Antenatal care services are the gateway for integrated management of several conditions that adversely affect the mother and unborn foetus," says Dr Ramprakash Kaswa, a Family Medicine practitioner at Walter Sisulu University. "The quality of antenatal care services reflect in pregnant women's health and perinatal outcomes."

Dr Kaswa, with a passion for maternal and child health, is concerned that even though the South African government has made a provision for free antenatal care and safe birthing environments, many women still do not use these services optimally. South Africa's public health facilities see two-thirds of women book their antenatal care visits after 20 weeks of gestation. "Early booking of antenatal care creates an opportunity to start counselling, screening, and treatment to promote the wellbeing of the mother and foetus," says Dr Kaswa.

Working in the maternity unit in the Mthatha Regional Hospital in the Eastern Cape, Dr Kaswa noted that a high number of pregnant women start their antenatal care late. This prompted Dr Kaswa to undertake a study to gain insights into this challenge and develop mechanisms to attract more pregnant mothers to take up antenatal care early. "Antenatal care is one of the pillars of maternal health services," he says, as missing out on antenatal care can compromise both the mother and baby's health. "Due to delayed initiation of antenatal care, many women lose their opportunity for early detection of preventable maternal and foetal complications."

This is a challenge in Mthatha. The specific reasons for the late bookings at clinics in the area is not known. This poor antenatal attendance has prompted Dr Kaswa to explore pregnant women's perception of antenatal care services they receive in the area.

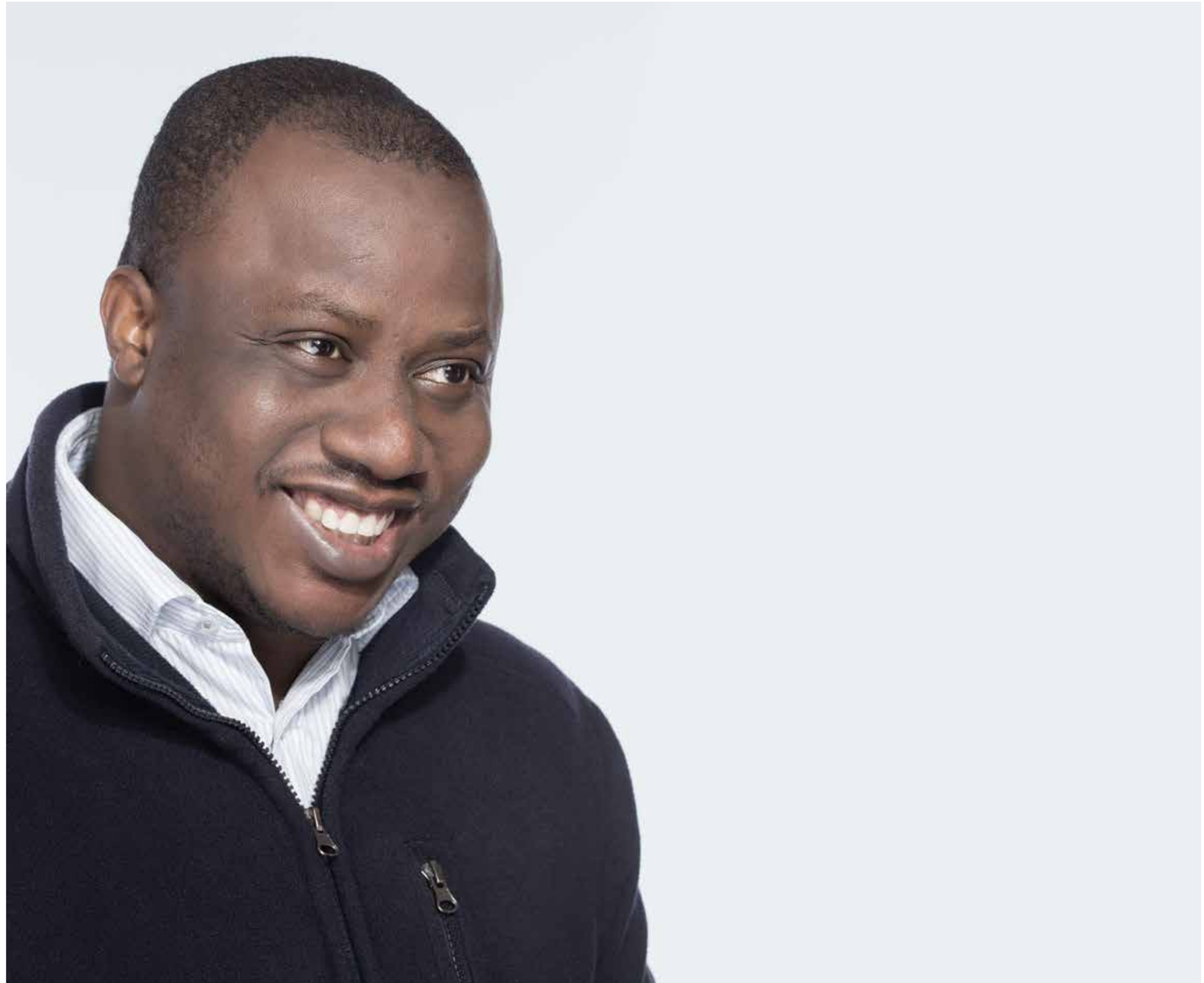
The study is designed to gain insights into how women make their own decisions to visit antenatal care clinics in Mthatha. "It will provide pregnant women's views and insights," he says. The study carries potential to highlight the importance of context-specific social, cultural, and healthcare factors. "These factors can help address the question of why pregnant women delay initiation of the antenatal care in the specific area, despite free and accessible Basic Antenatal Care services," he adds.

The qualitative, exploratory, and descriptive research will investigate all pregnant women who are receiving antenatal care services at Mbekweni Health Care Centre of Eastern Cape.

"The research results will contribute to improved outcomes for pregnant women in this region", adds Dr Kaswa.

Findings from the research will help to improve awareness on issues of teenage pregnancy nationally.

~Dr Adekunle Ajayi~



~DR~ ADEKUNLE AJAYI

Unwanted pregnancies, especially among teenagers, remain a health challenge across the world. Medical doctors and academics are hard pressed trying to develop new ways to manage this challenge which has a ripple effect on maternal and child health. This adds to the difficulty for developing countries to meet goal 4 and 5 of the Millennium Development Goals that focus on maternal and child health.

"It cannot be overemphasised that unwanted pregnancies still constitute a major public health problem worldwide," says Dr Adekunle Ajayi, a Registrar in Family Medicine at Schweizer-Reneke District Hospital in the North-West Province. He is embarking on a study in the Schweizer-Reineke community on young women's knowledge and attitude toward sex. The area has a high rate of teenage pregnancies.

Reproductive health may have not been getting the full attention it deserves since the advent of HIV. This has left an invariably large number of young women in South Africa still reporting unwanted pregnancies.

The research looks closely at a trend of unwanted pregnancies and he believes that better insights and interventions can halt this. "Given the risk associated with teenage pregnancies," he says. "It is of importance that significant interventions are developed that could assist in reversing the trend of unwanted pregnancies in young people particularly in developing countries."

