SEFAKO MAKGATHO
HEALTH SCIENCES UNIVERSITY

# FOCUS on SMU

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# SMU Lecturer Scoops 3MT Awards

***By Tumelo Moila***

*3MT Winner & People's Choice Award Winner: Ms. Anri Human*

Ms. Anri Human, SMU Physiotherapy Lecturer and PhD candidate scooped the Three Minutes Thesis (3MT) national competition and the people's choice awards. The audience votes on the most convincing 3MT presentation). The title of her presentation was 'To train or not to train' focusing on the effect of inspiratory muscle training on clinical outcomes and health-related quality of life paediatric and adolescent patience with neuromuscular disease.

She had three minutes to consolidate her ideas and research discoveries so that they can be presented concisely to a non-specialist audience. As a PhD student registered at University of Cape Town (UCT), she participated in the 3MT competition in September 2017. As 1st prize winner from this competition hosted for all PhD students, she qualified to represent UCT at the national competition which was hosted in Bloemfontein in March 2018. She won both the overall prize and people's choice award.

The focus of her PhD study is the use of inspiratory muscle training in children and adolescents with neuromuscular diseases. “We hope to provide scientific proof in showing improvement in areas such as lung function, respiratory muscle strength and upper limb function and coordination, but most of all to determine if improved breathing can positively influence quality of life” explained Human.

The ability to breathe, sigh, yawn and cough is generally taken for granted. However, for children with severe neuromuscular disease, taking a deep breath is a challenge, owing to progressive weakness of their breathing muscles. Training the breathing muscles in order to improve, maintain, or slow the decline of breathing capacity in people with neuromuscular disease remains controversial. A series of studies were therefore conducted to determine the clinical utility and effects of implementing a breathing muscle-training programme in children and adolescents with advanced neuromuscular disease.

Her research is conducted in the field of respiratory paediatrics (children and adolescents with lung conditions/complications). The first step of her research was a meticulous search of literature (systematic review). Despite an improvement in breathing strength, there is currently insufficient evidence to guide clinical practice for patience living with neuromuscular diseases. Therefore, highlighting the need for research to be concluded in this area. The next step was an electronic survey, to obtain the opinion of South African physiotherapists. The majority recommended breathing exercises and strengthening of the breathing muscles in these

***continues to page 2***

## IN THIS EDITION

SMU Lecturer Scoops 3MT Competition p1
The Implications of the 20 percent Sugar Tax on nutritional health of the population p2
SMU unleashes a new breed of well-trained professionals ... p3
Thousands of learners watshed the wonders of science... p4
Recognising Prof Mapaseka Seheri’s Excellence in Cont... p4
SMUSSA All-Conquering Champions p6

children. The third step was an observational study that was conducted among eight children with a variety of neuro-muscular diseases between the ages of 8-17. She said, "We gave them a training device and asked them to perform 30 breaths against a resistance, twice a day for six weeks. With the analysis we found a significant increase in their breathing muscle strength and the flow of air they could create with a deep breath".

In the fourth step, patients were asked to train with the same inspiratory muscle training device for three months and they were then monitored for another three months, to see how long the effect of training lasts. The results thus far are exciting, especially because it is a first in South Africa. Some of the feedback received from patients included a teenager saying that she can go shopping with her mother without having to stop every now and then because she was short of breath. Patient, speak and sing better, they have improved upper limb function, energy levels, confidence and even improved academic performance at school! Once the final results and theses have been completed I would like to raise awareness among specialists (e.g. paediatricians, neurologists) and the population as a whole regarding respiratory muscle training and its advantages in various conditions", Ms Human concluded.

# The Implications of the 20 percent Sugar Tax on nutritional health of the population

*By Maditsi Matlala*

The Sugar Tax is a tax based on the sugar content of food beverages. The tax is fixed at 2.1 cents per gram of the sugar content that exceeds four grams per 100ml, which means the first teaspoon of sugar in 100ml is levy free. Fruit juices are exempt from the tax despite the fact that fruit juice in some instances, contain more sugar compared to sugary beverages.

