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# **C**STOCK Supply Chains for Community Case Management

IMPLEMENTATION DATE: 2011 to Present

#### Using mobile technology to increase community access to life-saving medicines in Malawi

In Malawi in 2010, the mortality rate among children under 5 years old was above the global average at 112 deaths per 1000 live births.<sup>4</sup> Despite the introduction of community case management in 2008 to improve children's health in remote areas, poor infrastructure and lack of access to stock information resulted in regular stock outs of critical medicines. A 2010 assessment<sup>2</sup> showed that only 23 percent of health surveillance assistants (HSAs) had in stock the four key life-saving medicines needed to treat all three targeted childhood illnesses (malaria, pneumonia, and diarrhea). At the same time, central land district-level managers had little access to community logistics data, limiting their ability to respond to local needs.

#### About cStock

The Improving Supply Chains for Community Case Management of Pneumonia and Other Common Diseases of Childhood (SC4CCM) project was funded by the Bill & Melinda Gates Foundation and implemented by JSI Research and Training Institute Inc. (JSI R&T) from 2009 to 2015. The project's goal was to identify, demonstrate, and institutionalize supply chain management (SCM) practices that improve the availability and use of essential health products in community-based programs. In Malawi, SC4CCM designed

and piloted cStock, a text message (SMS)-based, web accessible logistics management information system for community-level health products. By improving communication on stock levels, cStock facilitated decision-making throughout the supply chain and reduced transport time and costs. cStock was introduced as an integral component of two broader intervention strategies – Enhanced Management (EM) and Efficient Product Transport (EPT). Multilevel District Product Availability Teams, or DPATs, were an essential component of the EM intervention. Teams used cStock data to monitor performance targets and problem solve around supply-related issues. The EPT intervention addressed transport barriers, and provided training and tools for bicycle maintenance.

HSAs sent a toll-free SMS using their personal mobile phones reporting current stock levels and medicines received for up to 17 products. cStock automatically calculated resupply quantities and notified staff at health centers, who checked their stock levels and advised HSAs whether stock was available for pick up or alerted health facilities and district managers that there was insufficient stock. District- and central-level managers could then monitor supply chain performance, using over 10 indicators displayed on a web-based dashboard, and take actions to address supply imbalances.

cStock is being used for reporting and resupply by over 3000 HSAs providing CCM in Malawi. Master trainers in each district facilitated roll-out training sessions in newly added districts – even without JSI staff presence. To encourage longterm shared ownership, the Ministry of Health established the Medicines for Community Health Innovations Taskforce to guide and coordinate scale-up and sustainability among partners.

### **Evaluation and Results**

Both EM and EPT interventions were tested in three districts for a 12-month period and then evaluated against a feasibility, acceptability, and effectiveness framework. The 2013 mixed-methods evaluation employed a facility-based survey, focus groups, and routine monitoring data from cStock dashboard reports to compare EM and EPT.

While EM and EPT performed equally well on feasibility and acceptability indicators, EM performed significantly better on measures of effectiveness. Mean stock reporting rate was 94 percent in EM group (n=393) and 79 percent in EPT group (n=253). Lead time for drug resupply was, on average, 12.8 days in EM and 26.4 days in EPT, and mean stock out rates for 6 tracer products were significantly lower in EM (5-7 percent) compared to EPT group (10-21 percent).<sup>3</sup>

Results demonstrated that cStock was feasible and acceptable across all users, but implementing cStock with teams was essential for achieving superior supply chain performance and ensuring supply reliability.

#### Lessons Learned

- Consider sustainability scalability, institutionalization, and integration – from the design phase. Engage the MOH and other partners from the outset.
- Understanding the local system, bottlenecks, and resources is critical to design context-specific solutions that improve supply chain performance for HSAs.
- Implement mobile technologies along with other system strengthening interventions that connect the tool to the health system.
- Iterative learning approach: Once you implement, put a process in place to monitor how the tool is used, get feedback from the users, refine the intervention, and improve results.

## Conclusion

In 2013, Malawi's MOH formally endorsed cStock as its information system of choice for community programs, along with the establishment of District Product Availability Teams. By improving the visibility and use of community logistics data, cStock has enabled more informed decisions on supply levels, reduced stock-out rates, and helped make product allocation more efficient in Malawi. cStock and DPATs have played a critical role in making medicines consistently available for effective child health and family planning services. The challenge now rests in ensuring the sustainability through local ownership of the system.

Geographic Coverage: Malawi, national scale

Implementation Partners: JSI Research & Training Institute Inc.; Ministry of Health, Malawi; Dimagi; Johns Hopkins University

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