His considerations on the subject paint a concerning picture of young women at risk. During his interactions as a doctor at the large district hospital, he learnt that there are very high levels of unprotected sex among school-going girls in the area. For him, this is not only a concern of unwanted pregnancies, but also one to protect these young women facing a high risk of contracting sexually transmitted diseases. They fall into this trap, as his research proposal indicates, because they simply lack the knowledge or the right attitude about sex and contraception, thereby compromising their health.

A massive shift of focus to combat HIV may be one reason why reproductive health, particularly unwanted teenage pregnancy, went unmanaged, thinks Dr Ajayi. "Reproductive health may have not been getting the full attention it deserves since the advent of HIV. This has left an invariably large number of young women in South Africa still reporting unwanted pregnancies," he explains. Studies support this thinking. Research has shown that up to 87 percent of young women aged 15 to 24 are sexually active and that by age 24, up to 50 percent of them have been pregnant at least once.

His approach: probe further factors that drive this teenage pregnancy trend by investigating the knowledge and attitudes of young women towards emergency contraception. "It is imperative that such a study be done to bridge the gap between what is known now and what the result of the research can bring," he says. He will enrol learners in grade 12 in the Mamusa sub-district as they are a representative group in which a detailed study can be done.

Since starting work at the district hospital in the North-West, his colleagues have commended his passion for maternal health and Academic Medicine research. "He is very diligent and also prepared to go the extra mile in the course of his duties," says Dr S Pitso. "He has also shown a keen interest in research during his time in the hospital." Beyond his clinical work, Dr Ajayi focuses on the development of other medical practitioners, ensuring they are developing their skills in line with latest trends. He also leads Schweizer-Reneke District Hospital's continuing professional development programme.

"This research would be of great benefit as teenage pregnancies still constitute a significant problem in Mamusa sub-district," says Dr Pitso. "I have no doubt whatsoever that the conduct of this research would benefit our community."

~DR~ OLAOLU OGUNWALE

Teenage pregnancy is a growing public health issue in South Africa and it is often associated with adverse outcomes and socio-economic complications. It upends most of these teenagers' lives, leading them to drop out of school. Many of these pregnancies happen without the couples being in a stable relationship or with the expectant father much older. In worse cases, others end up undergoing illegal and dangerous abortions, making a stressful situation burdensome.

Dr Olaolu Ogunwale, a Registrar at Ngwelezane Hospital's Department of Family Medicine, is doing local research on this persistent issue in one of KwaZulu-Natal's (KZN) low-resource areas. He says that although a lot of research has been conducted nationally and internationally on teenage pregnancy, very little has been investigated to determine the characteristics and obstetrics outcomes of this in South Africa, particularly in KZN. This means there is little data to inform decisions.

"To effectively address the issues of teenage pregnancy, accurate and up-to-date data is needed," he says. "Such data is currently inadequate and this provided motivation for this research to be done," says Dr Ogunwale.

One of the only studies done around this issue for the Empangeni area was 10 years ago. Research by doctors Monjurul Hoque and Chahnaz Hoque conducted at Empangeni Hospital in 2005, found the rate of teenage pregnancy at Empangeni Hospital to be higher than the national average. This prevalence is an onset of many other related problems. Dr Ogunwale's study intends to probe if there has been any improvement on the findings since the Hoque research. "Teenage pregnancy and the higher rate of associated complications are of national concern," says Dr Ogunwale.

Enrolling young expectant mothers delivering at Lower Umfolozi Regional War Memorial Hospital, the study's aim is to establish the profile of these teenagers and the health problems that impact on them. It will do this by determining the demography of the pregnant teen mothers; the occurrence of their perinatal morbidity and mortality looking into, for example, stillbirth, asphyxia, and maternal death; and the occurrence of pregnancy-related complications among those delivering at the hospital. It will also look into the effects such as anaemia; hypertension; eclampsia; pre-term deliveries, low birth weight, instrumental and operative deliveries; and to determine the number of pregnant teenagers with HIV infection and other sexually transmitted infections such as syphilis.

It will be conducted by reviewing the medical records of teenage pregnant women who were admitted and delivered in the first half of 2013 at Lower Umfolozi Regional War Memorial Hospital. "The findings from the research will help to improve awareness around issues of teenage pregnancy nationally," says Dr Ogunwale.

He has incredible support from his mentors to see the research through. His supervisor, Dr Ogbo Harbor, Chief Specialist and Head of Family Medicine at Ngwelezane Hospital says: "I have known Dr Ogunwale since 2012 when he joined Ngwelezane Hospital's Department of Family Medicine as a registrar. He has performed extremely well during his time in the training programme and has proven to be an asset."

Also supporting Dr Ogunwale's rural health research focus is Dr Andrew Ross, Principal Specialist in Family Medicine and Acting Head of the Department of Family Medicine at the University of KwaZulu-Natal. "I believe that the choice of topic and study site is appropriate for his degree in Family Medicine. The findings of the research may be used to improve the health outcomes of rural teenagers in the chosen community and the nation as a whole," he says.

Teenage pregnancy and the higher rate of associated complications are a national concern.

The gaps identified during the research including the patterns of missed opportunities, avoidable factors and problems with quality of care will inform the types of interventions to improve the outcomes and experiences of women.

~Dr Busisiwe Cawe~

~DR~ BUSISIWE CAWE

Exploring the factors associated with late or non-use of antenatal services and the impact on mother and child health in the Eastern Cape.

Mother and child health have improved across the world due mainly to antenatal care. This has led to reduced maternal and perinatal morbidity and mortality rates. Sub-Saharan Africa, however, is not experiencing the same trend as the opposite is happening, causing a miss of the Millennium Development Goals 4 and 5 which deal with mother and child health. Mortality and Morbidity rates are improving by less than one percent a year and in some countries, including in South Africa, the maternal mortality ratio is rising.

South Africa's maternal mortality ratio, as reported by Amnesty International in 2014, stands at 260 deaths per 100 000 live births. Similar independent expert reports say these figures are high and a far cry from meeting the Millennium Development Goals 2015 of reducing the maternal mortality ratio to 38 deaths per 100 000 live births.

Dr Busisiwe Cawe, Head of Clinical Unit at Walter Sisulu's Department of Family Medicine is concerned about this. "This means that the target stipulated in Millennium Development Goal 5, which is 'to reduce the maternal mortality ratio by 75 percent by 2015', will not be reached."

The Eastern Cape, where Dr Cawe is practising, has one of the highest maternal mortality rates (156 deaths per 100 000 live births). Two districts in the same province do not fare well either.

The OR Tambo District, a National Health Insurance pilot site, has a rate of 230 deaths per 100 000 live births while the King Sabata Dalindyebo Sub-District Municipality is at 365 deaths per 100 000 live births. Dr Cawe's hospital, Mthatha Regional Hospital, falls under the district. These rising numbers prompted her to do something to gain a better understanding into why this phenomenon continues and to propose a solution.

She is undertaking a two year, two-phased research study, which will be followed by implementation of the intervention that will be developed from the study's outcomes.

This exploratory study aims to determine and compare maternal and foetal complications among early, late, and non-users of antenatal care. To achieve this, Dr Cawe will explore perceptions of three population groups, respectively, about antenatal care and how they understand and interact with it. These groups include mothers, health workers, and the general community members. "Currently, there is insufficient information on these aspects in the district," says Dr Cawe.

The gaps identified during the research – including the patterns of missed opportunities, avoidable factors and problems with quality of care – will inform the types of interventions to improve the outcomes and experiences of women.