Imposing sugar tax is an attempt from government to prevent or control the rapid rise in the prevalence of non-communicable diseases (diabetes type II, heart disease, obesity, etc.). The ideal would be to promote a diet which consists of a healthy variety of proteins, fats and carbohydrates. Yet, proteins are expensive even though they are a necessary component of our diet.

Sugar Tax combined with the increase in Vat, will force people into purchasing more energy-dense, but less nutrient-dense food items. Foods that are energy dense have lots of calories per serving. Foods that are nutrient dense have high levels of nutrients per serving. Nutrient dense refers to the amount of vitamins, minerals, and/or protein in a food. In general, nutrient-dense food is more expensive when compared to energy-dense food. A diet high in energy but low in nutrients should not be promoted. This will affect especially the poor. There are 19 food items that are tax exempt and vegetables are part of this list. Lack of consumption of meat is a major cause of the high levels of vitamin A deficiency in our country.

The poorest of the poor, do not exclusively live on these 19 products. They require red meat. But red meat is not exempted from VAT which they need to consume to have a complete diet. Nutrient-dense vegetables have also become very expensive and the outbreak of Listeriosis, which has claimed over 180 lives, worsen the impact of not eating enough meat. It removes a few inexpensive protein-rich products that the poor have access to. This is by no means promoting the intake of processed foods. Rather, it refers to unprocessed meat, even though Listeriosis could also spread through fruit and vegetables (such as in Australia, where it was spread by watermelons). A number of recent research studies have reported on the detrimental impact of processed meats on health, especially the onset of cancer.

There is a significant increase in the prevalence of non-communicable diseases within the South African population. There are high levels of obesity in young children, even within poor communities. Government is making an honest attempt at promoting a healthy lifestyle, including dietary intake. In some countries the sugar tax has been proven to curb a high prevalence of non-communicable diseases.

The sugar tax and increase in VAT does not differentiate to cater for the needs of both these socio-economic groups. In addition, with the increase in VAT, more of the middle-class will be sucked into poverty and opt for cheaper energy-dense food items. The outcome of this is that there will be a differentiation in the outcome. There will be a more negative impact on the poor.

The treatment of non-communicable diseases is a daunting task and any intervention that assists in prevention of sugar related non-communicable disease should be welcomed by the health industry.

The consumption of large amounts of sugary beverages has been proven to be a major factor leading to obesity, almost everywhere in the world. That is what the sugar tax targets. Urgent intervention is required. Whether the sugar tax, together with the increase in VAT, collectively will have the desired outcome, is something that will become apparent in a few years from now. Public health strategies are long-term strategies and difficult to predict.

The United States of America (USA), Mexico, Brazil and France -all of these countries proved that higher prices are associated with a lower demand for sugary beverages.

# SMU unleashes a new breed of well - trained professionals to the economy of South Africa

*By Maditsi Matlala*

The fourth season of graduations of SMU was a fun filled event with 1049 students, receiving rapturous applause and ululations from proud parents, families and their donors as they ascended the stage to be awarded their degrees.

For these new breed of health and natural science professionals, the graduations ceremony was indeed a resounding confirmation that years of burning the midnight oil ultimately yields delightful results.

**New breed of professionals**

The graduations were held for the first time, over three consecutive days, from 9 to 11 May 2018, at a packed Sports Centre Hall of the SMU, which is the only comprehensive health sciences university in the country.

**The figures of the graduations ceremonies are:**

| School Graduating | Number of Graduates |
|---|---|
| Science & Technology | 278 |
| Health Care Sciences & Pharmacy | 356 |
| School of Medicine & School of Oral Health Sciences | 415 |
| **Total** | **1049** |

SMU's Chancellor, Dr B E E Molewa addressing herself to the new breed of health and natural science professionals said "We have men and women who will aid our government in realizing the aspirations of the National Development Plan (NDP): that envisions a health system that works for everyone, produces positive health outcomes, and is accessible to all. In total, what we aim to achieve as a country is a long and healthy Life for All South Africans – and it is each and every one of you who will aid us in this effort."

