



Harvard-Tanzania Collaborations Meeting

Harvard-Tanzania Partnership: Highlighting Accomplishments in NCD Research

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Presentation Outline

- Background
- Accomplishments in NCD Research
 - Mental Health Research
 - The Dar es Salaam Urban Cohort Study (DUCS)
 - DUCS Nested Studies
 - Partnership for African Cohort Research and Training (PACT)
 - Global Nutritional and Epidemiological Transition Initiative (GNET)
 - The Bernard Lown Scholars in Cardiovascular Health Program
- Challenges
- Way Forward
- Opportunities for Continued Collaboration

Background

Background

- Harvard-Tanzania collaborations began about 25 years ago mainly focusing on nutrition and Infectious disease research
- The collaboration grew stronger through joint large research projects, programmatic and training activities and of recent adding NCD research
- As for NCD in September 2008 we reiterated the need to be involved in NCD research through the formation of an African Cohort
- Researchers attended degree and participated in non-degree training programs or academic sabbaticals at HSPH to strengthen NCD research capabilities
- Significant progress has been made on NCD research as a result of these collaborations

Accomplishments in NCD Research

MENTAL HEALTH RESEARCH

Psycho-social supplement to the trial of vitamins study (1995-1997)

PI: Prof. S. Kaaya, Co-PI: Prof. Wafaie Fawzi

Objectives:

- Examine the burden of depressive symptoms among HIV-positive women in Tanzania and to estimate the association between those symptoms and HIV disease progression among a cohort of HIV infected pregnant women followed up to 8 years

Publications:

- Antelman, G., Kaaya, S., Wei, R., Mbwambo, J., Msamanga, G. I., Fawzi, W. W., & Fawzi, M. C. (2007). Depressive symptoms increase risk of HIV disease progression and mortality among women in Tanzania. *J Acquir Immune Defic Syndr*, 44(4), 470-477. doi:10.1097/QAI.0b013e31802f1318
- Smith Fawzi, M. C., Kaaya, S. F., Mbwambo, J., Msamanga, G. I., Antelman, G., Wei, R., . . . Fawzi, W. W. (2007). Multivitamin supplementation in HIV-positive pregnant women: impact on depression and quality of life in a resource-poor setting. *HIV Med*, 8(4), 203-212. doi:10.1111/j.1468-1293.2007.00454.x

MENTAL HEALTH RESEARCH

Psycho-social supplement to the comparison of two multivitamin dosage regimens in the prevention of adverse pregnancy outcomes among HIV-positive women from Tanzania

PI: Prof. S. Kaaya, Co-PI: Prof. Wafaie Fawzi

Objectives:

- To implement and evaluate an interactive group counseling approach to HIV pre-test counseling and follow up counseling for women who have tested HIV-positive to primarily improve: Acceptance of HIV testing; Return rate for results of test; and Safe disclosure of sero-status to significant others; and secondarily reduce depressive symptomatology and perceived social support

Publications:

- Kaaya, S. F., Blander, J., Antelman, G., Cyprian, F., Emmons, K. M., Matsumoto, K., . . . Smith Fawzi, M. C. (2013). Randomized controlled trial evaluating the effect of an interactive group counseling intervention for HIV-positive women on prenatal depression and disclosure of HIV status. *AIDS Care*, 25(7), 854-862. doi:10.1080/09540121.2013.763891
- Kaaya, S., Eustache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C., & Wissow, L. (2013). Grand challenges: Improving HIV treatment outcomes by integrating interventions for co-morbid mental illness. *PLoS Med*, 10(5), e1001447. doi:10.1371/journal.pmed.1001447 (NIMH requested policy paper)

MENTAL HEALTH RESEARCH

Saving brains: Determine the economic impact of poverty-related risk factors for cognitive development and human capital (2013-2014)

PI: Prof. S. Kaaya, Co-PI: Prof. Wafaie Fawzi

Objectives:

- To quantify the effects of risk factors on early childhood development in national populations specifically:

Publications:

- Chai, J., Fink, G., Kaaya, S., Danaei, G., Fawzi, W., Ezzati, M., . . . Smith Fawzi, M. C. (2016). Association between intimate partner violence and poor child growth: results from 42 demographic and health surveys. *Bull World Health Organ*, 94(5), 331-339. doi:10.2471/BLT.15.152462
- Liu, Y., Kaaya, S., Chai, J., McCoy, D. C., Surkan, P. J., Black, M. M., . . . Smith-Fawzi, M. C. (2017). Maternal depressive symptoms and early childhood cognitive development: a meta-analysis. *Psychol Med*, 47(4), 680-689. doi:10.1017/S003329171600283X

