

ANNUAL REPORT



CDIA

2012



CHRONIC DISEASE INITIATIVE FOR AFRICA

annual report 2012

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CDIA DIRECTOR
Professor Dinky (Naomi) Levitt
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It gives me great pleasure to introduce Chronic Diseases Initiative for Africa's (CDIA) third annual report and briefly reflect on the past year's activities, as a prelude to the detailed descriptions that follow.

It is perhaps best to contextualize CDIA's activities during this period in terms of our stated objectives in 2009, when we embraced the WHO Innovative Comprehensive Chronic Care Model (ICCC) for chronic conditions as a framework for our research agenda. As such, we have focused on developing and evaluating innovative approaches, appropriate to our resource constrained district health systems, that can make the WHO's comprehensive approach a reality.

The year has been one of consolidation and progress of our currently funded projects, as well launching a number of postgraduate students on chronic disease research paths.

The developmental elements of the programme of work have progressed well. The various components of the lifestyle modification package (funded by the UnitedHealth Group, CANSA and Medtronic Foundation), also known as 'putting prevention into practice', have been piloted and will be ready for

integration into a single, multifaceted intervention for evaluation.

The initial assessment of the non-blood based total cardiovascular risk tool in 11 South African cross-sectional data sets has been completed and a manuscript on this study has been submitted. The development of a model to evaluate the cost-effectiveness of various interventions is ready for use and we are planning its application in some of our research projects as they are completed. Both of these projects have been funded by the National Heart, Lung and Blood Institute (NHLBI).

The evaluative aspects of our programme have also made substantial progress, with the conclusion of two large pragmatic randomised trials, conducted at the community health centre level. The first is the EDEN or PC101 TRIAL, under the leadership of Lara Fairall, and funded by the NHLBI. The baseline data collection and intervention delivery took place in 2011 and a 90% follow-up rate of the 4 393 participants was accomplished in late 2012. This highly credible response rate was achieved under difficult circumstances; in that the trial took place at widely spread facilities that were 600km away from the site of its management in Cape Town. The second is the BRIDGES funded trial under the leadership of Bob Mash. Although the

site for the trial was within the Cape Town metropole, it proved difficult to replicate the aforementioned high follow-up rate in the 1 570 participants. The STAR Trial undertaken in collaboration with Oxford University is still underway. By the end of 2012, baseline data collection in 1 387 patients and initiation of the intervention had been completed.

The NHLBI supplemental grant funded multicentre study, which examined community health workers' ability to correctly identify people at high cardiovascular risk in South Africa – Cape Town, Guatemala, Bangladesh, and Mexico, has been a resounding success. The graduation ceremony for the Cape Town-based community health workers was undoubtedly one of the highlights of the year.

Capacity development is another essential element of our work. We have had a small increase in the numbers of master's and PhD students, but the network members probably have additional supervisory capacity, should more student funding become available. This year five PhD students from our centre participated in the annual NHLBI-United Health Group Steering Committee meeting in Washington. This provided them with an opportunity to present their work to their peers and other members of the steering committee. In addition, they took part in the programme for trainees from all

11 centres held at the National Institute of Health (NIH). The NHLBI supplemental grant led by the Guatemala group (PI Manuel Ramires), enabled 2 members of CDIA to attend the COHORTS group meeting in Cebu, the Philippines in 2012. The purpose of the grant is to provide training in the developmental origins of chronic diseases for members of the (NHLBI-UHG) Centres of Excellence. Two further meetings are planned for 2013.

Once again our members have played an important role in Non-Communicable Diseases (NCD) policy issues nationally and internationally. We keenly await ratification of the South African National NCD plan in 2013, as well as the recommendations and targets for the prevention and control of NCDs globally by the WHO Health Assembly.

We were delighted to welcome a number of new partners to CDIA this year and to have them attend our annual meeting in November. These included Professor Shane Norris of the Developmental Pathways of Health Research Unit from the University of Witwatersrand, Dr Samuel Oti from the African Population Health Research Unit in Kenya, Professor Sandro Vento and Dr Vincent Setlhare from the University of Botswana, and Dr Wilson Mandala from the College of Medicine, Malawi. We were pleased to have representatives from the World Bank and Dr Anthony Mutiti from ICAP as observers. The

meeting provided the students with an opportunity to present their work and culminated in intense discussions on ways to strengthen CDIA. A decision was also taken to change the name Chronic Disease Initiative in Africa to Chronic Diseases Initiative for Africa, although the abbreviation CDIA remains unchanged.

Our quarterly newsletters have served as an excellent showcase of our activities and students. This has been made possible through the grant from the Medtronics Foundation.

There are, however, some areas that require much more attention. We only partially succeeded in our plan to have NCD colloquia at the various local institutions. The single event held at Stellenbosch University drew numerous NCD researchers from that institution and resulted in the Evidence-Based Centre linking up with CDIA. We did start monthly face-to-face meetings for our students, but these were difficult to sustain and require rethinking for 2013.

I would like to take this opportunity to acknowledge the administrative staff: Carmelita Sylvester, our Centre

Manager, Susan Botha, our administrative assistant, and more recently, Chantal Stuart, for their commitment and dedication in meeting the many challenges we have faced in supporting the field-work and reporting requirements. I would also like to thank the Governing Board, chaired by Professor Jimmy Volmink, for their direction; as well as the members of our management committee for their careful overview of the progress and challenges we have faced during 2012. I would also like to acknowledge the unstinting efforts of associate director Krisela Steyn and each person mentioned in this report for their contribution to CDIA.

Finally, we remain indebted to our funders, but we face a major challenge to raise sufficient funds to ensure our existence beyond the end of 2014. CDIA'S success depends on the presence of the directorate, as well as raising project-specific funds. Unfortunately, the international funding environment has not improved much over this last year, largely because of the ongoing global economic recession. The development of proposals that will enable us to respond to calls for funding proposals when they become available will become critical in the next year.

Pragmatic cluster randomised controlled trial of a guideline-based intervention to improve the primary care of non-communicable diseases in the Eden and Overberg districts of the Western Cape

RESEARCH TEAM

Lara Fairall
Naomi Levitt
Max Bachmann
Thomas Gaziano
Eric Bateman
Krisela Steyn
Carl Lombard
Merrick Zwarenstein
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Ruth Cornick
Alan Bryer
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PHD STUDENT

Naomi Folb





BACKGROUND AND OBJECTIVES

The quality of care for NCDs within public sector primary care clinics is poor. In these clinics, care is predominantly provided by nurses, who are often inadequately trained or empowered to manage the care of patients with NCDs. The objectives of this trial are to test the effectiveness of a guideline-based training programme for nurses on the processes and outcomes of NCD care across four priority conditions: hypertension, diabetes, chronic respiratory disease, and depression.

DESIGN

This is a pragmatic cluster randomised controlled trial taking place in 38 clinics in the Eden and Overberg districts of the Western Cape. The outcomes are to be evaluated on individual patients. The intervention is 'Primary Care 101', which has multiple components, as seen in the box on the right.

Components of Primary Care 101 implementation in the Western Cape

1. 101-page evidence-based clinical practice **guideline** divided into two sections: symptoms and chronic conditions.
2. Five-day live-in **Training the Trainers to Train workshop** (accompanied by a Facility Trainer's Manual containing case scenarios).
3. Eight **educational outreach sessions** to all staff at intervention clinics over a period of several months.
4. **Task shifting: expanded prescribing provisions** for professional nurses trained in Primary Care 101 to access drugs for NDC approved by the Pharmaceutical and Therapeutics Committee of the Western Cape. These allow Primary Care 101-trained nurses to prescribe the following: enalapril and amlodipine for hypertension, simvastatin for cardiovascular risk, glibenclamide and glicazide for diabetes, budesonide for asthma and short-course oral steroids for acute exacerbations of asthma and COPD.
5. **Desk blotter** with reminders of key elements of care for priority chronic conditions.
6. **Follow-up support for facility trainers** through quarterly workshops, web, SMSes and email and telephonic contact with KTU staff.



The baseline fieldwork and initiation of the intervention took place in 2011. The Knowledge Translation Unit at the University of Cape Town Lung Institute led delivery of the intervention, with support from the Western Cape Department of Health. In total, six trainers were equipped who, in turn, trained 98 health workers (81 nurses, four doctors, five pharmacists) in the latter half of 2011. Trainers and nurses welcomed the guidelines, and liked their concise, integrated format and way in which they clearly set out responsibilities for prescribing and when to refer.

The baseline data collection was challenging, but ultimately 4 393 patients were enrolled in the trial, including 3 249 people with hypertension, 1 859 with diabetes, 1 168 with chronic respiratory disease and 2 489 at risk of depression. Nurses in the intervention clinics were trained in PC101 once the baseline interviews were complete.

PROGRESS IN 2012

Patients were re-interviewed approximately 14 months after their baseline interview and a 90% follow up rate was achieved. Data is currently being prepared for analysis. Provisional baseline data suggests high rates of co-morbidity with half of patients with hypertension also having diabetes, over 80% of diabetes patients having co-existing hypertension, and approximately 25% of patients with hypertension or diabetes having co-existing chronic respiratory disease. Approximately 50% of chronic disease patients had depressive symptoms.

Baseline data also points to under-treatment and under-diagnosis of chronic diseases. 60% of patients with hypertension had raised blood pressure and 12% required urgent referral for very high blood pressure ($\geq 180/110$). 23% of diabetic patients with a glycosylated haemoglobin measured met target. 30% of patients who were not diagnosed with hypertension had high blood pressure.

