

**THE CURRENT AND PLANNED PROJECTS OF THE CDL UNIT
(Updated April 2002)**

A. ANALYSES AND WRITE UP OF COLLECTED DATA

TITLE: 1) ADULT DEMOGRAPHIC AND HEALTH SURVEY

PHASE: Technical report printed but not released by National Department of Health. Secondary data analyses is in progress, technical report on secondary analyses and three manuscripts have been submitted/published and additional manuscripts prepared for submission to peer reviewed journals.

CDL's ROLE: • Coordination and principal investigator of Adult Health Section of the South African Demographic and Health Survey - Dr Krisela Steyn.

COLLABORATORS:

- Dr Debbie Bradshaw, Overall SADHS Coordinator and Statistician, Burden of Disease Research Unit, MRC
- Dr Lindiwi Makubalu, Epidemiologist, National Department of Health
- Ms Christelle Kotzenberg, Director Chronic Diseases Aging and Rehabilitation

SUMMARY: This national survey was conducted in 1998 in about 14 000 South Africans (15 years and older) and is part of the first Demographic and Health Survey of South Africa. The overall purpose of the SADHS is to describe the burden of diseases and their risk factors in South Africa. The adult health data will also be used to formulate adult health indicators for South Africa. The adult health part of SAHDHS focuses on Chronic Diseases of Lifestyle. The research tools for the Adult SADHS were developed and collated by the CDL Unit. The Department of Health plans to repeat this survey every 5 years.

TITLE: 2) RANDOMISED CONTROLLED TRIAL OF STRUCTURED RECORDS WITH PROMPTS FOR THE IMPLEMENTATION OF HYPERTENSION AND DIABETES GUIDELINES

PHASE: Data collection complete, qualitative and quantitative data analyses in progress.

CDL's ROLE: • Coordination and principal investigators - Dr Krisela Steyn and Prof Dinky Levitt (part-time consultant).

COLLABORATORS:

- Dr Merrick Zwarenstein, Health Systems Research Unit, MRC

SUMMARY: A randomised controlled trial to evaluate the impact in 9 of 18 community health care clinics in the public sector of the Cape Peninsula of structured patient records, with prompts, based on the South African management guidelines for hypertension and diabetes. Evaluation includes a qualitative assessment.

TITLE: 3) BIRTH-TO-TEN STUDY - CARDIOVASCULAR DISEASE RISK FACTORS

PHASE: Data collection phase completed in this birth cohort study up to 10 years of age, data analyses and write up in progress. Two manuscripts have been published and another submitted for publication.

CDL's ROLE: • Principal investigators for the CVD section of the Birth-to-Ten Study – Dr Krisela Steyn and Prof Dinky Levitt (part-time consultant).

COLLABORATORS:

- Dr Thea De Wet, Medical Social Anthropologist, Rand Afrikaans University
- Dr John Seager, Health and Development Research Group, MRC.
- Prof Linda Richter, Psychologist, Dept. of Psychology University of Natal
- Prof Noel Cameron, Physiologist, Dept. of Human Sciences, Loughborough University, UK
- Dr Yusuf Saloojee, Chemist and Tobacco Activist, Executive Director, National Council Against Smoking
- Dr Derek Yach, WHO Tobacco Free Initiative

SUMMARY: This project follows about 3500 children born in 1990 in Johannesburg, Gauteng for 10 years in order to describe the emergence of the CDL risk factors at 5, 7 and 10 years of age. One special area of interest is the children's responses to the promotion of tobacco products and their experimentation with tobacco during childhood. A second area of interest is the influence of birth outcomes and early childhood growth patterns on emerging CDL risk factors (Barker Hypothesis)

TITLE: **4) INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE: VALIDATION IN SOUTH AFRICAN COMMUNITIES**

PHASE: Analyses of data and the preparation of manuscripts in progress.

CDL's ROLE:

- Principal investigator - Prof Vicki Lambert (part-time consultant)
- Collaborators - Dr Krisela Steyn and Ms Tracy Kolbe (CDL Research Intern, PhD student)

COLLABORATORS:

- Dr S Mackinnon, Rhodes University
- Dr I Bohlmann, Department Of Physiology, Sports Science Institute, UCT
- Ms Tracy Kolbe, Department Of Physiology, Sports Science Institute, UCT
- Dr S Kruger, Potchefstroom University
- Dr I Cook, University of The North
- Dr L Leach, University of The Western Cape
- Dr J. Van Heerden, Pretoria University
- Physical Activity Working Group of South Africa (PAWG-SA)

SUMMARY OF PROJECT:

In Geneva in 1998, Dr Booth and Dr Michael Pratt (CDC) chaired a working group (supported by WHO, CDC and Karolinska Institutet, Stockholm) of physical activity researchers from 14 countries to develop the International Physical Activity Questionnaires (IPAQ). IPAQ was to consist of a short and long physical activity questionnaire that could be used in population-based national surveys so that countries could assess physical activity in a comparable manner. The IPAQ questionnaires have since undergone validity and reliability testing in 14 centers, in 12 countries, and across 6 continents. The results suggest that these measures have acceptable measurement properties for use in many settings and in different languages, and are suitable for national population based prevalence studies of physical activity participation. These data have been presented at two international scientific congresses and we are in the process of drafting a national summary publication. In addition, we have recruited a PhD student (Ms. Ezero Tshabangu) to begin to draft a protocol in conjunction with International Physical Activity Surveillance.

