

Disease 2010 studies. For our surgical intervention scenarios, we assumed a scale up in coverage from 10% to 90% and included the cost of building a national cardiac surgery center. All costs and outcomes were discounted at 3 percent yearly and compared to undiscounted costs and outcomes. We also conducted sensitivity/uncertainty analyses.

**Findings:** In the base case, an approach combining primary and secondary prevention of ARF/RHD dominated all other approaches. Adding on scale-up of surgical services resulted in an incremental cost-effectiveness ratio of US\$ 305/DALY (US\$ 886/DALY discounted). On performing sensitivity analysis, the results were most sensitive to changes in the incidence of ARF.

**Interpretation:** This preliminary analysis suggests that population-based combined primary and secondary prevention strategies for ARF/RHD may be the most cost-effective approach in endemic settings despite higher operational costs. Scale-up of surgical services may be cost-effective in some settings such as lower-middle and upper-middle income countries, although absolute public sector budget constraints might preclude such investments. Future work will include gathering country-specific epidemiologic and cost estimates to inform local priorities around ARF/RHD.

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### **Methodology and process for assessing feasibility of introducing pediatric hematology/oncology services in a resource-limited setting: Experience in Sub-Saharan Africa**

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**Program/Project Purpose:** As mentioned in recent articles, there has been a significant increase in the incidence of cancer in Sub-Saharan Africa, (SSA), however there is poor access to pediatric hematology-oncology (PHO) care. Consequently, a great need exists to build capacity in the local healthcare infrastructure and workforce to meet this evolving need. Since its inception in 2008, the Texas Children's Global Hematology-Oncology Programs of Excellence (Texas Children's Global HOPE) has aimed to increase overall survival and quality of life for children with cancer and blood disorders and to build sustainable health professional capacity in pediatric hematology-oncology care and treatment.

**Structure/Method/Design:** Our program recognized the importance of partnering with local stakeholders to conduct a thorough assessment of the current capacity to better inform a jointly developed vision and strategies to achieve the aims. We developed a systematic methodology and detailed electronic database for conducting site assessments and performing strategic planning. This assessment approach has been successfully utilized in both international and domestic sites to determine the unique needs of their pediatric hematology-oncology programs and the environments in which they operate. This process identifies and assesses current country level and institution specific clinical, education, research and administrative operations and resources, identifies gaps and needs for improvement and proposes solutions to advance PHO care at a level of excellence the partners jointly agreed to attain. A detailed implementation plan is then developed for program improvement including timelines and budgets. This methodology has been utilized upon request by local governments interested in improving PHO care and in partnership with existing NGOs operating in-country to provide program sustainability.

**Outcomes & Evaluation:** This methodology has been utilized in 3 SSA countries. Outcomes include completed country-wide assessments

with sustainable intervention plans built into agreements with local governments. M&E plans are created for each project at implementation and data gathered via web-based tools.

**Going Forward:** Throughout these projects, challenges include working with local governments, building strong partnerships, and securing funding for implementation of the plans. Each project progresses according to the unique political, socio-economic and cultural aspect.

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### **Outreach in Armenia: chronic disease awareness, prevention and management**

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**Program/Project Purpose:** According to the World Health Organization 2014 report, prevalence of unmanaged, undiagnosed and untreated chronic disease accounts for 92% of all non-communicable disease related mortality in Armenia. The Armenia Global Health Program (AGHP) set out to address chronic disease health through education and outreach by designing and implementing a project, in five different regions of Armenia, to provide education and information on prevention, treatment and management of chronic diseases such as Cardiovascular Disease (CVD), Diabetes Mellitus Type 2 (T2D) and breast cancer to the general population and health care providers.

**Structure/Method/Design:** The projects were conducted in a health fair and health education seminars format. Free health fairs were organized in local clinics in five rural and urban regions of Armenia, as per the Ministry of Health of Armenia (MOH) recommendations. Health fairs consisted of booths that provided blood glucose testing, blood pressure checks and breast cancer screenings. Participants were also provided a validated T2D risk assessment and materials on CVD, cholesterol, nutrition, Body Mass Index, exercise information and early detection of breast cancer. Seminar portions consisted of three, one-hour seminars divided into two groups: population and primary care providers. Population seminars addressed CVD and T2D by providing awareness and tools to manage and prevent these chronic diseases and associated secondary complications. Provider seminars addressed T2D, in accordance with current International Diabetes Foundation standards, by providing information and tools on diagnosis, treatment and secondary complications. This project was conducted by AGHP at the University of Utah, in collaboration with Yerevan State Medical University (YSMU), Armenian American Wellness Center (AAWC) and the MOH. The project has been a success since 2013 and continues to grow exponentially; particularly with the clinics and attendees. Materials created and used were evaluated, translated and verified by AGHP with the help of YSMU.

**Outcomes & Evaluation:** Health fairs and chronic disease education are new ideas in Armenia. The health fairs and seminars were very well-received, with over 650 participants attending the health fairs and seminars. Throughout the five health fairs, 344 glucose, 271 blood pressure and approximately 150 breast cancer screenings were performed. The population and providers who attended the health fair

expressed tremendous appreciation for the information provided and eagerness to learn more. Post-seminar evaluations revealed interest in additional workshops, seminars and health education materials.

