Risk factors for loss to follow-up and treatment abandonment in adult cancer patients at the Butaro Cancer Center of Excellence in Rural Rwanda

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Program/Project Purpose: Higher dropout rates in cancer treatment programs contribute to worse outcomes in low middle-income countries (LMICs). Several factors have been associated: distance to facility, low-income, insurance status, and education of patients or parents. The historical focus is on pediatric cancers, yet there is little data about rates and reasons for treatment abandonment of adult cancer patients in LMICs. Here we quantify rates of treatment abandonment/loss to follow-up and identify risk factors among adult cancer patients evaluated at the Butaro Cancer Center of Excellence in Rwanda.

Methods/Study Design: We conducted a retrospective cohort study of 91 randomly selected adult patients enrolled in the cancer program between July 1, 2012 and June 30, 2015, allocated to receive curative intent therapy. Outcomes of interest were treatment abandonment (failure to start/complete therapy) and loss to follow-up (missing visits post treatment completion) per adaptation from International Society of Pediatric Oncology guidelines. We performed univariate analysis to evaluate for sociodemographic, disease-related, and treatment-related variables among patients classified as treatment abandonment/loss to follow-up vs. not.

Outcome and Evaluation: Of the 91 patients included, 38% met criteria for loss to follow-up (16%) or treatment abandonment (22%). Characteristics associated with lost to follow-up/treatment abandonment were male sex (p=0.02) and absence of caregiver phone number from patient file (p=0.004). Characteristics associated with treatment abandonment alone were surgery (p=0.03) and radiation included in the treatment plan (p=0.02). Notably, radiation is performed outside of Rwanda and surgery is often performed at other Rwandan facilities.

Going Forward: Our rate of loss to follow-up/treatment abandonment proved to be comparable to other facilities in LMICs, however the program has already implemented interventions to overcome this challenge that this study may not capture. Currently, nurses track and call patients that miss visits. As this intervention has been scaled up within the past 6 months, it is likely that the current loss to follow-up/treatment abandonment rate is significantly lower than these results demonstrate.

Modifiable factors uncovered in this study may inform future interventions. Increased documentation of caregiver phone numbers may facilitate patient tracking. Patients planned to receive surgery and/or radiation should be deemed "high risk," receive reinforced education regarding adherence, and be closely tracked.

Abstract #: *1.039_NEP*

The impact of a rotating short-term partnership model on burden of surgical disease in Rural Kenya: one team's three-year experience

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Background: In 2008, Dr. Paul Farmer called surgery "the neglected stepchild of global public health." An annual 260,000 untreated congenital anomalies, 342,900 maternal deaths during childbirth, and greater mortality from trauma than HIV/AIDS, malaria, and tuberculosis combined, all support Dr. Farmer's assertion. We have not yet determined the best approach to global surgery. We present one possible solution: a non-profit (KenyaRelief) partners an existing local hospital (Brase Clinic in Migori, Kenya) with continuously rotating surgical teams. The purpose of this study is to document the impact of a single team during its annual short-term rotation at Brase Clinic over 3 years, and to calculate the expected impact of 25 similar rotating teams over an entire year.

Methods: Each year, KenyaRelief partners 25 teams representing a wide array of surgical specialties and institutions with this rural Kenyan clinic. Employing a mixed methods design, we recorded the number and type of surgical procedures performed and the WHO's Standardized Metrics for Global Surgical Surveillance during each of 3 short-term rotations by the University of Louisville (UL) surgical team from 2013-2015. Using simple extrapolation, we calculated total expected productivity of 25 rotating teams to estimate the yearly impact of KenyaRelief. Data expressed as sums or means.

Findings: The UL team (3 surgeons, 3 anesthesia professionals) performed an average of 36 surgical procedures per rotation with no post-op deaths. Diseases treated included hernias, soft-tissue masses, thyroid masses, omphaloceles, cancers, and fistulas. Assuming 25 rotating teams/year, we estimate an annual impact of 900 total procedures, or a surgical rate of .09%, based on Migori's population.

Interpretation: We document the impact one short-term surgical team provided to the people of Migori, Kenya. More importantly, we estimate that the KenyaRelief model of partnering Brase Clinic with visiting surgical teams provides a substantial reduction of the burden of surgical disease in this resource-poor region. The permanence of Brase Clinic allows for continuity of care for surgical patients even after teams leave. Plans for future research include gathering data from all rotating teams at Brase Clinic over an entire calendar year to more accurately document KenyaRelief's impact.