MENTAL HEALTH RESEARCH

Healthy options: Group psychotherapy for HIV-positive depressed pre-natal women (2013-2018)

Objectives:

PI: Prof. S. Kaaya, Co-PI: Prof. Wafaie Fawzi

Objectives:

- To examine acceptability and feasibility of integrating an enhanced standard of mental health care and group counseling with PMTCT- plus services provided at public maternal and child health (MCH) clinics, from the perspectives of;
 - Facility mental health care focal points and MCH clinic managers,
 - Perinatal direct care providers; and
 - HIV-positive perinatal women;
- Validate a standardized depression screening tool against DSM IV criteria for major depressive disorder (MDD) and suicidality for use in Tanzania; and
- To compare effects on depression symptom severity of task-sharing interventions (i.e. problem solving and cognitive behavioral therapy components delivered to groups facilitated by lay CBHWs versus improved standard of care for the treatment of depression among HIV-positive women accessing PMTCT-plus services.

Publications:

- Pending – Analysis plans in various stages of implementation

Dar es Salaam Urban Cohort Study (DUCS)

PI: Prof. Japhet Killewo; Co-PI: Prof. Wafaie

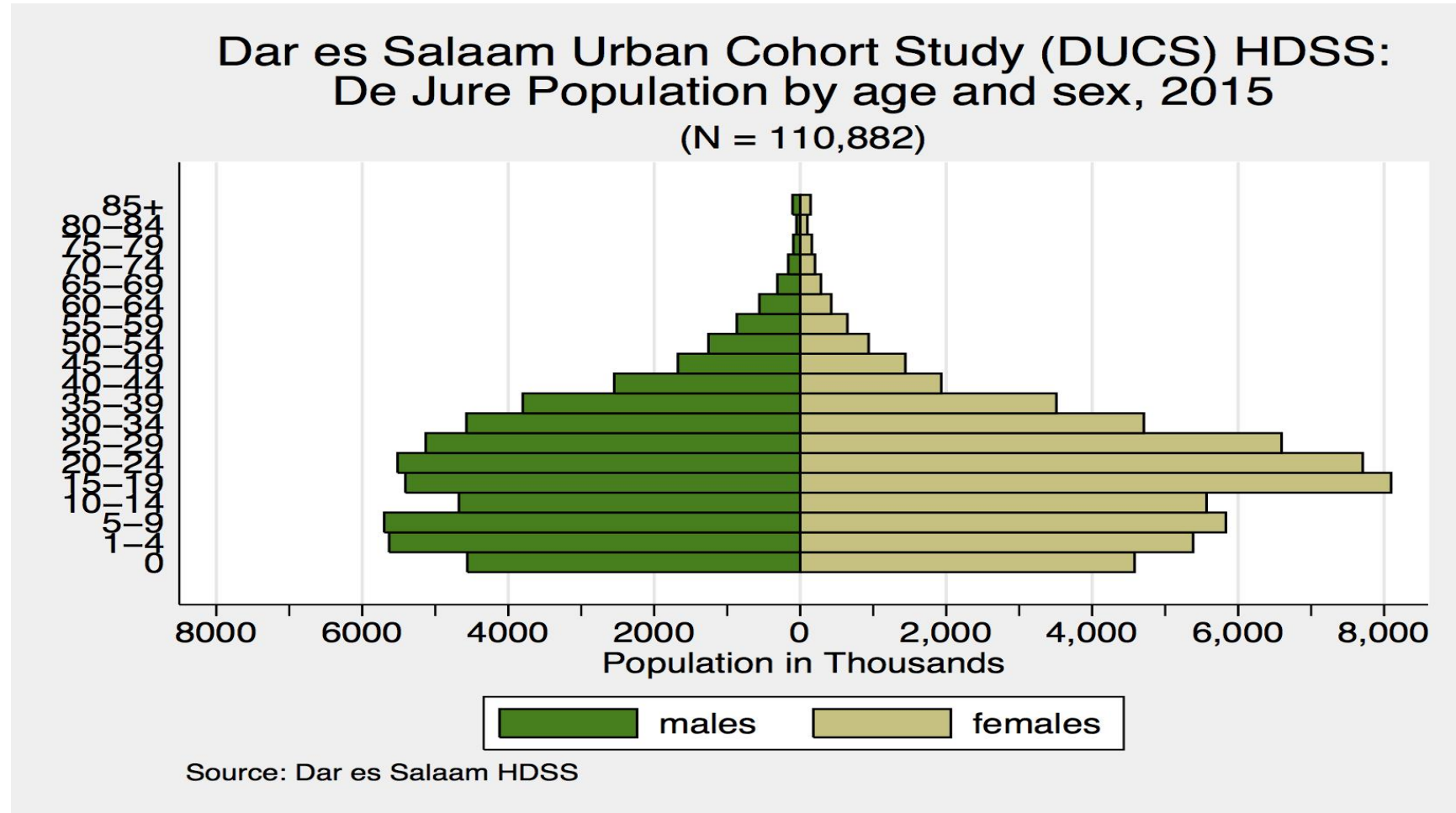
- A Health and Demographic Surveillance System (HDSS) that involves systematic registration of all residents of Ukonga and Gongo la Mboto wards (N>100,000).
- DUCS is now being registered as a member of the INDEPTH sites