A limited qualitative review was carried out and indicated that the PC101 programme has been well-received. Some challenges were highlighted such as having to manage the backlog of sub-optimally managed patients and the increased workload associated with this, but nurses were generally happy to increase their responsibilities for chronic disease care.

projects currently funded from CDIA resources



PROJECT 2

Total cardiovascular risk assessment tools

RESEARCH TEAM

Thomas Gaziano
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PHD STUDENT

Ankur Pandya

BACKGROUND

Screening of patients at high risk of cardiovascular disease (CVD) is an important public health prevention strategy. This study has aimed to develop a new and cost-effective non-laboratory-based screening tool for cardiovascular risk prediction, to obviate the high cost of blood assays associated with such screening.

The first section is to compare the ranking of the non-blood based CVD risk tool with the ranking of a number of blood based CVD risk assessment tools in cross-sectional community based CVD risk factor surveys previously conducted in South Africa. The second is to compare the predicted CVD mortality using the non-laboratory risk score and the data of the first demographic and health survey data of 1998 with the actual CVD mortality recorded in South Africa 10 years later.

Thirdly, within the Eden Trial (See project 1), a cohort of patients is established whose total CVD risk prediction is calculated and followed to assess the actual mortality recorded over the following five-year period. This data will assist to calibrate the cardiovascular model inputs to result in model predicted outcomes that fit the observed mortality data in South Africa.

PROGRESS IN 2012

We showed a high Spearman rank correlation of nearly 90% or greater in all 12 South African cross-sectional studies conducted in the country over the past 25 years, when we compared the predictive performance and risk discrimination of the non-laboratory-based risk score to five commonly used laboratory-based scores (Framingham CHD and CVD, SCORE for low and high risk settings, CUORE) in a nationally representative population.

Predictive performance was assessed using ten-year CVD death and total death as outcomes for receiver operator characteristic (ROC) curve analysis. Further, at a normal treatment threshold of 20% risk, there was 90% or more agreement in risk stratification. The paper is under review at BMC Medicine.

We have completed data collection from the EDEN trial on nearly 2 000 subjects for which we will obtain death data over the remaining two years by linking mortality reports by means of the identity numbers, in order to assess the validation of the tool in a prospective cohort. The data has been cleaned and we are in the process of beginning our baseline analyses of the cohort.

PROJECT
3

Economic modelling of the impact of preventive
and management interventions for chronic diseases

RESEARCH TEAM

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Debbie Bradshaw
James Irlam
Lara Fairall
Krisela Steyn

PHD STUDENT

Ankur Pandya



BACKGROUND

This research is undertaken to assess the economic impact of prevention and management of interventions for chronic diseases. The aim is to develop a CVD Prevention and Management Model that will allow the prediction of CVD events accurately and which could be used in cost-effectiveness analyses of screening and intervention strategies.

State-transition simulation models, also called Markov models, have been developed to assess the cost-effectiveness of the integrated care guidelines for CVD, in comparison with the base case. The effects measured are in the life years saved, quality-adjusted life years (QALYs) and disability-adjusted life years (DALYs). Incremental cost-effectiveness (C/E) ratios have been calculated for each of the three strategies compared to the base case under consideration. The US Panel on cost-effectiveness in Health and Medicine's recommendations are utilised in this analyses.

PROGRESS IN 2012

We have been updating the parameters on a CVD policy model, as well as calculating country-specific costs for cardiovascular diseases. We have completed the process of converting the Excel- and TreeAge-based model into a C++ model. In



addition, model parameters are being updated with the current literature. We are completing the last updates of the mortality estimates from South Africa to calibrate the model. CVD cost estimates using WHO CHOICE data and local cost data have been completed.

We are using the model to conduct a cost-effectiveness analysis of the BRIDGES diabetes intervention (project 6), with a graduate student at Stellenbosch University. The analysis is evaluating the potential benefits of the blood pressure reductions seen in that trial.

Lifestyle intervention tools:
“Putting prevention into practice” package



RESEARCH TEAM

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PHD STUDENT

Zelra Malan

BACKGROUND

There is strong evidence to show that risk behaviours can be changed and produce meaningful clinical improvements through brief counselling assistance by healthcare providers (Whitlock, 2002). This project set out to produce and pilot a resource package for primary healthcare providers and community health workers, to enable them to offer brief, best practice behavioural change counselling on topics of smoking, diet, weight management, and physical activity. The package draws on the 5A best practice clinical guideline for brief behavioural change counselling (Fiore et al., 2008) and comprises educational or motivational resources for patients, a training course for healthcare providers, healthcare provider aids, and guidelines on how to integrate brief behavioural change counselling into primary healthcare practice and support patients to set lifestyle modification targets.

In 2011, the best practice guidelines and rapid assessment tools were completed for smoking, diet, and physical activity in collaboration with expert working groups, consisting of researchers and practitioners in that particular field. Similarly, patient education or motivational materials on the three risk factors were drafted using a testimonial approach – they include

authentic interviews and photographs of members from the proposed target audience, who model successful behavioural change.

Regarding diet, a recipe book was developed, which specifically aims to educate South Africans about the importance of a healthy diet in the prevention and management of chronic disease and to assist them in actively adopting a healthier diet for themselves and their families. It is targeted at communities of low socio-economic status and therefore has a strong emphasis on how to eat healthily on a limited budget.

Furthermore, an adult 'Road to Health' card that records and explains vital health indicators, and charts individual progress towards behavioural change goals was developed. This card aims to support the healthcare provider to introduce the importance of a healthy lifestyle and to discuss and negotiate behavioural change goals with the patient.

A three-day training module on brief behavioural change counselling for NCDs was also developed in 2011. It includes a DVD, which demonstrates the requisite competencies.



PROGRESS IN 2012

The best practice guidelines and rapid assessment tools, as well as the patient education or motivational materials on the three risk factors were pre-tested in the target population. This became the topic of a Master's student's dissertation (see the capacity building section).

The project on the recipe book was led by the Heart and Stroke Foundation in collaboration with CDIA. The development, printing, promotion, and distribution were funded by Pharma Dynamics. The recipe book was called 'Cooking from the Heart' and the project involved printing and distributing 200 000 recipe books with a significant public relations campaign also funded by Pharma Dynamics during Heart

Month in September 2012. The recipe book was widely welcomed, with an enormous response from the public. It was even used in the kitchens of some hospitals in the country.

The three-day training programme for healthcare providers was further developed and refined. The eight-hour training module includes a presentation of the evidence base for brief behavioural change counselling; how to apply the 5A protocol to smoking, physical inactivity, alcohol misuse, and an unhealthy diet; the main principles of the Motivational Interviewing counselling style and multiple opportunities for practising skills. It also includes a short course, which has been formally registered for continuing professional development points for doctors and nurses.



**RESEARCH TEAM**

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PHD STUDENT

Lungiswa Tsolekile

BACKGROUND

The national and provincial department's of Health have strongly supported the inclusion of community health workers (CHW) in the healthcare provider team. This project, in collaboration with the Provincial Department of Health in the Western Cape, sets out to define the role of a CHW in caring for patients with chronic diseases. This aim is to be achieved through a process of consultation with the Provincial Department, conducting a situation analysis, reviewing existing chronic disease community health worker training materials, and ultimately to draft and evaluate a CHW chronic disease curriculum and training tools.

In 2011, an observational study was undertaken of CHWs while conducting their daily activities in order to gain deeper insight to their roles and activities and to determine their current roles in prevention and control of chronic NCDs. It revealed the numerous tasks that are conducted by CHW that were NCD-related. It further revealed the challenges relating to training, supervision, and referral patterns of clients.

PROGRESS IN 2012

The data of the observational study was analysed and the result reported in a draft manuscript. A protocol to survey a larger sample of the estimated 1 431 CHWs



in Khayelitsha to assess their knowledge and practices in general and with respect to chronic diseases was developed, based on these findings. The protocol has been passed by UWC's Ethics Committee. A questionnaire has been drafted, piloted with the target population and uploaded on mobile phones, which are being used for data collection. Stratified sampling has been used to select the non-governmental organisations where the CHW are employed. Thereafter the CHWs working in the NGOs have been conveniently sampled. The data collectors have been trained to use mobile phones to collect data. Data collection has commenced and 30 CHWs have been interviewed.

A randomised controlled trial to evaluate the effectiveness of a group diabetic education programme using motivational interviewing in under-served communities in South Africa

RESEARCH TEAM

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Hilary Rhode (Co-ordinator)
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MASTER'S STUDENTS

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BACKGROUND

Diabetes affects 11% of the adult population in Cape Town and is a major contributor to the burden of disease and mortality. This pragmatic cluster randomised controlled trial aims to evaluate the effectiveness of a group diabetes education programme, guided by a motivational interviewing style, delivered by health promoters in Community Health Centres.

In 2010 and 2011 people with Type 2 Diabetes attending 17 community health centres were enrolled in the study. The intervention group received a structured education programme of four sessions, delivered by health promoters to groups of 10–15 diabetic patients at a time. The control group are receiving usual care. The primary outcome of this study was diabetes self-care activities and the secondary outcomes include measures of self-efficacy, locus of control, mean blood pressure, mean weight loss, mean waist circumference, mean HbA1c, mean total cholesterol, and diabetes-specific quality of life.

The Motivational Interviewing Integrity Code was used to assess the Health Promoter's fidelity to the intervention and the use of brief motivational interviewing techniques.

The follow-up survey was completed at the end of 2011 and obtained follow up data on 1 103 patients (33 are deceased, 41 moved away, 22 refused, 34 were at work, and 44 were not found).

PROGRESS 2012

In 2012, the trial was fully completed and all the data was analysed. The full research proposal was published in BMC Family Practice.

The process evaluation of the health promoters demonstrated that they felt confident in their ability to deliver the group education after training and found the resource materials to be relevant, understandable, and useful. They reported a significant shift in communication style and skills and felt the new approach was feasible and better than before. They delivered the majority of the content and achieved beginning proficiency in terms of the key MI style and use of open questions, but did not demonstrate proficiency in active listening and continued to offer some unsolicited advice. They also struggled with poor patient attendance and a lack of suitable space at the facilities.

