HEALTHSCINEWS
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FACULTY OF HEALTH SCIENCES • UNIVERSITY OF THE FREE STATE
WE COVER A RANGE OF HIGHLIGHTS AND ACHIEVEMENTS BY THE STAFF AND STUDENTS.
50 YEARS FACULTY OF HEALTH SCIENCES
UFS

Prof Gina Joubert talks about *Research* in the *Faculty of Health Sciences*

Thank you for the invitation to reflect on research in the Faculty of Health Sciences, a topic close to my heart, which has been a large part of my life for the last 30 years. I will highlight a few aspects which I think illustrate the strong, established focus on research within the faculty.

The Faculty Research Forum was established before the faculty was founded, which is impressive. Occasional dips in the numbers of presentations happened over the years, but the annual Faculty Forum for many colleagues serves as a stimulus to focus your research mind. Changes to the format, such as adding a category for educational research, have reflected international trends regarding research in health sciences.

Research has long been part of the committee structures of the faculty. In particular, the Ethics Committee has evolved to reflect worldwide approaches to evaluating research ethics and has supported and strengthened research in the faculty. Gone are the days when it was unclear whether a project needed ethical clearance and rather scant attention was given to patient confidentiality matters.

The evaluation committees for Master and PhD students are unique at our university. Not only are these committees of great value to the student, but committee members and supervisors also continue to learn from one another during these meetings.

The stimulation of research remains a focus of attention and deliberation for research committees in the schools and faculty.

In 1982, the Division of Biostatistics was established in the faculty. Few if any South African Faculties of Health Sciences have such a division or department. Most faculties rely on support from statistics, community health or public health department, or a university-wide general statistical consultation service. The establishment of this division shows immense foresight regarding the needs of the researchers within the faculty. The division became a whole academic department in 1996, and the new projects handled as part of the consultation service have expanded to 150-180 a year.

The records are unclear when the student research forum for undergraduate students was established, which was probably in the 1980s. Students from the Physiotherapy, Occupational Therapy and Nutrition departments formed the core with nursing students when the School of Nursing joined the faculty. By now, all undergraduate students need to conduct a research project. These students all need project supervision, and each year, staff members take on a new group of students to guide them through the research project process. This is truly remarkable.


Prof Gina Joubert

The first faculty medical editor Liesl van der Westhuizen was appointed in 2003 and was in the faculty until 2005. Daleen Struwig was appointed in 2008, and Theanette Mulder joined in 2014. All researchers can benefit from working with them, but inexperienced researchers' work can only be enhanced by collaborating with these medical editors and their guidance. This can be considered further training during the research process.

I regret the number of worthwhile projects that have not been published. Publication of research is, of course, but one aspect of measuring the value of research done and quality rather than the quantity of publications. My plea to researchers is to try and keep the momentum of the project going from planning to publication. ►

Articles

We have unique health problems that need to be researched and solved and findings shared with the broader health research community through publications. We once received reviewer feedback from a local journal regarding an undergraduate student project questioning why there should be interest in findings from Bloemfontein. Undaunted, we went on to publish that manuscript in an international journal. Be assured; there is interest in findings from Bloemfontein and the Free State.

There have been years in the faculty when publications had to take a backseat due to other pressing demands. But 2020's research outputs are a high point reflecting the work of 253 (!) authors in the faculty.

It has been a privilege to be so close to the research in the faculty for so long. I enjoyed the diverse opportunities and the creativity these sparked. I have given a somewhat backward glance above. Many newer initiatives such as the re-integrated FARMOVS and the strengthening of the Research office under the Vice-Dean for Research promise to enhance the faculty research further. ■

UFS to host national and continental *Pharmacology centre of excellence*

The Department of Pharmacology at the University of the Free State (UFS) will establish one of the most advanced modern Pharmacology GLP-accredited research and development laboratories in the country, and possibly in the region, after receiving a grant of R58 million.

Prof Motlalepula Matsabisa, Director of Pharmacology, has received a DSI high-end infrastructure (HEI) grant to build the laboratory, which will be a centre of excellence for the government, the World Health Organisation (WHO), and the African Union's (AU) Commission for Social Development. The grant will also be used to build an herbal medicines production/manufacturing facility, as well as piloting a health facility for traditional medicines.

"I am excited to bring this huge grant to the UFS and look forward to the institution working effortlessly to become one of the leaders in this initiative. We aim to respond to our local, regional, and international research needs, our product development and commercialisation requirements, and to be competitive according to current international standards. The facility will be a unique place to learn and put theory into practice and develop the research from the bench to the hospital bedside," says Prof Matsabisa.

Laboratories will host students, researchers, and scientists

According to him, the research and development laboratories, as a centre of excellence, will host students, researchers, and scientists from the continent in order to practicalise and strengthen bilateral African science and technology development, as well as South-South collaborations, while maintaining its international outlook. This will lead to proper drug discovery, drug development, and product development, serving a number of clients, including communities, traditional health practitioners, the pharmaceutical industry, as well as policy makers. "We will develop the facilities to compete in international herbal-medicine markets.