Prof Chris de Beer, the Vice-Chancellor heaped praise on the SMU for achieving another milestone, which was a growth in student head count of 500, taking the overall enrolment in 2018, to 6274.

"We are conferring 1049 degrees and diplomas in five schools of which a significant number of 27 percent is at postgraduate level" enthused Prof de Beer.

Mrs Tryphina Tlhowe, School of Nursing Science, North-West University (NWU), Potchefstroom Campus and part time operational Manager at the Job Shimankane Tabane Mental Health Unit, delivered a keynote address at the graduations of the schools of Health Care Sciences and Pharmacy. Mrs Tlhowe expressed her delight to see a breed of health professionals entering the health delivery system, to heal the sick.

on Wednesday 9 May 2018, Dr Pradish Rampersadh, the Chief Executive Officer (CEO) of the South African Council for Natural Scientific Professions (SACNASP) congratulated the new breed of natural scientists and called upon them to get involved in more research at SMU and in that way, they will be contributing to the expansion of the frontiers of science.

The last day of the graduations ceremony, Friday 11 May 2018, the world renowned Dr Imtiaz Sooliman, Chairperson of the Gift of the Givers, the largest disaster relief Non-Government Organisation (NGO), addressed a captive audience attending the schools of medicine and oral health sciences graduations. Dr Sooliman congratulated the graduates for their achievements and challenged them to be worthy of the trust that their communities have placed on them, as health professionals.

In the school of science and technology, 10 BSc Students were awarded their degrees cum laude. Two doctors of philosophy degrees were awarded, one in statistics and in Zoology.

The School of Health Care Sciences awarded one BSc Pharmacy Degree (B Pharm) cum laude. 1 Masters Degree in Pharmacy was awarded cum laude. 8 students received PhDs in Nursing Science and 1 student received a PhD in Physiotherapy. Three received their PhDs in Public Health. 1 PhD Degree was awarded in Pharmacy.

In the School of Medicine, 8 students received their Bachelor of Medicine and Bachelor of Surgery (MBChB) cum laude. 1 Master of Medicine was awarded cum laude. The following students were awarded prizes for outstanding performance – Tondai Denga, Nyarandzo Rumhuma and Johan Steyn.

# Thousands of learners watched the wonders of Science at 2018 Open Day

*By Maditsi Matlala*

SMU 2018 Open Day programme sought to appeal to the interest of the thousands of learners who turned up, at this premier event. Music thumping, from huge speakers played by SMU FM DJs wowed the learners as they patiently sat in the stadium pavilion, waiting to be led into the hall where academic staff and senior students performed elaborate scientific demonstrations for them.

Dressed in their multi- coloured school uniforms, Grades 10, 11 and 12 learners, studying Maths, Physical Science and Life Science from the catchment areas of Free State, Gauteng, Limpopo, Mpumalanga and North West Provinces, made use of the opportunity and asked questions about the courses offered at the SMU and brushed up on their knowledge and insights.

The platform also enabled the learners to get acquainted with the senior students and hopefully, through peer education, they were inspired to consider coming to further their education at SMU. Their imaginations would be so fired up that they will consider taking up science as their future careers.

**Of a very wide menu of elaborate demonstrations that have been prepared over the months, the most notable samplings were:**

**School of Science & Technology's - Mobile Science Bus**

- Human battery a detailed and vividly coloured model provided a visually and kinaesthetically effective method for studying the structure and function of the human body.
- Mathematical puzzles- learners were given opportunities to solve puzzles that motivate them in Maths problem solving techniques.
- Snell's law demonstrations - learners learnt about a formula used to describe the relationship between the angles of incidence and refraction, when referring to light or other waves passing through a boundary between two different isotropic media, such as water, glass, or air.
- Chemistry demonstration- how to water, wine, milk, beer
- *Rates of chemical reactions*
- Chemistry of colours - what adds colours to fire-works
- Standardization of an acid with a base
- Circuit interpretation
- Floating material –Densities

The department of public health assigned a senior student, who is involved in drug addiction research, to explain to the learners the dangers of use of Nyaope and other addictive substances.

