

## UCSF East Africa Interest Group

### Workshop: Non-Communicable Diseases (NCDs) Research in East Africa: Part 1 September 17, 2013

The program of the third quarterly workshop of the newly organized UCSF East Africa Interest Group (EAIG) provided highlights of current UCSF-affiliated research and stimulated discussion on four themes related to NCDs in East Africa – i.e., malignancies, management of chronic illness in acute care settings (including emergency departments), mental health, and using cost-effectiveness analysis for managing NCDs in low-resource settings.

Katherine Van Loon, MD, MPH (UCSF Helen Diller Family Comprehensive Cancer Center), introduced the forum with an overview of NCDs as a WHO priority in the context of East Africa. In 2011, the WHO cited the growing proportion of mortality due to NCDs: 63% in 2008, with 80% of deaths occurring in developing countries (and 29% of NCDs deaths occur in people <60 in LMIC). WHO projected that between 2010 and 2020, NCDs deaths in Africa are expected to increase by over 20%. Dr. Van Loon also shared data from the Global Burden of Disease Study 2010, which demonstrated the leading risk factors for burden of disease and injury in Eastern Africa to be childhood underweight, household air pollution, and non-exclusive or discontinued breastfeeding – i.e., all related to NCDs – although the risk factor/burden relationship is constantly shifting. Globally, cancer remains the #2 cause of death from NCDs. The International Agency for Research on Cancer (IARC) predicts over 1 million deaths from cancer in Africa by 2030 – thereby emphasizing the urgency for strengthening cancer research and control on that continent. Although GLOBOCAN 2008 incidence data in Africa demonstrates general scarcity of data, the leading cancers in men are esophageal, Kaposi's sarcoma, and prostate cancer, and cervical, Kaposi's sarcoma, and breast cancer in women. Dr. Van Loon added that the upcoming NCI funding announcement "Sub-Saharan African Collaborative HIV and Cancer Research Consortia (U54)" provides an opportunity for developing cross-campus collaboration in this area.

Jeffrey Martin, MD, MPH (Department of Epidemiology and Biostatistics), shared his observations from the study of Kaposi's sarcoma in East Africa. Although primary and secondary prevention and early detection remain top priorities in disease management, Dr. Martin noted that these are not simple goals due to limited or rare expertise in detection/diagnostics, pathology, and record-keeping in the region – all with implications for epidemiology and prevention research. In Uganda, cancers are usually diagnosed during routine care, resulting in a massive under-diagnosis and often at an advanced stage. Estimated cancer-specific mortality is 19%, with up to 50% lost to follow-up. For these reasons, Dr. Martin believes that addressing the cancer problem in Africa will be much more challenging than HIV. He summarized some key issues to guide future collaborations in cancer research focused on East Africa:

- What should we be studying?
  - Primary and secondary prevention is feasible, potentially sustainable, and will save lives.
  - Documentation of disparities in cancer outcomes between Africa and resource-rich settings will provide compelling data that may drive the moral imperative for more funding for cancer research (primarily by foundations).
- What are the opportunities?
  - HIV has brought attention and funding to HIV-related cancer research (e.g., NCI support for IeDEA, D43 training grants, U54 research awards, etc.).

- HIV has brought a semblance of a primary care system to a substantial fraction of the adult population – which provides a platform and context for prevention research there.
- Community health workers and village health teams play an important role in care and prevention, and a growing role in research.

There was substantial discussion around the issue of oncology in Africa:

- Cervical cancer is a common example of the overlap between HIV and oncology in Africa. The primary strategy of “See and Treat”, or cryotherapy, provides a feasible screening and treatment measure to decrease the burden of disease. Palliative radiation, versus curative radiation, may be considered for advanced disease. Dr. Martin agreed that cervical cancer (as well as Kaposi’s sarcoma) is “low-lying fruit” in terms of targeted intervention and research in East Africa.
- Is there a potential relationship between esophageal cancer and heavy alcohol use (including home brews) in Africa? Dr. Van Loon noted that although there is tremendous geographic variation, diet and tobacco use appear to be non-contributing factors to development of esophageal cancer in Africa. It is important to note that the most common cell type of esophageal cancer in this region (squamous cell) differs from that in the USA (adenocarcinoma) – which means that different risk factors are likely in play.

EAIG Chair Craig Cohen, MD, MPH (Department of Ob/Gyn, Bixby Center for Global Reproductive Health), raised the issue of stimulating oncology research in Africa, particularly developing young investigators in this field. There has been little funding until now, and the current NCI funding opportunity/RFP is the first public acknowledgment of the need to recruit new scientists and support oncology research in Africa. The current focus of global oncology has been industry-driven and of little relevance to Africa, e.g., bone marrow transplants. Dr. Cohen noted that NCI has recently committed funding to the FIC-supported GloCal (scholars program) to support research training in this area.

