Colorectal Cancer Screening in Greenland - An Economic Model

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Background: Colorectal Cancer (CRC) is one of the top three causes of cancer death worldwide. Despite its wide effects, it is an entirely preventable cancer with effective screening measures. One population that is disproportionately affected is Alaska Natives (ANs). Since 2001, Alaska has implemented a successful screening program to increase CRC screening (CRCS) among its AN population. Greenland is a nation with similar environmental, cultural, and demographic characteristics to Alaska, and its population is also at high risk of CRC. An economic model was produced by students from Dartmouth Tuck School of Business to assess the cost of implementing a colonoscopy based CRCS program in Greenland, similar to that of Alaska.

Methods: Five key overall assumptions were used for the economic model, which include the following: the eligible population, acceptance and success of screening, time frame and phasing of screening, four primary cost modules, and methodology for cost simulation. The model assessed the cost under two screened populations: 50-69 year olds or 40-69 year olds. Similarly the model evaluated two screening scenarios: the Nuuk Scenario where all patients travel to the capital of Greenland, Nuuk, for screening, or the Regional Scenario, where patients and health providers travel to five regional hospitals for screening.

Findings: The most inexpensive screening model is screening 50-69 year olds in the Regional Scenario (~400,000,000 DKK/~59 million USD over 11 years). The most expensive screening model is screening 40-69 year olds in the Nuuk Scenario (948,000,000 DKK/~140,000,000 over 11 years).

Interpretation: This model is too expensive for the current national health budget in Greenland. The four scenarios would each require between 4-8% of the entire national health care budget over 11 years of implementation. This is too large a percentage given the already existing barriers to primary health care in Greenland. CRCS remains an important public health consideration in Greenland, particularly for vulnerable subpopulations. Therefore, a more cost effective, though lower sensitivity, CRC screening alternative to colonoscopy may be considered for this unique Arctic population.

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Abstract #: *1.039_HHR*

New Roads and Orthopedic Trauma in Rural Haiti

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Background: Road traffic injuries (RTIs) have been labeled the "hidden epidemic" in low and middle-income countries (LMICs) where road safety, injury prevention programs, and investments in trauma centers have failed to keep up with increasing vehicle ownership and transit infrastructure development. Haiti has recently constructed a major transport corridor, RN#3, linking two of the island's largest cities, Port-au-Prince and Cap Haitien. The goal of this study was to evaluate the rise and response to RTIs by Haitian trauma centers.

Methods: Surgical records were collected from Partners In Health's (PIH) facilities in Haiti's Central Plateau before (time period 1: 2008-2009) and after (time period 2: 2014-2015) the construction of RN#3. Between these two time periods, PIH also built a 300-bed hospital, University Hospital of Mirebalais (UHM), in the same catchment area, and centralized provision of surgical services at this new hospital. Surgical data was collected from the operating room case logs. Fracture incidence was defined as injuries involving a joint or bone, excluding isolated soft tissue injury and repair. This study controls for the impact of increasing surgical capacity by comparing changes in orthopedic volume to changes in obstetric volume between time periods.

Findings: Total surgical volume increased from 1,188 cases in the first time period to 2,134 cases in the second time period. The most dramatic increase was in orthopedics, where the number of fracture reductions increased from 21 to 224 (10-fold increase), while there was only a 3-fold increase in the number of obstetric cases. Between the two time periods, there was an increase in the proportion of operative fracture reductions using internal fixation with hardware versus external fixation, from 7/18 (39%) to 105/156 (67%). UHM also performed a greater volume of elective orthopedic cases in the second time period.

Interpretation: The precipitous rise in orthopedic trauma is more than can be explained by increased access to care alone, and represents new burden of disease from RTIs occurring on newly constructed roads. Transportation infrastructure is critical for economic development, but this study highlights the need for parallel investments in trauma centers, specifically orthopedic centers and orthopedic hardware, as well as proactive measures to prevent these devastating injuries.

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Addressing Mental Health Needs of Remote Staff: Developing Strategies to Provide Ongoing Support for Long-Term Employees Based in Resource-Limited Areas

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Program/Project Purpose: A pediatric HIV-focused non-profit (Pedi-HIV) sent its first cohort of US-trained physicians to provide HIV/AIDS care and treatment in clinics throughout sub-Saharan Africa in 2005. A study conducted by BIPAI five years after program implementation found that 11% of physicians reported feelings of depression during and after their placements. Contributing factors to these feelings have been identified as dealing with large-scale death encountered in resource-limited areas (RLAs), long work hours in countries with a lack of trained, local medical professionals, and adapting to a new culture in both work and social settings.