The process evaluation of the patients suggested that they gained useful new knowledge about diabetes and reported a change in their behaviour, especially relating



to diet, physical activity, medication, and foot care. They experienced the educational material positively and felt that it enhanced recall and understanding. Health promoters were competent, utilised useful communication skills, and structured the material well. However, there were organisational and infrastructural problems, especially with regards to space for the groups to meet, and communication of the timing and location of the sessions.

The final results of the trial found no significant improvement in any of the primary or secondary outcomes, apart from a significant reduction in mean systolic (-4.65mmHg CI-9.18- -0.12, $p=0.04$) and diastolic blood pressure (-3.30mmHg CI-5.35 1.26, $p=0.002$). The effectiveness of group diabetes education offered by more highly trained

professionals, in well-resourced settings, was not replicated in this study, although the reduction in blood pressure is likely to be of clinical significance.

A final piece of work is still ongoing. As mentioned earlier, this is a cost-effectiveness analysis that will look at the incremental costs and the likely benefits derived from a significant fall in blood pressure. At the same time the Department of Health has expressed an interest in training in brief motivational interviewing techniques for the rest of the health promoters in the Cape Town metropole.

This project was supported by a BRIDGES Grant from the International Diabetes Federation. BRIDGES, an International Diabetes Federation project, is supported by an educational grant from Lilly Diabetes (ST09-040).

projects currently funded from CDIA resources



RESEARCH TEAM

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BACKGROUND AND AIMS

Poor treatment adherence (clinic attendance and medication adherence) is an important, potentially modifiable contributor to uncontrolled hypertension and to hypertension-associated morbidity and early mortality. Although behavioural interventions delivered using mobile-phone technology have been shown to have clinically important outcomes for some diseases, results are not consistent. Additionally, the efficacy of such interventions to support treatment adherence for hypertension and other chronic diseases in low resource settings remain to be determined. The StAR trial is a Wellcome/EPSRC funded collaboration between the University of Oxford and the CDIA. The trial will test the efficacy of an SMS-text based intervention to support treatment adherence compared to usual care among patients who receive care for hypertension in primary care facilities in resource-poor settings.

METHODS

The trial is a pragmatic individually randomised three-arm parallel group trial in adult patients being treated for hypertension at a single primary care centre in Cape Town, South Africa. The intervention is a structured programme of clinic appointment and medication pick-up reminders, medication adherence support, and hypertension-related

education delivered remotely through informative or interactive SMS-text messages. The co-primary outcomes are the difference in mean measured blood pressure and measured treatment adherence (medication possession ratio), between the control and either intervention arm, at 12-month follow-up.

The trial addresses the weakness of previous research by recruiting a large sample from a patient pool broadly representative of patients who receive care for hypertension in primary care facilities in resource-poor settings, defining a feasible theory-based intervention to support treatment adherence, using an automated system to deliver the intervention and manage participant interactions, and measuring clinically relevant outcomes. The results will inform practice and the design of a trial comparing different components of the intervention [SANCTR DOH-27-1212-386].

PROGRESS IN 2012

Participant enrolment commenced in June 2012, and closed with 1 372 enrolled by the end of November 2012. To date, we have sent out over 30 000 SMS-texts to trial participants. Since December 2012 we have been busy with the six-month follow-up visits for participants and planning for the final 12-month follow-up.

An evaluation of Community Health Workers (CHW) screening for CVD in the community in four developing countries using the non-laboratory total CVD risk factor score

RESEARCH TEAM

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Thandi Puoane (UWC)
Thomas Gaziano
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Jabulisiwe Zulu (UCT)

PHD STUDENT

Shafika Abrahams-Gessel
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BACKGROUND AND AIMS

This study proposes to train CHW to use a non-laboratory-based risk assessment tool to identify persons at high risk for CVD in community settings in South Africa, Bangladesh, Guatemala, and Mexico. The risk tool was developed for the US population and has been tested with good performance in several South African studies. It uses age, gender, BMI, blood pressure, smoking status, and history of diabetes mellitus (DM) to calculate an absolute risk score for developing CVD.

METHODS

The CHW-generated risk scores will be compared for agreement to risk scores generated by a trained health professional. If there is significant overlap in the percentage agreement between the two sets of scores, it will demonstrate that low-level health workers, such as CHWs, can be adequately trained to screen for, and identify, those at high risk for CVD. The referral pattern for high-risk patients from CHWs to a trained health professional at a community health clinic will also be assessed. CHW knowledge levels and retention of knowledge about CVD and its risk factors will be evaluated and the costs of the programme evaluated.



PROGRESS IN 2012

In each site, at least 1 000 patients were evaluated by the CHW after training in data collection and the calculation of the non-laboratory total CVD risk score. Training of CHWs is complete at all four study sites and screening in the population is complete at three sites. The Northern Mexico site had a delayed start to training and field-work but has already completed more than 80% of enrolment. Ongoing single data entry is underway and one of the four sites has already started double data entry.

An extension of this study involving the development of a mobile phone application for the total CVD risk assessment for use by CHW has been initiated by a masters' student. (See student the capacity building section).

A qualitative study of the nutrition patterns of low-income South Africans

A close-up photograph of a dark brown ceramic bowl filled with a hearty vegetable soup. The soup contains chunks of orange carrots, green beans, and yellow potatoes. A fresh green parsley leaf is garnishing the top. The bowl sits on a blue and white striped cloth. In the background, more fresh vegetables like green beans and tomatoes are visible.

RESEARCH TEAM

Aniza De Villiers
Katherine Murphy
Debbie Jonathan
Gillian Hill

BACKGROUND

The planning of the dietary intervention tool for the lifestyle modification package in the study, required an understanding of the commonly consumed foods, the food preferences, and the cheap, healthy options available to the lower socio-economic communities of diverse cultures in South Africa.

METHODS

Protocol development and ethical clearance was arranged in 2011. A total of 22 focus group discussions were conducted in Cape Town, Durban, Umtata, East London, Johannesburg, and Pretoria. A brief questionnaire on demographics, dietary habits and the most commonly-used cooking methods was administered prior to each focus group, which included 167 participants. Data was analysed using SPSS analytical package.

PROGRESS IN 2012

Qualitative analysis of the data was completed. The main findings indicated that participants selected meat (29%) and chicken dishes (26%) as their and their spouses most favourite, while pasta dishes (29%) were selected as the most popular dish for their children. The most frequently used proteins were chicken (63%), meat (34%), fish (18%), and legumes (17%). They



consume a variety of vegetables, with carrots (61%), butternut (57%), cabbage (45%), and spinach (37%) as the most popular orange and green ones. Most participants indicated adding salt (84%), oil (40%), or butter/margarine (62%) to vegetables. Most frequent preparation methods were stewing (34%), boiling/steaming (19%), oven-baking (12%) and grilling (11%). This data informed the development of the dietary intervention material and recipe book 'Cooking from the Heart' distributed in September 2012; (See project 4). The preparation of a manuscript is in progress.

Alignment of current primary care practices with the PGWC Adult Chronic Disease Management Policy: A case study of Retreat Community Health Centre

RESEARCHER
Claire Draper
(MMed Student)



RESEARCH OBJECTIVES

The aim is to assess the alignment of current primary care practices with the Provincial Government of the Western Cape's (PGWC) Adult Chronic Disease Management Policy (2009), using Retreat Community Health Centre (RCHC) as a case study. The objectives of this study were to:

- Examine existing and relevant audit data (2009–2011) to assess the extent to which processes are being implemented as intended;
- Identify aspects of the audit data that require more in-depth examination or follow-up;
- Examine these areas and identify factors influencing the successful implementation of these practices or principles;
- Comment on the extent to which guiding principles of the primary health care approach and family medicine are being implemented in reality; and
- Identify factors influencing the implementation of these principles.

METHODS

Mixed methods have been used: semi-structured interviews and focus groups, document review, and participant observation. Participants in this study included staff employed at Retreat Community Health Centre, as well as other key informants involved in the PGWC Adult Chronic Disease Management Policy. Data collected using the Integrated Audit Tool for Chronic Disease Management (part of the PGWC Adult Chronic Disease Management Policy) formed the basis of the guide questions used in focus groups. Two focus groups were conducted (four participants

per group, n=8), one with doctors and one with clinical nurse practitioners. Staff members who did not participate in the focus groups were then purposively selected for in-depth interviews (n=10). Participant observation was carried out concurrently with the focus groups and interviews, and extensive field notes were taken from these and other observations while working at RCHC.

In 2011, guide questions were developed for the focus groups and individual interviews. The data collection, using these methods, was completed. Audit data was analysed. Interview and focus group texts were analysed using a content analytic approach, and with the assistance of Atlas.ti Qualitative Data Analysis Software (Scientific Software Development GmbH, Berlin, Germany).

PROGRESS IN 2012

The data indicated a significant gap between policy and its implementation to improve and support chronic disease management at this primary care facility. A major factor seems to be poor policy knowledge by clinicians, which contributes to an individual rather than a team approach to the management of chronic disease patients. Poor interaction between facility- and community-based services also emerged. A number of factors were identified that seemed to contribute to poor policy implementation, the majority of which were staff-related and ultimately resulted in a decrease in the quality of patient care. At a philosophical level, this research highlights the tension between primary health care principles and a diseased-based approach in a primary care setting.

CDIA MEMBERS CHRONIC DISEASE RELATED RESEARCH PROJECTS

funded from other sources



PROFESSOR DEBBIE BRADSHAW

Prof Debbie Bradshaw, the Director of the Burden of Disease Research (BOD) Unit, has been leading the second National Burden of Disease Study for South Africa. Progress has been made by the BOD Unit in estimating the mortality trends of non-communicable diseases from 1997–2009.