Objectives

- To determine the time trends of morbidity and mortality across socio-economic and demographic characteristics.
- To determine levels of various exposures such as nutritional, environmental, occupational, immunizations, hereditary and others and their impact on health
- To determine maternal and child morbidity and mortality in the urban and semi-urban settings
- To design and test health interventions for the various priority diseases (both communicable and non-communicable) in order to obtain the most cost-effective ones.

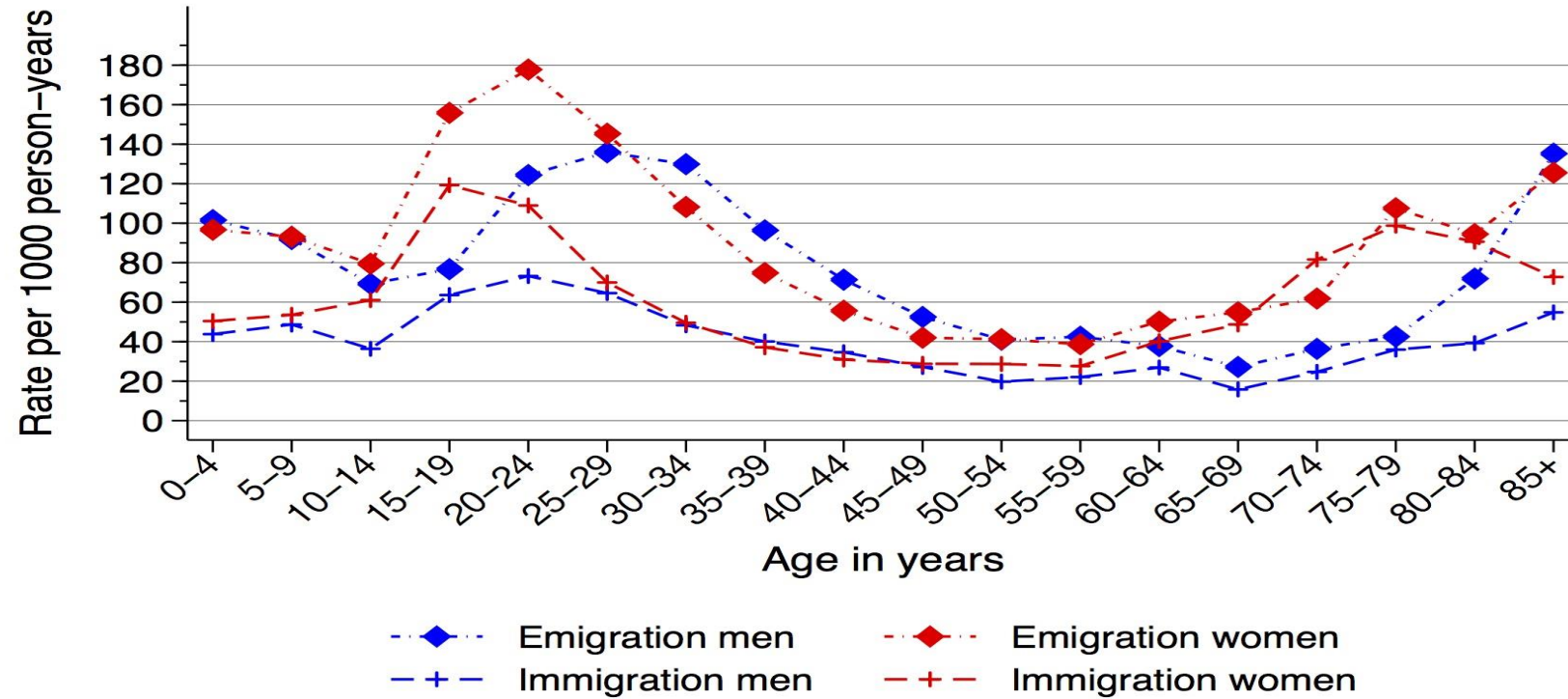
DUCS Publications – Profile Paper

Leyna GH, Berkman LF, Njelekela M. et al. Profile: The Dar es Salaam HDSS. IJE 2017, 1-8. doi:10.1093/ije/dyw324