Structure/Method/Design: The health, safety and well-being of staff should be as important as that of the communities served by health care delivery programs. In response to the study findings, Pedi-HIV sought to improve the pre and in-service trainings provided to physicians serving in global locations. New physicians attend a month-long orientation and training course designed to enhance their ability to provide effective, high-quality care for children and their families in RLAs. In addition to sessions on HIV/AIDS and tropical medicine, the p;hysicians also attend sessions on the practicalities of working in RLAs, coping with grief after death, as well as reflective practice and leadership.

Outcome & Evaluation: Addressing the mental and emotional health needs of long-term staff in RLAs requires a strategic approach which should begin during recruitment and continue through to the termination process. Pre-service sessions are useful preparation for potential challenges, but they are not sufficient to address the ongoing needs of staff. Supplemental strategies identified by BIPAI include: formal in-country orientation with current physicians; site visits by the Pedi-HIV headquarters staff; quarterly GHC performance evaluations and "check-in" calls and exit survey calls.

Going Forward: Development of effective support systems for field-based staff is an important component of human resources planning. Although there is consensus that the emotional and mental health of staff has a tangible impact on program outcomes, there remain very few resources to help employees develop and maintain efficient coping strategies. Pedi-HIV will continue to develop and implement activities to support the mental and emotional well-being of Pedi-HIV staff working in RLAs.

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Quality Assessment of PMTCT Data Documentation among User and Non-User Data Clerks in a Nigerian PMTCT Program

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Background: High-quality routine data is needed to track progress and identify gaps in national PMTCT programs. In many resource-limited settings like Nigeria, the quality of data obtained from health facilities (HFs) has been poor. One of the major challenges is the documentation workload, in addition to non-utilization of data generated at the HF level. During the roll-out of a large PMTCT implementation research study, we piloted a comprehensive Mother-Infant pair (MIP) register at study sites. Data quality of MIP records was assessed by type of data clerk (DC) (User vs Non-User) documenting the data.

Methods: The MIP register was adapted from multiple pre-existing registers used to capture PMTCT data. We piloted the register at 20 rural HFs and retrospectively reviewed records collected over an 18-month period. At 10 of the HFs, the register data was routinely used to provide patient care; at the other 10, the data was only collected for reporting. Data documentation for 20 pre-defined indicators (10 maternal and 10 infant) was assessed for 10 randomly-selected clients at each HF. A score of 1 and 0 were assigned for complete and incomplete documentation, respectively. The level of completeness between the two groups was compared using proportions and t-test at $p=0.05$.

Findings: Of 20 indicators assessed, "Client Name" had the highest level of completeness for both User and Non-User DCs, at 97% and 98% respectively. Level of completeness for most indicators along the PMTCT cascade were all higher for User DCs vs Non-User DCs, respectively: "Maternal ART start date": 81% vs 71%; "Infant feeding option": 72% vs 28%; "Delivery Date:" 84% vs 38%; "Date Infant Nevirapine given": 77% vs 31%. Overall, the mean score was significantly higher for User DCs than Non-User DCs [73.40 (SD±14.94) vs 47.35 (SD ±4.94); $p=0.002$.].

Interpretation: The quality of documented PMTCT data was higher among DCs who routinely used the data. This suggests that registers developed for manual documentation should also be functional with respect to delivery of care. Simplifying PMTCT data collection tools and making them user-friendly for case management is likely to improve the quality of data reported.

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Barriers and Facilitators of Data Quality and Use in Malawi's Health Information System

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Background: The Malawi Ministry of Health's health information system (HIS) documents utilization of the health system, resource availability, and disease burden. Data are reported by MOH facilities to the central level monthly and stored in the HIS for reporting and program planning purposes. However, very few program planners use these data. We used qualitative methods to understand key barriers to use and perceptions of the quality of HIS data.

Methods: We purposively selected specific cadres of health systems actors to solicit their experiences and opinions about collecting and reporting data through the HIS, as well as data quality and use. Specifically, we conducted (4) focus group discussions with clinic-based data clerks and (4) key informant interviews (KII) with district-based HMIS. KIIs were also conducted with (5) national