

theatre capacity and patient flow to better identify areas of improvement and impact intervention to improve infection rates for open fractures through academic partnerships.

**Structure/Method/Design:** The process mapping techniques used followed the framework and principles outlined in *Workflow Modeling: Tools for Process Improvement and Application Development* (2nd ed.) by Alec Sharp and Patrick McDermott. The steps include defining the scope of the operating theatre, identifying key personnel, and conducting interviews over a 3-week period to develop a process map. The process map was validated by shadowing all key personnel and operating theatre daily workflow and presented to key stakeholders.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** This is a partnership between KATH leadership and IGOT.

**Summary/Conclusion:** A map of the theatre was produced starting with the “decision to operate” and ending with the patient being transported to the wards after surgery. This map identified in a visual way the complexity of workflow necessary to get a patient in and thru the operating theatre. Key areas for streamlining and improving communication were outlined and presented to key stakeholders. The framework used for recommendations suggested seven opportunities that are possible without any additional funds, personnel, or resources.

The process map and methodology used is dynamic and if embraced can serve as a practical and simple tool to advocate and facilitate change in the system. Those involved in the process, at any level, can refer to the process map for clarification of workflow, contribute to feedback on improvement and solutions for limitations, as well as identify data collection points. This same approach can be used to advocate for why a solution should be supported using cost-effectiveness comparison and outcome measures. By systematically approaching improvements and documenting progress you ensure sustainability in the system. Process mapping can be a valuable tool to apply in a resource-constrained setting to ensure appropriate and sustainable interventions.

### Building community trust through quality assurance of malaria diagnosis and management at a rural clinic in Uganda

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**Background:** At a rural primary care clinic in Uganda, a patient survey indicated that the community members feel it provides a high, trustworthy quality of care. However, no quality assurance studies have been conducted to characterize the quality of care provided. Malaria remains a leading cause of morbidity and mortality in Uganda. Widespread efforts have been made by the public sector to build capacity in diagnosis and treatment of the disease. This study aims to evaluate the quality of care provided by the clinic by examining malaria diagnosis and treatment patterns and assessing the degree of adherence by the clinic staff to national malaria treatment guidelines.

**Structure/Method/Design:** A retrospective chart review of patients seen at a rural clinic in Uganda in a 12-month period from June 2012 to June 2013 was conducted to determine the rates of appropriate diagnosis and treatment of malaria. Deidentified data on demographics, presenting

symptoms, given diagnoses, medications, blood smear results, and notes on management decisions were recorded in a database. After excluding charts with missing data points, a final sample of 1001 patients was analyzed using SAS and Microsoft Excel.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Of the total 390 positive blood smears, only 3 (0.8%) were not started on malaria treatment. Of patients documented to have a negative smear (572 or 57.1%), 83 (14.5%) were started on empiric malaria treatment. Of the 21 patients started on second-line quinine-based treatment, 11 (52.4%) had a documented and appropriate indication. Five patients that were documented to have a diagnosis of malaria and a presenting symptom of seizures, qualifying them as severely ill, were not started on parenteral treatment or referred for higher-level care. Of all patients documented to have a positive smear, in addition to appropriate malaria treatment, 7 (1.8%) were concurrently started on an antibiotic (i.e., doxycycline), documented as malaria treatment.

**Summary/Conclusion:** Overall, clinic staff demonstrate a high index of suspicion for malaria infection. Nearly all patients with positive diagnostic tests were appropriately started on treatment and a small number were started on empiric treatment despite a negative test. Further training is needed in identifying and documenting cases of severe malarial illness and the appropriate management sequence. This may significantly impact mortality and morbidity. Additionally, second-line treatment is being overprescribed, and some inappropriate antibiotic regimens are being prescribed to supplement malaria treatments that are not only ineffective but may contribute to antimicrobial resistance and unnecessary medication side effects.

### Development and implementation of a sustainable monitoring and evaluation protocol for a malnutrition rehabilitation program in Lima, Peru

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**Background:** In Peru, UNICEF estimates the prevalence of malnutrition in children less than 5 years old at 18% in urban areas, and up to 33% in rural regions of the country. In 2009, researchers from Peru’s Universidad Peruana Cayetano Heredia established El Comedor as a malnutrition-rehabilitation program in the impoverished neighborhood of Ermañito Alto in Lima, Peru to combat multiple risk factors for childhood malnutrition. This program provides direct nutritional support to at-risk children and nutritional education programs to their caregivers. Since its inception, El Comedor has lacked a sustainable monitoring and evaluation protocol. This project describes an approach to the development and implementation of such a protocol in a resource-limited setting.