TITLE: **5) DETERMINANTS OF SMOKING IN AFRICAN WOMEN**

PHASE: Fieldwork completed analyses and manuscript writing in progress. Masters degree conferred on a student at the Graduate School of Business, UCT.

CDL's ROLE:

- Collaborator -Dr Krisela Steyn

PRINCIPAL INVESTIGATOR

- Dr Amy Marks, (Principal investigator) Social Marketer, Senior Lecturer, Graduate School of Business, UCT.

COLLABORATORS:

- Prof Sonia Greer, Social Marketer, Associate Professor, Department of Marketing, Graduate School of Business, Stanford University, California USA
- Ms Eleni Eleftheriou, Masters Student at UCT, Graduate School of Business

SUMMARY: This project determines the knowledge, attitudes and practices of African women living in the peri urban townships of Cape Town. These data will underpin the development of an intervention project that will attempt to maintain the low smoking rates of African women in South African cities. This is of particular importance as it was found that many of the peri-urban black women were contemplating taking up tobacco smoking.

TITLE: **6) SALT SENSITIVITY IN AFRICANS**

PHASE: Data collection completed. Results are being analysed and prepared for publication.

CDL's ROLE: • Supervisor of a PhD Project and collaborator - Dr Krisela Steyn.

PRINCIPAL INVESTIGATOR

- Prof Karen Charlton, Nutrition & Dietetics Unit, Department of Medicine, UCT

COLLABORATOR:

- Prof Dinky Levitt, Co-supervisor, Endocrine Unit, Department Of Medicine, University of Cape Town (part-time consultant)

SUMMARY: It has been suggested that hypertension was associated with high salt intake particularly in people of African descent. In, addition previous data suggests that South Africans consume particularly high levels of sodium. Phase 1 of this project involves an evaluation of sodium intake and excretion in 300 South Africans living in Cape Town. This evaluation of the renal handling of sodium included both hypertensive and normal tensive participants working for Cape Town City Council, who classified themselves as white, coloured or African.

Data, which was collected from study subjects, include the following:

- Nine repeated resting blood pressure measurements over a three-week period;
- Plasma renin and aldosterone concentrations;
- Three repeated 24-hour urinary Na, K, Mg, N concentrations (to assess daily Na and electrolyte exertion);
- The 24-hour urine collections were investigated for completeness by the excretion of a biomarker, para-aminobenzoic acid (PABA) which was ingested during the collection period;
- Three repeated 24-hour recall dietary assessments (to assess habitual Na intake);
- Genetic studies (in collaboration with the Department of Human Genetics at Tygerberg Hospital);
- Anthropometric measurements, as potential confounders (body weight, height, percentage body fat composition).

Data from this study and the literature relating to the recently published DASH study will be used to formulate a protocol for phase 2 of the study. This will involve a randomised controlled crossover trial which will evaluate the impact of dietary related micronutrient intakes on blood pressure in normal tensives and mildly hypertensive black subjects in Cape Town in the presence of a soduim intake similar to that now consumed by black South Africans and a lower sodium intake

TITLE: **7) MAMRE COMMUNITY BASED HYPERTENSION INTERVENTION PROGRAMME**

PHASE: Analyses and write up of the data in progress. One Masters in Community Health thesis has been completed, one paper published and another is being prepared for publication.

CDL's ROLE: • Principal investigators - Dr Krisela Steyn and Prof Dinky Levitt, (part-time consultant)

COLLABORATORS:

- Prof Margaret Hoffman, Community Health Department, University of Cape Town
- Dr Gavin Reagan, Registrar in Community Health, University of Cape Town

SUMMARY: This study was a demonstration project with a pre- and post intervention evaluation (without the inclusion of a control community) to show that the successful community-based model for hypertension and CDL risk factor control programme developed in the CORIS study could be implemented in the working class community of Mamre. A baseline CVD risk factor study was conducted in 1998 and a resurvey in 1996 to evaluate the impact of the intervention programme. The intervention programme involved the creation of a BP station in Mamre where people of the community were employed to implement the risk factor intervention programme. Active community participation was central to this project.

TITLE: **8) MOLECULAR FAMILIAL HYPERCHOLESTEROLAEMIA GENETICS**

PHASE: Analyses and write up. At least 3 papers have been published over the years in collaboration with the principal investigator.

CDL's ROLE: • Collaborator - Dr Krisela Steyn.

PRINCIPAL INVESTIGATOR:

- Dr Maritha Kotze, Department of Genetics, Medical School, University of Stellenbosch.

SUMMARY: These projects involve the ongoing data collection from new patients, who attend the Lipid Clinic at Tygerberg Hospital, to catalogue the molecular genetics of the LDL receptor in familial hypercholesterolemia patients. In addition, where blood samples are collected for community based surveys a sample is provided to the principal investigator for DNA collection according to ethically cleared protocols.

TITLE: **9) NUTRIENT INTAKE, NUTRITIONAL STATUS, FOOD PURCHASING PATTERNS AND CAUSAL FACTORS RELATING TO OVERWEIGHT IN A NATIONAL SAMPLE OF SOUTH AFRICAN CHILDREN AGED 1-9 YEARS**

PHASE: First phase of dietary analyses has been done. South African data has been interpreted according to the UK, USA and Cole standards. We are now waiting for SA Statistics to provide us with a weighted sample since the data was over-sampled for low socio-economic groups.

