Objective: To evaluate if a web-based educational platform can remotely advance US skills in a rural district hospital.

Structure/Method/Design: We prospectively evaluated the effect of remote feedback by an experienced physician in the United States on the US performance and interpretation skills of ECPs in Uganda. In March 2012, 10 ECP students were enrolled into a remote educational program for US. Initial ECP education involved didactic and hands-on sessions by U.S. physicians on-site in Uganda over 1 month, after which, ECPs performed US independently for 12 months. The study intervention occurred over the following 6 months. Digital video clips of US performed in Uganda from March 2012 to September 2013 were uploaded and reviewed by physicians in the United States using an educational website (www. emergencyultrasoundservices.com). All US images were rated for quality using an 8-point ordinal scale with better imaging corresponding to higher ratings. During the intervention period, detailed feedback on image quality and interpretation was provided to ECPs via email within 48 to 72 hours. Comparisons between study periods were performed using Wilcoxon signed-rank test and Student's *t* test.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): 1153 studies were performed in Uganda and reviewed in Uganda over 18 months. The US performed were 583 FAST (50.5%), 211 cardiac (18.3%), 158 chest wall (13.7%), 80 trans-abdominal uterus (7.1%), and 26 gallbladder (2.3%). During the independent use period, 6.5 studies/ECP/month were reviewed. During the feedback period, 17 studies/ECP/month were reviewed ($P = 0.039$). FAST image quality scores decreased following initial education (6.6 vs. 3.8, $P < 0.001$), but increased during the feedback period (3.8 vs. 5.7, $P < 0.001$). Interpretation skills also improved during the feedback period (see fig).

Summary/Conclusion: Remote educational feedback improves image quality and interpretation of US studies by ECPs in a Ugandan hospital.

Using technology to improve vaccine delivery in developing countries

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Background: VaxTrac has designed and deployed a mobile, biometric-based vaccination registry throughout several health districts in Benin. The system uses the child's fingerprint to access their vaccine history and inform health workers as to the appropriate course of treatment.

The primary benefit of the system is ensuring that a child receives the appropriate vaccines. The ancillary benefit is the wealth of data about where and when vaccines were administered. This empowers health officials to make more informed decisions, incorporating concepts from demand forecasting, supply chain management, and resource allocation.

We are using the transition to a digital system as an opportunity to re-engineer a number of processes, finding ways to improve the efficiency of the vaccine delivery system.

Structure/Method/Design: VaxTrac provides the technology, training, and ongoing support to the parties responsible for delivering the health services, be it the Ministry of Health or an NGO. We also serve as a technical advisor on issues related to data-driven decision making in vaccination processes.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): VaxTrac has worked closely with the Benin Ministry of Health in addition to both country and international offices of UNICEF and WHO. We are currently building a consotium with researchers from Emory University School of Public Health and the Benin National University School of Public Health.

Summary/Conclusion: The primary success has been the increase in the amount of available information about vaccine administration and the integration of that data into decision-making processes. Streamlining the data input and reporting mechanisms has greatly reduced the administrative burden on frontline health workers, enabling them to spend a larger proportion of their time actually interacting with patients and improve the quality of care. The introduction of technology into the clinic setting has increased mothers' perception of the importance and "professionalism" of immunization as a health service, leading to a higher coverage rate and better vaccine schedule adherence.

Spurring innovation in designing HIV testing programs: A crowdsourcing contest-based approach

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Background: Designing innovative HIV testing and linkage interventions is challenging. Groupthink, defined as the inclination to produce similar concepts when insulated from outside influences, inhibits innovation and leads to homogenous campaigns with minimal input from key populations. The conventional approach to designing and implementing HIV testing interventions can be enhanced through crowdsourcing. Crowdsourcing is the process of taking a task performed by an individual and outsourcing it to a large group in the form of a contest or open call, often publicized via the Internet. Crowdsourcing has been used extensively in the private sector and championed by the Executive Office of the President of the United States as a cost-effective tool to generate creative, new ideas. For example, open contests with prizes have been used to solicit creative new product ideas through online forums, tapping into the diverse wisdom of the crowds and at the same time increasing community ownership. We crowdsourced the design and development of short films to promote HIV testing at local community-based organizations (CBOs) in China.

Structure/Method/Design: We announced a contest for 1-minute HIV testing promotional videos open to all community-based organizations that deliver HIV testing in China, including Taiwan and Hong Kong. Two open Skype calls were established to clarify the rules and goals of the contest. Judging criteria included reaching untested individuals, engaging the community, and generating excitement around HIV testing. A total of seven eligible entries were submitted within 8 weeks. A multisectoral (public health, medicine, anthropology, advocacy, business) panel of judges selected three finalists during an open event. Short films from finalists will be screened by a panel of film experts at the Macau International Digital Film Festival where CBOs will receive additional capacity building from technical experts to create effective short films.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Social Entrepreneurship for Sexual Health (SESH) Global, AIDS Care China, Macau International Digital Film Festival, Hong Kong University, London School of Hygiene and Tropical Medicine

Summary/Conclusion: Open contests may provide a cost-effective, structured mechanism to promote innovation in global health. The open contest process has generated greater interest in testing programs and forged new linkages between social media/technology partners and CBOs. Technical (e.g., online forums) and substantive

(e.g., monetary incentives or vouchers) adjustments may further catalyze the process of global health crowdsourcing. Implementation research is necessary to measure the benefits of this approach and compare it to other standard campaign development tools.

