further training, and perceived barriers to expanded use. In addition, eight focus group discussions (FGDs) were conducted with both current EM residents and various faculty members to gather additional qualitative insight into current practice patterns and perceived barriers.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Eighty clinicians completed the survey, 69 of whom were EM residents and are included in the analysis. The response rate for our study among all current EM residents in Colombia at the time of administration was 85%. Fifty-two percent of resident respondents had previously used an ultrasound machine during their training; however, of these, 58% indicated that they had performed <10 scans and only 17% reported >40 scans. The most frequently used applications indicated by respondents were trauma, obstetrics, vascular access, and echocardiography. Only a quarter indicated that they had ever received any formal ultrasound training, but all indicated interest in learning more. Significant barriers to ultrasound training included lack of trained faculty teachers (indicated by 78% of respondents), absence of ultrasound machines (57%), and limited time (41%). In FGDs, additional barriers identified were inter-specialty conflicts over the control and charging of ultrasonography, both institutionally and nationally, as well as program-specific curricula decisions regarding the importance of POC US within EM practice.

Summary/Conclusion: While currently limited, EM residents in Colombia have a strong interest in integrating POC ultrasound into their practice and training. The many current barriers to its expanding use reflect both traditional barriers such as a lack of equipment seen in many lower income developing nations as well as inter-specialty conflicts typical of more high- and middle-income developed countries. Further collaboration is underway to overcome these barriers and further integrate POC ultrasound as a standard of care into Colombian EM residency training.

The role of mobile health technologies in improving community health seeking practices in rural Uganda

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Background: Recent studies have shown that mobile health (mHealth) technologies have become increasingly integrated into health care delivery systems. Systematic reviews of previous studies on mHealth in developing countries have demonstrated that mobile technologies may be a useful platform to deliver messages not only to track health behavior change, but also to improve behavior change communication. The objective of this study is to identify how current mHealth programs are being utilized in rural clinics and what improvements can be made to connect the community health care infrastructure via mHealth in order to augment health care delivery.

Structure/Method/Design: Key informant interviews and focus groups were conducted over a 3-week period in seven villages surrounding Engeye Health Clinic in Ddegeya, Uganda. Local stakeholders included, Volunteer Health Team personnel (VHTs), health care providers, and local leaders. Focus groups incorporated a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis strategy with VHTs. Questions were grouped into categories of VHT job description, perceptions and challenges as a VHT, interactions with Engeye Health Clinic and attitudes regarding the government-sponsored mHealth program, "mTrac." Translation was provided from local trained interpreters. Qualitative analysis through iterative-grounded theory was used to code and develop themes.

Results (Scientific Abstract)/Collaborative Partners (Programmatic Abstract): Seven focus groups were conducted, with a total of 19 key informants participating in interviews. Key findings from data demonstrate that VHTs function primarily as "front-line" community health workers in remote, low-resource communities. They provide access to medications and referrals to government health care facilities. They also operate as the ground-level surveillance team for the national health system, sending weekly mTrac text message reports to the Ministry of Health. VHTs are a main source of health education to the community. Challenges include a need and demand for more VHT training, inadequate assistance from the local government, maintaining medication availability, lack of consistent electricity for mHealth reporting, and transportation restrictions. These results indicate critical gaps in the local health care infrastructure that need to be addressed in order to establish more efficient delivery of health care services.

Summary/Conclusion: Ensuring flow of accurate and timely health information, education, and supplies encompass the primary challenges faced by VHTs and the health system. Engeye may serve as a linchpin in connecting mTrac and other government health programs to the provision of health care at the community level. Through proximity and the services that Engeye already offers, the clinic may strengthen the roles that VHTs have in empowering the communities to take charge of their health and well-being. Further work is needed to assess how this can be accomplished.

iNurse: Intelligent, low-cost pediatric vital signs monitoring system

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Background: Within the developing world, hospitals and clinics operate with low resources, lack of health infrastructure, and an insufficient number of physicians and nurses—particularly in pediatric wards. As a result, health staff are chronically overwhelmed, and unable to adequately monitor infant patients due to high patient-to-nurse ratio common in such low-resource settings. With no effective vital signs monitoring system, poor health outcomes are rampant, since these medical staff are unable to be alerted during acute infant distress and cannot track pediatric health outcomes over time.

The iNurse is a medical device that addresses this critical health care need by providing continuous, low-cost, and intelligent vital signs monitoring for neonates. Specifically, this system allows for the short- and long-term tracking of infant heart rate, respiratory rate, and body temperature, coupled with an alerting system to notify medical staff of distress and a feedback mechanism to wake neonates from apneic episodes. All vital signs data is transmitted wirelessly to an Android tablet computer, allowing for the tracking of up to 30 patients from a single "central hub."

Structure/Method/Design: This iNurse consists of a dual belt system, and employs two embedded stretch sensors in parallel that capture respiratory expansion and contraction in both the infant chest and abdomen. The lower belt also contains an embedded surface thermistor to provide accurate abdominal skin temperature measurements. Both belts contain electrocardiogram (EKG) probes in a standard three-lead configuration, from which heart rate data is extracted. At scale, we project the iNurse to have a manufacturing cost of under USD 75.