With this injection of funding, as well as support from all our clients, namely universities – the UFS in particular – the government, and the WHO and AU, including support from traditional health practitioners, communities, and the herbal pharmaceutical industry, failure has no definition in our vocabulary and is a distant thought." ►

Prof Motlalepula Matsabisa, Director of Pharmacology, has received a DSI high-end infrastructure (HEI) grant to establish one of the most advanced modern Pharmacology GLP-accredited research and development laboratories in the country, and possibly in the region.

Mr Werner Nel, Director: Research Development; Dr Nico Walters, Technology Development expert consultant, and Dr Glen Taylor, Senior Director: Research Development, were part of the 'A-Team' that played a role in the Department of Pharmacology receiving a R58 million grant. PHOTO: SUPPLIED

"We will develop effective, safe, quality products under one roof – from basic and clinical research to finished, final, marketed proprietary products based on indigenous knowledge systems (IKS) and our iconic traditional medicinal botanicals," states Prof Matsabisa.

Under the leadership of Prof Matsabisa, the department has recently also been awarded an annual Technology and Innovation Agency Platform (TIA) grant of R17 million for the next five years. This research and teaching programme, known as African Medicines Innovations and Technologies Development (AMITD), will help to recruit and employ the best skills throughout the research, development, and herbal-medicine manufacturing value chains.

"These investments will enable the university to play a large and key role in realising the dream of a sustainable propriety ATM industry to make an impact on health and job creation."

AMITD will act as a national training and capacity development facility in drug research and development (R&D), and the formulation and production of quality, safe, effective, and well-researched medicines. We hope to not only train students, but also technicians, researchers, and traditional health practitioners. The facility will afford postgraduate students a unique opportunity for research development and training at this innovative platform, with world-class specialised infrastructure and IKS academic leadership. Capacity development will be strengthened through postgraduate bursaries and postdoctoral funding by the UFS. The collaboration with the private sector will further afford opportunities for research capacity development through postgraduate job opportunities and internship training at collaborating industry partners.

Prof Matsabisa, who is also leading Africa's fight against the COVID-19 pandemic after being appointed chairperson of the World Health Organisation's (WHO) Regional Expert Advisory Committee on Traditional Medicines for COVID-19 last year, further states that both the laboratories – the health and the production facilities – will be state-of-the-art, with the most modern research and production equipment.

Platform to strengthen collaborative efforts

The university, with its commitment, proven leadership in IKS for health, extensive IKS collaborative networks across the globe, available research and pharmaceutical product development expertise, state-of-the-art manufacturing equipment and supportive research capacity development programmes, is ready and eager to host such a production facility on its Bloemfontein Campus for later growth and expansion. The production and laboratories will be ideally situated in Central South Africa, so that the facility can be accessible to all.

"We see this facility as a platform to strengthen our collaborative efforts with industry, communities, and traditional health practitioners to address their research, R&D and production needs, and strive to contribute to the local development of an African medicines-based pharmaceutical industry. The facility will also be a national asset for the training of postgraduate students and scientists in this field, with more emphasis on assisting those institutions in rural provinces," added Prof Matsabisa.

> ***In every collaboration and teamwork there are those who take the idea as theirs and ensure that they live with this idea and grow with it; I call them the A-Team.***
>
> *Prof Matsabisa*

All of this would not have been possible without the 'A-Team' of Dr Glen Taylor, Senior Director: Research Development, Dr Nico Walters (expert consultant for technology development), and Mr Werner Nel (Director: Research Development), says Prof Matsabisa.

"There are a lot of people supporting IKS directly and indirectly – from Rectorate to the Faculty of Health Sciences and the Department of Pharmacology, as well as the cleaners who ensured a clean place when the funders came for their visits, support from Pharmacology staff, students, and postdoctoral fellows. I acknowledge the unwavering support of my HOD, not forgetting colleagues and managers of other departments who also contributed to the success of this grant directly or indirectly."

"However, in every collaboration and teamwork there are those who take the idea as theirs and ensure that they live with this idea and grow with it; I call them the A-Team," says Prof Matsabisa.

According to Dr Taylor, the UFS research strategy recognised the important role of IKS and African traditional medicines in the health and socio-economic fabric of our society. "Over the past five years, we have systematically built and invested in an IKS platform to become a centre of excellence, not just institutionally, but also with a national, regional, and international standing," says Dr Taylor. ▶

◄ *continued from page 3*

** UFS to host national and continental Pharmacology centre of excellence*

Big grant is a first

Dr Walters says a number of government initiatives aimed at community development, job creation, scientific value addition to local products, and the utilisation of our natural resources – land and marine – have been developed. These initiatives include the IKS Act 6 of 2019, AsgiSA, Batho Pele, and the Biodiversity Initiative, aimed at the sustainable development and commercialisation of South Africa's natural resources.

