



# CDIA

## Chronic Disease Initiative for Africa

May 2016

CDIA is a collaborative research initiative that develops and evaluates models for chronic disease care and prevention of risk factors.



## Transitioning societies

We are proud to welcome you to our first newsletter for 2016.

In this edition, we introduce you to Professor Moffat Nyirenda, who recently returned to his birth country of Malawi and is doing inspiring work there. We take a look at the recent DOHaD conference that was held in Cape Town for the first time, with the theme 'Transitioning Societies', and we delve into the details of a grant that has recently been awarded to the Collaboration for Evidence Based Healthcare and Public Health in Africa (CEBHA+) to aid the fight against non-communicable diseases (NCDs) in sub-Saharan Africa.

Your feedback is always welcome –  
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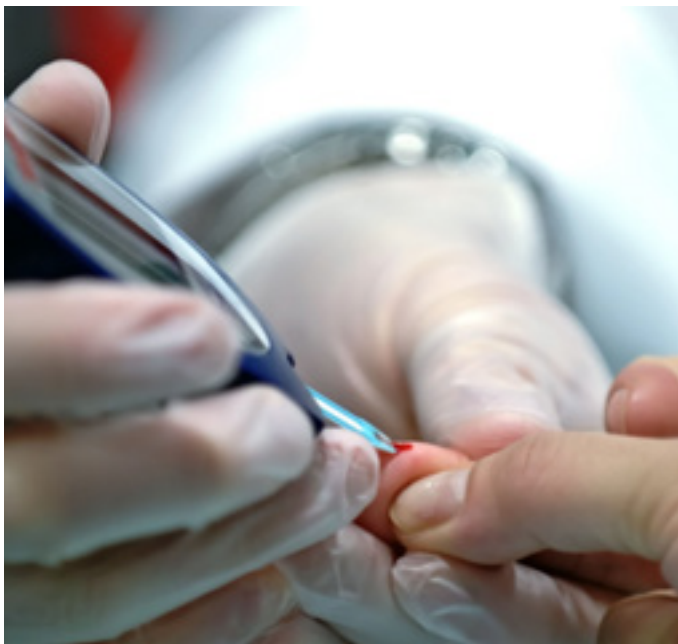


# CDIA researchers win big grant for NCD research

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A collaboration of researchers, including CDIA members, has been awarded a substantial grant of €7.5 million over five years to fight non-communicable diseases (NCDs) in sub-Saharan Africa.

NCDs are becoming a huge problem in sub-Saharan Africa, says Professor Taryn Young, Director of the Centre for Evidence-based Health Care at Stellenbosch University, a member of the CDIA and consultant to Cochrane South Africa.



“The chronic diseases of lifestyle are often overshadowed by AIDS and injury, yet we are facing an epidemic that is exploding,” warns Professor Young. “So much needs to be done. We do however have limited resources and need to ensure that we use these appropriately by implementing effective strategies to screen for, manage and prevent NCDs.”

This is why researchers at the centre for Collaboration for Evidence Based Healthcare and Public Health in Africa (CEBHA+), applied for the research grant from the German Federal Ministry of Education and Research (BMBF).

CDIA Director Professor Naomi Levitt, as well as CDIA member Bob Mash, will be leading studies which form parts of the project.



*Professor Taryn Young (image sourced from citizen-news.org)*

“We need to work together to find solutions that actually work, pooling our resources to ensure a better outcome,” says Professor Young. “We need to find out what works and then find ways to implement that to make a change for best practice in healthcare.”

**“The chronic diseases of lifestyle are often overshadowed by AIDS and injury, yet we are facing an epidemic that is exploding”**

Professor Young says evidence-based healthcare involves a systematic approach to clinical and public health problem solving. It is based on finding the best evidence through rigorous research, then appraising and evaluating it, and applying it in healthcare practice as well as promoting its use in policy.

“Collaborations like these promote co-learning, prevent duplication and build capacity,” says Professor Young.

