

**Background:** Since seminal evaluation experiences starting with the Multi-Country Evaluation of the IMCI and the Five-Year Evaluation of the Global Fund, and through recent GAVI, PEPFAR, PMI, and AmFAR evaluations, the challenges in using classic evaluation approaches like impact evaluation and even “mixed methods” when evaluating global health initiatives with any degree of complexity have shown themselves to be difficult to address.

In response, several methodological approaches have been proposed as “answers” and complements to more classic approaches to global health program evaluation: implementation science, contribution analysis, causal chain analysis, case study. Regardless of their disciplinary roots, most of these are concerned with addressing context and program implementation variation. All are striving to demonstrate and improve the rigor of the range of methods that are used to evaluate under messy conditions. These are the studies that will build the evidence base on what works, why, and under what conditions, supporting the progress in global health that needs to be made post-2015. There is a critical role for interdisciplinary, academic contributions to this important work.

**Structure/Method/Design:** This presentation will systematically assess critical points for university contribution to global health program evaluation activities, referencing current methodological challenges and proposed methodological approaches to evaluating under complex, real-world conditions. The critical role of partnerships between implementers and universities will be highlighted, using examples featured in a recent Institute of Medicine workshop on evaluation methods, and from the presenter’s own experiences.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Essential areas for university contribution are highlighted, including: for design, analysis, and publication; for methodological leadership within a study; and for leading a broader change in the paradigm of what is considered “good” evaluation.

**Summary/Conclusion:** These will be presented as means to strengthen the quality of future global health evaluations, and as a key area of academic scholarship in global health that is very often overlooked.

### Lessons learned from a community-engaged emergency referral systems-strengthening initiative in a remote, impoverished setting of northern Ghana

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**Background:** Approximately 800 women die from pregnancy- or childbirth-related complications around the world every day. Most direct causes of maternal and perinatal deaths could be prevented if women received timely care during medical emergencies. However, poor road conditions, scarcity of vehicles, and limited means of communication continue to be major barriers to reaching urgently needed care in resource-poor settings. While Ghana has a well-organized, decentralized health system, the country does not have clear policies or guidelines for developing or providing emergency referral services. In March 2012, an emergency referral scheme was piloted by the Ghana Health Service (GHS) in collaboration with community stakeholders and health workers in one subdistrict of the Upper East Region—the poorest, most remote region of the country. Based on lessons learned from the pilot, the project was scaled up to 12 sub-districts. The scale-up project, known as the Sustainable Emergency

Referral Care (SERC) initiative aims to test the hypothesis that context-specific, community- and subdistrict-level interventions designed to strengthen emergency referral systems will improve access to care in rural, impoverished communities in Ghana.

**Structure/Method/Design:** A fleet of 24 Motorbikes was procured by the GHS to serve as ambulances at the subdistrict and community levels in three districts. Modifications were made to the vehicles to ensure patient safety and comfort. Vehicles were strategically placed at subdistrict health centers and community health facilities to ensure that all communities in intervention areas have access to a vehicle dedicated specifically to emergency transport. Communication between communities and health workers is facilitated through the implementation of a communications system for emergency referral and distribution of mobile phones to health workers and volunteers. A key set of health and process indicators are being analyzed on a quarterly basis.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** SERC is funded by grants from the British charity “Comic Relief” to the GHS. SERC is a component of a collaborative initiative of the GHS and the Columbia University Mailman School of Public Health known as the Ghana Essential Health Intervention Programme.

**Summary/Conclusion:** An initial process evaluation of SERC indicated challenges related to inconsistent documentation practices; varying levels of driver and staff motivation; and issues with protocol adherence. Refresher trainings along with enhanced community engagement and supervision have been initiated to address these challenges. Overall, the SERC initiative has been well received by communities and has been successful in reducing delays in reaching care and increasing access to emergency referral services.

### Using an electronic medical record system to identify factors associated with attrition from the HIV antiretroviral therapy program at two hospitals in Haiti

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**Background:** Patient retention is important for the success of Haiti’s national antiretroviral therapy (ART) program.

**Structure/Method/Design:** This retrospective cohort study examined ART attrition among adult patients enrolled on ART from 2005 to 2011 in two large public-sector departmental hospitals, using the iSanté electronic data system. The study characterized ART attrition levels and explored the patient demographic, clinical, temporal, and service utilization factors associated with ART attrition. The study used time-to-event analysis methods.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Among the 2,023 patients in the study, ART attrition on average was 17.0 per 100 person years (95% CI, 15.8–18.3). In adjusted analyses, risk for ART attrition was up to 89% higher for patients living in distant communes compared to patients

living in the same commune as the hospital (HR, 1.89, 95% CI, 1.54-2.33;  $P < 0.001$ ). Hospital site, earlier year of ART start, spending less time enrolled in HIV care prior to ART initiation, receiving a nonstandard ART regimen, lacking counseling prior to ART initiation, and higher body mass index were also associated with attrition risk.