"But never before has such a bold funding decision been made in the IKS funding sphere in the country like this one. I have been in this space of technology development and IKS development for years. This is not only the first such big grant for the UFS, but also for the country and region in terms of IKS."

"It was a compelling value-for-money proposal, and very difficult to shoot down with so many letters of support emanating from other universities, research councils, government departments – provincial and national – our own SAHPRA, and many other letters from the WHO, WIPO, UN bodies, including from other international universities. This is not surprising, given the recognised international scientific standing of Prof Matsabisa on all the continents. But again, more importantly, not to forget the letters of support for this facility from the pharmaceutical industry and organisations of traditional health practitioners," says Dr Walters.

"We would also like to acknowledge the support – through his letter of support – from our Rector and Vice-Chancellor, Prof Francis Petersen, and the institution for the idea and proposal content," says Prof Matsabisa. ■

UFS Department of Nuclear Medicine *treats first patient* with *advanced stage* of *prostate cancer*

The University of the Free State (UFS) Department of Nuclear Medicine has, for the first time, started using Lutetium 177 PSMA (Lu-177 PSMA) therapy for the treatment of metastatic castrate-resistant prostate cancer (MCRPC) – an advanced stage of prostate cancer.

The UFS and the Free State are now joining other South African universities, such as the University of Pretoria and the University of the Witwatersrand, and other provinces in using this method to treat MCRPC patients.

Dr Osayande Evbuomwan, a Senior Lecturer and medical specialist in the Department of Nuclear Medicine, Faculty of Health Sciences, says they have started treating their first MCRP patient (first cycle) with peptide receptor radionuclide therapy (PRRT) on 15 July. It is the first time that Lutetium 177 PSMA – a type of PRRT used for treating patients with MCRPC – has been used in the Free State. This method is used on MCRPC patients who are not eligible for chemotherapy or have failed first- or second-line chemotherapy.

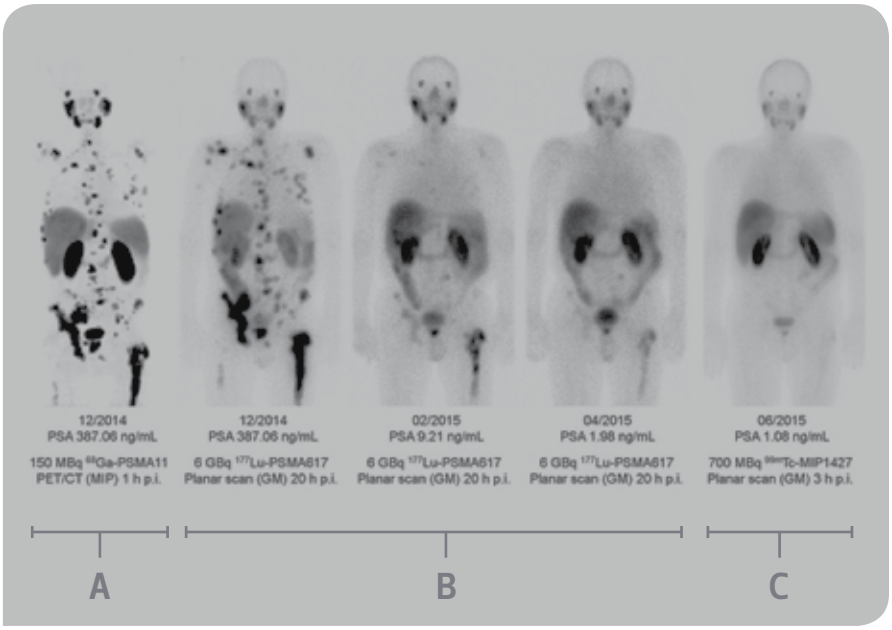
Expertise and funds are now available for this treatment

Dr Evbuomwan was trained and exposed to this therapy at the University of the Witwatersrand during his registrar training in nuclear medicine. When he joined the UFS in 2019, he – with the always available help of the Head of Department, Dr Gerrit Engelbrecht – pushed for the therapy to be used in the department.

"We in the Department of Nuclear Medicine are happy that expertise is now available and that some funds have been released for this treatment to commence. The index patient is very sick with MCRPC and was too sick to qualify for first-line chemotherapy. Each patient will need about four-six cycles for complete treatment. The patient is being treated in the Department of Nuclear Medicine at the Universitas Academic Hospital and Annex." ►

Dr Osayande Evbuomwan is a Senior Lecturer and medical specialist in nuclear medicine in the Department of Nuclear Medicine, Faculty of Health Sciences, at the University of the Free State (UFS).

> ***We are now able to offer a promising, safe, and highly efficacious therapy for patients with MCRPC in the Free State. Some of these patients no longer need to travel to other provinces to get the treatment.***
> *Dr Evbuomwan*



An image from the internet of a case before, during, and after completing the full course of therapy. The first image (A) is before treatment and the last image (C) is after completing treatment, while the images in between (B) are during treatment.