In addition to these challenging demonstrations, the four schools, namely health care sciences, medicine, oral health sciences and pharmacy also showcased their various programme offerings and also explained to the learners what it takes to be admitted to study programmes and career opportunities open to the learners, upon completion of their studies, at SMU.

# Recognising Prof Mapaseka Seheri's Excellence in Contributing to Africa's Health Solutions

*By Maditsi Matlala*

Prof Mapaseka Seheri was awarded the prize for best established researcher during the recent SMU Vice- Chancellor Research Excellence Awards. One of the reasons for receiving the award is that Prof Seheri's research niche area addresses a national and continental public health priority that was under-researched in Africa, which is in line with the five-year strategic goal of the South African National Department of Health (SANDH) to prevent and reduce the burden of disease, and promote health in the country.

She also collaborates and engages with experts in the field both nationally and internationally, from organizations such as the National Institute of Communicable Diseases (NICD), the World Health Organization (WHO), Centres for Disease Control (CDC) and Prevention in Atlanta, the University of Cincinnati (UC), and the J Craig Venter Institute (JCVI) in the USA.

She works closely with the SANDH and other Ministries of Health (MoH) in the WHO African Region (AFRO), including Angola, Cameroon, DRC, Ethiopia, Eritrea, Kenya, Lesotho, Madagascar, Mauritius, Namibia, Rwanda, Seychelles, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. She publishes in high impact, high quality international journals, and presents at the most prestigious conferences locally and internationally, including the International Rotavirus Symposium (IRS); Double stranded RNA Virus meeting; Vaccine for Enteric Diseases; and the African Rotavirus symposium. The award also recognises her ability to secure funds and fellowships from the National Research Foundation (NRF), South African Medical Research Council (SAMRC), Poliomyelitis Research fund, WHO and the National Institutes of Health (NIH).

This award has contributed to raising Prof Seheri's research profile. Research activities such as awards, successful grant applications, acceptance of abstracts at prestigious conferences, and publication in high impact international journals are part of an outstanding researcher's portfolio. The essence of the award lies in the fact that it is more about peer recognition than of any monetary value.

For the university, the award is meant to recognise and celebrate those researchers who have exceptional achievements in research in a particular year. The research excellence awards aim mainly to inspire and promote research in the university, since recognizing the excellence of research achievements also encourages emerging/ upcoming researchers.

Prof Seheri is the Deputy Director of SMU Diarrhoeal Pathogens Research Unit (DPRU). The DPRU serves as one of the WHO Rotavirus Reference Laboratories (RRL) in Africa, and has continued its legacy to become the premier research centre in rotavirus in Africa.

**The research projects which qualified Prof Seheri for the award were:**

(a) Monitoring the impact of rotavirus vaccination at Dr George Mukhari Academic Hospital (DGMAH) and other surrounding hospitals, clinics and private laboratories in the region.
(b) African Rotavirus Surveillance Network, working with WHO AFRO in collaboration with African MoH to generate data on the circulating rotavirus strains in the region, and to support awareness and regional advocacy for the introduction of rotavirus vaccines.

(c) Understanding the host and viral factors associated with the immune response to rotavirus and the rotavirus vaccine.

(d) As part of the WHO Global Paediatric Diarrhoeal Surveillance Network (GPDSN), Prof Seheri's DPRU is testing multiple entero-pathogens (viruses, bacteria, fungi and parasites) from the stool samples using the TaqMan Array Card (TAC), a novel quantitative polymerase chain reaction (qPCR) with the capacity to simultaneously detect 63 pathogens to investigate the burden of diarrrheaoeall disease in African children ≤ 5 years of age in the era of rotavirus post-vaccination introduction.