Dr Cawe's investigation can have a critical impact on policy and practice regarding antenatal care and how it is actually understood in the various levels of society. She explains the conundrum that antenatal care finds itself in sometimes, despite its many benefits: 'It was initially assumed that the provision of adequate antenatal care would be associated with high utilisation rates. It has been observed, however, that some of the populations of pregnant women were unable to utilise antenatal care services despite the availability of such services'. Mothers who did not use antenatal care suffered more adverse pregnancy outcomes than those who did, and were likely to be complicated by foetal problems. As pregnancy is perceived as a normal process of life, women, families, and communities may underestimate the importance of antenatal care especially for women who have had uncomplicated deliveries.

Besides clinical work and research, Dr Cawe has always had a passion for teaching. An experienced scientist has no doubt in her abilities and passion. "Patient and student centred, she is a committed teacher to undergraduate and post-graduate students in Family Medicine. She is an excellent clinician and a role model for practicing high-quality humanistic medicine," says Professor Parimalaranie Yogeswaran, Principal Family Physician at Mthatha Regional Hospital and Head of the Department of Family Medicine and Rural Health, Walter Sisulu University. "She has a special passion for women's health and has run the maternity unit at Mthatha General Hospital for many years. This is reflected in her choice of research topic."

The outcomes of her research are expected to reach beyond the immediate district and will help improve maternal healthcare in other Eastern Cape areas. "The research will benefit the whole of OR Tambo District in the continued efforts to make the Millennium Development Goals 4 and 5 a reality, and going forward, the sustainable development goals," adds Kagiso Mhlakaza, Acting District Manager.

~DR~

MFUNDISO MABENGE

Gynaecologic cancers
are still responsible for
the highest cancer mortality
in young women and cause
major morbidity and distress.
These diseases have a negative
impact on society and families.

The Eastern Cape Province is well known for its natural beauty but it's also known for its rural communities that suffer from a lack of opportunities and development.

Dr Mfundiso Mabenge, Head of Gynaecologic Oncology Unit at Dora Nginza Hospital's Department of Obstetrics and Gynaecology is proud of his Eastern Cape Province where he has lived since he was born in 1967. He has worked as an intern and Medical Officer in the same hospital before specialising at the University of Pretoria. "The Eastern Cape Province is well known for its natural beauty, but it's also known for its rural communities that suffer from a lack of opportunities and development," says Dr Mabenge.

The health deprivation levels in this region have seen the province's women lack access to the critical healthcare services to reverse the growth of cervical cancer. "Gynaecologic cancers are still responsible for the highest cancer mortality in young women and cause major morbidity and distress," says Dr Mabenge. "These diseases have a major negative impact on society and families."

Cervical cancer, caused by high-risk Human Papillomavirus (HPV), continues to contribute substantially to maternal deaths in the Eastern Cape. One of the critical challenges contributing to the lack of progress in managing this silent killer is the non-availability of cancer risk screening, staging, and treatment services in the province. Exacerbating the problem is that there is no gynaecologic oncologist to perform surgery or any other treatment in the Eastern Cape.

Dr Mabenge says to gain some traction in managing this, cervical cancer screening will remain essential to control the epidemic and to reduce deaths from this condition. Currently, cervical cytology is the screening method used in the public health system. But, explains Dr Mabenge, "it is limited by the need to have an intimate examination performed by a trained healthcare worker." In comparison, self-sampling and molecular testing of the sample has proven to be an acceptable method for women in the Eastern Cape. "It shows much promise," he adds.

These methods, however, need to be investigated and HPV testing data collected for the South African population as they are not a straight forward fit in all contexts.

Data from across the world demonstrates that HPV testing is highly appropriate for screening. But, South Africa sits with a special biological problem. The local HPV epidemiology, explains Dr Mabenge, differs "dramatically" from the international HPV make-up in that viral infection is much more common. Because of this, healthcare workers are unable to extrapolate data for South Africa. "An urgent need exists to find an appropriate test in our context," says Dr Mabenge.

To contribute to this data development while simultaneously being part of the pioneering establishment of a gynaecologic and oncology unit for the Eastern Cape, Dr Mabenge is partnering with the University of Pretoria as a Gynaecologic and Oncology Fellow.

The partnership will do two things. Firstly, it will up-skill Dr Mabenge in pre- and intra-operative care and training. This is to enable him to establish and run a gynaecologic oncology unit at the Eastern Cape's Dora Nginza Hospital. "Cervical cancer and the control of the disease is a major challenge in the Eastern Cape and in South Africa. His project aims to improve cervical screening options for our country," says project supervisor, Professor Greta Dreyer, Head of the Gynaecologic Oncology Unit at the University of Pretoria.

The partnership will see two specialists from the University of Pretoria's mother unit visit Dora Nginza Hospital four times a year while Dr Mabenge will also visit the University of Pretoria six times during the research period.

The second arm of the project will see Dr Mabenge conducting research focused on women in rural and peri-urban areas where he will investigate the performance of two screening tests: cervical cytology and self-testing.

The research will compare cervical cytology results with high-risk HPV DNA testing of a self-collected vaginal sample. The goal of this scientific study is to assess the factors that play a role as onsets of cervical cancers.

In the study, patients will be handed tampons for self-sampling and will also be screened by healthcare professionals. The vaginal tampons will be tested for high-risk HPV types by the Roche Cobas 4800 test. On the other hand, cervical cytology will be collected on glass slides, which will be stained, and interpreted through a standard testing method. The results of the respective screening methods will be compared for accuracy based on sensitivity and specificity, and solutions will subsequently be developed.

An expert in the field is excited about the project and the prospects for the Eastern Cape's women gaining access to such a specialised service, which can prevent some morbidity and mortality cases stemming from cervical cancers. Commenting about Dr Mabenge, she says: "He has demonstrated his extraordinary commitment to the women of the Eastern Cape Province. He is a highly determined specialist who will now train as a Gynaecologic Oncologist to establish and run a gynaecologic oncology unit at this rural hospital in the Eastern Cape."

~DR~ MERGAN NAIDOO

As progress on the worldwide pursuit of Millennium Development Goals (MDGs) is measured in 2015, maternal and child health falls in the spotlight due to poor performance in this vulnerable area. This has seen South Africa align itself to the international priority with the aim of reversing the poor maternal mortality ratio and focus on ensuring that mothers are afforded safe surgical care.

> The study has the potential to significantly reduce maternal mortality associated with anaesthetics in district hospitals throughout Kwazulu-Natal.

Maternal deaths associated with obstetric haemorrhage have been identified as one of the five leading causes of maternal death in South Africa. Studies have indicated that nationally, maternal surgery is associated with a 2.8 times greater risk of death in pregnant women compared to having a normal vaginal delivery. "The rising number of maternal deaths associated with caesarean section as reflected in the last four *Saving Mothers Reports* is of great concern," says Dr Mergan Naidoo, Lecturer and Head of Clinical Unit at the University of KwaZulu-Natal's Department of Family Medicine.

This motivated Dr Naidoo to pursue further research in this priority area to test if international best practice would make a difference in the South African context. He used an adapted safety measure devised by the World Health Organization (WHO) in the province of KwaZulu-Natal.