Source: Google – Prostate cancer one of the leading causes of morbidity and mortality.

"We are hoping that he will be able to complete at least four cycles and respond well to the treatment. We believe that the ability to administer this treatment now is good news for the Free State, as the people of the Free State also deserve to be exposed to this level of treatment. We are hoping that the government will continue to provide more funds for more of these patients to be treated in our facility," says Dr Evbuomwan.

It was budgeted to treat five patients (20 cycles), with each cycle (just the Lu-177 PSMA) costing more than R50 000.

Dr Evbuomwan says prostate cancer is one of the leading causes of morbidity and mortality in the world, including South Africa. When it progresses to the very advanced stage of MCRPC, the prognosis becomes very bad.

Dr Evbuomwan explains that there are various conventional systemic therapies, including first- and second-line chemotherapy that could be used to treat patients at this very bad stage. However, not all patients are fit for chemotherapy. The few who are fit, according to Dr Evbuomwan, usually end up failing the first-line chemotherapy, which has a lot of undesirable side effects and require long-stay hospital admissions.

Only a few centres are able to offer second-line chemotherapy. So many of these patients end up suffering from prolonged bone pains before eventually dying from the disease.

PRRT is a targeted nuclear medicine therapy that offers the opportunity to deliver very high levels of radiation specifically to cancer cells, because these cancer cells express specific receptors to which certain peptides can bind. This specificity to cancer cells offers the advantage of providing lower doses of radiation and damage to normal organs and tissues, a characteristic that conventional therapies do not offer, explains Dr Evbuomwan.

According to him, Lutetium 177 PSMA (Lu-177 PSMA) is a type of PRRT used for treating patients with MCRPC, who are not eligible for chemotherapy or have failed first-line chemotherapy. Numerous research studies around the world have proven that this treatment improves quality of life, slows down disease progression, and improves overall survival, with little or very tolerable side effects in most patients.

The University of Pretoria is one of the pioneers of this treatment in the world, having done a lot of research with it since 2017. Other provinces such as the Western Cape and KwaZulu-Natal have also recently become involved with the therapy. This therapy is expensive and requires a lot of expertise. It also involves the input of a multidisciplinary team (MDT), which must at least include a nuclear medicine physician, a radiation oncologist, and a urologist. The Departments of Urology and Radiation Oncology at the UFS were also instrumental in the initiation of the therapy and form part of the MDT team at the UFS in the management of these patients.

Treatment puts department, university, and hospital on the map

Dr Evbuomwan says the ability to administer this treatment puts the department, the UFS, and the hospital on the map, alongside other top universities within and outside the country. "It also creates an avenue for us to gather data for research purposes and for publications. We are now able to offer a promising, safe, and highly efficacious therapy for patients with MCRPC in the Free State. Some of these patients no longer need to travel to other provinces to get the treatment."

There are plans to expand the treatment to more patients – and hospital management, who were present at the first treatment, are excited and looking forward to the outcome of this current treatment. ■

Malnourished mothers a higher risk of *delivering babies* with *poor birth outcomes*

The health and well-being of pregnant women has a major influence on the health of their babies and an adequate intake of nutrients during pregnancy is vital for the health of the mother and the optimal development of the foetus. Mothers who are malnourished have a higher risk of delivering babies with poor birth outcomes such as being premature, underweight, short (stunted) and wasted.

These are some of the findings from the Nutritional status of Expectant Mothers and their newborn infants (NuEMI) study conducted by a research team in the Department of Nutrition and Dietetics at the University of the Free State (UFS) Faculty of Health Sciences. Prof Corinna Walsh of the Department of Nutrition and Dietetics and an NRF C-rated researcher is leading the research team. She also serves as Chairperson of the Nutrition Society of South Africa (NSSA).

The aim of the study

According to Prof Walsh, malnutrition in mothers may include undernutrition, micronutrient deficiency and/or overweight and obesity. Says Prof Walsh: "Babies born with poor birth outcomes are at risk of lifelong impairments in physical, neurological and educational areas, increasing the economic burden faced by families, communities and healthcare systems in resource-poor settings." The NuEMI study aimed to determine the nutritional status of pregnant women attending the antenatal clinic at Pelonomi Regional Hospital as well as those visiting antenatal clinics in the rural Southern Free State during 2018 and 2019.

During the first phase of the study, questionnaires on socio-demographic background and household information; reported health and lifestyle; pregnancy history, social support and stress; household food security; and dietary intake were completed for 682 pregnant women at Pelonomi and 100 pregnant women at clinics in the Southern Free State. Blood and urine samples were also collected and mothers were weighed and measured.

During the second phase of the study, the same mothers were invited to provide the information on their babies' Road to Health Booklets after they were born (gestational age, method of delivery, HIV exposure and weight, length and head circumference at birth); 331 mothers returned with their babies (N=347) in the second phase.

