factors include income and distance to facility; we further consider how quality of local healthcare facilities correlates with women's decisions to have in-facility births.

Methods: We rely on publicly available facility and individual-level data from Demographic and Health Surveys (DHS). Facility data is from the 2013-2014 Service Provision Assessment (SPA) survey, which characterizes Malawi's health service facilities. We use SPA data to construct a metric for facility quality, aggregating availability of various resources relevant to pregnancy outcomes.

The 2010 Standard DHS survey asks women to identify who assisted with delivery: health personnel, another person–friend/relative or traditional birth attendant, other, or no one. Because both datasets are GPS-linked, we can directly measure how quality of nearby healthcare facilities correlates with a mother's decision to have an in-facility birth. Spatial analysis will be conducted using ArcGIS, and our regression will control for other effects.

Findings: Analysis is in progress. However, heterogeneity in facility quality is evident: for example, among 528 facilities offering delivery services, only 13% provide Caesarean delivery; 6% use the dangerous practice of giving newborns full baths. There is also variation in the decision to have an in-facility birth: the 2010 DHS report shows only three-quarters of births (73%) took place in a health facility.

Interpretation: Understanding drivers behind women's decisions to have in-facility births is crucial for improving pregnancy outcomes. Furthermore, this study's spatial analysis allows us to identify hotspots of need: where women are most likely to not seek skilled healthcare personnel during childbirth, and where lesser quality healthcare is prevalent. This will be instrumental for planning policy.

Funding: None.

Abstract #: *1.041_MDG*

The addition of whey permeate to ready-to use supplementary food improves recovery from moderate acute malnutrition

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Background: Moderate acute malnutrition (MAM) is highly prevalent worldwide and affected children may suffer from lasting consequences including growth stunting and cognitive impairment. Ready-to-use supplementary food products have been developed to treat MAM in children, however the optimal nutrient composition is still debated. Prior studies suggest that dairy protein, in comparison to plant-based protein, increases lean body mass, accelerates linear growth, and improves recovery from malnutrition. We hypothesize that the use of whey protein in supplementary food for malnourished children will be beneficial and lead to improved outcomes.

Methods: We conducted a prospective, double-blinded randomized controlled clinical trial to compare a whey-based versus soy-based ready-to-use supplemental food (RUSF) product. Children aged 6-59 months with MAM, defined by mid-upper-arm circumference (MUAC) of 11.5-12.4 cm were enrolled at a total of 18 sites in southern Malawi from February 2013 to November 2014. Once enrolled, children were randomized to receive soy RUSF versus whey RUSF. Caregivers were given supplies of RUSF to feed to their children at a dose of 75 kcal/kg/day. Children returned for follow up visits every two weeks and were monitored for clinical improvement by MUAC, height, and weight. Primary outcome was recovery from MAM by reaching a MUAC of 12.5 cm within 12 weeks of initiating therapy. Secondary outcomes included change in MUAC, weight, and length as well as time to recovery and adverse events.

Findings: A total of 2259 children were enrolled in the study. Baseline characteristics were similar between the two groups. The percentage of children who successfully recovered from MAM was higher in the whey RUSF group at 83.9% vs. 80.5% ($p < 0.04$;RR=1.043,95% CI: 1.003,1.084). The average MUAC at time of recovery was also greater in the whey RUSF group as compared to the soy RUSF group ($p < 0.009$). Children randomized to the whey RUSF group had higher average daily MUAC gain ($p < 0.003$). No significant adverse events were identified.

Interpretation: In this randomized, prospective, clinical trial, we demonstrate that RUSF formulated from whey permeate improves nutritional recovery and anthropometry in the treatment of MAM in children in sub-Saharan Africa.

Funding: Scandinavian Dairy Association.

Abstract #: *1.042_MDG*

Implementing targeted interdisciplinary solutions to health barriers through experiential learning projects: the Northwestern access to health project in Mali

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Program/Project Purpose: The Northwestern Access to Health Project (ATH) is an interdisciplinary global community health project that brings together law, public health, and business faculty and graduate students with communities, local health advocates, and human rights organizations. ATH aims to balance cross-disciplinary academic learning environments with realistic, sustainable interventions, utilizing diverse perspectives to reduce challenges associated with mono-dimensional, non-consultative interventions. Multidimensional approaches generate targeted and adaptable projects as solutions to health barriers.

In 2013, ATH began working with communities and advocates in the Mopti region of Mali to create innovative, low-resource interventions to reduce female genital cutting (FGC). With an 89% prevalence rate, FGC—"partial or total removal of the external female genitalia"—contributes to high maternal mortality, infection, girl child death, and disability. ATH develops creative, multi-sectoral interventions to address the complex interaction between the tradition of FGC and the realization of SDG 3—Good Health.

