

First Blood & Marrow Transplant (BMT) Program in Nepal: a high cost procedure in a low economy country made available in a public hospital

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Program Background: Nepal is a low income country with over 27 million people and a GDP per capita of \$424 in 2014. Only 5–15% of patients diagnosed with severe hematologic disorders in need of BMT can travel abroad where over 85% of patients have no resources and eventually die for their condition. Civil Service Hospital is a public hospital in Kathmandu, where on average 200 patients with hematologic malignancies and 160 with severe aplastic anemia are seen yearly.

Program Design: In 2012 this hospital initiated a collaboration with the Binaytara Foundation (USA) and affiliated at no cost with the University of Illinois at Chicago to develop the first BMT program in Nepal. The plan had 3 phases. The first included: identification of a Nepalese physician interested in hematology and BMT (project leader), space allocation by hospital administration and agreement on a business plan. The second phase, in 2013 and 2014, consisted of: training of a BMT physician, a pathologist and a clinical nurse in Chicago, teleconferences and meetings with staff and hospital administration to review their plans for Hepa filters, flow cytometry lab, cell cryopreservation equipment and quality management for BMT.

Outcome and Evaluation: Civil Service Hospital approved a 2 bed BMT unit and anticipated that the cost of BMT (approx \$5000 compared to approx \$100,000–200,000 in the US) will be largely subsidized for indigent patients. In the summer of 2015 the BMT unit was installed and validated and the first autologous stem cell transplant scheduled in the winter. In order to succeed in this project we identified three indispensable elements: 1) a local project leader dedicated to BMT and commitment from the hospital to allocate resources, 2) an affiliated experienced BMT center volunteering in providing training and education on standard of care/quality management; 3) financial support to cover the expenses for staff training.

Going Forward: Since a high cost procedure such as BMT is highly necessary in Nepal to care for a large patient population with severe blood disorders and limited financial resources, UIC will remain advisor to Civil Service Hospital for monitoring of patient outcome and establishment of data reporting to the International BMT registry and assisting with further improvements.

Funding: The project was partially supported by the Binaytara Foundation and UIC Center for Global Health.

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An innovative approach to rural antenatal care: A report of a mobile clinic network in northern Tanzania

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Introduction/Program Purpose: Antenatal care reduces maternal mortality by screening for and educating patients about high risk obstetric conditions. In Sub-Saharan Africa, where maternal mortality is 14 times greater than in developed countries, the ability to reach antenatal clinics is limited as most of the population lives in rural areas. In the Ngorongoro District of Tanzania, a unique network of mobile outreach clinics addresses this barrier by bringing antenatal care to the local communities, thus eliminating the distance needed to attain proper care.

Structure/Results: The mobile outreach clinic system in the Ngorongoro District was created by Catholic missionaries during the 1980s and continues to provide care through a public-private partnership. A purpose of the clinic system is to provide maternal healthcare to areas where transportation is a significant barrier to healthcare access. The clinic includes 28 village locations, visited monthly. Antenatal services are provided, including: gathering of obstetric history, HIV screening, workup for anemia and hypertension, assessment of fetal wellbeing, providing iron and folic acid supplementation as well as malaria prophylaxis and deworming medication. If necessary, a woman is transported to the district hospital for further care.

From 2008 to 2012, records from 14 clinic sites and 6,099 antenatal visits were analyzed. The average age of patients was 25.4 years (range of 12–45). On average, parity of patients was 3.2 (range 1–12) and average interval between pregnancies was 2.8 years. Of all visits, 22% were <20 weeks gestational age. Women averaged 1.7 visits during their pregnancy and visited the clinics 1.5 times ($p = 0.003$) more frequently in the dry season (July–December) than in the rainy season (January–June).

Conclusion/ Future Directions: Improving maternal morbidity in low resource rural settings remains a challenge. Ngorongoro's outreach clinic network increases accessibility of antenatal care in a rural area. It is possible that other interventions such as obstetric ultrasound could be implemented within this clinic structure. Although this clinic network improves accessibility to antenatal care in Tanzania, more studies are needed to demonstrate a relationship between reductions in maternal morbidity and mortality and this antenatal care intervention.