DUCS Publications – Profile Paper

Dar es Salaam Urban Cohort Study (DUCS) HDSS:
Age-Specific Migration Rates, 2011–2015



Leyna G et al IJE

DUCS NESTED STUDIES

Dietary determinants of Cholesterol among middle-aged and older adults in Dar es Salaam
(PI: Japhet Killewo, Co-PI: Dr. Danaei Goodarz)

Objectives:

- To assess dietary determinants of serum total cholesterol

Population:

- 347 adults aged 40 years and older from DUCS HDSS

Findings:

- Mean serum total cholesterol level was 204 mg/dL (IQR 169–236 mg/dL) in women and 185 mg/dL (IQR 152–216 mg/dL) in men
- Participants who reported using palm oil as major cooking oil serum total cholesterol higher by 15 mg/dL (95% CI 1 to 29 mg/dL) compared with those who reported using sunflower oil.
- Consumption of one or more servings of meat per day and less than five servings of fruits and vegetables per day were also associated with higher serum total cholesterol.
- Combination of the two above factors was associated with 46 mg/dL (95% CI 16 to 76 mg/dL) higher serum total cholesterol.

DUCS NESTED STUDIES

Determinants of High Blood Pressure and Barriers to Diagnosis and Treatment in Dar es Salaam

PI: Japhet Killewo, Co-PI: Danaei Goodarz

Objectives:

- To assess prevalence and determinants of high blood pressure, and barriers to diagnosis and treatment in Dar es Salaam

Population:

- 2,174 adults aged 40 years and older from DUCS HDSS

Findings:

- Prevalence of hypertension was 37%
- Determinants of hypertension were overweight, obesity, physical inactivity, and alcohol drinking
- Among hypertensive, 48% were diagnosed, 22% were treated, and 10% were controlled
- At 1 year follow up, of the referred participants, 68% sought care, but only 27% were on treatment and 8% had controlled blood pressure
- Reasons for not seeking care: Lack of symptoms, cost, and lack of time
- Reasons for not being on treatment: Lack of symptoms, not being prescribed, and having finished one course of treatment

Publication: Rachel M. Zack et al. *J. Hypertens* 2016

DUCS NESTED STUDIES

Health and Aging in Africa: Longitudinal Studies of INDEPTH* Communities (HAALSI)

PI: Prof. Killewo, Co-PI: Lisa Berkaman

Overall goal of the Study

- To assess the social, economic and health systems that influence the onset and course of major cardio metabolic disorders and HIV as well as physical and cognitive functioning in older adults.
- Using a multidisciplinary approach, we also study the productivity, well-being and social and family consequences of disease and function. We plan to evaluate policies and other experiments to gather information about ways to improve the health and well-being of older people.

Objectives:

- To establish three cohorts of men and women aged 40 and over based on random stratified samples of the HDSS populations in the INDEPTH sites of Agincourt in South Africa, Navrongo in Ghana and Ukonga in Tanzania.
- To identify the effects of ill health and disability on the economic well-being and productivity of the three cohorts.

Study status:

Data collection in progress

DUCS NESTED STUDIES

Overweight and Obesity during Pre-pregnancy and Pregnancy Period in Tanzania

PI: Dr. Dominic Moshia, Co-PI: Prof. Wafaie Fawzi

Objectives:

- To determine prevalence and identify modifiable risk factors (focused on nutrition and physical activity) for overweight and obesity among **pre-pregnant** women intending to become pregnant in urban Dar es Salaam.
- To determine prevalence and identify modifiable risk factors (focused on nutrition and physical activity) for obesity among pregnant women in the first or second trimester in Dar es Salaam.
- Assess perceptions and knowledge on the importance of nutrition and physical activity for maternal health as well as potential barriers for maintaining a healthy diet and adequate physical activity both before and during pregnancy among women and healthcare providers in Dar es Salaam.