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Community health workers and prevention of chronic diseases in low- and middle-income countries: a systematic review

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Background: Primary care settings and Community Health Workers (CHWs) have traditionally been used to address communicable diseases in low and middle income countries (LMICs). However, there is a paucity of evidence regarding the effects of childhood overweight/obesity treatment and prevention interventions delivered in primary care settings or by CHWs.

Objective: To conduct a systematic review of the effect of childhood overweight/obesity treatment and prevention interventions delivered in primary care settings or by CHWs on health and behavioral outcomes for children, parents, and caregivers.

Methods: The review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRSMA). Major databases were searched (from inception to October 2015) to identify relevant randomized controlled trials (RCT) and cohort studies. Three reviewers independently assessed titles and abstracts to identify potentially relevant articles. Discrepancies were resolved by repeated review, discussion, and consensus.

Findings: Twenty studies involving over 7000 individuals were included; 16 were conducted in predominantly low-income and minority communities in the United States, and 2 in LMICs. Eleven were RCTs and 9 were cohort studies. Outcome measures included dietary/physical activity behaviors and Body Mass Index (BMI) z-scores, and duration of follow-up ranged from 6 months to 3 years. Pooled results revealed a moderate beneficial effect of interventions on participants' BMI and dietary/physical behaviors. The effect was most apparent in participants whose baseline BMI z-scores were in the normal BMI range (0.01 mean BMI z-score change, $P<0.05$), compared to participants whose baseline BMI z-scores were in the overweight or at-risk for overweight range (-0.09 mean BMI z-score change, $P=0.04$), and mean BMI z-scores decreased from 1.05 at baseline to 0.81 at follow-up ($P<0.001$). There was also a significant reduction in intake of sugary drinks from 33% pre-intervention to 21% post-intervention ($P<0.05$).

Interpretation: Interventions delivered in primary care settings or by CHWs have moderate beneficial effect on children's BMI, and dietary and physical activity behaviors. Interventions of longer duration, and which focus of hard evidence of biomedical indicators of overweight and obesity reduction are needed. Interventions conducted in LMIC contexts are particularly needed to inform policy and practice in these settings.

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Development of a nurse-paramedic model for acute STEMI/SCA care in India

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Background: India has more cardiovascular disease (CVD) than any other country claiming 5 million lives annually. ST segment elevation myocardial infarction (STEMI) and sudden cardiac arrest (SCA) are major contributors to disability and death with over half of patients dying prior to reaching hospitals. It is projected that by 2020, more than half of the world's CVD burden will be in India.

Methods: Development of a pre-hospital system of STEMI/SCA care in Bengaluru, India using nurse-paramedics on scooters followed by nurse-physician ambulance teams mobilized for acute CVD events. STEMI patients are rapidly identified, treated with fibrinolytic agents on the ambulance when indicated, and transferred to comprehensive cardiac centers of excellence or "hub" hospitals for percutaneous coronary intervention (PCI). Standardized data elements will be used for acute CVD care in the pre- and post-hospital setting for acute STEMI/SCA using web-portal data entry and quality metric reporting.

Findings: Five spoke hospitals and 2 hub hospitals within a surrounding population of 400,000 have been identified. The system includes 24/7 first responders on scooters trained to transmit ECGs to designated hub hospitals, ambulance nurse-physician teams trained in emergency care, all equipped with AED defibrillators for SCA. Community education programs identify at-risk individuals to increase use of these heart attack action plans. Data metrics include: time of call by chest pain patients, time to arrival by scooter and ambulance, time from ECG to thrombolytic administration at the spoke hospital, or cardiac catheterization at the hub hospital. Goals are to have chest pain patients call within 30 minutes from symptom onset, ECG diagnosis of STEMI within 15 minutes of initial call, and fibrinolytics or PCI administered within 90 minutes of STEMI diagnosis.

Interpretation: This innovative pre-hospital care system using nurse-paramedic and physician responders, when combined with community risk screening and education, will provide rapid STEMI/SCA identification and treatment. The goals are to increase the capacity of the paramedic response system, develop standard protocols for acute CVD management and improve patient survival. The project provides a scalable model that can be integrated into the current healthcare system and large urban centers throughout India.

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Mapping disparities in access to surgical care: an application of geographic information systems to evaluate surgical infrastructure in Zambia

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Background: Global surgery has recently emerged as a high priority in developing countries, and access to surgical care is a significant limitation to safe and timely surgery in these settings. We hypothesize that timely access to safe surgical care is limited in Zambia. We used a geospatial visualization tool to analyze surgical infrastructure, capacity, and availability of surgical care in Zambia.