Studies that have used the NuEMI database

The data collected in the NuEMI study has been used in a large number of studies, including those of two doctoral students and a postdoctoral fellow in the Department of Nutrition and Dietetics.

Prof Walsh says very little has been published on the iodine and iron status of pregnant women in South Africa and especially in the Free State. As part of the blood tests that were done, Dr Jennifer Ngounda assessed the iodine and iron status of the cohort of women included in the NuEMI study, including associations with sociodemographic, diet and health factors in urban and rural participants.

In another study, Dr Marizeth Jordaan, developed a nutrition screening tool to predict birth outcomes of the NuEMI cohort of pregnant women at Pelonomi Hospital. Based on the variables identified as independent predictors of overall birth outcomes, she developed an eight-item nutrition-related screening tool to detect those pregnant women who are at risk of poor birth outcomes. The screening tool can assist nursing staff to identify high-risk pregnancies and to refer at an early stage, when nutrition intervention can still positively impact on birth outcomes.

Adequate intake of the nutrient choline and optimal diet quality play a critical role in normal development of the foetus and the short- and long-term health of the offspring. Dr Liska Robb developed a risk assessment profile and diet quality index for inadequate choline intake in the pregnant women included in the study. Dietary intake (including intake of the nutrient choline) was assessed using a Quantitative Food Frequency Questionnaire and factors that could affect choline intake in this population were identified. In addition, a diet quality index, with a focus on choline-rich foods, was developed for use in pregnant women in South Africa.

The NuEMI research team looks forward to translating the findings of the study into other tools and resources that may benefit pregnant women and their children in the Free State and beyond. Furthermore, we trust that this study will serve as a strong foundation for a larger multidisciplinary birth cohort study that is planned in the Faculty of Health Sciences. ■

Dr Jennifer Ngounda, Dr Marizeth Jordaan, Prof Corinna Walsh and Dr Liska Robb from the research group in the Department of Nutrition and Dietetics at the University of the Free State (UFS) took part in the Nutritional status of Expectant Mothers and their newborn infants (NuEMI) study. Prof Gina Joubert, who is currently in Germany, is absent from the photo.

UFS Thought-Leader Series: *Vaccination is necessary* to gain control over *COVID-19*

Panellists at the University of the Free State (UFS) Thought-Leader webinar, themed Why vaccinate, felt it was critical for everyone in South Africa to get vaccinated in order to return to a sense of normality and to a university environment where lectures and learning not only happen in the lecture room, but in the 'informal' academic environment.

Large numbers of the community need to be vaccinated to halt the progression of the pandemic and to maintain non-pharmaceutical interventions.

Dr Nicholas Pearce, Head of the Department of Surgery in the Faculty of Health Sciences at the UFS, Prof Adrian Puren, Acting Executive Director for the National Institute for Communicable Diseases (NICD), Prof Glenda Gray, President and CEO of the South African Medical Research Council (SAMRC), and Dr Angelique Coetzee, Chairperson of the South African Medical Association (SAMA), were the panellists. This was the fifth webinar (28 September 2021) in the series, which is part of the Free State Literature Festival's online initiative, VrySpraak-digitaal.

Critical that everyone get vaccinated to return to a sense of normality

Dr Pearce indicated that patients seemed hesitant to present to both private and state health-care facilities during the COVID-19 pandemic. This resulted in patients presenting in the final stages of cancer (stages 3 and 4 as opposed to stages 1 and 2). "The quicker we are able to exit the COVID-19 pandemic – and we will probably never totally eradicate it as it might become endemic – we can go back to treating other medical conditions that are currently not being optimally managed," said Dr Pearce.

He is also concerned that the impact of the pandemic on other medical diseases (such as mental issues) will only become visible over a number of years. We must be careful that we do not forget about the non-COVID diseases, according to Dr Pearce.

Dr Pearce said it was critical that everyone be vaccinated in order to return to a sense of normality. The COVID-19 protocols of social distancing and the wearing of masks have left a mental toll on us as a society. He said depression and suicide are on the rise, and if we want to go back to a sense of normality, a large number of people need to get vaccinated.

The economic problems caused by COVID-19 are huge, as a large number of people have stopped their medical aids in the Free State. Some of the other economic problems due to COVID-19 is that a larger number of the younger population got infected during the third wave, which means that many breadwinners lost their lives. In the medium and long term, this is going to have huge economic repercussions. Vaccine acceptance increased among South African adults

> ***First, if all 72% were actually vaccinated, we would still be 8% short of the government's target of 80%.***
> *Dr Angelique Coetzee*

Armed with figures from a recent study by the Centre for Social Change at the University of Johannesburg (UJ) in collaboration with the Developmental, Capable and Ethical State research division of the Human Sciences Research Council (HSRC), Dr Coetzee illustrated the importance of getting vaccinated. The study found that even though hesitancy dropped by 5%, vaccine acceptance increased to 72% among South African adults.