Population:

- 4148 women of reproductive age (18-44) in DUCS HDSS
- **Study status:** Starting recruitment in February 2018
- **Overall goal:** Findings from this study will help formulation of appropriate intervention package for prevention of overweight and obesity during pre-pregnancy and pregnancy period among Tanzanian women

Study status: Now recruiting staff and planned to start in February 2018

DUCS NESTED STUDIES

New-born Screening for Child Survival- Sickle Cell Disease in Tanzania

PI: Julie Makani and Co PI: Japhet Killewo

Objectives:

- To assess SCD awareness in the general population of Ukonga and Gongo la Mboto wards with a view to increase awareness and enlist policy support for children with SCD
- To capture cases of sickle cell disease in the area and generate data that will answer questions related to morbidity and mortality due to SCD.
- To conduct Verbal autopsy studies that will generate data on causes of death in the area including specifically deaths due to sickle cell disease.

Population:

- 20,000 heads of households of Ukonga and Gongo la Mboto wards in DUCS HDSS

Study status: Partially completed in 2016

Some findings: OVERALL Sickle Cell Disease awareness in Ukonga was 65.3%, highest being in Mazizini (76.3%) and lowest in Markaz (41.4%).

- Overall reported percentage of children with SCD (2.5%) with highest being 5.2%.
- Hence SCD is an important public health problem in the area.

DUCS NESTED STUDIES

Food Insecurity study in the DUCS platform

PI: Germana Leyna and Co PI: Japhet Killewo

Objectives:

- To determine the food insecurity and assess changes in the prevalence of food insecurity since 2011/12.

Methods:

- During the 2016/17 year, the same 9-item household food insecurity access scale was administered to all households in Ukonga and Gongo la Mboto.

Study status: Completed

Some findings: Magnitude of food insecurity has declined over time to 58% in 2016/17 (mild – 18%; moderate – 29%; severe - 11%) compared to 63% (mild – 5%; moderate – 32%; severe – 27%) observed in 2011/12.

DUCS NESTED STUDIES

Building Evidence and Capacity for Demographic Dividend in Africa (BEC-DDA)

PI: Japhet Killewo. Co Pis: Candida Moshiro, Germana Leyna et al

Objectives:

- To determine Tanzania's prospects for harnessing the Demographic Dividend and to influence policies that the country may adopt to reap the economic benefits.

Population:

- The DUCS Platform for family planning, education, socio-economic profile, and women in the reproductive age group for fertility rates

Study status: Completed and data analysis in progress

DUCS NESTED STUDIES

Methods to elicit quality-adjusted life years and the value of life in large population-based studies in sub-Saharan Africa: a study in Dar es Salaam, Tanzania

PI: Brian Patenaude Co-Pis: Japhet Killewo, Innocent Semali

Objectives:

- To establish methods for eliciting valid Value of Statistical Life Years (VSLY) in Sub-Saharan Africa and to use the methods to conduct the first VSLY contingent valuation survey in the region

Population:

- 4,000 individuals age 18 and older were randomly selected from the Ukonga HDSS site. The survey consisted of eliciting basic demographic information as well as Willingness To Pay and QALY elicitation questions.

Study status: Completed and manuscripts submitted for publication

DUCS NESTED STUDIES

African Research and Implementation Science and Education (ARISE) Network
Adolescent Health Study

PI: Bruno Sunguya, Co-Pis: Tasiana Njau, Japhet Killewo

Objectives:

- To assess the health status and determinants thereof among adolescents in the Health and Demographic Surveillance System (HDSS) of the Dar es Salaam Urban Cohort Study (DUCS) in Tanzania.
- Population:
- 800 adolescents aged 10-19 years old from the total number of 15,000 adolescents in the area.

Study status: Completed and data analysis in progress

DUCS NESTED STUDIES

Strengthening the Dar es salaam urban cohort to better provide non-communicable disease data including prostate and other cancers for evidence based decision and planning

PI: Japhet Killewo

Objectives:

- To strengthen DUCS's ability to collect accurate household data on social demographics, lifestyle, morbidity and mortality, migration status and monitor prospectively trends over time
- To determine knowledge, attitudes and practices on NCDs and raise awareness in order to reduce morbidity and mortality
- To assess the feasibility of a screening programme for prostate cancer and hypertension in the area.

Study status

Currently running

DUCS NESTED STUDIES

Evaluating personal and external food environment influences on diets among PLHIV and families in Dar es Salaam, Tanzania

PI: Ramya Ambikapathi

Co-PI: Japhet Killewo

Objectives:

- a. Explore underlying motivations and perceptions of food environments in the area
- b. Study family support, and disclosure of HIV status to family members with food choices
- c. Evaluate the role of gender and decision-making on intra-household dietary intake.
- d. Identify patterns of food intake associated with optimal dietary adequacy among PLHIV
- e. Use geospatial mapping to evaluate neighborhood effects of density of food vending.