The BOD Unit has also assisted the Western Cape Department of Health to develop a mortality surveillance system that provides local level statistics. A provincial mortality report for 2009 highlights the variations between health districts, including non-communicable diseases. This project identified the need to train doctors in medical certification of the cause of death. A short course has been offered to doctors working in the public sector, using a stepped wedge design to enable an evaluation of the training. Following the provincial work, the Unit has completed a project with Statistics South Africa, the Department of Health, and the Department of Home Affairs to train trainers in a national effort to improve the quality of the cause of death statistics.

The population-based cancer register in a rural setting in Eastern Cape Province, as part of the BOD Unit of the MRC continues to collect data regularly from 19 participating hospitals. Data has been submitted to IARC for consideration for inclusion in Cancers in 5 Continents.



DR THOMAS GAZIANO

Dr Thomas Gaziano leads projects to evaluate the costs of hypertension in South Africa and potential costs versus savings of efforts to reduce blood pressure through reductions in salt intake, increased fruit and vegetable consumption, and increased physical activity. Furthermore Dr. Gaziano is involved in a study with the PRICELESS South Africa project to assess the effect of restricted prescription roles for nurses who are engaged in task-shifting related to management of hypertension in the South African primary health care system. Finally, Dr. Gaziano has recently published a paper on the management of patients with rheumatic heart disease that was published with Professor Bongani Mayosi in *Circulation: Cardiovascular Quality and Outcomes*.



DR TRACY KOLBE-ALEXANDER

Dr Kolbe-Alexander studied the relationship between the built environment and physical activity in adults over the age of 50 years. Aging has been associated with a decline in general health status, functional ability, increased risk of injury and decreasing physical activity (PA) levels. Further, the built environment influences PA in all domains of life, including time spent at work, travelling and in leisure. However there is minimal data on how it is perceived and its association with habitual levels of PA in adults over the age of 50 years.

This was a descriptive observational study was conducted with 47 participants living in one of two Cape Town suburbs, Athlone (low socio-economic area) or Claremont (high socio-economic area). Participants were given accelerometers and pedometers to wear for 7 consecutive days in order to measure habitual levels of physical activity. Questionnaires were used to obtain demographic information, neighbourhood perception (NEWS); and self-reported physical activity (GPAQ).

The key findings of the study can be summarized as follows:

The main environmental attribute affecting PA was safety from crime, with significant findings for both objectively measured accelerometer data and self-reported physical activity. Neighbourhood surroundings also significantly affected PA levels. The Claremont participants' had significantly higher levels of physical activity than those living in Athlone. In addition, the Claremont participants also reported their neighbourhood to be safer ($p < 0.0005$) and more aesthetically pleasing ($p < 0.05$).

In summary, perceived built environment as well as health and other demographic factors were significantly associated with PA levels. These findings suggest that reducing crime and improving the neighbourhood environment might play a role in increasing habitual levels of physical activity in adults older than 50 years.

CDIA MEMBERS CHRONIC DISEASE RELATED RESEARCH PROJECTS

funded from other sources



PROFESSOR VICKI LAMBERT

Professor Vicki Lambert has been leading a long-standing research collaboration with the Discovery Vitality Group, both within South Africa, and now in North America. This research collaboration has extended beyond simple descriptive work to incorporate longitudinal analysis of health behaviour and subsequent claims, as well as randomised controlled studies, incorporating behavioural economics and financial incentives, as well as a subsidised retail healthy food benefit, and tailored health counselling.

The collaboration has recently submitted a manuscript, in which they have validated the Vitality Age risk score, which has been used widely for health risk appraisal, and are currently conducting longitudinal analyses.

The Modelling the Epidemiologic Transition Study (METS) is a longitudinal study designed to assess the association between physical activity levels and relative weight, weight gain, and diabetes and cardiovascular disease risk from sites in each of the following countries: Ghana, South Africa (Lambert is the site PI), Seychelles, Jamaica, and the United States. A total of 500 persons from each site have been followed for two years, and while this phase of the study is closing, there are efforts to establish sustainable funding going forward, to assess the relationship between Vitamin D status, obesity and cardio-metabolic disease in the cohort.

The International Study of Childhood Obesity, Lifestyle, and the Environment (ISCOLE) is a large, multi-national study, being undertaken in 12 countries. Prof Vicki Lambert is the project leader of the South African arm of the study. The aim is to describe the social ecology that influences the lifestyle choices and behaviours of children, including family, school, and neighbourhood settings, as well as the built environment, the social environment and the policy environment. The primary focus of this study is on the determinants of obesity. The South African site will further seek to address this ecological model, in settings in which childhood under-nutrition and stunting are juxtaposed with childhood overweight and adult overweight and obesity. The results of ISCOLE will provide important new information that will inform the development of lifestyle, environmental, and policy interventions to address childhood obesity, globally and locally.



PROFESSOR NAOMI LEVITT

Professor Naomi Levitt has been working with Melanie Bertram and Karen Hoffman of the PRICELESS project on two projects. The first assessed the cost effectiveness of a retinal camera screening programme for people with diabetes and the second examined the non-fatal disease burden caused by type 2 diabetes in South Africa. She is also a co-applicant on the Wellcome Trust-funded H3Africa grant titled 'Burden, clinical spectrum and aetiology of diabetes in sub-Saharan Africa'. She and Dr Joel Dave are leading longitudinal and cross sectional studies examining the metabolic consequences of antiretroviral therapy.



PROFESSOR KRISELA STEYN

Professor Krisela Steyn has been involved in a study assessing the salt intake in South Africans and identifying those foods that make the major contribution to a high salt intake in South Africans. This programme is led by Prof Edelweis Wentzel-Viljoen, of the North-West University. Both nutrition surveys and sodium excretion studies were reviewed from archived databases of previously conducted surveys. A manuscript has been drafted that describes the process in which the levels of salt in specified food were determined for the salt reduction regulations for South Africa.



PROFESSOR KAREN SLIWA

The Hatter Institute for Cardiovascular Research in Africa is a dedicated unit focused on research into the pathogenesis, treatment and prevention of heart disease in Africa. The Institute is under the directorship of Professor Karen Sliwa.

Professor Sliwa's research focuses on investigating cardiac disease linked with pregnancy and post-partum. This research has resulted in publications in the prestigious journal of Circulation (2010, 2011, 2012). Some of the research has been part of collaborative projects with the University of Hannover, in Germany. Two specific studies that Professor Sliwa has been conducting is the Pan African Pulmonary Hypertension Cohort (PAPUCO) Study and

CDIA MEMBERS CHRONIC DISEASE RELATED RESEARCH PROJECTS

funded from other sources

the Cardiac Disease in Maternity Cohort Study. The main objective of the PAPUCO study is to describe the epidemiology of pulmonary hypertension among 600 patients attending referral units for cardiovascular and pulmonary disease from 10 African countries, including Mozambique, Sudan, Kenya, and Nigeria. This information will be crucial to the development of effective and resource sensitive strategies to tackle PHT in sub-Saharan Africa.

The Cardiac Disease in Maternity Cohort Study is aimed at studying the natural history of pregnant women with cardiovascular disease, pre- and post-partum, as well as to identify risk factors and the clinical predictors of outcomes such that the risk related morbidity and mortality attributed to cardiovascular disease in pregnancy can be addressed. They have developed a multi-media resource that is envisioned to become a widely available tool for preventing and managing the causes and consequences of cardiovascular disease in pregnancy. This research is supported by CDIA.



PROFESSOR ERIC BATEMAN

Professor Eric Bateman, through his Board Membership of the Burden of Obstructive Lung Disease (BOLD) initiative, has been involved in preparation of publications of data from previous and new surveys using the BOLD methodology before preparation which enables comparisons of the prevalence of chronic obstructive lung disease (COPD) worldwide. More than 30 sites have completed surveys. These provide a comprehensive view of the prevalence of COPD globally, and incorporates several follow-up studies, including one in his unit, which are underway. This work has provided opportunities to explore several important questions concerning this disease: appropriate reference values for lung function in different ethnic groups; the relationship between COPD prevalence, restrictive lung disease, and socio-economic deprivation and their link with mortality.

Professor Bateman is also involved in a NIH-funded five-year project examining the development of COPD and lung infections in a cohort of more than 200 adults on stable anti-retroviral treatment for HIV infection. The study is in its fourth year (PI: Dr Rodney Dawson).

CDIA members chronic disease related research projects funded from other sources



MONITORING AND EVALUATION

of health services

Under the leadership of Unita Van Vuuren, and in collaboration with the Family Physicians of the Department of Health of the Province of the Western Cape, a primary care facility integrated audit tool was developed for five chronic diseases: diabetes, hypertension, asthma, COPD, and epilepsy, which was initially used in the Metro region of Cape Town and by 2011 in all the districts across the province. The Integrated Audit tool for NCDs marks a milestone in the province, as well as the country. This customised tool is the first of its kind in the country to monitor and evaluate norms and standards for NCDs within a primary health care setting.

The aim of the integrated audit is to evaluate and measure current practice against the standards set. The objectives include comparing the performance of the different health sub-districts in the province and identification of areas that need improvement. The tool has two components: the first component looks at the facility process and equipment availability and the second component consists of a folder review for each of the five abovementioned chronic conditions. From the data chronic disease Indicators are developed that include: structural indicators – a look at equipment needed; process indicators – do we do the right things; intermediate outcome indicators – are the patients controlled; and long-term outcome indicators – e.g. amputation rate. Each facility completes their own audit and analyses their own data, providing them with immediate results. This allows for facility ownership and accountability by enabling the managers and clinicians to address and improve the gaps of NCD

management at their facility by comparing the data with previous annual reports. Each facility-based chronic care team identifies three areas for improvement that can be tracked by the following annual audit. The Integrated NCD audit was conducted for the first time in 2009.