WHO developed a surgical safety checklist which was piloted in a global setting. The pilot study showed that introduction of the WHO surgical safety checklist (SSCL) in diverse global settings had significant positive outcomes. When applied locally during a research project, it was found that the use of the Maternal Surgical Safety Checklist in obstetric units in KwaZulu-Natal also showed significant patient benefits. Surgical safety checklists, once implemented correctly, was found to have statistically significant improvements in bleeding and sepsis associated with caesarean section, as well as post-operative deaths in a study conducted by Dr Naidoo.

Dr Naidoo used the results of his study, which formed the basis of his PhD, to motivate for provincial-wide implementation of the Maternal Surgical Safety Checklist. Dr Andrew Ross, Principal Specialist and Acting Head of Department at the University of KwaZulu-Natal's Department of Family Medicine, says that Dr Naidoo's study can change surgical safety practice, as it has the potential to significantly reduce maternal mortality associated with anaesthetics in district hospitals throughout KwaZulu-Natal. "This project was relevant to the South African situation in view of the fact that there is an increasing number of deaths associated with caesarean sections during and after the surgical procedure," say University of KwaZulu-Natal's Professors Emeritus, J Moodley and P Gathiram.

The *6th Saving Mothers Report* recommends safer surgical and anaesthesia practices to improve maternal outcomes. "Statistics have shown that a large number of surgically-related maternal deaths are preventable," says Dr Naidoo. Eighty nine percent of anaesthetic deaths associated with the caesarean section during 2011-2012 were avoidable, while obstetric haemorrhage due to bleeding associated with caesarean section contribute to 31.3 percent of deaths. These unnecessary deaths are the very reason that motivates the Durban-based doctor to enact new procedural guidelines to save mothers.

This recent study, and a departure point for Dr Naidoo, was a cluster randomised control trial done at 18 local hospitals. Ten hospitals in KwaZulu-Natal implemented the Maternal Surgical Safety Checklist during the study period. Problems with implementation in other hospitals led to outcomes that were similar to the control group of hospitals. "In hospitals that implemented the Maternal Surgical Safety Checklist, however, there was a significant overall improvement in safety attitudes among staff in the operative environment," says Dr Naidoo. "These hospitals also benefited from marked reductions in the risk of postpartum haemorrhage with statistically significant reductions in maternal mortality."

The results of Dr Naidoo's project were presented to the National Department of Health and were well received with experts suggesting national implementation. "The issue now is to ensure that the obstetric surgical safety checklist is instituted in all hospitals in South Africa. Such an endeavour requires a champion and I believe that Dr Naidoo is suitable for such a function," say the two retired Professors. This belief is based on the fact that he completed his PhD project in a short period of time, indicating his dedication and commitment to decreasing maternal mortality and improving women's health, not only in KwaZulu-Natal, but also in South Africa.

~DR~ OLUMUYIWA OLOWE

Dr Olowe is undertaking a study that assesses knowledge, adherence, and control of hypertension among hypertensive patients attending a primary healthcare clinic at Ngwelezane township in Uthungulu district in Kwazulu-Natal.

Non-communicable diseases constitute a major epidemic in the country and research to better understand patients' knowledge of hypertension and the importance of treatment, is essential if healthcare workers are to improve the quality of care that is provided.

Non-communicable diseases constitute a major epidemic in the country and research to better understand patients' knowledge of hypertension and the importance of treatment is essential if healthcare workers are to improve the quality of care that is provided.

Hypertension, also referred to as high blood pressure, is a major risk factor for other diseases including cardiovascular, cerebrovascular, and renal diseases. This group of diseases count among some of the leading causes of morbidity and mortality worldwide. For one rural health doctor, the challenge is that it is affecting vulnerable communities even in cases where it can be treated successfully.

"This condition remains poorly controlled in many patients despite the availability of different classes of medication," says Dr Olumuyiwa Olowe, a Registrar at the Department of Family Medicine at the University of KwaZulu-Natal (UKZN).

With a keen interest in rural health, Dr Olowe is concerned that the increasing prevalence of disease will require more efforts on part of government and healthcare providers to improve knowledge of patients, thus encouraging their adherence to prescribed management. This will reduce the overall health expenditure on complications arising from hypertension.

To make a difference in this, he is undertaking a study that assesses knowledge, adherence, and control of hypertension among hypertensive patients attending a primary healthcare clinic at Ngwelezane township in Uthungulu district in KwaZulu-Natal (KZN). "The study will determine level of knowledge, adherence, and control among patients with hypertension in the selected population," he explains..

Dr Olowe was encouraged to embark on the study after he observed the profile of patients with non-communicable diseases, especially hypertension. He was afforded this exposure opportunity at Ngwelezane Hospital, where he works, and receives referrals from most districts in northern KwaZulu-Natal. "I then saw it as necessary to explore some of the factors playing a role in this disease." he says.

The primary research, part of his Master of Medicine degree in Family Medicine, will enrol 350 adult patients with hypertension who are accessing treatment in the Ngwelezane rural area. The data will be collected over a month. The enrolled participants will be 30 percent of the study population. "It will provide insight into what level, adherence, and control there are in the selected population and propose possible strategies to help achieve the Vision 2020 target of the Department of Health on non-communicable diseases, particularly hypertension," explains Dr Olowe.

His supervisor, Dr Andrew Ross, Principal Specialist in the Department of Family Medicine at UKZN supports Dr Olowe's views on the impact hypertension has on rural health and the lack of knowledge and control. "I believe that the choice of topic and study site are appropriate for Dr Olowe's degree in Family Medicine and the findings of the research will be used to improve the health outcomes of rural dwellers in the Ngwelazana community and South Africa."

He describes Dr Olowe as a compassionate doctor who can work both independently and as part of a team.

When completed, the study will present the demographic characteristics of patients; assess their knowledge of hypertension and its management, and their adherence to medication. It will also show an assessment of their control over three visits and recommend strategies to improve their health outcomes. "The goal is to achieve a target control for individual patients as this helps to prevent complications," says Dr Olowe.

Primary healthcare is the first port of call for the majority of people, especially in rural and semi-urban communities, and is the cornerstone of the health system with incredible significance.

~Dr Klaus von Pressintin~

~DR~ KLAUS VON PRESSENTIN

This thinking on the impact of primary care is global. The 2008 World Health Report called *Primary Health Care – Now More Than Ever* emphasised that strong primary healthcare systems lead to better health outcomes for the population they serve.

Numerous studies conducted across the world have come to demonstrate the impact made by family physicians. These are primary care doctors with post-graduate training.

In South Africa, the National Department of Health has embraced this global shift towards primary care and a strong focus on its quality. The challenge, however, is that no similar research on the impact of family physicians is available to African health leaders when planning human resources policies.

If a Cape-based primary care doctor has his way, the research shortage in this field will not be for long. The doctor and a PhD candidate, is researching the impact made by a recently-introduced group of health workers in South Africa: family physicians as expert generalists in the district health services. Dr Klaus von Pressentin, a Family Physician and Research Project Co-ordinator at Stellenbosch University's Division of Family Medicine and Primary Care, is undertaking a study that aims to provide African evidence in the area of primary care. "We plan to evaluate the impact of family physicians within the South African District Health System (DHS)," he says.

> It is a research project to help build the capacity of primary care doctors and family physicians that will strengthen district healthcare services in South Africa.

To do this, he has joined a national project, called *Strengthening primary health care through primary care doctors and family physicians*, at Stellenbosch University.