Teri Ann Reynolds, MD (Department of Emergency Medicine, EM Residency Program at Muhimbili National Hospital [MNH] in Tanzania), addressed the issue of chronic disease management in the acute care setting, presenting data from Tanzania’s first urban emergency department. She noted that infrastructure remains a key challenge in Africa, with the physical exam often providing the only diagnosis available. Acute care, chronic disease, and emergency medicine are not clearly defined and an overlap exists among them. Dr. Reynolds shared data from a study describing the most common diagnoses and basic demographics of patients seen at MNH. Another study by Razak and Kellermann (2002) examined what burden of disease would be mitigated by a functional system of emergency care; evidence supports the conclusion that timely care saves lives. It is shocking to learn that the acute care setting remains the only system for seeking care for mental health disorders (mostly psychosis). Other conditions being addressed in this setting include injury/trauma, infections, and neoplasms. There is interest in developing the concept of acute care at the intersection of delivery of care and research, and UCSF could have a unique competitive advantage in this area.

Susan Meffert, MD, MPH (Department of Psychiatry), provided an overview of global mental health issues in the context of Africa. Mental health is the primary cause of years of life lost to disability and the single driver of health care costs (accounting for 35% of lost output). Dr. Meffert described a randomized clinical trial (RCT) intervention that she is conducting with Darfur refugees living in Cairo, which includes a mental health assessment followed by implementation of evidence-based, protocol-driven psychotherapy, adapted to local conditions and delivered by community health workers or

paramedical staff. She also described her study of gender-based violence in traumatized, HIV-infected women in Kenya (through a K23 FACES collaborative project). The mental health interventions are delivered in the HIV clinic, thus building on the existing infrastructure platform while dealing with the dual stigmas of HIV and mental health.

Dr. Meffert reiterated the need to expand recruitment of junior researchers in global mental health, for which acknowledgment and support at the Department level is required. She hopes that this will be facilitated through the support of the National Institute of Mental Health (NIMH) – as Director Tom Insel is a proponent of this issue and a supporter of NIMH’s Global Mental Health Challenges grant program.

Dr. Meffert’s collaborator Karen Musalo, JD (Center for Gender and Refugee Studies, UC Hastings College of the Law), provided an overview of their collaboration related to the intersection of mental health and human rights, specifically the right to health of survivors who are seeking justice through the legal process. One of these projects, conducted in partnership with the International Federation of Women Attorneys, examines the impact of providing testimony of human rights violations on survivors’ mental health. Preliminary data show that integrated health care that includes mental health intervention lessens the barrier for survivors to seek legal counsel.

Jim Kahn, MD, MPH (Institute for Health Policy Studies), presented a schematic to explain cost-effectiveness analysis for NCDs. Two universal truths form the basis of this approach:

- 1) Resources are limited, so the primary question becomes how best to allocate resources; and
- 2) Scarcity is a reality, so how can economics use medical knowledge (epidemiological data) to decrease disease burden?

The analysis can be broken down into three parts:

- Burden: measured in DALYs (combination of morbidity and premature mortality) and cost, which includes cost of treatment as well as productivity losses.
- Interventions: a combination of efficacy, effectiveness (change in incidence of bad outcomes), and cost (delivery, staff time, commodities/drugs, admin structure).
- Effects: change in health (DALYs) and net cost.

Cost effectiveness analysis can be quantified by the incremental cost effectiveness ratio (ICER) =  $\Delta \text{costs} / \Delta \text{DALYs}$ . Other factors to consider in resource allocation include feasibility, priorities, and ethics.

Dr. Kahn concluded by announcing the newly established UCSF-wide Global Health Economics Consortium (GHECon), whose mission is “advancing precision health policy.” The forum is hosting its inaugural colloquium on November 22, with keynote by Dr. Stefano Bertozzi, Dean of the UC Berkeley School of Public Health.

The conclusion of the program was devoted to a discussion of potential aims for future collaboration in order to move the field of NCDs research forward. It was noted that UCSF has significant strengths to draw on, which differ from and offer a competitive advantage vis-a-vis other academic institutions, including economics research, oncology, surgery/trauma, emergency medicine, mental health, and other disciplines. It was suggested to explore funding from foundations and other multilateral donors. Some specific initiatives were proposed:

- Develop a concept paper and draft manuscript to formulate a particular UCSF approach to NCDs research in East Africa that can be used as a basis for generating funding. The proposed aim is to identify locations of care delivery and document where chronic disease care is being delivered – with content of primary care practices (+/- NCDs), access to care and medications, and capability and needs as starting points.
  - Building on the experience of FACES and the oncology realities described by Dr. Jeff Martin, may also include HIV clinics as a type of "primary care" that can be leveraged to synergistically advance clinical care and research in NCDs.
  - Need to define distinctions between primary care and acute care, and encourage more economic analysis in research.
- Peer review of works in progress.
- Global Oncology Journal Club (next meeting planned for January 2014).
- Support the creation of an atlas of tumors (e.g., orthopedic oncology) and cancer registries.
- Assist governments to set up residency programs to strengthen capacity development.
- Additional topics to cover in subsequent EAIG meetings include:
  - Surgery/orthopedics/anesthesia
  - Diabetes/obesity/tobacco

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