In each consecutive year more community health centres have been participating. In 2012, 129 facilities participated in the exercise. The effect is clearly visible in the results in those facilities that have participated since the initiation of the audit system. They have improved and currently perform better than those that joined the audit process more recently. The role of the chronic disease care team at each facility is critical in improving chronic disease care.

A technical task team headed by NCD programme manager, family physicians, public health registrar, clinicians and academics reviews the tool annually to address needs and incorporate latest international, national and provincial guidelines.

In addition, the Department of Health of the Western Cape Province conducted a detailed situational analysis of the current chronic disease system in the Cape Metro District, focusing mainly on the Primary Health Care Platform 2012. This in-depth analysis has informed the formulation of a range of recommendations to improve care for patients with chronic diseases. CDIA will study these recommendations carefully to ensure that their research programme is in line with the needs of the Department of Health.



CAPACITY DEVELOPMENT
and research training

University of Cape Town



PhD STUDENT

Dr Naomi Folb (Lung Institute, University of Cape Town)

THESIS TOPIC

Effectiveness of an integrated care guideline training programme on the processes and outcomes of chronic diseases in primary care in South Africa: a pragmatic cluster randomised controlled trial (See project No 1)

SUPERVISOR

Dr L Fairall (Lung Institute, University of Cape Town)

CO-SUPERVISOR

Professor M Bachmann (Norwich Medical School, University of East Anglia)

SUMMARY

The aim of the study is to test whether an integrated guideline training programme (Primary Care 101) for primary healthcare nurses and doctors improves quality of care for chronic diseases over and above usual training and support. The trial will focus on evaluating four disease groups: hypertension, diabetes, chronic respiratory disease, and depression. The study is a pragmatic cluster randomised controlled trial, with 38 clinics in the Eden and Overberg districts of the Western Cape randomised to two parallel arms, and outcomes were assessed on individual participants and detailed in project 1. Baseline data was collected and computerised from 4 393 participants in 2011.

PROGRESS IN 2012

The candidate was centrally involved in co-ordinating the fieldwork of the resurvey and data quality control procedures. The baseline survey data was prepared for analyses. The resurvey data was collected by re-interviewing the participants after the baseline survey and by photocopying the prescriptions for the patients during the intervention period. This would allow the calculation of the primary outcome measure, 'treatment intensification'. This proved to be a challenging undertaking. The computerisation of the data is currently progressing.

MASTER OF SCIENCE IN NURSING (MSc)

Buyelwa Majikela-Dlangamandla (Diabetes Nurse Specialist, Division of Medicine, University of Cape Town)

THESIS TOPIC

An evaluation of health promoters' adherence to a planned diabetes educational intervention that includes motivational interviewing at community health centres in Cape Town.

SUPERVISOR

Dr Una Kyriacos, PhD (Nursing), University of Cape Town
Division of Nursing and Midwifery

CO-SUPERVISOR

Professor Bob Mash MBChB MRCGP FCFP PhD, University of Stellenbosch

CAPACITY DEVELOPMENT

and research training

SUMMARY

The aim of this study is to evaluate the extent to which health promoters in public sector community health centres adhere to motivational interviewing principles in their delivery of a planned diabetes educational intervention, including adherence to the content and mode of delivery, as they had been taught. The intervention was delivered in a group setting. Data was collected in 2011 by audiotape recording and structured observation of the educational sessions. The recordings were analysed by listening and using a validated MI assessment tool incorporating a scoring system. Analysis of observed sessions used a checklist to score items.

PROGRESS IN 2012

The audio tape of each educational session was analysed using the criteria specified in the Motivational Interviewing Integrity Code Version 3.1.1 (MITI), a validated tool for assessing Motivational Interviewing (MI) processes. This consists of two sections. The first section generated measurable numerical data as it involved global rating in relation to five key characteristics of MI on a five-point Likert scale (1-5). The second section counted each health promoter's (HP) behaviours during the entire recorded educational session.

The global rating scores and the summary scores obtained from the analysis of each session were collated into an Excel spreadsheet. The average scores of specific

sessions, specific HP, specific site, and for all sessions were obtained. These average scores were interpreted according to the level of competence in MI. The provisional results show that the mean global rating of the HPs just met the criteria for beginning proficiency in MI. The candidate's thesis is currently being written.

MMED STUDENT

Dr Claire Draper (Family Medicine, School of Public Health and Family Medicine, University of Cape Town)

THESIS TOPIC

Alignment between chronic disease policy and practice: case study at a primary care facility

SUPERVISOR

Dr. Catherine Draper (UCT/MRC Research Unit for Exercise Science and Sports Medicine)

CO-SUPERVISOR

Dr. Graham Bresick (School of Public Health University and Family Medicine)

SUMMARY

The overall study purpose is to improve the care and management of patients with chronic diseases within primary health care facilities. The aim is to assess the alignment of current primary care practices with the

Provincial Government of the Western Cape's (PGWC) Adult Chronic Disease Management Policy (2009), using Retreat Community Health Centre (RCHC) as a case study. Data was collected via semi-structured interviews (n=10), focus groups (n=8), and document review. Participants in this study included clinical staff involved in chronic disease management at the facility and at a provincial level. The data collection was completed in 2011 and the review of the audit data, in conjunction with the PGWC Adult Chronic Disease Management Policy, was also completed.

PROGRESS IN 2012

The results of this research are reported under project 10.

The thesis has been submitted to the University of Cape Town and has been examined. A manuscript has also been submitted to an online journal (BMC Health Services Research).

MPHIL STUDENT

Thandie Chuma (School of Public Health and Family Medicine, University of Cape Town, CDIA Health Promotion Fellow)

THESIS TOPIC

Grappling with the need for lifestyle change: personal narratives from patients with diabetes and/or hypertension from low-income communities in Cape Town, South Africa.



CAPACITY DEVELOPMENT

and research training

SUPERVISORS

Dr Cathy Matthews, (School of Public Health and Family Medicine) and Dr Katherine Murphy, University of Cape Town, CDIA)

SUMMARY

The aim is to explore how low-income patients attending public sector primary health care services grapple with the reality of Type 2 diabetes and/or hypertension and the need for lifestyle change to control the condition, using in-depth interviews. Participants to be recruited from Gugulethu, Retreat, and Lady Michaelis Community Health Centres in Cape Town.

PROGRESS IN 2012

The protocol for the study was completed and presented to the School of Public Health's Postgraduate Committee. Ethical clearance was applied for. The candidate completed a six-month course in Qualitative Research Methods at the Faculty of Health Sciences at the University of Stellenbosch. She also attended Health Psychology lectures by the Department of Psychology at the University of Cape Town.

In-depth interviews were conducted and recorded from October 2012. As data collection proceeded the interviews were then transcribed and coded using ATLAS.ti to generate themes and categories from the data.



MPH STUDENT (HEALTH ECONOMICS TRACT)

Dr Reneé De Waal (MPH, University of Cape Town, CDIA Health Economics Fellowship)

MINI DISSERTATION TOPIC

Economic evaluation of provision of statins in primary health care in the Western Cape

SUPERVISOR

Dr Susan Cleary (Health Economics Unit, University of Cape Town)

SUMMARY

The aim of the project is to compare the costs and consequences of various models of providing statins for the primary prevention of cardiovascular disease, in order to inform clinical practice in the Western Cape. The interventions include prescribing different doses of statins at different levels of care (primary health care versus tertiary hospitals), and treating to a target cholesterol concentration versus treating patients with a standard dose, without monitoring cholesterol concentrations. The costs and consequences of the interventions will be modeled, from a provider perspective, using published data, as well as data collected locally. Efficacy and safety data (i.e. risks of various cardiovascular outcomes, complications, and drug side-effects) will be drawn from published studies, as no suitable local cohort data exists. Data

regarding the costs of the interventions, and of treating cardiovascular disease, complications, and adverse drug reactions will be collected in the Western Cape.

PROGRESS IN 2012

The candidate successfully completed all the coursework components of the MPH (Health Economics track), which comprises 50% of the degree.

She explored local current guidelines with respect to the use of statins in primary prevention of cardiovascular disease. She did a preliminary literature search for previous published economic evaluations that have been conducted in other settings. She met with a senior clinician at Groote Schuur Hospital and with a member of the hospital and Western Cape Provincial Pharmacy and Therapeutics Committee, in order to gain insight into current prescribing practices. She obtained the official National and Provincial policies for statin prescribing, in order to establish the current interventions available in the public sector. She is developing her study protocol.

PhD STUDENT

Dr Lindi van Niekerk

THESIS TOPIC

Enhancing frontline social innovation capacity within Community Health Care Centres in Cape Town through positive organisational practices.

CAPACITY DEVELOPMENT

and research training

CO-SUPERVISORS

Dr Warren Nillson MBA, (PhD University of Cape Town Graduate School of Business); Prof Lucy Gilson (BA, MA, PhD, School of Public Health, University of Cape Town)

SUMMARY

The aim of this study is to evaluate the role of positive organisational practices, as described in the literature of Positive Organisational Scholarship, in enhancing the social innovation capacity of frontline health workers employed within primary health care facilities. Enhanced social innovation capacity allows for the development of new programmes, products and processes, which can improve healthcare from the ground-level up as well as change the routines, beliefs, and authority levels. This study invests in the frontline health worker's ability to develop solutions to challenges faced and seeks to develop the primary care organisation such that both the staff and patient's experience of care can be enhanced.

PROGRESS IN 2012

The initial conceptualisation of the research occurred. Intensive background reading and training was conducted to understand organisational development and healthcare innovation. Three exploratory and educational visits were taken to the USA. Multiple health innovators and health innovation organisations were interviewed in New York, Boston, San Francisco, and London. A three-day visit to Stanford University (D-School)

was undertaken. An organisational development workshop was attended in New Jersey, USA (Community and Transformation – Peter Block). A 10-day practical technology innovation workshop was attended at the Massachusetts Institute of Technology in Boston. Conference attendances: Connected Health Symposium (Boston), Global Health Innovations Conference (New Haven), Skoll Forum for Social Entrepreneurship (Oxford), and Shaping Health Systems Network (Leeds).