One of the project's activities is an applied research project on the impact made by family physicians. "In April 2014, I received a wonderful opportunity to contribute to the scholarship of Family Medicine in South Africa," says Dr Von Pressentin. "After a five-year period of in-depth engagement with my job in Robertson Hospital, I decided to use the research component of the national project to study towards my PhD," he adds. "The Discovery Foundation Rural Fellowship Award will allow the project to release me once a week from my duties as a project co-ordinator to focus on my PhD."

Made up of four sections, the research project includes a quasi-experimental study comparing DHS facilities with and without family physicians; a 360-degree evaluation of the impact of family physicians by their colleagues; an analysis of the national district health information system to look for any associations with the number of family physicians per 10 000 population, and interviews with district managers.

It will be conducted in seven provinces: the Western Cape, Gauteng, KwaZulu-Natal, North West, Mpumalanga, Northern Cape, and Free State. The fieldwork is conducted in collaboration with the South African academic Family Medicine departments.

"His pursuit of a PhD serves his intention to bring academic strengths and rigour to his ongoing involvement with medical education for a sustainable South African rural practice," says Associate Professor Julia Blitz, a Postgraduate Co-ordinator in the Division of Family Medicine and Primary Care at the University of Stellenbosch.

The larger project is led by Professor Bob Mash, Head of Family Medicine and Primary Care at Stellenbosch University. "I am entirely supportive of Dr Von Pressentin's desire to use this opportunity to obtain a PhD," says Professor Mash. "Given his interest as a rural family physician in academic matters, I can see that this will capacitate him for future leadership in the rural setting." He adds that this is especially the case for the Rural Clinical School at Stellenbosch University.

The larger project will result in significant healthcare contributions to South Africa. It will see the development and implementation of a national diploma level training for existing primary care doctors. The doctors will be from either the private or public sector. "The aim is to enable them to support the ward-based primary care teams to offer services in line with the government's primary healthcare revitalisation programme," says Dr Von Pressentin.

Other activities of the larger project include training in clinical supervision for clinical trainers in Family Medicine; improved assessment for all family physician training programmes; and development of a national training module on leadership and clinical governance for family physicians incorporated into all training programmes. "The outcomes will broadly benefit communities served by primary healthcare teams," says Dr Von Pressentin.

Principal Family Physician at Worcester Hospital, Professor Hoffie Conradie is not short of confidence in Dr Von Pressentin's passion for rural health, training, and research. "He is a rural family physician at heart with a special interest in rural medical education," he says. "With his extensive experience in rural health, he is ideally placed to do the research in the role and impact of family physicians in the district health system in South Africa."

Dr Von Pressentin pioneered the newly created family physician post at a district hospital in the Western Cape and joined Professor Conradie during the founding of the Ukwanda Rural Clinical School, specifically the longitudinal integrated clerkship where Dr Von Pressentin was one of the family physicians to supervise final-year medical students in a district hospital.

~PROF~ CHRISTOFFEL GROBLER

I know that if I have doctors with a special interest and qualification in psychiatry at the referring hospitals, it would mean improved care and treatment of patients in their area of service.

South Africa's mental wellbeing is in a severe crisis while its mental healthcare resources are yet to rise to a standard capable to fight this sensitive growing disease. The statistics are alarming. According to one of the leading bodies in this field, the South African Depression and Anxiety Group, one in six South Africans suffers from anxiety, depression, or substance-use problems. The numbers are higher if one were to pull in more serious conditions including bipolar disorder or schizophrenia, for example.

The challenge is that many of these sufferers do not get the help they need to treat mental illness as a result of a lack of resources or outreach services.

South Africa's mental wellbeing is in a severe crisis while its mental healthcare resources are not at an acceptable standard.

Professor Christoffel Grobler, Clinical Head at the Elizabeth Donkin Hospital in Port Elizabeth, is pooling various resources to make a dent in this. His efforts have started to lay a foundation for improved mental healthcare across the Eastern Cape – the province most deprived of healthcare resources in the country.

His resident hospital is a busy mammoth for a specialist facility. It is a 164-bed psychiatric facility that provides in-patient care while extending its services for outreach due to a growing demand. The in-patients are cases with severe mental illness who need admission. The hospital services a wide area across the Nelson Mandela Bay Metropole and part of the Cacadu District of the Eastern Cape. The hospital has only three consultant psychiatrists, three registrars in psychiatry, nine medical officers, and three Community Service medical officers.

Borrowing from the resources of this referral hospital and grants, he continues his plan of visiting hospitals that do not have adequate mental healthcare resources and provides a service to these patients, while training young doctors in the management of these conditions. "By improving accessibility to specialist care and training, doctors and nurses working in these hospitals will feel more comfortable dealing with people with mental illness and will also be able to better manage their problems," says Professor Grobler.

Every month, Professor Grobler, along with a team he assembled, visits several deprived facilities within the Eastern Cape. "We render a specialist service to these hospitals and the mental healthcare of out-patients," he says. On average, they see between 200 and 300 out-patients. His outreach team includes two doctors and a psychologist from the Elizabeth Donkin Hospital.

In his continuing plan, which he has been pursuing for the past four years, he aims to, firstly, take a specialist service closer to the patient. Secondly, through training, he assists the doctor working in rural areas to have frequent interaction with a specialist psychiatrist to improve the quality of care.

With this, Professor Grobler hopes to inspire more rural doctors to study for the Diploma in Mental Health. There is a need for this as doctors and nurses in rural areas often lack the knowledge in the field of psychiatry. "This endeavour aims to improve their knowledge and skills," he says. "It not only de-stigmatises the field of psychiatry but at the same time improves services."

For Professor Grobler, there is no point to train during visits and not be accessible when not onsite. To address this, he turns to technology. He will use some of the Discovery Foundation Award grant to procure video conferencing equipment so his trainee rural doctors have access to lectures. "These conference facilities will also give them the opportunity for face-to-face conversations with a specialist in order to discuss challenging cases at their hospital," says Professor Grobler.

This outreach intervention holds potential to manage an influx of mental healthcare patients to a referral facility with critical patients where resources can fast become overburdened. Subsequently, this will alleviate further admissions after relapse.

The proximity of care is critical to the recovery and management of patients in this setting as many of them are unable to see treatments through due to access. This puts them at risk of a relapse. Patients with serious and enduring mental illness, explains Professor Grobler, do not relapse overnight as a rule. "There are usually warning signs and if these are detected earlier and managed, it may prevent a full relapse therefore preventing admission," he adds.

The project holds significant benefits for multiple communities in the metro, including the healthcare professionals themselves. It continues improving services to patients with mental illness; provides specialist service at coalface; helps decrease chances for admissions as out-patients are seen frequently with adjustments in dosages made. In the case that severely ill out-patients need to be admitted, they will be consulted and placed on correct medication from the outset.

And the key to this, he says, is outreach, with training being central to the programme. "I know that if I have doctors with a special interest and qualification in psychiatry at the referring hospitals, it would mean improved care and treatment of our mental healthcare users in their area of service," he adds.

~DR~ PETER MILLIGAN

Mental illness is often overlooked and not given the critical priority it deserves. One of these communities impacted severely by mental illness is in the Lowveld, in rural Mpumalanga. The community's main hospital is Tintswalo Hospital, which houses the largest acute psychiatric unit in Mpumalanga. The problem, however, is that the busy unit does not have a psychiatrist.