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Bridging the gender gap in science and technology in Africa: The African Research Academies for Women (ARA-W)

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Program/Project Purpose: While significant strides to increase the number of women in STEM fields have been made in the USA and other nations, many African nations still trail behind. In

Ghana, less than 20% of researchers are women; in Guinea, only 6% of researchers are women. The African Research Academies for Women (ARA-W) is a non-profit organization founded in 2013 to tackle STEM gender disparities found in many African nations. Our mission is to expose young women to research careers and equip them with skills necessary to succeed academically and in the workforce. We aim to accomplish this by organizing career fairs for high school students and sponsoring research fellowships for university and post-baccalaureate students.

Structure/Method/Design: In the spring of 2014, we raised \$8,000 and established relationships with Ghanaian research institutions. In the summer of 2014, ARA-W fully supported 5 Ghanaian fellows as they completed summer internships; the following summer 10 new fellows were funded. Beyond summer research exposure, we pair each fellow with a mentor in a related research field and encourage fellows to serve as ambassadors to young women in their respective hometowns.

Outcome & Evaluation: Our team is composed of dedicated university students across the United States, professionals from around the world, and numerous faculty advisors. Regarding our initiative, 2014 Nobel Laureate May-Britt Moser said “training one may change the lives of hundreds of women at the next stage.” ARA-W attended the Clinton Global Initiative in 2014 and 2015, was invited to the US-Africa Leaders’ Summit at the White House in 2014, and was selected as the African Youth Excellence Organization of the Year.

Moving Forward: We are currently developing a Research Track for the mandatory one-year service after college in Ghana. This track will be available in 2016. We are also establishing partnerships to launch an International Exchange Program in 2017 to provide fellows with a breadth of research experiences. Emory University, the University of Pennsylvania, and John Hopkins University have confirmed their interest in hosting students. After developing the necessary relationships, we hope to expand our program to Nigeria by the summer of 2017.

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O Dia de Dona Maria – Using technology and community based participatory research to improve healthcare delivery in a Brazilian urban slum

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Background: Residents of urban slums are at increased risk for both communicable and non-communicable disease (NCD). As the diabetes prevalence rapidly increases in low-and middle-income countries the burden of communicable and NCD in slums has also increased in parallel. Multimedia from community-based participatory research (CBPR) has been used to overcome barriers to healthcare in vulnerable communities, but is not universally incorporated into epidemiologic research. Here we highlight how CBPR was

used to improve study quality and improve healthcare delivery in a study of diabetes burden in a Brazilian urban slum.

Methods: We conducted a cross-sectional study in an urban slum of Niterói, Brazil to assess diabetes burden and included an adaptive community-participation arm that allowed for stakeholders to identify gaps in care and design solutions. Stakeholders identified nutrition as a major concern, and hosted events with healthy food from local stores, with accompanying recipes and pamphlets. As research progressed, the bidirectional learning process of CBPR identified illiteracy and vision problems as barriers to interacting with or understanding study material, in addition to material from healthcare providers. In response, stakeholders produced a music video recounting a fictional pre-diabetic’s experience as she learns to cook and incorporate healthy habits into her routine. The video was distributed to stakeholders and available on YouTube.

Findings: The average age of the 373 participants was 54.4 years; 67.8% (n = 253) were female. There were 165 (44.2%) diabetics, and 208 non-diabetics. Among the diabetics, 59 (35.8%) reported illiteracy or incomplete primary school (grades 1-4), compared with 52 (25.0%) non-diabetics. Of the 262 beyond this education, 68 (25.9%) reported vision problems. The mean age of those with vision problem was 56.1 years compared to 52.6 years for those without.

Interpretation: The bidirectional nature of CBPR allowed for stakeholders to adapt the study design and materials to the local context. Production of the video resulted in reports by participants of greater satisfaction with their care. Further, health professionals adapted pre-existing protocols to include more spoken and visual material.

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Transforming project effectiveness with a simplified wealth questionnaire paired with an easy-to-use mobile platform

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Program/Project Purpose: Government and donor-supported social programs in developing countries prioritize serving the poor: those most in need, most at risk, or most marginalized. However, most programs never learn how well they have done, let alone being able to assess how they’re doing at the time of service provision. A simple, easy-to-use, easy-to-interpret, tool to survey program beneficiaries to determine their relative wealth is needed.

Structure/Method/Design: Supported by an expert panel, we selected a standard of reliability to compare a short questionnaire against the full Demographic & Health Surveys (DHS) questions that is replicable, of low administrative burden, and highly correlated with original DHS results. We created simplified, country-specific versions of the DHS wealth index questions, reducing