Study status

Planned to start in February 2018

Partnership for African Cohort Research and Training (PACT)

PI: Prof. Michele Holmes, Co-PI: Dr. Marina Njelekela

- A collaboration between Harvard University School of Public Health and seven African tertiary institutions to establish large cohorts to study chronic Non-Communicable Diseases (NCDs).
- In Tanzania, the study aimed at following up a cohort of 120,000 teachers (men and women) that will be enrolled across the country to investigate the modifiable risk factors for development of hypertension and diabetes mellitus.

Objectives:

- To determine the prevalence of hypertension and diabetes among primary school teachers in Tanzania
- To determine the incidence of hypertension and diabetes among primary school teachers in Tanzania
- To determine the socio-demographic risk factors for hypertension and diabetes among primary school teachers in Tanzania
- To determine the behavioral risk factors for hypertension and diabetes among primary school teachers in Tanzania
- To determine the dietary risk factors for hypertension and diabetes among primary school teachers in Tanzania
- To determine the mortality due to hypertension and diabetes among primary school teachers in Tanzania

PACT Publications

1. DALAL, Shona, *Holmes Michelle, Laurence Carien, Bajunirwe Francis, Guwatude David, Njelekela Marina*, et al. Feasibility of a large cohort study in sub-Saharan Africa assessed through a four-country study. *Global Health Action*, [S.l.], v. 8, may. 2015. ISSN 1654-9880. Available at: <<http://www.globalhealthaction.net/index.php/gha/article/view/27422>>. Date accessed: 08 Jun. 2015. doi:<http://dx.doi.org/10.3402/gha.v8.27422>.
2. Ike Oluwapo O. Ajayi, Clement Adebamowo, Hans-Olov Adami, Shona Dalal, Megan B. Diamond, Francis Bajunirwe, David Guwatudde, Marina Njelekela, Joan Nankya-Mutyoba, Faraja S. Chiwanga, Jimmy Volmink, Robert Kalyesubula, Carien Laurence, Todd G. Reid, Douglas Dockery, David Hemenway, Donna Spiegelman, Michelle D. Holmes. Urban–rural and geographic differences in overweight and obesity in four sub-Saharan African adult populations: a multi-country cross-sectional study. *BMC Public Health* (2016) 16:1126, DOI 10.1186/s12889-016-3789-z
3. Faraja S. Chiwanga, Marina A. Njelekela, Diamond MB, Bajunirwe F, Guwatudde D, Nankya –Mutyoba J, Kalyesubula R, Adebamowo C, Ajayi I, Reid T, Volmink J, Laurence C, Adami H-O, Holmes MD, Dalal S. Urban and rural prevalence of diabetes and pre-diabetes and risk factors associated with diabetes in Tanzania and Uganda. *Global Health Action* 2016, 9:31440 –<http://dx.doi.org/10.3402/gha.v9.31440>
4. Guwatudde D, Nankya –Mutyoba J, Kalyesubula R, Adebamowo C, Ajayi I, Bajunirwe F, Njelekela M, Chiwanga FS, Reid T, Volmink J, Adami H-O, Holmes MD, Dalal S. The Burden of Hypertension in Sub-Saharan Africa: a four-country cross sectional study. *BMC Public Health*. 2015;15:1211. DOI 10.1186/s 12889-015-2546-z
5. Diamond MB, Dalal S, Adebamowo C, Guwatude D. Laurence C, Ajayi I. O, Bajunirwe F. Njelekela A.M, et al. Prevalence and risk factor for injury in sub-Saharan Africa: a multi-country study. *Inj Prev* 2017; 0:1-7 doi:10.1136/injuryprev-2016-042254
6. Michelle D. Holmes, Shona Dalal, Vikash Sewram, Megan B. Diamond, Sally N. Adebamowo, Ikeoluwapo O. Ajayi, Clement Adebamowo, Faraja S. Chiwanga, Marina Njelekela, Carien Laurence, Jimmy Volmink, Francis Bajunirwe, Joan Nankya-Mutyoba, David Guwatudde, Todd G. Reid, Walter C. Willett, Hans-Olov Adami, Teresa T. Fung. Consumption of processed food dietary patterns in four African populations. In press at *Public Health Nutrition Journal*
7. Francis Bajunirwe, Samuel Maling, Hans-Olov Adami, IkeOluwapo O Ajayi, Jimmy Volmink, Clement Adebamowo, Carien Laurence, Todd Reid, Joan Nankya-Mutyoba, Faraja S Chiwanga, Shona Dalal, Marina Njelekela, David Guwatudde, Michelle D. Holmes. The burden of depression and Non-Alcohol Substance use; and their association with alcohol use and Intimate Partner Violence: A cross-sectional study in four sub-Saharan Africa countries. In submission