She said according to the study, South Africa faces two significant challenges. "First, if all 72% were actually vaccinated, we would still be 8% short of the government's target of 80%. So, we know that government has secured significant vaccines to vaccinate the entire adult population and that the supply of vaccines should no longer be a concern as we had seen earlier this year. What we need to do is to convince some of the people who are currently hesitating about the value of getting vaccinated." Acceptance among the older age group has risen substantially by 11% when ▶

comparing the results from round three (December 2020 to 6 January 2021) with round four (June 2021 to July 2021). Said Dr Coetzee: "But what is still concerning is that the acceptance among those aged 18 to 24 years has actually declined from 63% to 55%."

The second challenge that came to the fore, continued Dr Coetzee, is one of access. "We have said many times before, vaccines should be brought to the people, and not the other way around. Finally, we are now seeing that this is starting to happen, but I think it is too slow – especially in the rural areas – and maybe a bit too late. Let's see what is going to happen going forward."

According to Dr Coetzee, the message must be clear: We need to vaccinate to save the health-care workers and to save lives and maintain the non-pharmaceutical interventions. She said it does not matter how many times people are told to get vaccinated, they still want to take their chances with the virus.

Aim higher to achieve herd immunity

According to Prof Puren, the threshold for herd immunity of about 67% vaccinated adults in South Africa now seems to be more mythical. "We should be aiming higher than that, meaning 90% or higher in terms of the proportion of the population being vaccinated in order for us to have a more endemic control," says Prof Puren.

"A large number of people in South Africa have been infected with COVID-19, but there is still a significant proportion of people that have not experienced this virus. Herd immunity is about the indirect effect of protecting those individuals who are susceptible. So, it's a particular threshold of the number of people who had an immune response." Prof Puren said there will have to be a breakthrough in infections. Vaccines do work, they are effective. It is possible for us to achieve endemic control, and vaccines are the critical component to do that.

Important benefits of vaccination are to gain control of the academic year

"The questions about the benefits of mandatory vaccination at university – to prevent hospitalisation and deaths. With vaccination, you also impact isolation and quarantine challenges. If you have good coverage of vaccinations, institutions will not have to keep closing classrooms, or hostels. It will help keep the workforce open. "One of the important benefits of vaccinations is to gain control of the academic year. All the universities have suffered, having to move to online learning where a lot of students don't have the luxury and privilege of having data available to them all the time." "The issue of hybrid learning is important, and you will still see a lot of hybrid learning going on as we go into different surges. But students still need interaction, they still need face-to-face teaching, and they still need the interaction, the socialisation. We have to maximise the university experience," said Prof Gray. In answering the question – would it be beneficial for employees and institutions to formulate and implement a vaccination policy – Prof Gray said it was a critical move to open up academic institutions.

She agreed with Prof Puren that the 70% is almost mythical, and that a higher level of vaccination will be needed to start controlling the pandemic.

"Why should we vaccinate? Why should we try and control the transmissions in our country? We have to do that, because we need our economy to start, we see how we have been affected by being on the red lists of certain countries. This affects our economy, our tourism, and jobs. A lot of people have lost jobs. If we want to interface with the rest of the world, we are going to have a discussion around making sure citizens are vaccinated." ■

Dr Nicolas Pearce
Head of Department: Surgery Faculty of Health Sience, UFS

Prof Adrian Puren
Acting Executive Director: NICD

Prof Glenda Gray
President and CEO: SAMRC

Dr Angelique Coetzee
Chairperson: SAMA

FACILITATOR
Prof Francis Petersen
Rector and Vice-Chancellor: UFS

Dr Nicholas Pearce, Head of the Department of Surgery in the Faculty of Health Sciences at the UFS, Prof Adrian Puren, Acting Executive Director of the National Institute for Communicable Diseases (NICD), Prof Glenda Gray, President and CEO of the South African Medical Research Council (SAMRC), and Dr Angelique Coetzee, Chairperson of the South African Medical Association (SAMA), were the panellists at the University of the Free State (UFS) Thought-Leader webinar, themed Why vaccinate?

COVID-19: ***A hopeful prospect for African solidarity*** through medical research

South Africa is at the forefront of SARS-CoV-2 genomics surveillance in Africa, and the University of the Free State (UFS) Next Generation Sequencing (UFS-NGS) Unit is playing a major role in responding rapidly to public health threats in South Africa and other African countries.

Prof Martin Nyaga, Associate Professor in the UFS-NGS Unit and Director of the World Health Organization Collaborating Centre (WHO CC), and Dr Peter Mwangi, a Postdoctoral Research Fellow in the UFS-NGS Unit, say medical research in Africa is seriously deficient when benchmarked against other developed continents in terms of the capacity to perform SARS-CoV-2 genomics. According to them, an article published in a nature science journal provided evidence that African nations were largely uninvolved in clinical trials for the development of a COVID-19 vaccine.