CDL's ROLE: • Principal investigator - Dr Nelia Steyn

COLLABORATORS:

- Prof Demetré Labadarios, Chariman of the NFCS, Department Human Nutrition, University of Stellenbosch
- Dr JH Nel, Statistician, NFCS
- Dr K Monyeki, Lecturer, Department Kinesiology, University of the North

SUMMARY: During the National Food Consumption Survey (NFCS), baseline data was collected on children and their households for a representative sample of 2894 children in South Africa. Data was collected on: socio-demographic characteristics, anthropometry, dietary intakes, food procurement, household inventory and on hunger experienced at the individual and at the household level. The data was analysed for the Department of Health with the objective of identifying factors causing undernutrition and to identify vehicles for food fortification. The goal of the present study will be to focus on overweight and obesity and to further analyse the baseline data in order to define the nutrient intake and nutritional status of the children who were included in the study. A secondary objective will be to identify predictors (risk factors) for overweight in this representative multi-ethnic sample, and to provide information which will assist when planning intervention programmes for overweight children in South Africa.

TITLE: **10) SOUTH AFRICAN: DIET STUDIES, 1983 – 2000: SUMMARY REPORT ON FOOD CONSUMPTION STUDIES UNDERTAKEN AMONGST DIFFERENT POPULATION GROUPS**

PHASE: Secondary data analyses has been completed and the draft report has been submitted to the Department of Health: Directorate Food Control. The CDL Unit will publish this as a MRC Technical Report.

CDL's ROLE: • Principal investigator - Dr Nelia Steyn

COLLABORATORS:

- Dr JH Nel (Principal investigator), Statistician, NFCS
- Department of Health (Food Control)
- World Health Organisation

SUMMARY: The primary objective of this study was to generate a table of "most commonly" consumed food items and average intakes of these items in the diet of South Africans. The tables were required to be representative of foods eaten by males and females from all age groups and from all ethnic groups in South Africa. These tables would then serve as a reference table for the Directorate of Food Control who would undertake an analyses of contaminants in these commonly consumed food items in order to ensure that Acceptable Daily Intakes (ADIs) of contaminants are within acceptable limits recommended by the World Health Organisation (WHO). A secondary objective of the study was to derive average (mean) weights of South Africans in different age groups in order for the calculation of dietary exposure of selected contaminants according to:

$$\text{Dietary Exposure} = (\text{Food Chemical Concentration Consumption}) / (\text{Body Weight})$$

Secondary data-analysis was conducted on existing dietary databases obtained from surveys undertaken in South Africa between 1983 and 2000. The National Food Consumption Survey (NFCS) served as a framework for compiling data on children since this was a national representative survey of 1-9 year old children in South Africa. However there has never been a national dietary survey on adults in South Africa. Consequently the data had to be extrapolated from existing isolated surveys on adults. In this process the following databases were utilised: Lebowa Study; Dikgale Study; BRISK Study; THUSA study; THUSA Bana Study; First Year Female Student (FYFS) Project, Weight and Risk Factor Study (WRFS); and CORIS.

The dietary data from different studies were firstly coded into GEMS Commodities (main food groups); then into EURO Codes (subgroups); then into food items having a description and a method of processing (i.e. dried/canned/fresh). The final tables generated comprised the following data with regard to food items consumed: main food group (i.e. cereals); the subgroup where appropriate (i.e. maize; a description of the item where appropriate (i.e. maize porridge); the percentage of the sample consuming that item; the portion consumed per day by those individuals who actually consumed the item and the average portion consumed per day by all individuals in the relevant sample.

TITLE: **11) DETERMINANTS OF OBESITY IN PRE-ADOLESCENT AND ADOLESCENT SOUTH AFRICAN SCHOOL CHILDREN**

PHASE: Several studies have been completed, one is published, one is in draft form, three have been presented at local and international congresses, and one is still in data analysis phase.

CDL's ROLE: • Principal investigator - Prof Vicki Lambert (part-time consultant)
• Collaborator - Dr Krisela Steyn

COLLABORATORS:

- Prof Karen Charlton, Nutrition & Dietetics Unit, Department of Medicine, UCT
- Ms Ashleigh Caradas, Nutrition & Dietetics Unit, Department of Medicine, UCT
- Ms Leanne Katzenellenbogen, Nutrition & Dietetics Unit, Department of Medicine, UCT
- Mr Wayne Weitz, Outreach Division, Sports Science Institute of South Africa

- Dr Michael I Lambert, MRC/UCT Research Unit for Exercise Science and Sports Medicine
- Dr Z Kubukeli, MRC/UCT Research Unit for Exercise Science and Sports
- Dr L Keytel, MRC/UCT Research Unit for Exercise Science and Sports
- Ms Lisa Mickelsfield, MRC/UCT Research Unit for Exercise Science and Sports
- Eva Zielonka, MRC/UCT Research Unit for Exercise Science and Sports
- Dr Judith Harkins, Fogarty Scholarship, in Collaboration with CDL and Johns Hopkins School of Nursing

SUMMARY OF PROJECT:

The aim of the present series of studies was to characterise patterns of physical activity and other health behaviours in pre-adolescent and adolescent schoolchildren, representing a broad demographic background, and to relate these to current weight-for-height (body mass index, or BMI), future predicted obesity, and measured physical fitness levels. The aims of these studies must be considered against a background in which physical education and sport in schools from disadvantaged communities are under threat from lack of resources. We have conducted 5 cross-sectional studies to date. Two of these studies have focused on measures of eating attitudes and body image in cross-cultural samples of school girls (adolescent and pre-adolescent, $N \geq 200$ for each). We have conducted two cross-sectional studies on determinants of obesity in 10yr old boys and 8-10 year old girls in the Western Cape (one in abstract form, one in review). We have also completed a cross-sectional health and fitness survey, conducted in 14 schools in the Western Cape (boys, $N=2026$, girls, $N = 2792$) in children (ages 12-18 years). The survey included questionnaires covering: socio-demographics, physical activity, dietary factors, smoking behaviour, and television watching. BMI, 6-min walk (m), sit-ups and push-ups in 1 min and sit-and-reach test were measured. BMI at the age of 18 years was predicted on the basis of equations developed by Cole et al., (2000) incorporating gender, age and current BMI. Fitness, as measured by 6 min walk (m), push-ups and bent-knee sit-ups in 1 minute, was significantly inversely associated with current BMI in girls and boys ($P < 0.001$). Children watching 3 or more hrs of television daily had significantly higher BMI after covarying for age and gender. These data suggest that over 24.5% of young women, and 12.8% of young men will be overweight ($BMI > 25$) by the age of 18 years. Furthermore, current BMI relates inversely to inactivity as measured by television time, and to fitness levels.

B.PLANNING AND CONDUCTING OF FIELDWORK IN PROGRESS

TITLE: 12) PHYSICAL ACTIVITY IN OLDER ADULTS IN COMMUNITIES UNDERGOING TRANSITION: IMPACT ON HEALTH AND DISEASE

PHASE: Data collection for all the sub-studies completed. Data cleaning and analyses in progress.

CDL's ROLE:

- Collaborator - Dr Krisela Steyn
- Principal investigators - Prof Vicki Lambert (part-time consultant), Ms Tracy Kolbe (CDL Research Intern, PhD student)

PRINCIPAL INVESTIGATOR:

- Prof Karen Charlton, Nutrition & Dietetics Unit, Department of Medicine, UCT

SUMMARY OF PROJECT:

Preliminary results from the correlational study on lifetime physical activity in older, disadvantaged adults suggests, firstly, that there is a high prevalence of osteopenia in older adults of mixed ancestry (similar in men and women) and that early occupational physical activity (before the age of 30 years) may be protective for bone mineral density in this population. The community intervention study suggests that even a twice-weekly, community-based, peer-led, low-to-moderate intensity exercise programme may increase functional capacity and measurably lower blood pressure in older adults. The validation study on physical activity measurement tools suggests that both the Yale Physical Activity Questionnaire and the International Physical Activity Questionnaire may be used reliably in older adults, although the agreement with activity measured using movement sensors is not strong. The final phase of this project includes a study aimed at measuring physical parameters (along with nutritional, anthropometrical and demographic factors) associated with frailty among individuals applying for residential care in senior centres, compared to those individuals who are independently living. The results of this study will be used to aid in selection of appropriate individuals for residential care, and to develop interventions aimed at supporting older adults in independent living.

TITLE: 13) RISK FACTORS FOR AND MANAGEMENT OF STROKE PATIENTS AT AGINCOURT

PHASE: Planning phase with funding from the Wellcome Trust, UK.

CDL's ROLE: • Collaborator - Dr Krisela Steyn.

COLLABORATORS:

- Dr Steve Tollman, Department of Community Health, WITS (Principal Investigator)
- Dr Barbara Thorogood, London School of Hygiene & Tropical Medicine, UK
- Prof John Milne, Department of Medicine, WITS

SUMMARY: Previous studies have identified that strokes are common causes of death in the Agincourt district in Mpumalanga. This project intends to identify the risk factors for strokes in this rural black community and to develop and test intervention programmes for these risk factors.

ITILE: 14) SMOKING INTERVENTION STUDY ON WOMEN WHO SMOKE DURING PREGNANCY

PHASE: Phase 1 data collection complete. Phase 2, 3 and 4 planning phase. Funding from Research on International Tobacco Control in Canada.

CDL's ROLE: • Supervising post graduate students and principal investigator - Dr Krisela Steyn.

COLLABORATOR:

- Ms Katherine Everett, Health Promotion Consultant

SUMMARY: The goal of the project is to reduce the exposure of disadvantaged pregnant coloured women who attend antenatal services in the public health sector in South Africa to tobacco use. These women have a smoking rate of 47%, which leads to poor pregnancy outcomes for both the women and their unborn babies.

At present, the South African government health services, whilst recommending that pregnant women be advised to stop smoking, do not have any cessation programmes in place. Even basic information on the risks of smoking during pregnancy is not available to women attending the public sector health services.

The proposed research will aim to assess the potential for and feasibility of a smoking cessation

intervention in a public sector antenatal clinic, typical of those serving this high-risk population. The data from this study will be used to develop an intervention, which will then be carefully evaluated in a randomized control trial (RCT)

The outcomes to this study would be:

- To gain greater insight into smoking amongst women of mixed descent.
- To have a greater understanding of high smoking rates in this community, especially amongst pregnant women.
- To gain information directly from pregnant women, and analyse what they perceive would be an effective intervention strategy.
- To develop a smoking intervention programme that is culturally sensitive and economically feasible for these women.
- To develop an intervention that is informative.
- To develop an intervention that is sustainable.