In 2011, Tintswalo Hospital received the Distinguished Visitor award from the Discovery Foundation. This award made it possible for Professor Rita Thom, a psychiatrist in private practice, to visit the unit doing clinical work and improvement of management of that unit. "She had a great impact on the patients that she assessed, on supporting staff in the mental health team, and improving the psychiatric skills of the rest of the hospital's doctors who only covered psychiatric ward rounds at night and had not been confident in psychiatry," says Dr Belinda McIntosh, Family Physician, Department of Mental Health, Tintswalo Hospital. "Clinical associates and interns rotating through the department benefited from her visits as well."

Mental illness is often overlooked and not given the critical priority it deserves. One of these communities impacted severely by mental illness is in the Lowveld, in rural Mpumalanga. The community's main hospital is Tintswalo Hospital, which houses the largest acute psychiatric unit in Mpumalanga. The problem, however, is that the busy unit does not have a psychiatrist.

Based on her work, Professor Thom identified two projects in the unit: the Child Psychiatry service and an Occupational therapy service for psychiatric inpatients, which were both implemented by the hospital.

The challenge is that because the hospital does not have a resident psychiatrist, it cannot properly assess and treat psychiatric patients. This means leaving some serious cases unattended or some patients turned away. A Cape Town-based psychiatrist, drawn by his passion for improving mental health and the love for the Lowveld, jumped at the opportunity to help.

Dr Peter Milligan, Senior Lecturer and Head of Division of General Adult Psychiatry, in the Department of Psychiatry, at the University of Cape Town and Valkenberg Hospital will visit Tintswalo Hospital regularly to continue Professor Thom's work and expand on it.

At any given time, the hospital has problem-patients in its acute ward. Current healthcare workers do not have experience or adequate skills to analyse these complex psychiatric cases. This is where Dr Milligan will step in and provide guidance on how these special case patients can be managed.

He will be at Tintswalo Hospital's Mental Health Care Unit as a Distinguished Visitor. "He always had a soft spot for the Lowveld and would like to lead by example doing outreach to rural areas," says Dr McIntosh.

With research interests primarily in the field of mental health, he is also interested in methamphetamine abuse, service utilisation, staffing norms for mental healthcare, re-admissions to psychiatric hospitals, and the distribution and activities of psychiatrists in South Africa.

His scope of engagement in teaching and training is vast during these visits. He will mentor Dr McIntosh, be involved with nursing, Occupational Therapy, Psychology, and social work staff in a busy psychiatric unit. This mentoring will extend to interns, medical students, and clinical associate students who rotate through the unit, while giving Continuous Professional Development talks for medical staff.

This expert intervention is aimed at improving the quality of care of all psychiatric patients seen in the mental care unit. "This will be achieved by focusing on difficult patients identified for review with Dr Milligan. He will assess the management of our less complicated patients to ensure that we are managing all of them optimally, in the context of our constraints, and locally available treatment," explains Dr McIntosh.

The hospital will also bring in its outpatients for Dr Milligan to share insights on how to manage them as well.

His involvement extends beyond clinical work and touches on institutional and system improvement. "We would also benefit from his skills and experience as he can share with us what systems are working for their unit in the Western Cape," says Dr McIntosh. She refers to aspects such as management of referral systems and management of records, something that Tintswalo Hospital would like to strengthen.

Dr Milligan, who is also skilled in the practice of mindfulness, has a unique skills set in psychiatry in the public sector in both rural and academic contexts. "I have worked with him in the Eastern Cape while he was doing psychiatry at Frere Hospital in East London in 1999," says Dr McIntosh. "He was extremely helpful in mentoring interns and assisting them to constructively adapt to the challenges."

Not operating in a vacuum, the unit and its systems have to comply with standards set by the National Department of Health. This means there are legal implications to each case and management approach taken by the hospital regarding its mental health patients. "Dr Milligan will also check whether we are managing our legal paperwork in line with the Mental Health Care Act and our forensic patients as we have little mentoring in these areas," says Dr McIntosh.

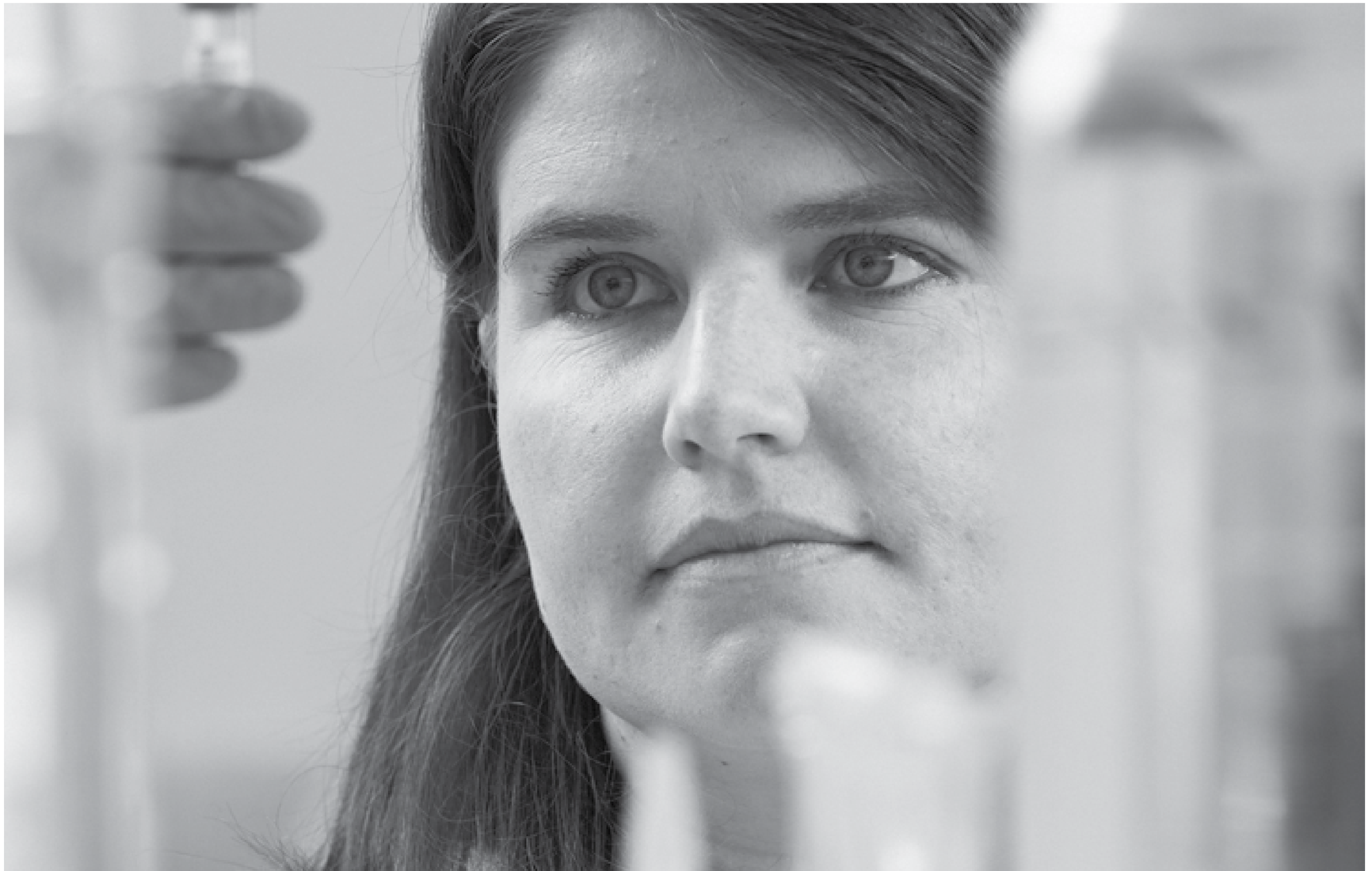
Besides his family and love for the wilderness, Dr Milligan's life revolves around his passion for rural health. Colleagues hold him in high esteem as he has demonstrated a can-do attitude to solving clinical and system challenges and is not shy to think across borders.