**Summary/Conclusion:** The findings suggest quality improvement interventions at the two hospitals, including enhanced retention support and transportation subsidies for patients accessing care from remote areas; counseling for all patients prior to ART initiation; timely outreach to patients who miss ART pick-ups; “bridging services” for patients transferring care to alternative facilities; routine screening for anticipated interruptions in future ART pick-ups; and medical case review for patients placed on nonstandard ART regimens.

Using data from the iSanté electronic data system to analyze ART attrition provided valuable insights on potential areas for quality improvement at the two hospitals studied. The findings are also relevant for policymaking on decentralization of ART services in Haiti.

### Building integrated clinical and operational capacity to reduce maternal and neonatal mortality at Ridge Regional Hospital at Accra, Ghana

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**Background:** We describe a 5-year effort to transform Ridge Regional Hospital’s obstetric department into a Center of Excellence that enables it to serve as a resource for other hospitals in the region. The initiative’s key strategy to ensure long-term technical competency in Ghana is to institute and disseminate advanced obstetrics and newborn care practices at selected regional and other hospitals in several regions in Ghana.

**Structure/Method/Design:** Our approach consists of a blend of clinical capacity-building activities and organizational change management and leadership activities needed to sustain best practices. We present results from the first phase of an interdisciplinary quality improvement program building leadership, clinical and operational capacity at a flagship referral hospital in Accra with over 11,000 annual births.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** Over 5 years, a series of 97 clinical and operational improvements resulted in a decrease of 23% and 52% in maternal mortality and institutional stillbirths respectively, and an estimated 224 maternal deaths were averted. One resource improvement activity focused on renovating and equipping a maternity operating theater and resulted in a 25% decrease in wait time for emergency cesarean delivery, reduced admissions to the neonatal intensive care unit (13% vs. 20%), and increased neonatal discharge within 7 days (61% vs. 22%).

**Summary/Conclusion:** Interventions that are needed at various levels of a health system to prevent maternal and neonatal mortality are well known and have been documented as part of the WHO IMPAC guidelines. However, interventions alone will not result in high-quality sustainable outcomes unless they are accompanied by a systematic implementation methodology that is sensitive to the local context. This paper demonstrates a practical application of how implementation science can be used to address not only clinical barriers but also operational and organizational barriers to change.

### Where do we start? A baseline assessment for establishing health promoting schools in rural China

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**Background:** Health promoting schools (HPS) are a health prevention model recommended by the WHO to improve children’s health through classroom teaching, environmental improvement, extracurricular activities, and family workshops. Pilot studies in China have been efficacious but no data exist in rural communities.

**Structure/Method/Design:** Cross-sectional study. The 2009 Global School-Based Student Health Survey was administered to 100 randomly selected, grade 4 to 6 students from two rural schools in Guizhou, China. Survey results were compared to published data from urban Beijing by percentiles. Qualitative data from open-ended interviews conducted among five students, four teachers, and five parents, were reviewed by two researchers and grouped by themes.

**Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract):** The mean age of the 100 surveyed students was 12.4. The following table highlights the most disparate results comparing answers from the urban vs. rural students.

Table.

	% of students	
	Urban (n = 2,348)	Rural (n = 100)
Had hang-over, felt sick, got into trouble as a result of alcohol	4.8	14.3
Used drugs $\geq 1x$	0.9	4
Overweight	18.6	6.2
Never or rarely washed their hands before eating in 30 d	3	11.7
Never or rarely washed their hands after using the toilet during in 30 d	3.3	17
Felt lonely most of the time or always in 12 mo	6.9	12.1
Ever seriously considered attempting suicide in 12 mo	14.3	8.33
Have no close friends	7.2	14
Missed classes without permission on $\geq 1$ d in 30 d	4.6	17.2
Reported that most students at school were never or rarely kind and helpful in 30 d	19.4	45.5
Whose guardians never or rarely really knew what they were doing with their free time in 30 d	32.9	49
Used any tobacco products other than cigarettes $\geq 1$ d in 30 d	1.9	4
Were in a physical fight $\geq 1x$ in 12 mo	15.8	28
Were seriously injured $\geq 1x$ in 12 mo	16.4	44.4

Urban  
(n=2,348)  
Rural (n=100)  
had hang-over, felt sick, got into trouble as a result of alcohol  
4.8  
14.3