Information from pregnant women about tobacco use and tobacco cessation will be collected. This will be done by means of a questionnaire administered at the antenatal clinic in 600 pregnant coloured woman in the capital cities of the a Province of the Western Cape, Eastern Cape, Northern Cape and Gauteng. Trained interviewers will select women randomly. The second part would be to gain information from midwives about smoking amongst patients, their current role in smoking intervention activities for pregnant women and their perceptions on possible successful intervention programmes and their potential role in such programmes Both qualitative and quantitative research methods will be used targeting the midwives.

TITLE: 15) INTER-HEART STUDY (SOUTH AFRICAN LEG)

PHASE: Ongoing data collection.

CDL's ROLE: • South African coordinator - Dr Krisela Steyn.

COLLABORATORS:

- Prof Salim Yusuf, Canada
- Other collaborators from 57 countries.

SUMMARY: This is a case control study in people from non-caucasian descend with acute first myocardial infarctions. The study intends to confirm if the previously identified cardiovascular disease risk factors are operational in people other than Caucasian descent. In South Africa, African and Coloured people are studied.

TITLE: 16) MECHANISMS UNDERLYING THE ASSOCIATION BETWEEN LOW BIRTH WEIGHT, INCREASED BLOOD PRESSURE, AND GLUCOSE INTOLERANCE IN YOUNG ADULT SOUTH AFRICANS

PHASE: Data collection is preceding in both the young adults and the 7 year old children

CDL's ROLE: • Principal investigators - Prof Vicki Lambert, Prof Dinky Levitt (part-time consultants)
• Collaborator and facilitator of co-operation, examining impact of maternal smoking on these outcomes - Dr Krisela Steyn

COLLABORATORS:

- Assoc. Prof. David Woods, Dept of Paediatrics and Child Health, University of Cape Town
- Professor C. N. Hales, Department of Clinical Biochemistry, University of Cambridge
- Professor Jonathan Seckl, Molecular Medicine Centre, University of Edinburgh
- Professor Brian Walker, Department of Medicine, University of Edinburgh
- Dr MA Dhansay, Specialist Scientist, Nutritional Intervention Research Unit, MRC

SUMMARY OF PROJECT:

There is extensive evidence linking low birth weight, with later disorders in adult life including increased blood pressure, glucose intolerance/insulin resistance, dyslipidaemia and increased mortality from cardiovascular disease. This has led to the hypothesis that events occurring before birth may 'programme' physiological responses, which lead to chronic diseases in later

life. We have examined these relationships in a group of 20 year-old, South Africans (N = 137) and confirmed the association between low birth weight and glucose intolerance, as well as blood pressure. We also found serum cortisol concentrations in low birth weight (LBW) subjects tended to be higher at rest (P = 0.06), and were significantly higher in response to ACTH stimulation (P = 0.03), compared to normal birth weight subjects. Resting heart rate was also higher. These data suggest altered responsiveness of the cortisol and possibly, sympathetic axes, in LBW subjects. Therefore, the aims of the proposed study are firstly, to determine whether mechanisms underlying the activation of the cortisol axis associated with low birth weight. Secondly, the study will investigate possible alterations in the renin-angiotensin pathway, and vascular reactivity, that may be associated with LBW. In order to more fully understand the possible interaction between low birth weight and "catch up growth", we will study a second cohort of 6-year-olds. By elucidating the underlying mechanisms of the association between low birth weight and chronic disease in later life, there may be a better chance of targeted and timely intervention to prevent the onset of morbidity.

TITLE: 17) PERCEPTIONS OF BLACK GIRLS BETWEEN 9 AND 18 YEARS ABOUT HEALTHY LIFE STYLE, BODY SIZE AND BODY IMAGE

PHASE: Planning for fieldwork in progress.

CDL'S ROLE:

- Principal investigator - Dr Thandi Puoane
- Collaborator - Prof Vicki Lambert (part-time consultant)

COLLABORATORS:

- Dr Mickey Chopra, Senior lecturer, Public Health Program, University of the Western Cape,

SUMMARY: This study will examine the perceptions of young black girls aged 11-18 years about healthy lifestyles, body weight and body image, and will assess how these perceptions differ among girls of different ages. Body mass index will be calculated from height and weight measurements and examined in relation to perceptions and beliefs about body weight and body image. In order to achieve this objective, a secondary aim is to validate specific questionnaires developed for African American young girls in the black population for use to determine perceptions of body weight and body image. The study sample will be 120 black girls who attend secondary schools in the township Khayalitsha.

TITLE: 18) DIETITIANS' KNOWLEDGE AND PRACTICES REGARDING THE USE OF DIETARY SUPPLEMENTS AND FORTIFIED FOODS

PHASE: The basic knowledge questionnaire has been drafted and has been submitted to 8 PhDs in nutrition to evaluate for content validity. The comments from the experts are expected by end of April 2002.

