Snow Inc, IntraHealth, and Ministries of Health, the CommTrack technology has been tested, refined, and scaled through real-world deployments in Tanzania (ILSGateway), Ghana (Early Warning System), and Malawi (cStock), and is being rapidly scaled to other countries in Africa and Asia. In this presentation, we will discuss the design of an intervention, baseline, and evaluation that leveraged an early version of CommTrack, called cStock. As part of JSI's Enhanced Management Approach in Malawi, cStock aims to promote the use of data to inform decision-making and increase the availability of medicines for community health programs. cStock serves as a simple mobile reporting and resupply system that improves communication between frontline health workers (FHWs) and their resupply points. It also provides visibility of real time FHW logistics data at multiple levels of the MOH, including stock out rates, current stock status, and alerts to enable supply chain managers' responsiveness to needs on the ground.cStock is used on FHWs' own basic feature phones to report data monthly via SMS on a toll free line, which then calculates resupply quantities for each FHW and escalates the quantities directly to health centers via SMS to prepare the products. Health centers then alert FHWs when stock is ready for collection. All data is displayed on a web-accessible dashboard with real time reports that show stock levels, reporting rates, and alerts for central and district level managers.CommTrack's cStock deployment was implemented in parallel with a comprehensive research effort to assess the tool's impact on supply chain performance. Results from the 2013 midline assessment demonstrate improvements in the program's product availability, data visibility, use of data, teamwork between districts and supervisors, and transport of goods. During the baseline assessment, 62% of FHWs had the four tracer drugs in stock, contrast to 27% at baseline. FHWs also experienced 14% fewer stockouts of life-saving products than non-intervention groups. cStock is also attributed with increasing general reporting rates, with more than 80% of FHWs reporting logistics data to cStock every month, versus 43% at baseline.The results are a compelling example of how a last-mile supply chain intervention was able to affect and improve the availability of life-saving commodities in Malawi.

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Pharmaceutical supply chain management through implementation of a hospital Pharmacy Computerized Inventory Program (PCIP) in Haiti

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Program/Project Purpose: Following the January 2010 earthquake in Haiti, St. Luke Hospital, an 220 bed adult medical hospital, was quickly established to care for the influx of patients with trauma-related injuries, cholera and other maladies. With our Haitian colleagues, we implemented a new Pharmacy Computerized Inventory Program (PCIP) to improve and monitor medication utilization as well as facilitate sustainable patient care activities in this Haitian hospital.

Structure/Method/Design: A needs assessment of PCIP requirements was performed by our institution's pharmacists together with the Haitian facility's medical director. Needs included real-time data assessment of medication usage in three settings (ED/ICU, Inpatient/Ambulatory Care, and Pediatrics); simplicity and sustainability by local hospital personnel; and accommodation for further service expansion. We partnered with a software company tailoring web application tools and developed a PCIP that accomplished all identified needs. A plan for implementation of the PCIP was developed, and included on-site and remote education of end-users. We then measured the number of transactions in PCIP during a wash-in period and after a predefined period of utilization.

Outcomes & Evaluation: A web-based PCIP was programmed in Haitian Creole and English. It encompassed all phases of the medication use process including drug ordering, filling the drug requests, distribution and dispensing of the medications in multiple settings; inventory of currently shelved medications and graphic charting of 'real-time' medication usage. The Haitian pharmacy and nursing staff were successfully trained by three pharmacists from our institution. Medication utilization improved over the course of the implementation of the PCIP system. Medication transactions increased with a mean transactions per month for the initiation and establishment periods were 219.6 (42.9) and 359.5 (42.9), p=0.055, respectively. The mean logins per day for the initiation and establishment periods were 24.3 (0.8) and 31.5 (0.8), $p < 0.0001$, respectively.

Going Forward: An efficient and cost—sensitive PCIP can be effectively implemented within a functional Haitian field hospital that improves drug inventory management and further allows for sustainable medication delivery with a simple, easy to use web-based program cust

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HealthTrax: A new tool to identify and navigate dirt roads for health outreach work in Southern Zambia

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Program/Project Purpose: Often in rural sub-Saharan Africa, health workers are faced with challenges navigating the dirt roads to rural villages. They cannot reliably access these roads due to flooding or obstructions. Despite the important role of accessible dirt road maps, few tools are available for health workers who face these challenges. In health clinics, health planning often takes place with a rough, hand drawn map.

Structure/Method/Design: The development of this tool relies on data gathered for a longitudinal field trial. The field trial evaluatedRiders for Health, a social enterprise organization which maintains health transport fleets in 7 African countries. Eight districts in the Southern Province of Zambia were randomly assigned to either the Riders model or to usual maintenance as provided by the Ministry of Health. The results of this trial have been previously reported. Approximately 1/3 of the fleet (80 motorcycles and 30 vehicles) were given global positioning devices (GPS) to track the roads they used to deliver basic health care between September 2011 and March 2014. The following method was used to identify the roads: 1. All GPS points were overlaid on the "Roads" map in ArcMap. 2. The road segments that coincide with GPS points (within 200m) were selected to be the roads that health worker used. 3. When GPS points did not fall in any road segments, the road were created by digitizing based on ESRI basemap and Google Earth imagery.

Outcomes & Evaluation: 800,000 GPS points were logged to an Astrata database containing the location (longitude and latitude) and date, time, and license plate over the 2.5 year period. Of these 10988 km were roads used by motorcycles and 8194 km were used by vehicles. An online tool called HealthTrax was developed containing the 227 health facilities in the Southern Province of Zambia, roads from these health facilities to rural areas, and separations for roads used by motorcycles and vehicles. In addition, the tool was built to identify a health worker's position in relation to those roads, aiding in navigation. This format can be updated in real-time. The tool was