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Structure/Method/Design: Utilizing the Global Community Health Collaborative model, ATH builds partnerships, seeks opportunities to address community-identified needs, and utilizes diverse professional and strategic approaches to implement projects founded on ideals without illusions. ATH identifies local community strengths and assets, and pairs them with the resources of a large university. This generates targeted, adaptable outcomes based on evidence and best practices. In Mali—with input and contribution from graduate students and faculty—a community advisory board participated in selecting projects that a local organization implements and community-based advocates monitor. Mali interventions have increased access to health education across illiterate and poor areas while reducing access to FGC.

Outcome & Evaluation: ATH and partners developed a health education album in the local language, wrote/produced performances on health harms of FGC, and assist traditional cutters to abandon FGC through substitute livelihoods. M&E includes community surveys and regular evaluation of community and FGC practitioner engagement. A March 2016 forum in Bamako for anti-FGC advocates will inform future progress.

Going Forward: Challenges include identifying strong community and organizational partners and resource scarcity when poor and insecure communities invest in long-term projects. Future programs build on feedback from partnerships and multi-prong, multi-sector solution-based interventions.

Funding: Title VI Grant, U.S. Department of Education; Near East Foundation; Northwestern University.

Abstract #: *1.043_MDG*

Small investment, big returns: examining the effects of having a 'Yellow Card' on immunization and growth monitoring of young children in Lao PDR

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Background: Infectious diseases and malnutrition continue to pose significant threats to healthy growth and development of children in Lao PDR, and with only 6.1% of the country's total government expenditures spent on health, it remains especially important for organizations to implement effective and evidence-based programs that maximize 'bang for their buck ' against these health risks. The aim of the current investigation is to characterize the relative importance of various predictors on rates of immunization coverage and growth monitoring in Lao children.

Methods: In collaboration with the Swiss Red Cross, we conducted a survey of over 400 households living in rural districts of the Luang Prabang province. Families were enrolled via door-to-door recruitment. In addition to demographic information, we collected data on over 100 health-related indicators across multiple domains, including mothers' knowledge about health prevention and treatment, incidence of contact with healthcare facilities or professionals, as well as current and historical measures of children's health and nutrition. In addition, families reported whether they owned a medical record-keeping booklet often referred to as a 'yellow card.' Hierarchical regression models were used to analyze the effects of these factors on outcome measures of children's total immunization coverage and growth monitoring.

Findings: After excluding 15 families for missing or erroneous birthdate information, the final sample consists of 405 children ranging from 6 to 34-months-old (M = 1.46 months; SD = .31). Regression models indicated that immunization and growth monitoring were significantly predicted by distance to nearest health center or hospital, mothers' contact with health facilities and health professionals (both antenatal and during childbirth), and ethnic group membership. Interestingly, the strongest individual predictor was related to whether the family was in possession of a 'yellow card,' explaining an additional 5.4% and 1.6% of the variability in immunization coverage and growth monitoring outcomes, respectively, above and beyond predictions of reduced models.

Interpretation: Results suggest that distribution and families' retention of 'yellow cards' represent relatively inexpensive, yet effective means of reducing the threats of infectious diseases and malnutrition in children of Lao PDR.

Funding: Friends Without a Border & Swiss Red Cross.

Abstract #: *1.044_MDG*

Delayed initiation and non-exclusive breastfeeding needs attention in Tribal Gujarat, India

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Background: Economic and social changes may adversely influence local cultures and feeding practices in tribal/ingenious populations. Poor feeding practices in early life, could lead to poor developmental outcomes. We assessed newborn feeding practices and its impact on exclusive breastfeeding in tribal populations.

Methods: We surveyed 1113 mothers across 3 tribal regions —Limkheda, Dahod, and Jhalod— of Dahod district, Gujarat. Data was collected in 35 randomly selected villages. Participants were asked about newborn feeding practices during the first 3 days of life and 24-hour dietary recall. Descriptive statistics and chi-square were used to analyze data.

Findings: Initiation of breastfeeding started in half 531(47.75%) of the newborns within 1 hour of birth. Of these newborns, 454(85.82%) also received colostrum. Cases where early initiation was absent, in 89(8%) and 493(44.3%) breastfeeding was initiated within 1 day and beyond 1 day, respectively. Among 380(66%) the reason for delay beyond 1 hour was attributed to the common belief that lactation begins 2 days after delivery. 744(67.15%) newborns received liquids other than breast milk, most commonly 613(82.4%) goat milk, at some point within the first 3 days of life. Mothers who could read properly (55% vs 44.5%, p=0.001)