Global Nutrition and Epidemiologic Transition Initiative (GNET)

PI: Prof. Frank Hu, Co-PI: Dr. Marina Njelekela

- A collaborative initiative launched by researchers from the Departments of Epidemiology and Nutrition at the Harvard T.H. Chan School of Public Health, with the ultimate goal of helping to prevent the global diabetes epidemic by improving the carbohydrate quality of staple foods

Objectives:

- To assess the perceptions and barriers to the consumption of unrefined grains (brown rice, unrefined maize ugali and unrefined sorghum ugali) against refined grains (white rice and refined maize ugali) in two regions in Tanzania.
- To assess the acceptability, palatability and tolerability of unrefined carbohydrate staples as substitutes for commonly consumed refined carbohydrate foods in Tanzania, and the willingness to participate in a future dietary interventions to lower markers of diabetes

GNET Publications

- Muhihi A, Gimbi D, **Njelekela M**, Shemaghembe E, Mwambene K, Chiwanga F, Malik VS, Wedick NM, Spiegelman D, Hu FB, Willett WC. **Consumption and acceptability of whole grain staples for lowering markers of diabetes risk among overweight and obese Tanzanian adults.** *Global Health*. 2013 Jun 23;**9(1):26**. doi: 10.1186/1744-8603-9-26.
- Muhihi A, Shemaghembe E, **Njelekela M**, Gimbi, Mwambene K, Malik V, Wedick N, Donna S, Hu F, Willett W. **Perceptions, Facilitators, and Barriers to Consumption of Whole Grain Staple Foods among Overweight and Obese Tanzanian Adults: A Focus Group Study.** *International Scholarly Research Network ISRN Public Health* 2012, Article ID 790602, 7 pages doi:10.5402/2012/790602

The Bernard Lown Scholarship in Cardiovascular Health

- Harvard initiative to build capacity for NCD research
- The Lown Scholars Program is designed to create an international cadre of talented health professionals who will use public health tools and strategies to prevent cardiovascular diseases and promote cardiovascular health in developing countries

Tanzanian Scholars - 2

1. Dr. Marina Njelekela

- Attended a 3 weeks summer training at HSPH
- Agreed data analysis plan
- Participated once in a visiting fellow program
- 10 days Global Health Class on NCDs at Public Health Foundation of India under mentorship of Dr. Srinathy Reddy – Jan 2013
- Supported to attend the European Congress on Tropical Medicine and International Health (ECTMIH) in Basel, Switzerland (Poster: Body Fat Maldistribution among HIV infected patients attending CTC in Dar es Salaam) – Oct 2015

Lown Scholars cont....

Conducted analysis and published 4 papers

- Marina Njelekela, Rose Mpembeni, Alfa Muhihi, Nzovu Ulenga, Eric Aris, and Deodadus Kakoko. Lipodystrophy among HIV-Infected Patients Attending Care and Treatment Clinics in Dar es Salaam. *AIDS Research and Treatment*, Volume 2017, Article ID3896539, <https://doi.org/10.1155/2017/3896539>
- Marina Njelekela, Alfa Muhihi, Akum Aveika, Donna Spiegelman, Claudia Hawkins, Catharina Armstrong, Enju Liu, James Okuma, Guerino Chalamila, Sylvia Kaaya, FerdinandMugusi, Wafaie Fawzi. Prevalence of Hypertension and Its Associated Risk Factors among 34,111 HAART Na\ve HIV-Infected Adults in Dar es Salaam, Tanzania. *Int J Hypertens*, Volume 2016, Article ID 5958382, 9 pages, <http://dx.doi.org/10.1155/2016/5958382>
- Rose N.M. Mpembeni, Alfa J. Muhihi, Mwanamkuu Maghembe, Davis Ngarashi, Benjamin Lujani, Omary Chillo, Sulende Kubhoja, Amani Anaeli, Marina A. Njelekela. Overweight, Obesity And Perceptions About Body Weight Among Primary Schoolchildren In Dar Es Salaam, Tanzania. *Tanzania Journal Of Health Research. Volume 16, Number 4, October 2014* DOI: <Http://Dx.Doi.Org/10.4314/Thrb.V16i4.7>.
- Marina A. Njelekela, Alfa Muhihi, Rose N. M. Mpembeni, Amani Anaeli, Omary Chillo, Sulende Kubhoja, Benjamin Lujani, Davis Ngarashi, Mwanamkuu Maghembe. Knowledge and attitudes towards obesity among primary school children in Dar es Salaam, Tanzania. *Nigerian Medical Journal*, March-April, 2015; 56:2:103-108.
- Muhihi AJ, Mpembeni RN, Njelekela MA, Anaeli A, Chillo O, Kubhoja S, Lujani B, Maghembe M, Ngarashi D. Prevalence and determinants of obesity among primary school children in Dar es Salaam, Tanzania. *Arch Public Health*. 2013 Oct 7;71(1):26.doi: 10.1186/0778-7367-71-26.