# The professor who returned to Malawi



*Professor Moffat Nyirenda*

**Despite a distinguished career in the UK, Professor Moffat Nyirenda felt he had to return to the country of his birth, Malawi, to give back to his countrymen. He does this – and so much more.**

He became a consultant physician at the Queen's Medical Research Institute at the University of Edinburgh and did research on, amongst others, a possible mechanism for developmental programming of diabetes, using a rat model; work that was acclaimed for its quality and implications in human disease. When he came back to Malawi, he left not only a promising career in molecular medicine, but also a wife and three daughters, whom he tries to see as often as possible.

It is not easy being Malawi's only diabetologist and endocrinologist, but it is a responsibility that Professor Moffat Nyirenda shoulders with humility. "My biggest challenges are the lack of resources and the absence of colleagues with the same kind of training and medical background. Here in Malawi, there is a dire lack of critical mass at the professional level, medically speaking," he says.

Professor Nyirenda, who is a member of the CDIA, has many positions and titles in Malawi, among them are Professor of Medicine in Global NCDs at the London School of Hygiene and Tropical Medicine and Professor of Research at Malawi's College of Medicine. He has also been appointed Director of the Malawi Epidemiology and Intervention Research Unit (MEIRU) in Lilongwe and most recently, was made Director of SACORE, the South Africa Consortium for Research Excellence, which brings together the medical schools of Malawi, Zambia and Zimbabwe.

Professor Nyirenda was born in Karonga, Malawi and was one of the first to participate in a training programme between University College London and the University of Malawi, resulting in an intercalated BSc in immunology. He also did a PhD with Jonathan Seckl, Professor of Molecular Medicine at Edinburgh University's Centre for Cardiovascular Science.



"The first year or two in Malawi were difficult, bordering on, well, maybe I should just give up," he remembers. "Now I feel I could not have made a better choice. Things are coming into place. I have acquired the right skills and made the right connections." Even though the work he is doing now is more clinical and geared towards capacity building, he describes it as deeply rewarding, especially now that he is beginning to see the fruits of his labours. "There is a big problem with NCDs in Malawi," says Professor Nyirenda. Rates of hypertension and diabetes are on the increase, and while some of it can be attributed to changes in lifestyle and nutritional changes, he believes there may also be

a genetic or epigenetic component. It is especially worrying to him that many Malawians in their 30s are diagnosed with diabetes, which in Western countries usually affects older patients in their 60s and 70s. With Professor Shabbar Jaffar, Head of the Department of International Public Health at Liverpool School of Tropical Medicine, he started a research project in one rural and two urban settings to determine why the level of diabetes in the rural area is higher than expected. "Malawians appear to be more susceptible to NCDs," he says, speculating that it may have something to

do with a genetic or epigenetic predisposition in lower socio-economic conditions. He is also working with CDIA Director, Professor Naomi Levitt, on a number of projects, including co-morbidity of hypertension and diabetes in people living with HIV. They are currently waiting to hear from the Medical Research Council (MRC) about a research grant for work to understand the specific nature of diabetes in Africa. Asked about the future, he says it is in Malawi. "I don't see myself going back to the UK," says Professor Nyirenda. "I think I can make much more of a contribution to people's lives here."

## DOHaD research in SA – moving the field forward

**The bi-annual DOHaD conference was held in Cape Town for the first time last year, with the theme of 'transitioning societies'. But outside of the event, this is a rapidly growing field of research with the potential to make a dramatic difference to the health of South Africans.**

When the DOHaD (Developmental Origins of Health and Disease) 2015 conference was held in South Africa, it was a first not only for the country, but the continent, says Dr Lisa Micklesfield, a senior researcher in the field of Developmental Origins of Health and Disease.

Dr Micklesfield was part of the organising committee of the conference, and believes that having the conference in Cape Town was particularly significant because it brought together many disciplines in the field of developmental health, and showcased some of the latest research from around the world. In a sense, it validates the growing relevance of DOHaD as a research field locally. For South Africa – and Africa – with their unique set of challenges, this is particularly important. "Africa has a double burden of over- and under-nutrition," she says. "This has a significant impact on health and development in early life."

