



OpenBoxes Implementation Project in Partnership with Americares and the Ministry of Health and Social Services of Dominica

Capacity Statement



Accompanying Ministries of Health: Partners In Health Medical Informatics & Supply Chain

Partners In Health (PIH) is an international health organization relentlessly committed to improving the health of the poor. We deliver high quality healthcare in resource-poor settings by working with local communities and governments to strengthen public sector health systems and address the root causes of poverty and disease. PIH's unique position of working at community, health center, hospital, and national levels has enabled us to see the practical needs of health management and leadership at each of these levels and to develop strategies that respond to all of these needs. Over the years, delivery of these strategies in Haiti, Rwanda, Lesotho, Liberia and elsewhere—often with modest investments—has demonstrated not only its efficacy, but also its replicability.

PIH approaches health systems strengthening through planning for staffing, supply chain, infrastructure, and systems, including consideration of leadership and governance, financing, and information technology. Health information systems play a key role in ensuring that governments can provide high quality care in public sector facilities. Recognizing this, PIH supplements facility and district staff with data, analytics, and medical informatics specialists to ensure timely, accurate data are available to inform patient care. We invest in ongoing health informatics planning and develop tools to help facilitate easier access to information via open source medical record and supply chain management systems.

With the support of the Gates Foundation in 2000, PIH developed a robust Electronic Medical Record (EMR) System to manage Multi-Drug-Resistant Tuberculosis (MDR-TB) work in Peru. Later successfully adapted for use in HIV care, the system enabled both patient charting and drug tracking. As PIH transitioned from horizontal, disease-specific programs to support comprehensive clinical care, the organization re-imagined a medical informatics strategy, uncoupling the integrated clinical EMR and pharmacy management systems. In 2004, PIH began collaboration with the Regenstreif Institute on OpenMRS, an open-source EMR now used in more than 40 countries to manage patient care across clinical areas. Having a strong solution for clinical records management, PIH continued to explore possibilities for supply chain and pharmacy. In 2009, PIH received a small grant from the Rockefeller Foundation to adapt the stock card feature from the legacy EMR into a stand-alone, open source inventory management application. Development had yet to begin when a 7.0 magnitude earthquake struck Haiti, PIH's oldest and largest site, in January 2010. In its aftermath, PIH's supply chain grew in complexity, requiring a robust supply chain management information system that could support its maturing global clinical operations. A review of existing software failed to produce a viable option, so PIH invested the Rockefeller funding to begin development of what would become OpenBoxes in May 2010, under the leadership of Justin Miranda and Jesse Greenspan.

OpenBoxes has enabled PIH to provide targeted support for sourcing, forecasting, procurement, logistics, and inventory management in Haiti, Sierra Leone, Liberia, Malawi, and, most recently, Rwanda. Like most global health implementers, PIH had limited visibility into supply chain data to inform planning, budgeting, and procurement. Now, PIH can monitor stock levels at facilities, calculate true demand by capturing unfulfilled requests, and measure key performance indicators, such as

requisition fill rate. The system can develop reports to optimize staff or distribution workflows, for example, items nearing expiry that should be dispatched from a warehouse. OpenBoxes remains a true partnership; the PIH team leading teams on the ground to implement, gather requirements, and solicit essential user feedback for future improvements, and Justin Miranda overseeing all development, ensuring that all customizations seamlessly integrate with existing functionality.

Today, PIH continues to partner with Ministries of Health to fill gaps in public supply chains by procuring and distributing millions of dollars of medicines, supplies, and equipment. PIH's Supply Chain and Logistics team is responsible for effectively and efficiently delivering these vital materials to facilities to enable clinicians to provide high-quality care. This team oversees planning, sourcing, and logistics, partnering with in-country staff to manage customs clearance and transportation to distribution centers, and with pharmacists and logisticians to ensure products are properly stored and distributed prior to dispensing to health facilities and patients.

Beyond Software: Improving Access to Essential Medicines and Supplies in Dominica

PIH is proud to submit a proposal to Americares and the Ministry of Health and Social Services of Dominica (MOHSS) to support the strengthening of health systems in the wake of Hurricane Maria. The implementation of a robust LMIS is a key component of a broader plan to increase availability of essential medications and supplies when and where they are needed, especially following a natural disaster. PIH would be thrilled to support an implementation of OpenBoxes - purpose-built software designed specifically to serve the supply chain management needs of public health systems like that of Dominica. What we share in the attached is a comprehensive proposal to collaborate, taking advantage of the full depth and breadth of our expertise in both software development and implementation, ensuring that lessons learned by PIH during implementations of OpenBoxes and supply chain process improvements are quickly and efficiently applied to a roll-out in Dominica.

Our field experience has consistently demonstrated that software alone is not a viable solution. Successful implementations and trainings require experienced staff who understand the context and nature of the work, not just software features. As has been clearly and thoughtfully articulated in the LMIS and Technical Assessments, this LMIS implementation is part of a larger effort to clean and organize damaged warehouses, review processes and procedures, and analyze and capture information across the health system.

We believe that PIH's experienced supply chain staff will enable the Americares and MOHSS teams to successfully achieve these goals by aligning the OpenBoxes implementation closely with process and procedure reviews and data cleaning projects. With extensive experience managing software implementations, supply chain revamps, and post-disaster rebuilds, the PIH team can provide key support to undertake these activities in concert, bringing efficiencies in staff effort and project time and connecting process improvements with space and systems. These efficiencies can also highlight unnecessary costly software customizations, or redundant processes, freeing up project funds or staff time for other priorities.

PIH Past Experience: Case Study from Haiti

In January 2015 at University Hospital Mirebalais in Haiti's Central Plateau, PIH began calculating fill rate, or the proportion of requisitions made by clinicians to warehouses that were filled in their entirety. The initial target was 83%. PIH exceeded this rate in April 2016, and has never dropped below that rate since, despite fluctuating funding and staffing. Since increasing this target to 90% in July 2016, the fill rate has remained within 3 percentage points of this goal in both directions.

Using OpenBoxes at University Hospital allowed PIH to standardize how health facilities collect data in order to compare requests to fulfillment, making it possible to measure this important indicator. The data visibility that OpenBoxes provides makes it possible to proactively plan appropriate procurement budgets, respond to stock-out risks before they impact patient care, improve the accuracy of forecasts, identify and implement supply chain process improvements, and build confidence in the supply chain system through more consistent availability of essential medications and consumables. This data visibility, combined with the construction of a new distribution center in Port au Prince and operationalizing new inventory management processes such as bin location tracking and cycle counts in this new space, contributed to PIH being able to consistently maintain a high fill rate despite limited budget for safety stock and emergency procurement. PIH has now implemented OpenBoxes in other health facilities in Haiti, and in several African countries and is seeing similar results at these locations.