**Structure/Method/Design:** To inform the development of a monitoring and evaluation (M&E) protocol, a thorough literature review was performed to identify successful, low-cost strategies to quantify a program’s impact. This resulted in the design of a tripartite approach, including the collection of anthropometric data, the creation of a user-friendly, comprehensive database for extensive data collection, and the development of a novel knowledge, attitudes, and practices caregiver schedule. The implementation of the protocol was carried out via individual home visits by a research team composed of local community health workers and UTMB students. These teams collected anthropometric measurements on children who previously participated in El Comedor and administered the schedule to the children’s caregivers. The anthropometric values measured will be assessed in conjunction with the children’s baseline data recorded

during their enrollment in El Comedor and compared to the WHO international growth standards.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Dr. Theresa Ochoa, Universidad Peruana Cayetano Heredia

**Summary/Conclusion:** The teams performed 78 home visits where they administered 78 caregiver schedules and anthropometric data on 102 children. The initial implementation of the caregiver schedule functioned as a cross-sectional survey to identify a number of cultural beliefs, nutritional understanding, and sociodemographic information. Data analysis to identify statistically significant differences between the children's baseline and current nutritional status are being performed. Any progress made toward narrowing the growth gap between our population and the WHO growth standards is also being investigated. The data is currently being stratified according to various sociodemographic and nutritional understanding levels, based on the caregiver schedule, to better identify at-risk subpopulations. Final results will be reported pending complete data analysis.

### Use of aggregated Lot Quality Assurance Sampling methods in Uganda to provide implementation-relevant evaluation data

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**Background:** Data collection for monitoring and evaluation of international development projects can be difficult, costly, and time consuming. SPRING adapted Lot Quality Assurance Sampling (LQAS) methodology to provide up-to-date monitoring information along with district-level information for project reporting and targeting. This "aggregated LQAS" methodology allows for accurate reporting at both levels to meet both monitoring and evaluation needs.

**Structure/Method/Design:** Through partnership with the USAID-funded STAR-EC project, SPRING collected data on household characteristics, health indicators, and nutrition practices across six districts in East Central and Southwest Uganda. The survey was based on existing STAR-EC household questionnaires with nutrition-related questions drawn from the World Health Organization's Indicators for Assessing Infant and Young Child Feeding Practices (2008). Nineteen respondent households were chosen from each Supervision Area (SA). The mutually exclusive SAs were comprised of subcounties or groups of contiguous subcounties in each district. Data collection was conducted in local languages by trained data collectors and supervised by SPRING staff, STAR-EC staff, and consultants.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** At the SA level, LQAS results categorized areas as performing above, at, or below district indicator averages. SPRING staff analyzed results in the context of known indicators for each SA, including the presence of health facilities and other nutrition-supporting institutions, and used the results to tailor program implementation.

Supervision area results were aggregated to give percentage point estimates of district performance for each indicator. These estimates were also combined to provide estimates by geographic region or for SPRING (intervention) and non-SPRING (control) districts. Because

this survey constituted a baseline for SPRING's work in Uganda, it was not surprising that many key indicators showed little variation by implementation status. Nor were there notable differences between geographic regions, with the exception of higher rates of exclusive breastfeeding for children under 6 months in the Southwest and slightly higher rates of health center deliveries and fortified food consumption in East Central.

**Summary/Conclusion:** The aggregated LQAS methodology provides programs with a method for collecting evaluation data across large areas that is also relevant for monitoring and improving local implementation of programs. While still a resource-intensive endeavor that requires program support for implementation and analysis, this option is less costly than conducting surveys to provide point estimates at the local level. This option is also more useful for program monitoring and implementation than surveys that do not allow disaggregation of results to programming-relevant levels.

### Sustaining vision: Tracking and monitoring both visual acuity and access to follow-up ophthalmologic care at the WWO/AHF family health clinic in Addis Ababa, Ethiopia

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**Background:** Background: The prevalence of low vision and blindness in Ethiopia are 3.7% and 1.6%, respectively. Major causes of vision loss and/or blindness include refractive error, cataract, glaucoma, trachomatous corneal opacity, cytomegalovirus (CMV) retinitis, uveitis, ophthalmic herpes zoster, etc. While the majority of these conditions are readily treatable, prevalence and resulting sequelae remain high in Ethiopia, especially among people with HIV/AIDS. This is possibly due to fragmentation of care, which is pronounced for ocular manifestations of the disease. The Worldwide Orphans/AIDS Healthcare Foundation (WWO/AHF) Family Health Clinic aims to provide comprehensive and continuous care to orphans, vulnerable children, and adult family members with HIV/AIDS in Addis Ababa.

**Objective:** The aim of this quality improvement project was to set up a system at the WWO/AHF Family Health Clinic for sustainably screening the vision and tracking the treatment of all the patients at the clinic to ensure that they receive prompt, appropriate ophthalmologic care.

**Structure/Method/Design:** Methods: 106 patients at the clinic were interviewed and screened; staff members were interviewed and qualitatively observed. A form was developed to track patients through annual vision screenings. Additionally, the form follows patients through the referral, diagnosis, and treatment process required to ensure effective follow-up care.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** World Wide Orphans Foundation and Mount Sinai Global Health Center

**Summary/Conclusion:** Results: The form was successfully piloted. The nurses at the clinic screened the vision and coordinated the follow-up care for over 150 patients over the following 2 weeks.

**Conclusions:** This quality improvement project underscores the importance of an informed clinic staff as well as quality record keeping. While the path to ophthalmologic care in Ethiopia is fragmented, successful access is mediated by the series of interactions between the patients and their caregivers. The ability of the caregivers to be informed and communicate clearly with their patients as well as track their patients longitudinally is essential to effective delivery of care.