Research into DOHaD has long shown that there is an inextricable link between maternal, perinatal and early childhood health and the later risk of developing a number of NCDs; what's now coming to light is the depth and breadth of knowledge in this area. Dr Micklesfield's own primary research development is in the field of physical activity and bone health, with a focus on their relationship in the various life stages. She has a wealth of experience measuring bone strength, including using dual energy x-ray absorptiometry (DXA), quantitative ultrasound (QUS) and peripheral quantitative computed tomography (pQCT).



"As my research interests have evolved, I have begun to focus more on physical activity, and in particular its influence on body composition and applying myself more to the field of non-communicable diseases, including obesity, particularly in South African communities," she says. "Differences in body composition and distribution, as well as bone parameters, between South African groups of different ethnic origin continues to interest me. This has recently led to my involvement in a number of international

collaborations with the aim of further investigating these differences in different international populations and how they may be associated with metabolic risk.” Dr Micklesfield has been working as a senior researcher through the Developmental Pathways for Health Research Unit at WITS (DPHRU). This unit has been associated with possibly the largest longitudinal study in Africa on a group followed from birth, called the Birth-to-20 study. It began in the 1990s and has generated many other studies since. The study – which is one of the flagship studies within the DPHRU – followed approximately 3,000 people, and allowed researchers to gather invaluable data on their development. Now, those participants are having children of their own, which is even more useful from a research point of view. It enables the medical team to monitor their pregnancies, but also the health of their children, particularly in the critical first 1,000 days of their lives. It also offers valuable

insights into the intergenerational transfer of risk. Dr Micklesfield believes that the growth of DOHaD as a research field in South Africa and on the broader continent has

## “The chronic diseases of lifestyle are often overshadowed by AIDS and injury, yet we are facing an epidemic that is exploding”

great potential to influence policy making in future. Bringing international researchers together, she says, “gave us a great opportunity to get to grips with how we can make an impact from a policy point of view.”

## New review exposes reality of diabetes in Africa’s elderly

Dr Mahmoud Werfalli, a PhD student under Professor Naomi Levitt, has recently published his findings following an extensive review of the data on diabetes among the elderly in Africa. This review has the potential to influence policy across the continent – and ultimately influence patients’ lives for the better.

NCDs such as diabetes have traditionally not received as much attention from African policymakers as HIV/ Aids, tuberculosis and malaria, yet the burden of such diseases is on the rise. Now, an important new study from CDIA researcher Dr Mahmoud Werfalli is providing valuable information on diabetes among elderly Africans, paving the way for more proactive policy decisions in this critical area.

Dr Werfalli, originally a family physician, has been involved in epidemiology and primary healthcare

research and academic teaching activities since 2006 through the Department of Family Medicine and Community Medicine at the University of Benghazi, Libya.



*Dr Mahmoud Werfalli*

Fondly known as Werfy by his colleagues, Dr Werfalli is a PhD student at the

CDIA, which is based in the Department of Medicine at UCT. His PhD project is based on research work carried out from October 2012, and is due to be completed soon under the supervision of Professor Naomi Levitt, Head of Diabetic Medicine and Endocrinology at Groote Schuur Hospital. He’s also supervised by Dr Sebastiana Z. Kalula, Senior Specialist in Internal Medicine and Head of Geriatric Medicine at the Albertina and Walter Sisulu Institute of Ageing in Africa.