**Going Forward:** Chronic disease management and baseline knowledge is very poor amongst the Armenian population. Barriers we seek to address include more training and materials for nutrition and glucose testing, future cholesterol screenings, more provider workshops and developing more partnerships with local organizations. AGHP continues to strengthen relationships with AAWC, YSMU and MOH, with plans to further its health promotion, education and outreach.

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### Understanding knowledge and attitudes about breast cancer and its treatment in Ethiopia

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**Background:** Breast cancer (BC) is an escalating health crisis in Ethiopia. The country's population of 94 million has only one cancer center and no cancer screening program or registry. A BC treatment program has been established at the Hawassa College of Medicine and Health Sciences in the Southern Region of Ethiopia to serve as a model for regional oncology centers. To further develop this program, we assessed breast health-related knowledge in female visitors (FV) and health care workers (HCW) at public primary health care sites in the city of Hawassa. Our hypothesis was that women and HCW would have limited knowledge of BC, its treatment, screening, and prevention.

**Methods:** Two questionnaires were administered at five public primary health sites in Hawassa, the capital city of about 250,000 in the Southern Region. The FV questionnaire gauged BC literacy and experience in women 18 and older. The second questionnaire surveyed HCW about BC training and knowledge. Professionals bilingual in English and Amharic provided translation. Informed consent was obtained from participants; participation was voluntary. Ethical approval was obtained from the Albert Einstein College of Medicine and the Hawassa City Administration.

**Findings:** Interviews included 207 FV and 112 HCW. FV surveys demonstrated a lack of knowledge about BC. When asked, 82 (39.6+/-6.7%) had no knowledge of breast cancer and 138 (66.7+/-6.4%) had no knowledge of treatments; additionally, 173 (83.6+/-5.0%) had never had a breast exam and 141 (68.1+/-6.3%) could not describe self-examination. Descriptions of BC offered were "wound", "killer disease", "dangerous disease", "swelling", "mass" and "ulcers". A majority of FV participants cited pain and itching as signs of BC. Amongst HCW, breast problems most reported were palpable masses, tenderness, discharge, pain, redness, swelling, itching, and mastitis. Physician responses were generally knowledgeable about breast cancer, and were proficient in describing different treatment modalities. Nurses, midwives, and health officers demonstrated less knowledge. Among 94 of them, 32 (34.0+/-9.6%) were not trained to perform a breast exam; when asked about different treatment modalities, 33 (35.1+/-9.6%) could not explain chemotherapy, 24 (25.5+/-8.8%) surgery for BC, and 40 (42.6+/-10.0%) radiation therapy.

**Interpretation:** A general paucity of attention and knowledge of BC among FV and HCW in an urban setting of southern Ethiopia was seen. Many FV and HCW recognized only advanced symptoms of BC. This limited understanding is an obstacle to diagnosis and treatment, significant for a disease where early detection and treatment are essential. The development of cancer centers must be

combined with increased awareness and knowledge among the population to enhance earlier diagnosis and treatment.

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### Digital disparity detection: using simple technologies to document worker fatalities in middle- and low-income countries

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**Program/Project Purpose:** Work-related injuries and illnesses kill more people every year than HIV/AIDS, but these fatalities often occur in international silence.<sup>1,2</sup> It is only major disasters that garner the attention of the public: the 2013 Rana Plaza collapse in Bangladesh that killed 1,138 workers or the 2014 Soma mine explosion in Turkey that killed 301 men.<sup>3,4</sup> There is no global monitoring of work-related fatalities and few middle- and low-income nations have any system in place to document them.<sup>1,2,5</sup> Global Worker Watch is student-run mapping and data visualization project that utilizes simple and inexpensive technologies to document the deaths of low-wage workers in the agriculture/forestry/fishing, construction, manufacturing and resource extraction industries around the world. This project is primarily the work of a single student and is conducted without any source of funding. Its main aims are to increase the visibility of worker deaths to consumers, encourage data sharing among advocates and to identify & stop negligent business practices that risk the lives of workers.

**Structure/Method/Design:** Global Worker Watch utilizes data from governmental and non-governmental organizations, media reports and reports from individuals. Government and non-governmental organization data is obtained through public sources and by donation. Data cleaning tools such as Open Refine are utilized to structure and process data. Media reports are obtained through monitoring of Google Alerts in Arabic, English, French, Hungarian, Italian, Portuguese, Russian and Spanish and are screened for relevancy before data is Abstracted. Additionally, individuals can submit information about worker fatalities in their country through an online Google form. Text fingerprinting tools are used to screen for and remove duplicate cases. Cases are automatically geocoded within a public spreadsheet and data visualizations are created using Tableau Public.

**Outcomes & Evaluation:** Preliminary evaluations of this project demonstrate that least one worker fatality occurring in 2014 has been documented in 92 countries, representing 46.9% of the world's nations. As of late October 2014, 1,645 events killing or injuring 4,697 low-wage workers in 92 countries had been documented. The median number of days elapsing from the time of the event to the time of documentation was 2.58 days in 2014. The names of workers were documented in 37.3% of cases, and the names of the employers were documented in 34.6% of cases, which are generally unavailable in traditional data sources of worker fatalities.

**Going Forward:** Data from multiple sources can present many challenges, including the duplication of cases and the need to screen through irrelevant information. Identifying deaths due to illness rather than injury also remains a key challenge. Increased collaboration with non-governmental organizations and the expansion of media source monitoring to more languages will produce greater coverage of worker fatalities in a greater number of countries in 2015.