



LTFHC Communications Network for Health Impact

The Lake Tanganyika Floating Health Clinic (LTFHC) has developed a unique solution to the communication gap in the Lake Tanganyika Basin (LTB) through the creation of a high frequency (HF) radio network with a basic electronic medical record (EMR) specifically designed for remote and resource-poor settings. This system is the first of its kind and facilitates data collection and sharing, as well as provides a giant leap forward in quality and safety of the health care delivered through reliable stewardship of patient records and health care worker (HCW) decision support. Currently the LTFHC is working at eight health sites in the Democratic Republic of Congo (DRC) and five sites in Tanzania (TZ), and expanded to five additional rural locations in DRC this fall. The subsequent phases of this project include research and development to incorporate the insight provided by our pilot projects and ready the technology for expansion to additional locations.

Background

Over three and a half million people live in lakeside communities, and over 12 million live in the LTB as a whole. Communication options in the LTB are extremely limited due to the remoteness of the area, the lack of Global System for Mobile (GSM) networks, the terrain profile, and long distances between locations. Many health centers in the LTB are currently unable to call for emergency medical assistance, seek basic health-related guidance and submit reports required by their Ministries of Health (MOH). They are also unable to collect and transmit vital public health and epidemiologic data that could aid in containing infectious disease outbreaks, prioritizing particular diseases or health problems, and maintaining important supply chains. For these reasons, these locations remain particularly vulnerable to inaccurate epidemiologic data collection, sub-standard patient record keeping, administration of poor quality health care, and inadequate supply chain management of medications and consumables.

In March 2012, as part of a pilot program funded by HP, the LTFHC installed HF radios – the only practical and affordable way to overcome the communications gap – at eight lakeside health centers and the regional hospital in Moba, DRC, impacting over 133,000 patients. This resulted in a sustained increase in average on-time monthly reporting to the MOH from 13% to 89%. In December of 2012, as part of the planning process for adding means of written data transmission, the LTFHC traveled to and surveyed 18 rural health centers in TZ along Lake Tanganyika, enabling the team to have discussions with health center staff regarding the challenges they face in using and maintaining handwritten reports and medical records. We confirmed that many lack road access, electricity, GSM, running water, and employees with any computer literacy. Records of infectious disease cases are kept in hand written paper logs, making organization and modification of data extremely challenging. Once reports are completed, there is no easy or efficient way to communicate the results to the MOH. Each patient must purchase a notebook in which to keep their own individual medical records, which is easy to lose and often indecipherable.

The LTFHC carefully and systematically developed the means to meet these needs through digital data collection and transmission. Our team then carried out an expansion of this project in the fall of 2013 in five locations in Nkasi District, TZ, including the critical addition of an



innovative EMR system specifically developed for these resource-constrained settings. The EMR is linked to HF radio, allowing written data to be transmitted between health care centers and the MOH. This expansion included comprehensive educational sessions for HCWs from each location selected, focusing on basic computer skills as well as use of the EMR. The LTFHC retains staff with experience teaching technologically naïve individuals everything from simple typing skills to more complex troubleshooting. We then moved to specialized individual training using the EMR while seeing patients in situ. The EMR allows health care workers to record, as well as easily and efficiently review, patient visits, test results, and diagnoses, which will aide in clinical decision-making. For the first time, employees in these rural locations are able to electronically share a patient's record with more experienced providers at the regional hospital and obtain feedback on the optimal clinical course of action. Our EMR also encourages HCWs to provide the highest quality of care possible through decision support of evidence-based practices.

In the fall of 2014, the LTFHC expanded the EMR network to 5 additional locations in the DRC.

Next Steps

In order to make the EMR as effective as possible, the LTFHC has developed a comprehensive monitoring and evaluation (M&E) strategy. This process was initiated during the installations and trainings, when feedback from HCWs regarding features of the EMR was logged and reviewed. The LTFHC also made every effort to take the realities of local work-flow, HCW abilities and skill sets, and patient characteristics into account when modifying and improving the system.

There are multiple ways in which the technology could be augmented and optimized. First, the LTFHC is already in the process of identifying less expensive radio and data integration hardware. Our team has further progress to make, however, developing and adapting this cheaper technology to the needs of our project. Second, based on the results of M&E of existing sites, we need to identify changes to the software to make it more user-friendly so that HCWs are incentivized to use it. Additionally, there may be some site-specific adjustments to the software depending on the types of cases seen most frequently, as well as expanded decision support to encourage high quality, evidence-based care.

Specific Partnership Opportunities:

HF Radio/Data-Sharing Communications Units:	\$10,500 per unit
HF Radio Only Communications Units:	\$5,000 per unit
Group Health Care Worker Training:	\$25,000
Monitoring and Evaluation:	\$30,000
Research & Development:	\$50,000
Salary Support for Programmatic Team (6 staff):	\$50,000