CDL's ROLE:

- Principal Investigator - Dr Nelia Steyn

COLLABORATORS:

- Prof Demetré Labadarios, Chairman of the NFCS, Department of Human Nutrition, University of Stellenbosch
- Ms Heidi-Lee Robertson, VIC, Isando

SUMMARY: Dietitians, in most developed countries, are regarded as the main advocates and experts with respect to promoting a healthy diet and lifestyle. In this regard many countries have developed dietary guidelines aimed at encouraging a healthy diet. The role of dietitians, with respect to the promotion of dietary supplements and use of fortified foods as part of a healthy lifestyle, is fairly unexplored territory and a paucity of data regarding their practices in this regard, exists. The main objective of this study is to determine the knowledge and practices of dietitians in South Africa with respect to the use of dietary supplements and fortified foods. All registered dietitians in South Africa will receive a validated and pre-tested questionnaire, which has specifically been developed for this purpose. The questionnaire will comprise three sections. The first section will comprise demographic questions related to the age, gender, educational background and field/area of practice of the dietitian. The second section will comprise questions designed to assess the dietitians' practices with respect to the use of dietary supplements. The third section

will test the dietitians' knowledge with respect to certain concepts related to dietary supplements. Development of the questionnaire will include the necessary procedures to ensure content, face and criterion validity as well as internal consistency/reliability of the questionnaire and data collected. The questionnaire will be mailed to all dietitians on the HPCSA register with a request to complete and return it in August 2002. Participants will be able to participate anonymously and it is anticipated that a response rate of at least 50% will be feasible. Data will be entered in Excel (spreadsheets) and then imported into the SAS programme. Contingency tables will be calculated with respect to dietician's own and prescribed practices with regard to usage of dietary supplements and fortified foods. The chi-square test will be used to determine whether there are significant differences between concepts and groups. Mean scores on the overall knowledge test and on specific knowledge concepts will be calculated. Feedback will be given to the participants by means of a model answer sheet, which will be mailed to all dietitians on the register.

C.PROTOCOL WRITING AND FUND RAISING FOR RESEARCH PROJECTS

TITLE: 19) DEVELOPMENT AND EVALUATION OF THE INTERVENTION MATERIALS FOR IMPROVED CARE OF THE FEET OF DIABETES PATIENTS

PHASE: The initial qualitative phase completed. The analysis for the first qualitative study is complete and the analysis for the second is in progress. The write-up for a publication will take place in 2002.

CDL's ROLE: • Coordination and principal investigator - Prof Dinky Levitt (part-time consultant)

COLLABORATORS:

- Ms Nonzame Matwa, Public Health Programme, University of the Western Cape
- Ms Jodie De Heer, Maastricht University, The Netherlands
- Researchers of Tanzania and Cameroon

SUMMARY: This project has examined the knowledge, attitudes, beliefs and foot care practices of Xhosa speaking diabetic patients in Cape Town and the rural area around Umtata as well as amongst Coloured diabetic patients in Cape Town. Qualitative methods have been used to obtain the data. The analysis for the first phase is completed and Ms Matwa was awarded a M Cur for this work. The analysis for the second phase is almost complete and Ms de Heer is submitting her Masters' thesis in Health Promotion on this phase.

These findings will be used to develop an intervention package for foot care in diabetes patients. This will be tested in a randomised-controlled trial in primary health care settings.

An application for funding for a three country Sub-Saharan African Study (South Africa, Cameroon, Tanzania) on prevention of the diabetic foot has been submitted (Prof Levitt as principal investigator). The study involves the development and evaluation of the effectiveness and efficiency of a multifaceted primary care intervention to reduce diabetic foot problems in these countries. The intervention includes a training package for health care staff, an education booklet for patients and training of a person with special responsibility for diabetic foot care. Qualitative work and piloting will inform the development and detailed content of the intervention. It will then be evaluated in a pragmatic 2-armed RCT in the three countries.

TITLE: 20) THE DEVELOPMENT AND EVALUATION OF A NUTRITION INTERVENTION PROGRAMME FOR BLACK DIABETES PATIENTS IN THE NORTHERN PROVINCE

PHASE: Protocol writing, planning, and data collection.

CDL's ROLE: • Collaborator - Dr Nelia Steyn
• Prof Dinky Levitt (part-time consultant)

COLLABORATORS:

- Dr Gladys Nthangeni (Principal Investigator), Dept of Human Nutrition, UNIN

SUMMARY: Black South African NIDDM patients are generally expected to comply with diabetic diets originating in the USA. Consequently compliance is poor and patients show poor glycaemic control. The aim of this study will be to develop an appropriate dietary programme, which is culturally acceptable to black patients. It will be based on the PhD Dissertation recently completed by Dr Gladys Nthangeni at the University of the North, Title: "Dietary and Life-style Factors of Urban and Non-urban Diabetic Patients".

TITLE: 21) TEN-TO-TWENTY PROJECT, CHRONIC DISEASE PRECURSORS DURING PUBERTY (Follow-up of Birth-to-Ten Study)

PHASE: Protocol submitted to Wellcome Trust for possible funding.

CDL's ROLE: • Principal investigator for the CDL section of the study - Dr Krisela Steyn
• Collaborator - Dr Nelia Steyn

COLLABORATORS:

- Prof Linda Richter (principal investigator), Psychologist, Dept of Psychology, University of Natal
- Dr Shane Norris (part-time collaborator), Paediatrician, Department Paediatrics, WITS

SUMMARY: Puberty is examined as a critical link between individual & generational predisposing factors and the early expression of sexual & lifestyle risk pathways in a large longitudinal cohort of urban South African youth, who have been followed up for 12 years since gestation. Many factors, including social, economic and demographic influences, expose South African youth to high risk for two main areas of ill-health in the future. These are: 1) adverse sexual & reproductive outcomes, including unwanted pregnancy, and sexually transmitted & HIV infections, and 2). The entrenchment of unhealthy habits resulting in multiple risk factors, including obesity, hypertension & diabetes, which cause chronic diseases in later life. These risk pathways arise intergenerational as well as in early development, and become manifest or entrenched during puberty. Risk factors and early childbearing converge in repeat cycles of risks for the next generation of children. Two thousand young people will be followed up regularly, initially for 3 years, to examine pubertal transition, emerging lifestyle habits, & physiological & social-psychological development related to personal & familial predisposing factors. The study aims to describe and test the role of variations in pubertal development in adverse health outcomes related to sexuality and reproduction on the one hand, & chronic disease risk factors

TITLE: **22) NUTRIENT PARTITIONING IN BLACK AND WHITE SOUTH AFRICAN WOMEN: SOCIO-DEMOGRAPHIC AND PHYSIOLOGICAL DETERMINANTS AND RESPONSES TO INTERVENTION**

PHASE: Validation of instruments, Second round of submission for international funding (Nestle' Foundation and Wellcome Trust).