With a keen interest in rural mental health, he has recently developed a programme to train psychiatrists in Malawi in collaboration with the University of Cape Town and the Malawi College of Medicine. Closer to home, he has developed a programme for training medical officers. At the College of Psychiatrists, he led the blueprinting process for the development of a new curriculum for the Diploma in Mental Health. The qualification is targeted at medical officers, particularly in rural hospitals, who require additional psychiatric knowledge and skills.

His hosts are in no doubt about the impact that he will have on the institution and its large community. "Considering our context and the resources we have available, we are doing pretty well. We just have this critical gap in psychiatry that needs to be filled to bring our service to the next level of excellence," says Dr McIntosh. "With Dr Milligan, we will be well on the way to achieving this."

My intention is to make a positive contribution to the public healthcare sector as well as Academic Medicine in South Africa throughout my career.

~Dr Deborah Maughan~



~DR~ DEBORAH MAUGHAN

Drug-induced liver injury is a well-recognised complication for people who are on antiretroviral therapy – which uses a combination of drugs including Efavirenz. Drug-induced liver injury is a significant contributor to morbidity and mortality in this group of patients. Given that South Africa has the world's largest antiretroviral programme, with over two million people, medical professionals are concerned that drug-induced liver injury increases the burden on public healthcare.

Drug-induced liver injury is a significant contributor to morbidity and mortality for patients who are on antiretroviral therapy.

The challenge is that, currently, there is very little reported about the clinical and predictive risk factors for Efavirenz-related drug-induced liver injury caused by antiretroviral drugs. This is due to a dearth of research and insights which can inform guidelines on treatment practices in this area. The clinical implications of defining the genotypic and phenotypic profile of patients who are at risk of developing such complications, are significant. Little data exists in South Africa about this condition and none about the impact of the drug Efavirenz.

In a recent study on drug-induced liver injury, the University of Cape Town's (UCT) Division of Hepatology described a group analysis of 50 patients to gain insight into this problem.

This research revealed three distinct clinic-pathological patterns with patients experiencing an unusual late onset of liver injury. These include a non-specific hepatitis, mixed cholestasis-hepatitis, or sub-massive necrosis pattern. The findings showed that women with a high CD4 count of more than 300, are most affected by this. This type of liver injury resulted in higher mortality and significant morbidity with a very long in-hospital stay. For one Cape Town-based doctor, this called for an in-depth investigation.

Dr Deborah Maughan, Senior Registrar at the University of Cape Town's Hepatology division decided to look deeper at this problem, building on UCT's Hepatology Division's initial findings.

In her research, the 33-year old doctor is prospectively assessing clinical, genetic, and biological markers of risk for the development of drug-induced liver injury related to Efavirenz. This will include testing for geneticpolymorphisnis, biomaricers.

Efavirenz drug levels, and immunological markers. "With increasing numbers of patients accessing Efavirenz-based antiretrovirals," explains Dr Maughan, "it is imperative that we develop a clearer understanding of this drug injury and define risk factors associated with it to guide clinical policy."

For Dr Maughan, the challenge is made more difficult by the scarcity of specialists and lack of training locally. South Africa has fewer Hepatologists in the public sector even though drug-induced liver injury affects such a large number of people. There are five Hepatologists in the country and subsequently, less dedicated units. "Development of the Hepatology sub-specialty stream is long overdue as there is a scarcity of individuals with the necessary training to develop Hepatology units in other academic centres," says Dr Maughan. UCT's Hepatology division is one of only two dedicated Liver Units in the country and the only one for the public sector.

"My intention is to make a positive contribution to the public healthcare sector as well as Academic Medicine in South Africa throughout my career," says Dr Maughan. "If we are able to identify the patients at risk of developing this complication, we will be able to protect them against devastating and potentially life-threatening complications."

Dr Maughan's research carries the potential not only to change clinical practice but also inform public policy and possibly prevent further morbidity and mortality in this patient population.

The prevalence of HIV-related neurological and mental health problems, dementia, head injuries and substance abuse is high in South Africa. Training neuropsychiatrists is, therefore, an important step towards improving the health of patients and to find ways to prevent these conditions.

~DR~ MARI RETIEF

Stellenbosch University
Department of Psychiatry

The increasing incidence of non-communicable diseases across the globe is a well-known fact. But, there is also another disease burden that continues to grow significantly. That of mental disorders. Many factors – social, cultural, economic, environmental and traumatic – contribute to developing these disorders, which are characterised by a combination of symptoms and include depression, bipolar mood disorder, schizophrenia, developmental conditions and more. Besides having a significant impact on health, they've also shown to have major social, human rights and economic consequences.

> The prevalence of HIV-related neurological and mental health problems, dementia, head injuries and substance abuse, is high.

The consequences of these conditions are especially severe in countries like South Africa where, Dr Mari Retief says, "The prevalence of HIV-related neurological and mental health problems, dementia, head injuries and substance abuse is high".

Dr Retief showed an early interest in neuropsychiatry during her undergraduate degree at Stellenbosch University. This interest and dedication helped her pass her Part 1 neuro-anatomy exam with distinction. This ambitious, young psychiatrist-to-be then went on to complete her Fellowship of Psychiatry exam in October 2014 after just three years of registrar training. Constantly excelling in Neuropsychiatry, she is currently completing the last six months of her training at Tygerberg Hospital in the Western Cape.

Neuropsychiatry focuses on conditions that are at the border between brain health and mental health. Doctors, like Dr Retief, and other clinicians and scientists in this field are devoted to understanding the mental and behavioural consequences of diseases and behaviours that affect the brain to provide the best care to people with these conditions. "The realm of neuropsychiatry is very wide," and says Dr Retief many of these conditions are extremely prevalent in South Africa. "Training neuropsychiatrists is, therefore, an important step towards improving the health of patients and to find ways to prevent these conditions," she continues.

Training and building resources in Neuropsychiatry will include strengthening information systems, evidence and research. This is also an objective included in the World Health Organization Mental Health Action Plan 2013-2020. It recognises the essential role of mental health in achieving good health. Helping patients achieve good health is also why Dr Retief is so excited to start the next phase in her training as psychiatrist. To support the development of Neuropsychiatry, a newly-approved sub-specialty in South Africa, Dr Retief received a Discovery Foundation grant towards a Fellowship at the University of Stellenbosch. For her, this award meant, "validation and recognition of hard work, a unique career opportunity, and an awareness of the importance of Neuropsychiatry."

The University's Department of Psychiatry has a well-established clinical unit approved for training. Dr Retief will join this team, one of only two in the country, to start her research in September 2015. She says, "My sub-specialty training will enable me to further the development of neuropsychiatric services and teaching." On joining the Department of Psychiatry, she aims to work with the schizophrenia research group.