In partnership with the MIT Sloan School of Management (Professor Anjali Sastry), a 3-month innovation project was conducted with MBA students from the Sloan School at Retreat Community Health Centre in Cape Town.

PhD STUDENT

Dr Mahmoud Werfalli (Department of Medicine, CDIA) University of Cape Town

THESIS TOPIC

Development, implementation and evaluation of diabetes self-care management strategy targeted at Older People with Type 2 diabetes mellitus attending community health centres (CHCs)

SUPERVISOR

Professor Dinky (Naomi) Levitt (Division of Diabetes and Endocrinology, department of Medicine, CDIA, University of Cape Town)

CO-SUPERVISOR

Dr Sebastiana Z Kalula (Division of Geriatric Medicine, department of Medicine, University of Cape Town)

SUMMARY

Diabetes is becoming a significant problem in Africa, where previously it was little recognised. This can be explained by increased detection, improved survival, an aging society and importantly switching change from a traditional to a Western lifestyle.

This research project concerns the development, and evaluation of a diabetes self-care management strategy targeted at both older patients and healthcare professionals, to support patients' self-management and thereby limiting the impact of the disease and improving the health-related quality of life for this group. It consists of three research papers including two systematic reviews research papers. The first systematic review attempts to assess the prevalence of type 2 diabetes mellitus among older people in African countries. The second one aims to evaluate the effectiveness of the existing evidence on self-management interventions in diabetes, designed for older people in primary care settings. The third paper will be an explorative, descriptive and analytic study regarding older patients' needs, understanding and experience of diabetes self-care-management provided by community health centres.



PROGRESS IN 2012

The first review protocol was developed and circulated to all team members. Database searches were undertaken using PUBMED, Medline, CINAHL and Scholar Google in the last 12 years (2000-2012), since significant developments in diabetes management have been published in that time. Search terms included; 'diabetes self-care', 'diabetes self-management', 'adherence', 'concordance', 'compliance', and 'older adult'. Combinations were entered, in order to focus the search. The next step will be developing the second review protocol and working on the informative and the conceptual frameworks of the empirical research.

CAPACITY DEVELOPMENT

and research training

University of the Western Cape (UWC)



PhD STUDENT

Lungiswa Tsolekile (School of Public Health, University of the Western Cape)

THESIS TOPIC

The use of community health workers to improve chronic disease care (see project 5)

SUPERVISORS

Professor Thandi Puoane and Professor Helen Schneider of the University of the Western Cape.

SUMMARY

The aim of this project is to identify the current activities of community health workers in chronic non-communicable diseases and to develop a training programme for community health workers to develop their skills to care for patients with chronic conditions. In 2011, an observational study was conducted of current CHW practices. A questionnaire was developed and piloted for a survey that will be conducted to gain insight into the current knowledge and practices of CHWs working in Khayelitsha.

PROGRESS IN 2012

A paper titled 'A day in the life of a community health worker: exploring the roles of community health workers working on non-communicable diseases in an urban

township' was presented at the Public Health Association Conference held in Bloemfontein (South Africa) in October 2012. Data collection for the second study is in progress.

PHD STUDENT

Beatrice Nojilana (School of Public Health, University of the Western Cape)

THESIS TOPIC

Policy approaches on tobacco use and diet for prevention of chronic non-communicable diseases: the role of population-based data.

SUPERVISORS

Professor Thandi Puoane of the University of the Western Cape and Professor Debbie Bradshaw of the Medical Research Council

SUMMARY

The study aims to explore the role of population-based data in supporting environmental and policy approaches to prevent chronic non-communicable diseases. It will involve a situational analysis of population-wide interventions, an assessment of the impact of the tobacco control on the prevalence of smoking and tobacco related mortality, and a comparison of environmental and behaviours around smoking and diet in an urban and rural setting to assess the potential for population-wide



prevention of chronic NCDs. In 2011, a situational analysis was conducted and included developing a more detailed proposal to interview people involved in the development or implementation of population-wide approaches to explore barriers and experiences. Trends in tobacco-related mortality have been explored.

PROGRESS IN 2012

A summary of literature review on causes of death data due to NCDs was analysed and presented at the MRC Research Day in October 2012, and at the 7th Semi-Annual UnitedHealth Global Health Centers of Excellence meeting in Maryland Washington DC. The student has also registered for a postgraduate course on qualitative methods at Stellenbosch University. These skills will be required for conducting the interviews with key informants for the situational analysis of people involved in the development or implementation of population-wide preventive policies. Four questionnaires for the additional studies have also been developed and piloted.

CAPACITY DEVELOPMENT

and research training

University of Stellenbosch (US)

PhD STUDENT

Zelra Malan (Family Medicine, University of Stellenbosch)

THESIS TOPIC

The development, implementation, and evaluation of a training intervention for primary health-care providers on brief behaviour change counselling and assessment of the provider's competency in delivering this counselling intervention (See project 4)

SUPERVISOR

Professor Bob Mash, Department of Family Medicine and Primary Care, US and Dr Katherine Everett-Murphy, CDIA

SUMMARY

This study aims to determine whether brief behavioural change counselling interventions, based on best practice for smoking cessation, can be applied to a broader range of risk factors that are associated with non-communicable diseases. In addition, if such an intervention is feasible in the unique South African primary health-care setting, which category of health-care provider is best positioned to take on such a counselling role. In 2011, the training manual was developed after an extensive literature review on brief behaviour change counselling. The manual was piloted and the project and fieldwork logistics were arranged.

PROGRESS IN 2012

The researcher has conducted a situational analysis of the current training curricula of the healthcare workers. A tool to assess competency of the healthcare workers in delivering the BBCC was developed and validated. For this evaluation, two research assistants were trained to act as standardised reference patients.

The researcher is in the process of evaluating the effect of the training intervention on the counselling behaviour of the healthcare providers during their clinical training and is assessing to what extent brief behavioural change counselling is actually incorporated by the health care workers.

MMed (FAM MED) STUDENT

Dr Roland Kaukamp (University of Stellenbosch)

THESIS TOPIC

Determination of the cost of a group diabetes education programme delivered by health promoters trained in motivational interviewing (See projects 3 and 6)



SUPERVISOR

Professor Robert Mash (Department of Family Medicine and Primary Care, University of Stellenbosch)

SUMMARY

The costing of the group diabetes education programme. The data for the costing of the group diabetes education programme is currently underway.

PROGRESS IN 2012

In collaboration with Dr Tom Gaziano. The model of economic impact that was developed by Dr Gaziano is being evaluated using data from project 3.

CAPACITY DEVELOPMENT

and research training

University of Harvard



PhD STUDENT

Ankur Pandya (Graduate School of Arts and Science, Harvard University, USA)

THESIS TOPIC

Applying health decision science methods to optimise cardiovascular disease screening and projection models

SUPERVISOR

Professors Milton C. Weinstein, Thomas A. Gaziano, and David Cutler of Harvard University

SUMMARY

Each of the three chapters of this dissertation leveraged total cardiovascular (CVD) risk scores to assess the overall impact of screening policies and secular trends affecting various individual risk factors. We found that these models can be useful tools to improve CVD risk screening and projection efforts.

PROGRESS IN 2012

The dissertation was successfully defended and the student graduated in 2012. Two papers have been published on the content of the dissertation.

University of Boston



DrPH STUDENT

Shafika Abrahams-Gessel (Boston University)

THESIS TOPIC

Determining the impact of training on beliefs about the risk factors for non-communicable diseases (NCDs), or chronic diseases (CDs) and the longer-term impact of the training experience itself on community health workers (CHWs) who will be trained to screen for individuals at high risk in population-based settings – in the township of Khayelitsha, Cape Town, South Africa (See project 8)

SUPERVISOR

Professor Deborah Bowen, Chair of the Department of Community Health Sciences, Boston University School of Public Health; Dr. Thomas Gaziano, Brigham and Women's Hospital, Harvard School of Public Health; Dr. Matthew Fox, Department of International Health, Boston University School of Public Health; Dr. Judith Bernstein; Community Health Sciences Department, Boston University School of Public Health.

SUMMARY

This study aims to assess the training and experiences of CHWs in the use of a non-invasive risk screening tool for cardiovascular disease (CVD) in the community setting. The study is being conducted in four

CAPACITY DEVELOPMENT

and research training

countries, South Africa, Bangladesh, Guatemala, and on the American/Mexican border. The impact of the cultural norms related to weight, perceptions of the roles of CHWs in the community and health care settings, the training materials, and challenges and opportunities for scaling up the training and use of this tool, plus its impact on policy related to integrating prevention of CVD programmes into the primary care setting, will be assessed. In 2011, the protocol was accepted by the Doctoral Committee and the student registered. The training manuals were developed.

PROGRESS IN 2012

The candidate is acting as overall project co-ordinator for project number 8. Progress is reported in that section. The candidate visited South Africa to oversee the training of the community health workers and she also acts as data manager and data quality controller for the overall project.





University of Flensburg
Germany

MA STUDENT

Svenja Wolfromm, Disease Prevention and Health Promotion, (University of Flensburg, Germany)

THESIS TOPIC

Pre-testing health education materials on chronic disease of lifestyle

SUPERVISORS

Dr. Katherine Everett-Murphy (University of Cape Town, CDIA);
Dr. Petra Wihofszky (University of Flensburg, Germany)

SUMMARY

The study investigated how the low literacy target group valued and perceived the newly developed health education material (See project 4). It addressed smoking cessation, healthy diet and integration of physical activity into the daily life routine. The data was collected using qualitative focus group interviews and analysed using qualitative content analysis by Phillip Mayring. This was to provide primary health care professionals with a resource package, which can be used in brief counselling interventions, in order to improve the management of patients with chronic diseases within primary health care facilities. The qualitative study showed that the health education material was understood, with some persisting literacy difficulties, and well accepted by the low literacy target group. Some participants mentioned that it has motivating tendencies towards behaviour change and emphasised that the gender aspect was important when providing behaviour change information concerning physical activity. The thesis has been submitted for examination.