"If African leaders are to learn one thing from the current pandemic, it is the need to provide adequate resources and funding for medical research, especially in next-generation sequencing facilities. Anyone keen on real-time data and information on the COVID-19 pandemic understands how fundamental sequencing the SARS-CoV-2 genome is. Rapid sequencing of the SARS-CoV-2 genome has played a key role in accelerating the development of emergency vaccines against this devastating disease," say the two researchers.

Genome sequencing projects are collaborative efforts

Prof Nyaga is heading the WHO CC after the UFS was designated as a collaborating centre for vaccine-preventable diseases (VPD) surveillance and pathogen genomics last year. The centre is located in the Division of Virology in the Faculty of Health Sciences. It is also part of the Network for Genomic Surveillance in South Africa (NGS-SA), a genomics network/consortium established to respond rapidly to public health threats in South Africa.

Genome sequencing projects are usually collaborative efforts involving different stakeholders, including the national government through the Ministry of Health, scientists, and clinicians. The UFS-NGS Unit is actively involved in sequencing SARS-CoV-2 samples in the Free State channelled through the National Health Laboratory Services (NHLS-FS).

The sequenced data generated by the unit is continuously deposited in the Global Initiative on Sharing Avian Influenza Data (GISAID) database through the code name UFS-VIRO-NGS. The UFS-NGS Unit is currently performing whole-genome sequencing runs of approximately 100 SARS-CoV-2 samples per month.

"Through continuous processing of SARS-CoV-2 samples, the UFS-NGS Unit has optimised several techniques for COVID-19 genomics, from wet-lab to dry-lab analysis, captured in the internal protocols of the unit. The unit is continuously generating quality SARS-CoV-2 sequence data for the national consortium that is important for vaccine immunogenicity research projects geared towards regional vaccine development," says Prof Nyaga.

Analysis of genome sequence data plays significant role in vaccine development According to Prof Nyaga and Dr Mwangi, the sequence data generated in the UFS-NGS Unit has been key to establishing the SARS-CoV-2 variants of interest (VOI) and variants of concern (VOC). The VOI and VOC require one or more appropriate public health actions, including enhanced sequence surveillance, enhanced laboratory characterisation, or epidemiological investigations to assess how easily the virus spreads, the severity of disease, the risk of infection, and whether currently authorised vaccines offer protection.

"An example of a VOC strain is the 20H/501.V2 in lineage B.1.351 that was first discovered in South Africa after analysis of whole-genome sequence data, highlighting ►

***LEFT:** Dr Peter Mwangi is a Postdoctoral Research Fellow: NGS and Research Scientist in the WHO Collaborating Centre (WHO CC) at the University of the Free State (UFS).*
***RIGHT:** Prof Martin Nyaga, an Associate Professor: Next Generation Sequencing (UFS-NGS) and Director of the WHO Collaborating Centre (WHO CC), says there is a need to invest heavily in medical research, especially in next-generation sequencing facilities.*

the importance of whole-genome SARS-CoV-2 surveillance. Consequently, analysis of the whole genome sequence data plays a significant role not only in vaccine development efforts, but also in advising policy to global and African governments on protection measures to be undertaken to curtail COVID-19 transmission," explain the researchers.

The UFS-NGS Unit has been working collaboratively with other African scientists and actively training African students from different cultural backgrounds, not only on SARS-CoV-2 genomics, but also on different research clusters. The diversity of ideas through engagement with African researchers to share knowledge and push scientific innovation exemplifies the value of working together in the spirit of Ubuntu to develop solutions to our African problems. As we commemorate Africa Month 2021, let us be inspired by our hardworking UFS researchers, who are promoting African solidarity by working collaboratively in medical research to strive for a safe, healthy, and prosperous Africa. ■

Mutshidzi Mulondo among *Mail & Guardian's influential young South Africans*

Mutshidzi Abigail Mulondo, Lecturer and PhD candidate in the Faculty of Health Sciences at the University of the Free State (UFS), has been recognised as one of the Mail & Guardian's 200 Young South Africans.

For Mutshidzi Abigail Mulondo, Lecturer and PhD candidate in the Faculty of Health Sciences at the University of the Free State (UFS), being recognised as one of the Mail & Guardian 200 Young South Africans is encapsulated in Mark Twain's quote, "The two most important days in your life are the day you are born and the day you find out why". Knowing that she is living her 'why I was born' and actually being recognised for it, is a wonderful feeling, says Mulondo, whose passion is public health.

"I feel honoured to have been considered and counted among influential young South Africans who are doing incredible work. I am thankful to Mail & Guardian for this wonderful recognition," says Mulondo.