CDL's ROLE: • Principal investigators - Prof Vicki Lambert, Prof Dinky Levitt (part-time consultants)
• Collaborators - Dr Nelia Steyn, Dr Thandi Puoane, and Ms Zandile Mciza (CDL Research Intern, MSc student)

PRINCIPAL INVESTIGATOR:

- Dr Julia H Goedecke, Department Of Physiology, Sports Science Institute

COLLABORATORS:

- Prof Karen Charlton, Dietetics Unit, Department of Medicine, University of Cape Town
- Prof Michael Lean, Head of Department of Human Nutrition, University of Glasgow, Scotland
- Prof Wim Saris, Dept. of Human Biology, University of Limburg, Maastricht, Netherlands
- Prof Linda Tapsell, Director of Smart Food Centre, Wollongong University, Australia

SUMMARY OF PROJECT:

This research will examine whether the ethnic differences in lipolysis, insulin sensitivity and glucose tolerance observed in obese South African women or any other apparent ethnic differences in nutrient partitioning can be explained by socio-cultural and attitudinal factors or ethnic differences in the obesity phenotype. If not, differences in nutrient partitioning may explain the prevalence, and possibly even the morbidity's associated with obesity, in black and white South African women. Culturally sensitive interventions can then be implemented to reduce the increasing epidemic of non-communicable diseases in South African. Briefly, 60 obese black and white women and 90 lean black and white women will be recruited for Part 1 of the study examining differences in body composition, dietary intake, socio-cultural and behavioral factors. A sub-sample of 30 obese black and white women and 45 lean black and white women will be recruited to undergo computerised topography. This same sub-sample of women will be involved in Parts 2 and 3 of the study, examining energy balance and substrate handling and the determinants of energy balance and nutrient partitioning. The same group of subjects will take part in the intervention study (Part 4) involving a short-term energy deficit. After a 2-week washout, the same obese black and white subjects will undergo a more prolonged energy deficit.

TITLE: 23) DEVELOPMENT AND EVALUATION OF TWO TYPES OF DIETARY AIDS FOR QUANTIFYING FOOD INTAKE BY MEANS OF THE 24-HOUR RECALL IN SURVEYS OF BLACK ADULTS IN URBAN AND RURAL SETTINGS

PHASE: The proposal is currently on hold until an intern is available to do the fieldwork.

CDL's ROLE:

- Principal Investigator -Dr Nelia Steyn
- Collaborator - Dr Krisela Steyn

COLLABORATORS:

- Dr T Puoane, Senior Lecturer, Public Health Programme, University of the Western Cape
- Dr P Wolmarans, Specialist Scientist, Nutrition Intervention, MRC
- Dr Una MacIntyre, Senior Lecturer, MEDUNSA
- Dr Gladys Nthangeni, Senior Lecturer, University of the North
- Dr Niresh Bhagwandin, Business Development Group, MRC

SUMMARY OF PROJECT:

Dietary aids (food models and photographs) will be developed after a review of the relevant literature and food databases of dietary surveys of black South Africans. These aids will then be tested by means of a trial whereby participants will be randomly allocated to one of two groups using the 24-hour dietary recall of predetermined meals based on specific foods and portion sizes. The trials will be: 1) recalls using photographs and 2) recalls using food models. Subjects will be healthy black adults residing in Cape Town (n=30 male and 30 females) and in Sovenga, Northern Province (n=30 males and 30 females). Recalls will be conducted 24 hours after subjects have consumed the meals comprising the test foods. All subjects will consume the same foods within the respective areas. Results of the 2 trials will be compared with the actual foods consumed by weighing, in order to test the efficacy of the two methods in quantifying foods recalled after 24 hours.

TITLE: 24) THE QUALITY OF CARE OF PATIENTS WITH DIABETES AND HYPERTENSION AT PRIMARY CARE CLINICS IN THE PUBLIC SECTOR IN THE UMZIMVUBU HEALTH AREAS OF THE ALFRED NDZO DISTRICT IN THE EASTERN CAPE

PHASE Protocol writing.

CDL's ROLE:

- Principal investigators and student supervisors – Prof Dinky Levitt, (part-time consultant), Dr Krisela Steyn, and Nonkqubela Bantubani (CDL Research Intern, MPH student).

COLLABORATOR:

- Dr Thandi Puoane, Senior lecturer, University of the Western Cape.

SUMMARY OF PROJECT:

The study aims at identifying shortcomings in the management of diabetes mellitus at primary health care level. A questionnaire is being developed to assess the knowledge, practices and availability of medication and equipments at primary rural clinics in the Province of the Eastern Cape.