CAPACITY DEVELOPMENT

and research training

University of Queensland Australia



MeH STUDENT

Dr Sam Surka (University of Queensland, Brisbane, Australia, Centre for Chronic Disease Initiative in Africa, University of Cape Town)

THESIS TOPIC

Evaluating the use of mobile phone technology to enhance cardiovascular disease screening by community health workers (see project 8)

SUPERVISOR

Dr S Edirippulige, (Centre for Online Health, University of Queensland, Brisbane, Australia)

CO-SUPERVISORS

Professor Naomi Levitt, Prof Kathy Steyn (Centre for Chronic Disease Initiative in Africa, University of Cape Town), Dr T Gaziano (Division of Cardiovascular Medicine, Brigham and Women's Hospital, Harvard University, Boston, USA)

SUMMARY

The aim of this study is to develop a mobile phone application capable of calculating a total cardiovascular disease risk (CVD) score, based on the non-laboratory CVD risk assessment model developed by Dr Thomas Gaziano. The mHealth tool will be evaluated in order to assess how it impacts on the screening for CVD in the community by community healthcare workers (CHWs).

A pilot study, using mixed methods, will be conducted to evaluate how this mobile phone application impacts on the training time of CHWs, screening time in the community and margin of error in calculating a risk score, compared to the paper-based chart tool. A qualitative evaluation of CHW experiences will also be undertaken.

PROGRESS IN 2012

The candidate completed the research protocol and received ethical approval from the University of Cape Town **Human Research Ethics Committee (HREC)**. A course was undertaken by the principal investigator: NIH Office of Extramural Research Required Education Course in the **Protection of Human Research Participants**.

The development of the mobile phone application is in progress using the online Commcare platform. Key partners have been approached for recruitment of the CHWs, logistics of training and fieldwork implementation. A community health worker training manual was developed.



OTHER CAPACITY DEVELOPMENT

activities in 2012



The School of Public Health at the University of Cape Town's Chronic Disease Module in their Master's in Public Health (MPH) course was run again in 2012, over a six month period. This is an elective module in the MPH programme of the school. Five CDIA members participated in teaching on the course.

The Winter School course of the University of the Western Cape on NCDs was repeated and five CDIA members participated in the teaching course.

A successful application for funds from Medtronic Foundation allowed the creation of two master's and one PhD CDIA fellowships in chronic diseases. These three fellows joined CDIA early in 2012 and have successfully planned their postgraduate projects (see the section on Capacity development).

At the **University of Stellenbosch (US)**, **Professor Bob Mash** of the Division of Family Medicine continues to teach post-graduate students in Family Medicine about chronic diseases and health systems. He is supervising one PhD student and five Masters' students on chronic disease research projects.

Professor Bob Mash was also instrumental in creating a small bursary scheme at the University of Stellenbosch with funding from UnitedHealth for master's students doing projects related to chronic diseases. Six students were funded through the scheme. The students, their projects and their supervisors are as listed:

Dr OAAkinrinlola, Stellenbosch University

THESIS TOPIC

Beliefs and attitudes to obesity. Its risk factors and consequences in a Xhosa community

SUPERVISION

Professor Julia Blitz (Stellenbosch University)

Mr KJ Daniels, Stellenbosch University

THESIS TOPIC

An investigation into the lung function, Health-related quality of (HRQOL) and functional capacity of a cured pulmonary tuberculosis (PTB) population in the Breede Valley: a pilot study.

SUPERVISION

Dr Susan Hanekom (Stellenbosch University)

Mr K Pretorius, Stellenbosch University

THESIS TOPIC

Investigation of the relationship between genetic and environmental risk factors associated with obesity and insulin resistance in SA patients with non-alcoholic fatty liver disease (NAFLD)

SUPERVISION

Professor Maritha J Kotze (Stellenbosch University)

OTHER CAPACITY DEVELOPMENT

activities in 2012



Dr A van der Does, Stellenbosch University

THESIS TOPIC

Evaluation of the 'Take Five School' and Education Programme for people with Type 2 diabetes in the Eden District.

SUPERVISION

Professor Bob Mash (Stellenbosch University)

Dr AJM Lumbamba, Stellenbosch University

THESIS TOPIC

Prevalence of Metabolic Syndrome in patients with gout at Tygerberg Academic Hospital (TBH)

SUPERVISION

Dr Mouroed Manie (Stellenbosch University)

Mrs U Rausch, Stellenbosch University

THESIS TOPIC

The development and validation of a standardised training manual focusing on medical nutrition therapy as part of diabetes self-management education for healthcare Professionals in Africa

SUPERVISION

Martani Lombard (Stellenbosch University)

Professors Naomi Levitt and Krisela Steyn (2012) and other CDIA members regularly meet with postgraduate students who are interested in exploring chronic disease projects for their research projects.



CDIA NETWORK MEMBERS PARTICIPATION IN POLICY DEVELOPMENT *and interaction with non-governmental organisations and the community*



Professor Bob Mash served on the Minister of Health's Task Team to formulate the membership of the District Specialist Teams that will support the development of the District Health Services in South Africa.

Professor Bob Mash arranged a highly successful 'Colloquium on Non-communicable Disease Research' at the University of Stellenbosch. This CDIA meeting was well attended and Prof Levitt introduced the work of CDIA to the audience. In return a variety of academics at the University of Stellenbosch introduced their research and a fruitful discussion followed with possible collaborative projects being discussed. One result forthcoming from the meeting is that Dr Taryn Young at the Centre for Evidence Based Health Care at Stellenbosch University submitted a proposal for funding of CDIA-related Cochrane reviews. At this meeting a bursary fund was announced of R100 000 for postgraduate students at Stellenbosch University who were working on chronic disease-related projects for their dissertations. Seven bursaries of between R10 000 and R20 000 were awarded for postgraduate students at this university.

Professor Eric Bateman continues his work on the Board of the Global Initiative for Asthma (GINA). Major contributions have been the updating of the asthma management workshop report (updated annually) and the preparation of a chapter on distinguishing asthma from COPD in adults in primary care, in a collaboration between GINA

and GOLD (Global Obstructive Lung Disease initiative) for inclusion in both the GINA and GOLD workshop reports. This document focuses on poorly-resourced countries where spirometry is not immediately available.

Professor Debbie Bradshaw has interacted with the National Department of Health (NDOH) and Stats SA in co-ordinating health data to monitor the progress of Negotiated Service Delivery Agreement undertaken by the Minister of Health. This has assisted in clarifying high-level health indicators and the source of the data. She has also provided support to the NDOH in the development of the National Strategic Plan for NCDs.

In particular we need to mention the fundamental work that has been done under the leadership of **Dr Lara Fairall** of the Knowledge Translation Unit of the University of Cape Town's Lung Institute. The South African National Department of Health is piloting 'Primary Care 101' in a USAID-funded project at three demonstration sites in South Africa where an 'integrated chronic disease care model' is being evaluated. Many other public and private sector health service providers are investigating the use of the 'Primary Care 101' chronic disease model of care for future use in health service settings.

Katherine Everett Murphy has been working with the Western Cape Provincial Department of Health on implementing a pilot programme for pregnant women, which addresses

multiple risk behaviours during pregnancy – including substance abuse, smoking and alcohol use. It also integrates a strong focus on mental health. The intervention involves training lay counsellors, midwives and psychology interns to provide brief behavioural change counselling and psychosocial support to pregnant women attending public sector antenatal services. Improving the referral systems to mental health professionals is also an important objective. The intervention is currently being piloted in the Mitchells Plain Maternal Obstetric Unit in Cape Town.

Professor Krisela Steyn serves as an advisor to the National Department of Health on the working committee that formulated the draft regulations to reduce salt in South African food, which contributes the most to high sodium intake. The working committee had extensive consultations with nutrition experts and representatives of the food industry and reformulated the draft regulations for submission to the Minister for final improvement.

Professor Steyn was invited to accompany the chronic disease cluster representative in presenting the draft South African National Plan for Non-communicable Diseases to the Minister of Health's Standing Committee in December 2012. The plan was approved at this meeting and the announcement by the Minister of Health to launch this plan is being awaited.

Professor Steyn was the co-ordinator with the office of the Dean of a 'Centenary Celebration Debate' between

Dr Jacques Rossouw of NIH and Prof Tim Noakes. The latter was the proponent of the statement that: Cholesterol is not an important risk factor for heart disease and current dietary recommendations do more harm than good. Dr Rossouw, as the opponent, strongly disagreed with this statement. There was tremendous interest in the debate which was simultaneously streamed to the Sport Science Institute and a website where many viewers from across the globe followed the event.

Professor Vicki Lambert and **Dr Tracey Kolbe-Alexander** are engaged in policy activities relating to physical activity nationally and internationally. **Dr Tracy Kolbe-Alexander** is also working with the Province of the Western Cape's Department of Health to develop a workplace health programme.

CDIA members have also been involved with South African advocacy groups and in interactions with the community. Prof Naomi Levitt is president of Diabetes South Africa. **Professor Krisela Steyn** and **Dr Tracy Kolbe-Alexander** have been appointed to the South African Heart and Stroke Foundation's newly created Advisory Panel and Prof Steyn was also appointed as a board member of the Foundation. The Foundation's influence in promoting heart health has undergone a significant turnaround in 2011 and 2012, under the leadership of its new director, Dr Vash Mungal-Singh. Prof Karen Sliwa is a founding member and past president of Heart Failure Society of South Africa and part of the European Society of Cardiology's peripartum cardiomyopathy working group.