Passion and commitment to promoting health

She was nominated by one of her mentors but was sceptical that she would be in the final 200 list, as there are usually more than 5 000 applications each year. According to Mulondo, she is happy to have been proven wrong and even more grateful to be surrounded by powerful women who continue to propel her towards her purpose. Mulondo says she always knew that she wanted to be in a position to help alleviate pain and suffering and that health would be her avenue to serve humanity. Says Mulondo: "When I started with an interdisciplinary PhD in Health Professions Education and Community Health, it further solidified my passion and commitment to promoting health." "I am equally passionate about mental health wellness. After completing a master's degree in Psychology at the University of Pretoria, I knew it would provide me with an opportunity to impact people's lives more holistically. An opportunity to not only promote physical health, but to also advocate for mental health."

Hope for the youth of South Africa

Mulondo's message to young people is also the motto she lives by: "Be kinder to yourself". So many times, we are hard on ourselves when we fail or when we do not accomplish what we set out to accomplish at a particular time. "Please remember that you are the only you that will ever be. You must therefore be gentler with yourself;

Mutshidzi Abigail Mulondo

despite what you thought you would have achieved thus far, appreciate how far you have actually come against whatever odds," says Mulondo. Her hope for the youth of South Africa is that we reach a point where fighting against issues such as gender-based violence (GBV), systematic racism, gender inequality, high unemployment rates, and all other constructs that affect our youth and country is a matter of the past. "While we envision that day, I hope that we all continue to stand together and speak up for the vulnerable, marginalised, and disenfranchised. I am confident that we will see and experience the fullest potential of our youth, in this lifetime (Jeremiah 29:11)." ■

VL van den Berg
John van der Riet (Clinical)

Cynthia Spies
Kerneels Nel (Educational)

Peter N Mwangi
Muller Potgieter (Laboratory)

HC Spies
John van der Riet (Clinical)

E de Waal
Best Clinical Paper in the Junior category

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L Robb
Best Clinical Paper in the Senior category

L van der Merwe and **H Brits**

C Bester
Best in the Junior category

BF Bisiwe
Runner-up poster in the Junior category

M Morphis
Runner up in the Junior category

M de Bruin
Best poster in the Junior category

FJ Burt
Best in the Senior category

Congratulations to our 3minutes thesis presenation winners faculty competition!

MASTERS

Dr Melisha Moodley
First Place, MMed Paediatrics, SCM

Mrs Angelique Carson-Porter
First Place, MSc Dietetics, SHRS

Dr Carin Behrens Van Tonder
Second Place, MMed Neurology, SCM

Dr Liska Budding
Second Place, MMed Anatomical Pathology, SCM

Ms Chené Bester
Third place MMedSc Human Molecular Biology, SBMS

DOCTORAL

Mr Tumelo Sekee
First place, PhD in Medical Virology, SOP

Student voice

Maritha Albertyn

My name is Maritha Albertyn, and I am a final year BSc Dietetic student at the Department of Nutrition and Dietetics. I am involved in the department as a promoter and representer for dietetics. Being a final year student, I am also more involved with the marketing of our department in student research forums, such as marketing and selling food made during three kitchen weeks, which is part of our intern rotations. Every other week we partake in different rotations. I visit various communities, clinics, hospitals, and food service areas to practise being a dietitian.

My greatest achievement was winning at the student forum for the best article and presentation for the School for Health and Rehabilitation Sciences and second prize for the best article in the Faculty of Health Sciences. This was a great honour and such a privilege as a dietetic student. Not only is this an achievement, but also hard work that paid off. Every year we study very hard to pass all modules to obtain our degree.

A challenge I experienced while conducting research was getting truthful answers from patients. Some seemed afraid to be honest and some participated because they felt that they had to. Another challenge was the results. Even though we gained new facts and knowledge in the patient satisfaction field, aspects such as state of disease and power dynamics could have given different results. At the forum event, similar questions were asked regarding what the results

could have been if more aspects had been incorporated in the study. The challenges experienced during the radio talk podcast were that we had to do it online due to Covid-19 and not being able to ask additional questions and be given explanations. ■

Wethu Tsobolo

My name is Wethu Tsobolo from the Department of Nutrition and Dietetics doing my BSc in Dietetics. In my current year of study, I do literature reviews, rotations in clinics and hospitals,

plan activities involving students in the departments, and plan nutrition interventions with the community, amongst other things. I have been fortunate to receive the prize from the department for being the best first-year student in 2018. Recently, we presented our research study at the student forum where my group and I won first place from the school of health and rehabilitation sciences and second position in the whole Faculty of Health Sciences.

When researching topics for a public release like the radio podcast, the challenges I faced were communicating scientific facts in layman terms for the public to understand and knowing which information to include in my presentation to prevent the message from being lost. I believe my podcast will bring clarity to the misconception about diet and exercise, which if it was a live interview, listeners could be able to ask questions for more clarity. I am glad I got the chance to do this project because it allows me to see what I can do; also, it gives the department exposure to what we do. From our research study results, recommendations were made in case there is interest in continuing the broader population. Every individual doing good toward bringing growth to themselves and the "community" inspires me. A take-off message to individuals in a similar position as myself would be for them to remember to have patience with themselves in everything they do and allow themselves the opportunity to learn in every winning and losing situation. ■

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