health program managers and (5) national monitoring and evaluation staff. We organized and interpreted the data using "framework analysis" methods. Preliminary results are shared below.

Findings: Data quality concepts described by health systems actors include completeness, timeliness, representativeness, and correctness with an emphasis on data reflecting the disease burden within facilities and their districts. According to respondents, good data quality is linked with feedback, partner support, and collaboration of program coordinators and HIS staff at district-level. Additionally, respondents highlighted that innovations, including tools for data aggregation and activities around data use, played a key role in improving quality. Identified barriers to good data quality included resource constraints, training/knowledge gaps, problems with tools for collection, and other systems issues. Data use was reported to be driven by availability of data and responsiveness to stakeholders' needs. Respondents indicated that data use leads to improvements in data quality, but use is low when the HIS is perceived to provide poor quality data.

Interpretation: Our study points to important structural barriers to use of data in Malawi. Innovative activities that can improve data quality are already being tried in some locations and could be shared more widely in Malawi. Common barriers to data quality may be partially addressed through targeted support, including training and material resources, and stakeholder collaboration.

Source of Funding: This study was funded by Global Affairs, Canada through the National Evaluation Platform project at Johns Hopkins Bloomberg School of Public Health.

Abstract #: *1.044_HHR*

Evaluating the Process and Impact of Global Health Education in a Social Accountability Perspective

V. Foley[1], *C. Valois*[2], *P. Grand'Maison*[3]; [1]*University of Sherbrooke, Sherbrooke, Quebec, Canada,* [2]*Université de Sherbrooke, Sherbrooke, Québec, Canada,* [3]*University of Sherbrooke, Sherbrooke, Canada*

Program/Project Purpose: Global Health (GH) Education initiatives are numerous and diverse. They include initiatives for students in multiple health professions who may be at different levels of their educational pathway. They all aim to consider GH competencies in their professional disciplinary development. Competencies include a wide array of knowledge, skills and attitudes focussing on how to optimally work with vulnerable, marginalized and underserved populations, with an emphasis on equity, social justice and consideration of social determinants of health, more particularly cultural diversity. The challenge faced by program leaders is to adequately evaluate the process and impact of programs of the inclusion of GH perspective on students' competencies, change of attitudes and ultimately on their future career pathway.

Structure/Method/Design: Since 2012, the *Université de Sherbrooke* Faculty of Medicine and Health Sciences has progressively implemented a comprehensive process to integrate GH competencies in its programs in Medicine, Nursing Sciences, Occupational Therapy and Physical Therapy. An evaluation framework was designed by a collaborative team of GH experts, education and evaluation specialists and students.

Outcome & Evaluation: The evaluation framework is built on the value of social accountability. It includes an ongoing monitoring process. This framework targets students' development of GH competencies; follows programs' changes and adaptation; aims to look at the influence GH education on students' attitudes and interest to practice with vulnerable communities or patients in the future.

Going Forward: The framework will be progressively implemented in future years with a scholarly approach. Major challenges will be: to adopt or develop relevant tools to reach our evaluation goals; to use the framework strategically to prioritise actions; to reinvest the evaluation results in order to improve programs and GH competencies development; to follow graduates into their practice. The development of GH education and its process and impact evaluation will contribute to the social accountability mandate of our medical school.

Source of Funding: None.

Abstract #: *1.045_HHR*

A WHO Surgical Safety Checklist-based Infection Prevention Program in Ethiopia: Using Process Mapping to Identify Barriers for Implementation

J.A. Forrester[1], *L. Koritsanszky*[2], *N. Garland*[1], *L. Hirschhorn*[3], *S. Alemu*[4], *F. Jiru*[4], *T. Weiser*[1]; [1]*Stanford University, Palo Alto, USA,* [2]*Lifebox Foundation, Boston, USA,* [3]*Ariadne Labs, Boston, USA,* [4]*Jimma University Specialized Hospital, Jimma, Ethiopia*

Background: The WHO Surgical Safety Checklist (SSCL) is proven to reduce post-operative morbidity and mortality, though it can be difficult to implement, particularly in low resource settings. Since surgical site infections (SSIs) account for substantial postoperative morbidity and mortality, we developed CLEAN CUT - Checklist Expansion for Antisepsis and Infection Control: Customization, Use, and Training - with two goals: (1) increase adherence to evidence-based perioperative infection prevention measures and (2) decrease post-operative infectious complications. We used process mapping of infection prevention measures to elucidate barriers to implementation.

Methods: This mixed methods health services research project involves implementation and evaluation of CLEAN CUT at Jimma University Specialized Hospital (JUSH), a 432 bed tertiary hospital in Ethiopia. The Consolidated Framework for Implementation Research (CFIR) and the Interactive Systems Framework (ISF) for Dissemination and Implementation were used to develop a tailored intervention strategy of checklist introduction, baseline data collection, and interrupted time-series analysis for data processing and feedback. The checklist was introduced to clinical staff through two-half day sessions in the operating theater (OT). Data was collected in all OTs: main (3), obstetric (2) and pediatric (1). Infection prevention standards were: (i) hand & patient skin decontamination, (ii) tracking of surgical gauze, (iii) timing of prophylactic antibiotics, (iv) instrument sterility, (v) integrity of gowns and drapes, and (vi) checklist compliance. Data sources included direct observation, patient chart review follow-up (infections, reoperations, length of stay, and mortality), qualitative interviews, and process mapping of all measures.