TITLE: 25) DEVELOPMENT OF A SCREENING TOOL TO ASSESS KNOWLEDGE AND PRACTICES OF HEALTH PROFESSIONALS REGARDING THE ROLE OF NUTRITION, PHYSICAL ACTIVITY AND SMOKING IN THE PREVENTION AND MANAGEMENT OF CHRONIC DISEASES OF LIFESTYLE

PHASE: The screening tool takes on the form of a questionnaire, which has been revised on numerous occasions. These revisions have been overseen by expert groups in each of the 3 categories (nutrition, physical activity and smoking cessation). Thus we have ensured content and construct validity. We are currently in the process of determining criterion validity. In order to do so we have identified several groups which we expect to score high or low on the basis of their training, education and other exposure to nutrition.

CDL's ROLE: • Supervisor of student - Dr Nelia Steyn

PRINCIPAL INVESTIGATOR:

- Ms Whadi-ah Talip (BSc. Med (Hons), Nutrition & Dietetics)

COLLABORATOR:

- Prof Karen Charlton, Dietetics Unit, Department of Medicine, University of Cape Town

SUMMARY OF PROJECT:

Due to the lack of employment available in rural areas, there has been a massive migration of people from rural to urban areas within South Africa. This migration lends itself to changes in the lifestyles of these people. These changes include dietary modification, changes in physical activity as well as changes in smoking habits. This transition inevitably results in increased cases of Chronic Diseases of Lifestyle (CDOL) such as hypertension, diabetes mellitus, coronary heart disease and obesity. Thus health professionals (HP's) are being exposed to increasing numbers of CDOL cases.

It has been shown that dietary counseling can be effective in the prevention and management of CDOL. However, with only 1200 dietitians practicing in South Africa there is limited access to dietetic services. Since patients are more likely to be in contact with other HP's such as doctors and nurses, it is proposed that these HP's could serve as nutrition educators. Thus it is important to determine their knowledge on lifestyle modification. In addition one needs to determine practices of HP's regarding nutrition counseling and their ability to implement exercise or smoking cessation programs.

In order to undertake this study a validated tool is required. Developing and validating this tool will enable us to determine the knowledge and practices of health professionals regarding the role of nutrition, physical activity and smoking cessation in the prevention and management of CDOL.

TITLE: **26) MULTI-COUNTRY STUDY ON SOCIO-ECONOMIC AND ENVIRONMENTAL FACTORS, NUTRITION AND NON-COMMUNICABLE DISEASES IN COUNTRIES IN TRANSITION**

PHASE: Early protocol development.

CDL's ROLE: • Collaborators – Dr Krisela Steyn, Prof Vicki Lambert (part-time consultant)

PRINCIPAL INVESTIGATORS:

- Prof Barry Popkin, North Carolina University, USA
- Dr Lesley Bourne, Health and Development Research Group, MRC, South Africa

COLLABORATOR:

- Dr John Seager, Health and Development Research Group, MRC, South Africa

SUMMARY OF PROJECT:

This multi-country study will assess both the prevalence and distribution of common nutrition-related non-communicable diseases (obesity, hypertension, hypercholesterolemia, and diabetes) in countries which are undergoing transition from traditional agrarian economies to a more industrialized status. Along with measuring the prevalence of these diseases, the study intends to determine the prevalence of physical inactivity or sedentary living, unhealthy dietary patterns (e.g. energy dense diets, rich in saturated fats, and a concomitant low intake of fruits and vegetables), alcohol consumption, smoking and stress/self-mastery components. As well as the associations existing between these risk factors and the studied diseases. In addition, potential environmental/population risk factors such as air pollution, street safety, the geographical distances between households and available food places and physical activity facilities, relative food prices, media messages, among others, will be examined to determine any relationships which may exist between these factors and the prevalence of the outcomes listed above.

The study will be observational (cross-sectional), consisting of approximately 72000 individuals

recruited from 12 countries (6000 per country, 3000 in each of 2 cities, 1500 men and 1500 women per city drawn from approximately 100 census enumeration districts within each city). The age range for the study will be 30 to 59 years. The sampling frames for each city may be based either upon existing census systems or upon geographical position information. Within each census district, two or more individuals per household will be recruited for interviews and physical examinations.

If household members agree to participate, fasting blood will be drawn, anthropometric and blood pressure measures will be taken, and interviews will be conducted. The anthropometric measures to be collected include: height, sitting height, weight, subscapular and triceps skinfolds, abdominal circumference, and hip circumference. Bioelectrical impedance data will also be collected. The fasting blood components which will be measured include: total cholesterol, triglycerides, HDL cholesterol, glucose, creatinine, hemoglobin, and glycosylated hemoglobin. Interview questionnaires will include two 24-hour food recalls and physical activity assessments, a self-mastery and stress questionnaire, an obesity-related self-image questionnaire, an instrument on smoking, and one on alcohol consumption. Household data, such as information on household income, educational achievement, access to mass communication, and available physical assets, will also be collected during the interview portion of the household visit. Community-level data, such as accessible locations for physical activity, methods of transportation, food sources, and environmental quality, will be collected by the above-mentioned team of community specialists as part of very detailed community data collection.

This is the first study of its kind concerning determinants of non-communicable disease in developing or transitional communities in which community and individual-level data analysis will be performed with a view to directly informing policy formation, on an intersectoral, and in some cases, global level. This study will provide the basis of a framework for targeted interventions to prevent the growing epidemic of chronic diseases of lifestyle.