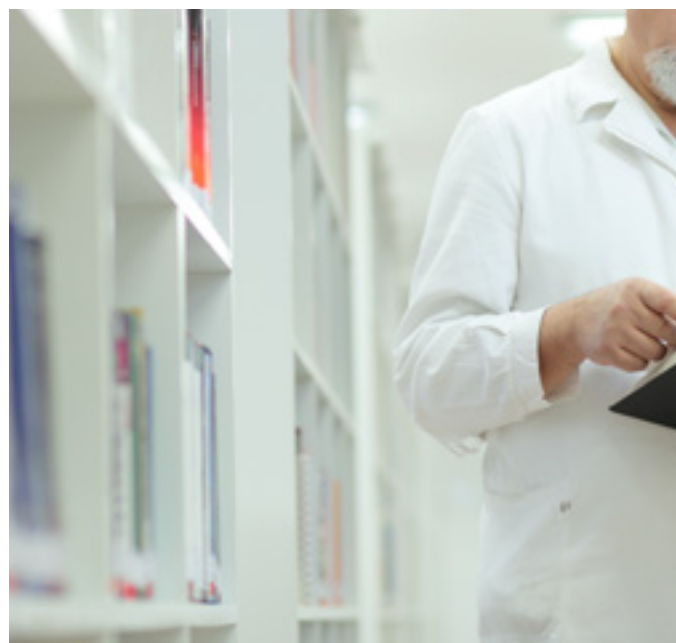
He explains that the project sets out to fill the current gaps in knowledge of diabetes in older people in Africa. “Specifically we are looking at the extent of the burden and their self-management practices as well as best practice self-management care of diabetes in older people globally, with a view to developing a diabetes

self-care management programme targeted at older patients,” he says. The idea is to limit the impact of the disease, and improve the health-related quality of life for this group of patients.

One of the most significant findings of the study has been that diabetes among the elderly is a lot more common than previously thought. This finding is as a result of a rethinking of the testing methods used to determine diabetes prevalence. For the purposes of this study, the team’s systematic review has shown that the estimated prevalence of this disease was twice as high in studies that used the Oral Glucose Tolerance Test (OGTT) than in those that used the Fasting Blood Glucose Test (FBG). It was also nearly twice as high in urban settings compared to rural settings.

Another significant finding, says Dr Werfalli, was that the use of Fasting Plasma Glucose (FPG) alone for screening or diagnosis of diabetes might not identify older adults in a number of risk groups, which means they should be reassessed if a diagnosis was made with this method. “These differences have important implications for Africa, where the WHO STEPwise approach to Surveillance (STEPS) surveys were based on protocols that recommended the use of FPG as a core component of biochemical measurement; as such studies are becoming a growing source of information about diabetes prevalence data,” Dr Werfalli says. “Our data and those of previous studies suggest that if FPG was used alone, half the diabetes burden in the people older than 55 years would be missed.” STEPS is a standardised method for collecting, analysing and disseminating data in WHO member countries, so challenging the use of FPG as a core measurement could have far-reaching implications for how diabetes is diagnosed in many countries.

A major challenge for Werfy was that data on the prevalence of diabetes in people aged 55 and older in Africa over the past 15 years was rather scarce, so describing trends was tricky. Nonetheless, the findings have important policy implications for Africa, says Dr Werfalli. “First, we suggest that uniform diagnostic methods should be used across African countries and elsewhere to enable assessment of trends in diabetes



prevalence and the success of diabetes prevention strategies,” he explains.

“Secondly, African countries also need encouragement to move from subnational implementation of STEPS surveys to capturing national prevalence data. Increased collaboration between African governments and the WHO is also needed to make the data collected from STEPS widely available so that they can be used to strengthen strategies for prevention and management of non-communicable diseases, including type 2 diabetes.” Lastly, he says, although policymakers are turning their attention beyond HIV/Aids, tuberculosis and malaria to include non-communicable diseases, the enormity of the latter epidemic is not yet fully appreciated.

\* Dr Werfalli acknowledged the support of many people in publishing the above findings, including the authors Dr Mark E Engel, Dr Alfred Musekiwa and Professor Andre P Kengne. He writes: “I would like to record profound appreciation to those who helped in one way or another, namely Ms Susan Botha, Ms Carmelita Sylvester, and Ms Chantal Stuart. Sincere thanks also go to Professor Krisela Steyn, Professor Ian Ross, Professor Taryn Young, and Dr Kirsty Bobrow, for all that they did. I am indebted to my academic supervisor Professor Dinky (Naomi) Levitt, who worked very hard and supportively with me during the publication of this work.”