Annals of Global Health, VOL. 83, NO. 1, 2017
January–February 2017: 18–58

Findings: Process mapping identified barriers of the inner setting (frequent nursing turnover, ineffective communication between OT staff and administration, inconsistency in standards for both autoclave use and scrubbing practices, and unclarified responsibility for antibiotic administration); outer setting (increasing social unrest); and resources (lack of running water and adequate skin prep in obstetrics, lack of distilled water for autoclave use, and lack of sterilization certification methods).

Interpretation: Many perioperative infection prevention norms are complex and challenging to measure; in particular, sterile processing, skin decontamination, and antibiotic administration. Process mapping identified resource constraints and communication factors associated with inefficient processes. Implementation science, especially process mapping of complex perioperative processes, is a valuable tool for surgical safety quality improvement.

Source of Funding: GE Foundation.

Abstract #: *1.046_HHR*

Traditional Music as a Sustainable Social Technology for Community Health Promotion in Africa: "Singing and Dancing for Health" in Rural Northern Ghana

M. Frishkopf[1], *D. Zakus*[2], *S. Abu*[3], *H. Hamze*[4], *M. Alhassan*[5], *I.A. Zukpeni*[5]; [1]*University of Alberta, Edmonton, Alberta, Canada,* [2]*Ryerson, Toronto, Canada,* [3]*Tamale Youth Home Cultural Group, Tamale, Ghana,* [4]*University of Alberta, Vancouver, Canada,* [5]*Grooming Dot Org, Tamale, Ghana*

Program/Project Purpose: This project and accompanying implementation research aim to promote rural health in northern Ghana–specifically, to reduce incidence of malaria and sanitation-related illnesses, using local expressive arts both in professional performances and subsequently sustainably embedded in rural communities.

Structure/Method/Design: The project was designed in five phases and carried out by a collaborative team based in Ghana and Canada, using a participatory action research methodology. Phase 1 entailed formation of the team, and production of musical dance-dramas, deploying traditional music and dance resources within dramatic narratives highlighting key health issues, and underscoring proper and improper attitudes and behaviours. In Phase 2 we administered KAP surveys in three rural communities to gauge attitudes and practices regarding malaria and sanitation. In Phase 3 we held professional dance drama performances in the same communities. In Phase 4 we repeated surveys to evaluate impact. Finally, in Phase 5 we established, equipped and trained amateur performance groups in the rural communities themselves, to promote public health messaging through performances on special traditional, civic and school occasions. Our hypothesis was that these groups would be more sustainable and effective since they are embedded in their communities, and that their health messaging repertoires would enter into local oral tradition.

Outcome & Evaluation: Assessments (Phases 2 & 4) demonstrated the positive impact of professional performances in fostering positive health behaviours and also preparing communities to enthusiastically support the new amateur performance groups of Phase 5. While the high cost of professional performers in Phase 3 was unsustainable, amateur rural performance groups have continued to thrive over the past year and a half.

Going Forward: Further longitudinal research over the coming years will be required in order to determine the sustainability of the engaged community approach, including the longevity of amateur performance groups, their impact, and their ability to sustain themselves and their health repertoire messaging through oral transmission. Such research will also clarify the extent to which outside support is still required, and the best means of establishing such groups. Meanwhile we seek resources to replicate this model in other villages.

Source of Funding: Killam Foundation, University of Alberta (Faculty of Arts, and Faculty of Medicine and Dentistry), and Canadian International Development Agency (now Global Affairs Canada).

Abstract #: *1.047_HHR*

Knowledge and Skill Retention of a Novel Lay-Provider Trauma Training Curriculum in Rural Peru: A Longitudinal Study

M.J. Fuller[1], *M. Stewart*[2], *K. Baker*[3]; [1]*University of Utah, Salt Lake City, Utah, USA,* [2]*University of Utah, Salt Lake City, USA,* [3]*Sacred Valley Health, Roanoke, USA*

Background: The World Health Organization (WHO) recognizes that up to 50 million individuals suffer non-fatal injuries annually due to road traffic accidents and predicts that by 2030 road traffic injuries will be the eighth leading cause of death worldwide. While the burden of road traffic injuries is decreasing in high-income countries (HIC), low- and middle-income countries (LMIC) are disproportionately affected with 90% of road traffic deaths worldwide and only 20% of the world's vehicles. The majority of these deaths occur pre-hospital, however many LMIC frequently lack formal pre-hospital systems or Emergency Medical Services (EMS). Our current ongoing initiative in the Sacred Valley found that over 70% of trauma patients utilize non-EMS methods to arrive at receiving hospitals in Cusco, Peru. Subsequently, a novel lay-provider first-responder training course was developed and implemented in rural communities surrounding Cusco, Peru. The current project established a longitudinal study to evaluate course efficacy.

Methods: A novel pre-hospital trauma course was developed from local trauma trends and current WHO guidelines. The course utilized an illustrative flipbook and focused skill sessions intended for lay-providers with limited formal education. By partnering with Sacred Valley Health, a local non-governmental organization, five course participants provided longitudinal data regarding knowledge and skill retention. A standardized 14 point test was administered pre-course, post-course, and at 3, 6, 9, and 12-month intervals. Individual and mean test scores were used for comparison.

Findings: The test scores significantly increased pre-course and post-course administration, with respective mean scores of 7 and 11. Additionally, course participants demonstrated knowledge and skill retention at 3 months after course completion, with a mean