Lown Scholars cont...

2. Dr. Fredrick Mashili

- Summer sessions in public health (Harvard T.H Chan school of PH-Summer 2014)
- Special course on Non-communicable disease prevention and control (India-January 2015)
- Short course on the use of nuclear technique to assess nutritional status and physical activity (Morocco -2015)
- Started public education initiatives including Jamii Health Initiative (health education platform for the public- www.jamiihealthtz.com)
- Started a weekly newspaper column to promote physical activity (Twende gym, Mtanzania newspaper every Thursday)
- Became member of various NCD control networks including the Tanzania NCD Alliance (TANCDA) and participated a number of activities

Lown Scholars cont....

- The Tanzania national multi-sectoral nutrition action plan (2016-2021)
- Publication: Physical Activity and Associated Social Economic Determinants in Rural and Urban Tanzania: Results from 2012 WHO STEPS Survey (accepted manuscript, International Journal of Population Research)
- SIDA grant on Injury Prevention and Promotion of Active Transportation (2016-2021)
- GSK-African NCD open lab grant on: Investigating Physiological and Microbiological Determinants of Diabetic Foot Ulcers in a LIC (2017-2020)

Personal Perspective

- Looking at the state of NCD research within the partnership with Harvard;
 - NCD research interest is growing among Tanzania researchers
 - Capacity to write NCD research proposal, implementation, analysis and publication is improving
 - Importance of having Tanzania surveillance and cohort studies (DUCS and PACT)
 - Need for increasing the potentials for NCD research both ways

Challenges

- Minimal funding opportunities that have been explored
- Operating mostly in an environment where NCD was not a National Agenda – is changing now at least from 2017
- Leadership from both partnerships not very well defined
- Still capacity for NCD research not optimal from Tanzania side
- Multi-sectoral approach in research was not an option

Way Forward

- Developing joint research proposals with the Government – EMR Roll out that will capture NCD data from PHC
- Collecting evidence based baseline data on mortality related to NCDs. Our health system recordings need to be more comprehensive – EMR - reliable and presentable
- Conducting multisectoral and multidisciplinary research to understand/influence macroeconomic and social determinants of NCDs (Literacy level, Poverty Level, Gender etc)
- Conducting translational and health system research for National application of proven effective strategies to address the complexity of the main risk factors, namely: tobacco use, physical inactivity, harmful use of alcohol and unhealthy diets, as well as air pollution

- Investing in health workers is an essential part of strengthening health systems and social protection
- NCD Research Training Programs - Need to ensure a highly skilled, well-trained and well-resourced health workforce should lead and implement actions to promote health and prevent and control NCDs
- Retraining, capacity building at all levels from community level - CHWs, distant learning programs, m-health, e-health, continuous professional development, resource training centres

Research for Informing Policy Development and Implementation

Type of research

Policy needs

- Biomedical & epidemiological research → • Scientific credibility (evidence & rationale?)
- Health economics research → • Financial feasibility (cost effective? affordable?)
- Health systems research → • Operational stability (Sustainable? Scalable?)
- Social sciences research → • Political viability (Is the community ready and receptive?)

Opportunities For Continued Collaborations

- More NCD research is needed, and expand research beyond Dar es Salaam
- Establishment of COHORTS for causal associations and testing of interventions
- Establishment of center(s) of excellence in NCD research in Tanzania – COSTECH current Call and MUHJAS is establishing a center of excellence in CVD funded by ADB (Prof Kwesigabo is PI)
- Continued collaborations on capacity building and training especially for NCD research
- WHO- Package of Essential NCDs Interventions at Primary Care Level :
 - Implement and monitor cost-effective approaches for the early detection of CVD, cancers, diabetes, CRD and establish standards of health care for common conditions integrating, whenever feasible, their management into PHC
- Opportunities available globally through - 2030 Agenda for Sustainable Development and SDG target 3.4 on NCDs – more funding and commitment globally, WHO – A Prioritized Research Agenda for NCDs
- Reorganize ourselves on where to focus more and write fundable proposals - may need a formal meeting to re-strategize
- Mindful of feasibility, scalability, applicability and public health impact

Thank You for Your Attention