Professor Lambert serves on the Scientific Advisory Council for the International Obesity Task Force, the Executive Board for the International Society for Physical Activity and Health, and is the current chairperson of the African Physical Activity Network (with over 150 members, representing more than nine African countries), and incoming chairperson for Agita Mundo, the global movement for Physical Activity for Health. She and **Dr Kolbe-Alexander** have worked with the Department of Health on the draft guidelines for the National Plan for Physical Activity.

Dr Kolbe-Alexander and **Professor Lambert** are co-supervising Clare Bartels, who is working with Cape Town municipal authorities on research concerning Active Transport and the Integrated Rapid Transit System.

Finally, **Professor Lambert** will be working with Discovery Vitality, the Sports Science Institute of South Africa, and academics from all tertiary academic institutions, NGOs and other groups representing civil society to spearhead the third in a series of Healthy Active Kids South Africa Report Cards, planned for 2014.

CDIA's interest in the role of community health workers and their role in NCD care has led to many useful discussions on the topic with **Prof Helen Schneider** at the University of the Western Cape. She summarises the current situation of CHW in South Africa as follows: 'There is growing interest in community-based health

interventions as part of a broader revitalisation of primary health care in South Africa. In 2010 the national Department of Health published a discussion document entitled 'Re-engineering Primary Health Care in South Africa' proposing, amongst others, the establishment of PHC Outreach Teams staffed by community health workers and supported by professional nurses. These outreach teams build on a vast infrastructure of community-based care and support systems that have evolved as part of the response to the HIV epidemic in South Africa. A government inventory in 2011 identified a total of 72 000 lay counsellors and community-based workers existing in various degrees of relationship, with the formal public health system in South Africa, almost all through non-governmental intermediaries.

"The PHC re-engineering process has sought to formalise and standardise aspects of this highly diverse and uneven system of lay health work and community involvement, so as to better meet health needs in concert with the formal public primary health system. A key role of the new PHC outreach teams will be to ensure a coherent approach to the primary and secondary prevention of chronic non-communicable diseases (NCDs) in community settings. However, in contrast to maternal child health and HIV/TB interventions, the evidence base for appropriate NCD roles and interventions, as part of a comprehensive community health worker programme in settings such as South Africa, is still very thin."

CDIA FUNDERS

in 2012

We would like to acknowledge our funders. Without their support, NCDs would still constitute the neglected area of health research.

UnitedHealth Company, USA

- Total funding amounts to 1 million dollars over five years. Annually renewable.
- Funding cycle: From Sept 2009 to August 2013.

National Heart Lung and Blood Institute of the NIH, USA

- Total funding amounts to 2 million dollars over five years. Pay and claim contract.
- Funding cycle: From 8 June 2009 to 7 June 2014.
- Supplementary funding of \$498 916 shared with Guatemala, Mexican American Borders, and Bangladesh Centres of Excellence. Pay and claim contract.
- Funding cycle: July 2011 to June 2014.

Cancer Association of South Africa

- Total funding amounts to \$68 571 (R480 000) over three years. Annually renewable.
- Funding cycle: From 1 June 2010 to 30 May 2013.

International Diabetes Federation (BRIDGES project)

- Total funding amounts to \$65 000 over two years.
- Funding cycle: From 1 April 2010 to 31 March 2012.

Medtronics Foundation

- Total funding amounts to \$ 300 000 over two years.
- Funding cycle: From March 2011 to February 2013.

Department of Medicine and Faculty of Health Sciences, University of Cape Town

- Research facilities and accommodation for CDIA administrative office.

PUBLICATIONS OF NETWORK MEMBERS RELATED TO

chronic diseases and CDIA activities

Bertram, Melanie Y; **Steyn, Krisela**; Wentzel-Viljoen, Edelweiss; Tollman, Stephen; Hofman, Karen J. Reducing sodium content in high salt foods: Impact on cardiovascular disease in South Africa. *S Afr Med J* 2012;102(9):743-745

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FINANCIAL STATEMENTS

Chronic Diseases Initiative for Africa

Income and expenditure statement for 12 month period (January to December) (Unaudited) (1a and b)			
	NOTE	2012	2011
Income		8 946 074.53	9 923 464.98
Grants - Restricted	2	6 58340.42	6758624.00
Grants - Unrestricted	2	2 180 556.32	3 035 596.47
Net Financing Income (Interest received from investments)	3	180 177.79	129 244.51
Expenditure		9 661 546.62	6 429 737.50
Personnel		3 910 416.00	2 567 496.00
Travel		496 572.72	653 786.60
Operating costs and supplies		2 045 016.90	1 283 409.56
Bursaries		398 747.80	267 200.00
Subcontracts		2 810 793.20	1 754 811.16
Lung Institute		969 434.48	1 008 502.52
Harvard University		1 599 245.56	746 308.64
CHW Projects		242 113.16	
Surplus/Overspent		(715 472.09)	3 493 727.48
Capital invested	4	1 728 832.24	3 389 832.24
Total		1 013 360.15	6 883 559.72

PUBLICATIONS OF NETWORK MEMBERS RELATED TO

chronic diseases and CDIA activities

NOTES

1a. Basis of Accounting

The income and expenditure statement was drawn up based on the cash basis of accounting.

1b. Exchange Rate

The exchange rate used to convert United States dollars to South African rands is the average weighted exchange rate of the ruling exchange rate on the dates that the funds were received by the recipient.

2. Grants Restricted/Unrestricted

Grants unrestricted represents funding received in advance of expenditure for operational costs and bursaries. Grants restricted represents expenditure incurred on projects for which there are commitments from funders, including funding not yet received by year end.

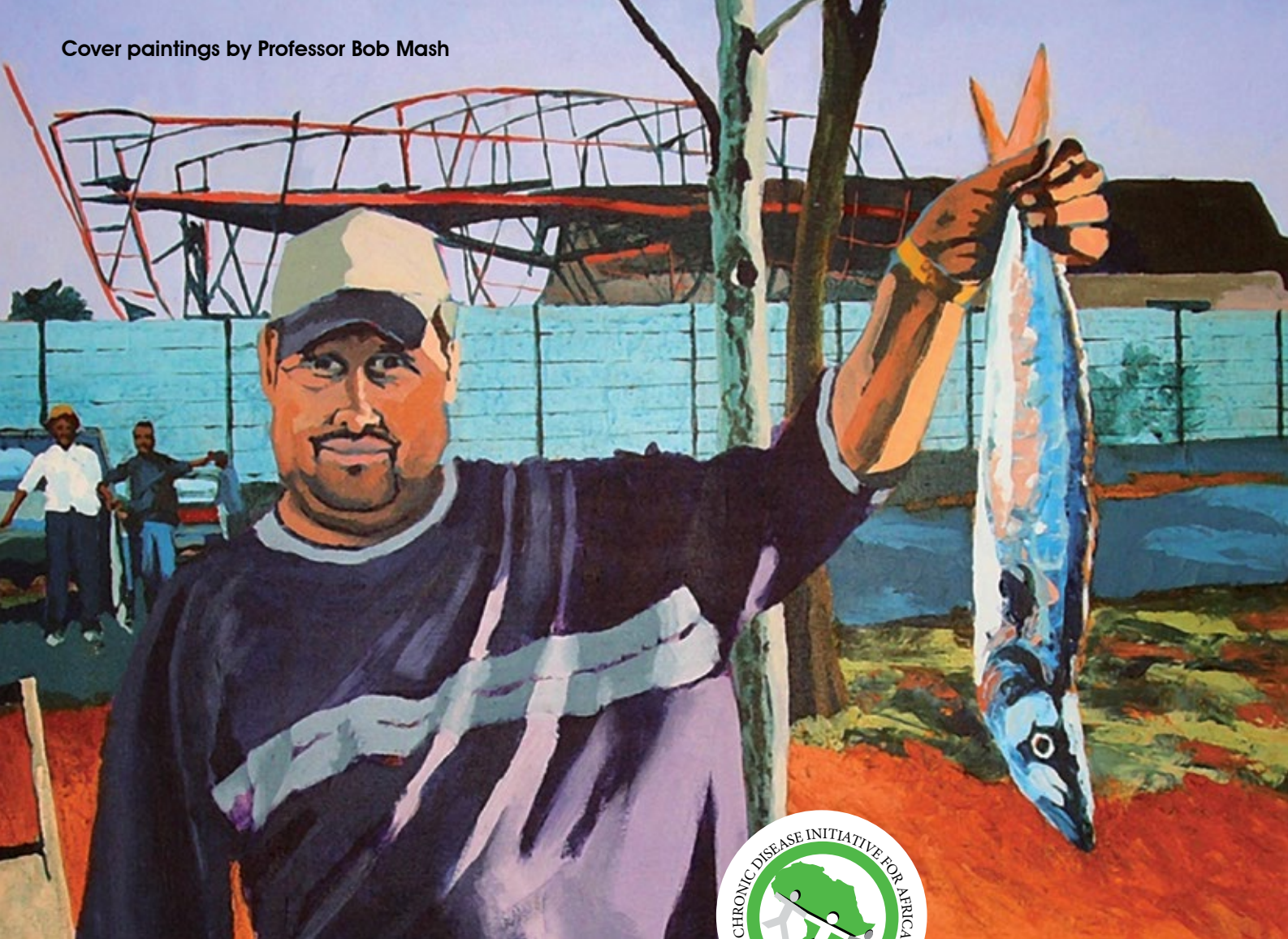
3. Net Financing Income

Interest received from investments.

4. Investments

Unrestricted funding invested through UCT receiving a market-related interest rate.

Cover paintings by Professor Bob Mash



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