When there is no doctor: Use of decision support to produce reliable weight gain in hospitalized newborns in Indonesia

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Background: Globally, malnutrition is responsible for 53% of deaths in children under 5. This proportion is arguably higher among hospitalized newborns. In hospitals, the newborn is isolated from its natural feeding source—the mother—and often too immature or weak to suck. Furthermore, feeding a sick newborn is not intuitive. Doctors who initiate this process often have insufficient knowledge on newborn feeding. The situation is exacerbated in under-resourced settings where there is a scarcity of doctors.

EMAS is a 5-year USAID-funded program, which aims to reduce high maternal and neonatal mortality rates in Indonesia by increasing the quality of medical services in 150 hospitals and 300 health centers. At year 3, EMAS is targeting neonatal nutrition and introducing the use of decision support tools to directly improve neonatal feeding practices. Decision support is a quality improvement methodology that directs users toward evidence-based choices—often in checklist form—at the time of vital decisions.

Structure/Method/Design: September to December 2013, teams consisting of one U.S. volunteer pediatrician and two Indonesian general doctors mentored staff at eight hospitals on neonatal nutrition for a period of 10 days. Using patient records and an electronic scale, baseline data on nutrition status of the neonates were obtained. With the permission of hospital pediatricians, perinatology nurses took responsibility for nutrition management. The mentoring teams taught nurses how to use the new scale, how to use decision support tools to determine feeding volume and caloric content of milk from the measured weight, and how to prepare milk for feeding, including supplementing breast milk to 24 kcal per 30 cc for infants less than 2000 grams. The team calculated average weight gain of newborns 6 days after the start of the intervention. Neonatal units agreed to report on average weight gain of patients monthly.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Indonesian MOH
     Indonesian Pediatric Association
     Boston Children's
     JHPIEGO
     SAVE

Summary/Conclusion: Two of the eight hospitals chose not to proceed to the intervention stage. Of the remaining six hospitals, prior to the intervention, newborns only received 78% of recommended feed volume (n = 50) and none routine caloric supplementation. Newborns <8 days old had average weight loss of −17.7 g/kg/d (n = 31) (95% CI, −23.544 to −11.076). Newborns >7 days old had average weight gain of +1.38 g/kg/day (n = 23) (95% CI, −2.27 to 5.051). Following the intervention, newborns <8 days old reduced weight loss to −5.4 g/kg/d (n = 27; $P < 0.01$). Newborns >7 days old increased weight gain to +13 g/kg/day (n = 21; $P < 0.01$). The latter rates are considered normal

even for healthy newborns. The average weight of patients in this study was 2191 grams.

New media sources and women's health in Armenia: Determining relevant health information sources for women in Armenia

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Background: A mother's level of education is an important predictor of child health, making women a crucial source of health information and cues to health behavior. Utilization of health care services is very low among Armenian women, and it is not known where these women obtain a significant amount of health information.

This study's purpose is to identify the principal health information sources (HIS) for women in Armenia, assess perceived importance and trustworthiness of each source, determine preferences, and provide insight to possibly improve effectiveness of media-based public health interventions.

Structure/Method/Design: Quantitative data was collected from a cross-sectional survey in Armenia over a 2-week period from June 19 to July 4, 2012. Face-to-face intercept interviews were conducted among 225 women, with ages ranging from 18 to 74, attending regional health centers in five regions in Armenia using a standardized questionnaire administered by an interviewer. Descriptive and regression based analysis of the data was accomplished using Stata statistical software.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Average participant age was 40.12 (SD 14.6). The majority of participants (66%) lived in the city and 68% reported having postsecondary education. The top three current HIS's were reported as doctor, television, and family. However, participants identified friends, doctors, and family as their top three trustworthy HIS's, with television only ranking fourth . Out of eight sources, three HIS's ranked as least important and least trustworthy were Internet, social media, and radio.

There was a significant difference ($P = 0.0005$) among levels of languages spoken and identifying TV as a HIS. People who spoke Armenian language indicated TV as an important HIS as compared with people speaking Russian and other languages. In addition, for age groups 45 to 65, TV is a preferred future HIS over other age groups, whereas for age group 18 to 30, family is a preferred HIS among other age groups. Among different levels of education, people with postsecondary education had less preference for family as a HIS over people with education up to secondary level. The importance of getting more health information was identified as "very important" by 98.2% of participants.

Summary/Conclusion: The majority of women in Armenia agree that getting more health information is very important. Television is the preferred HIS, chosen over print media, radio, Internet, and social media. As a result of this study it is clear that people in Armenia will benefit from education/outreach programs implemented by health care providers focusing on women and their friends. Implementing programs that utilize television is the most effective HIS for women and families in Armenia.