(e) Rotavirus genomics and metagenomics of African stool samples, which aims to explore in-depth the genomic diversity of rotavirus strains circulating in African human and animal populations, and to investigate novel diarrhoeal pathogens in African children through metagenomics.

The SMU DPRU has maintained its historical prerogative of capacity development by training numerous South African and African researchers in postgraduate research. The unit has excellent infrastructure facilities to undertake research project and train students. Since 1998, 14 African Rotavirus Surveillance Network training workshops have been successfully hosted at the SMU DPRU in collaboration with WHO AFRO. To date, more than 65 scientists from 38 African countries have been trained at the SMU DPRU. Four staff members were trained at the Global Rotavirus Reference Laboratory in the USA, the University of Leuven in Belgium; CDC and Prevention in Atlanta; the UC and the JCVI. These collaborative efforts have resulted in >200 articles being published in peer-reviewed journals, which have been disseminated widely to promote awareness of the impact of rotavirus diarrhoea in African children. Also, the African Rotavirus Surveillance Network data are published annually in the WHO Global Immunization News.

SAMRC DPRU prides itself on having archived more than 29 000 human and >5 000 animal stool samples from different African countries through the African Rotavirus Surveillance Network (ARSN). These archived samples serve as important resource materials for training and for future analysis of changing genetic diversity of rotavirus strains in Africa as well as monitoring the impact of rotavirus vaccination programmes in Africa.

The ARSN activities are ongoing; with the next training workshop on using TAC qPCR to detect multiple enteropathogens scheduled for the last quarter of 2018. Participating countries include Ethiopia, Madagascar, Mauritius, Mozambique, Uganda, Zambia and Zimbabwe. New ground-breaking research niche areas being developed involve updating information on the burden of norovirus infection, and developing innovative diagnostic assays using nanotechnology, for the detection of enteric viruses.

# SMUSSA All-Conquering Champions

*By Tumelo Moila*

The multiple award winning SMUSSA soccer team annexed two more silverware to make it eight, in a row. They defended both their Mokopane and Sepwilco Cups. Discipline, determination and resilience have made the team a force to be reckoned with. It has conquered all opponents at will under the tutelage of coach, Ms Dorah Mashego.

Her resilience and tactical acumen in a traditionally male dominated sport assisted her to beat the odds in clinching several awards against her male counterparts. “To be a champion, it is about every day's hard work and about thriving on a challenge. It is about embracing the pain that you will experience at the end of a race and not being afraid. I think people think too hard and get afraid of a certain challenge. Winning is fun”, said Ms Mashego.

She implemented a successful training programme that helps the team to develop into an all-conquering unit. Winning in any form of sport is not easy, but that is what makes it exciting, challenging and inspiring every day. “Building a winning mentality takes time, patience and strategy. It starts with creating an environment that breeds success. The responsibility for the success of the team starts with the coach, who develops the plan that is executed by the players—who are extremely well prepared,” explained Mashego.

In conclusion, she said, “I always remind the players that the mission is to play their best and have fun. For me, 'a winning mentality' means players who are hungry and determined to give 100% at improving everything they do”.

**SMUSSA Soccer Team results:**

**Mokopane Spectacular Tournament**
SMU 2 Anglo Platinum1 | SMU 4 Mokopane1

**Sepwlico Tournament**
SMU 1 University of Limpopo 0
SMU 2 Department of Correctional Service (Bavianspoort)2
SMU won 7-6 on penalties

## SMU & National Upcoming Events

### June 2018

**08** Golf Day
**16** Youth Day

### July 2018

**18** Mandela Day

### August 2018

**09** National Women’s Day
04 SMU KZN Alumni Chapter Launch
**11-19** National Science Week
**22-24** Research Days

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