Schizophrenia, says data from the Stellenbosch University, is a condition that approximately 1% of the population will develop during their lifetime. At the moment around 21 million people worldwide are affected. Although the prevalence is considered low, schizophrenia has an enormous financial and emotional impact on individuals and on society. Dr Retief's research with the group from the University will provide insight into understanding and developing appropriate treatment and social support for people to return to society and to recover.

In her relatively young career, Dr Retief has gained vast experience in a psychogeriatric and neurology unit as well as with a neuropsychiatric team led by Dr L Asmal. She finds her outreach services at community clinics fulfilling. And, being academically inclined, it's stimulating for Dr Retief to address and solve the unique challenges that the practise of psychiatry in South Africa brings. She believes neuropsychiatry and developments in the field is extremely important in our country, especially given the high rates of HIV infection and traumatic brain injuries.

On HIV-related mental health issues, Dr Retief says, "HIV positive patients can develop a myriad of neuropsychiatric problems – from depression and anxiety to debilitating dementia." She has seen that these manifestations can have a negative effect on antiretroviral medicine compliance, long-term outcome and quality of life. "I have found that an awareness of these problems, early detection and appropriate management can improve patients' lives tremendously," she adds.

This young doctor is familiar with the intense commitment that research requires, and also the recognition that hard work can bring. Her MMed research project was titled, *Prevalence and correlates of non-medical stimulant and related drug use in South African undergraduate medical students*. This research project focused on the prevalence of non-medical use of stimulant medicines by medical students – a field of considerable interest in Neuropsychiatry. For this study, Dr Retief says, "I did a survey including South African, undergraduate medical students to establish how many used Ritalin (Methylphenidate) and other neurostimulants without need or a script to perform better academically."

Her study found that non-medical use of these medicines is prevalent among South African medical students, and it mirrors international figures on this behaviour. Dr Retief had the opportunity to present these findings at the 2014 South African Society of Psychiatrists Congress (SASOP). She says, "This was a valuable opportunity to speak on a topic of interest in the academic research domain, and a valuable learning experience for me." It also won her the MS Bell award for best presentation as well as the SASOP prize for best registrar presentation.

When she is not focusing on her work, she's mindful of the small pleasures in life like the view of the majestic mountain that's practically in her backyard. After long days walking the corridors of the Stellenbosch University or the Tygerberg Hospital, her husband and Siamese cat, Penny, welcome her home to a classic art movie. A devoted Capetonian, she believes in making time to relax and connect. She usually unwinds by sharing good food or treats she's baked herself with family and friends over a good glass of wine.

Dr Retief is someone who understands that she is also working with individuals who have different circumstances. That's why, she says, "I always make an effort to approach patients holistically within the biopsychosocial framework to understand their personal experience of their illness or condition." In developing her career as a psychiatrist and researcher of the future, Dr Retief is keen to find effective strategies and treatments of neuropsychiatric conditions. Her work will help ensure that patients have access to effective care and services that can provide them with necessary treatment and social support.

The Discovery Foundation is an independent trust in South Africa with the vision of helping to develop future medical specialists in South Africa's public healthcare system, particularly in the field of Academic Medicine. The Awards are made up of five categories that each address a specific area of medicine for development – Academic Medicine and research, further specialisation in niche and scarce fields of medicine, rural medicine and human resource and capacity-building programmes.

DISCOVERY 2015
FOUNDATION
AWARDS

PIONEERS

Discovery Foundation

MGH FELLOWSHIP AWARD

UNIVERSITY OF CAPE TOWN,
Department of Paediatrics and Child Health – Paediatric Gastroenterology: Dr Shrish Budree

Discovery Foundation

ACADEMIC FELLOWSHIP AWARDS

DR AHMAD HAERI MAZANDERANI

DR DEBORAH MAUGHAN

DR KWAZI NDLOVU

DR RENDANI MAFUYEKA

DR RICHARD SPENCE

DR SIMNIKIWE MAYAPHI

DR ZITA KERBELKER

Discovery Foundation

SUB-SPECIALIST AWARDS

UNIVERSITY OF KWAZULU-NATAL,
Department of Paediatrics and Child Health, Sub-specialty – Paediatric Neurology: Dr Amith Keshave

UNIVERSITY OF KWAZULU-NATAL/
SEFAKO MAKGATHO UNIVERSITY,
Department of Medicine, Sub-specialty – Nephrology: Dr Boitumelo Mashitisho

UNIVERSITY OF THE WITWATERSRAND,
Department of Paediatrics and Child Health, Sub-specialty – Paediatric Infectious Diseases: Dr Fikile Mabena

STELLENBOSCH UNIVERSITY,
Department of Obstetrics and Gynaecology, Sub-specialty – Maternal Fetal Medicine: Dr Jana Rossouw

STELLENBOSCH UNIVERSITY,
Department of Psychiatry: Sub-specialty – Neuropsychiatry Dr Mari Retief

STELLENBOSCH UNIVERSITY,
Division of Pulmonology, Sub-specialty – Pulmonology: Dr Shinu Abraham

UNIVERSITY OF CAPE TOWN,
Department of Paediatrics and Child Health, Sub-specialty – Paediatric Allergology: Dr Thulja Trikamjee

Discovery Foundation

RURAL FELLOWSHIP AWARDS

Individual

DR ADEKUNLE AJAYI

DR BOB MAKANDA ITAKA

DR BUSISIWE CAWE

DR HANS HENDRIKS

DR KLAUS VON PRESSENTIN

DR MARK JACOBY

DR MERGAN NAIDOO

DR MFUNDISO MABENGE

DR OLAOLU OGUNWALE

DR OLOFUNSO SOGBANMU

DR OLUMUYIWA OLOWE

DR RAMPRAKASH KASWA

Institutional Awards

WALTER SISULU UNIVERSITY,
Rural Doctor Anaesthetic Outreach Training Programme

MANGUZI HOSPITAL,
Rehabilitation Speech Therapy programme

SEFAKO MAKGATHO UNIVERSITY,
Bojanala Regional Training Centre

UNIVERSITY OF LIMPOPO,
Provincial Clinical Specialist Unit

LIVINGSTONE HOSPITAL/
WALTER SISULU UNIVERSITY,
Department of Family Medicine

Distinguished Visitors Awards

DORA NGINZA HOSPITAL,
Department of Obstetrics and Gynaecology: Prof Dreyer, Prof Snyman and Dr Mouton

LIVINGSTONE HOSPITAL,
Department of Rheumatology, Dr Malan, Dr Dubula, Dr Potts, Prof Kallan and Prof Tickly

MIDLAND HOSPITAL/SOMERSET HOSPITAL,
Department of Psychiatry, Prof Grobler

NGAKA MODIRI MOLEMA DISTRICT,
North West Department of Rural Health, Prof Yosuf Veriava

TINTSWALO HOSPITAL,
Mental Health Unit, Dr Milligan

Discovery Foundation

EXCELLENCE AWARD

WALTER SISULU UNIVERSITY,
Faculty of Health Sciences – Department of Family Medicine, Clinical Research Development Centre

GM_34252DREP_20/08/2015

Discovery

Contact Centre 0860 67 57 77 | info@discovery.co.za | www.discovery.co.za

Discovery Foundation