mHealth and District Teams Increase Product Availability Among CHWs In Malawi

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Introduction

Every year **6.6 million children die** before reaching their fifth birthday from **largely preventable causes** such as malaria, pneumonia, diarrhea, and malnutrition.

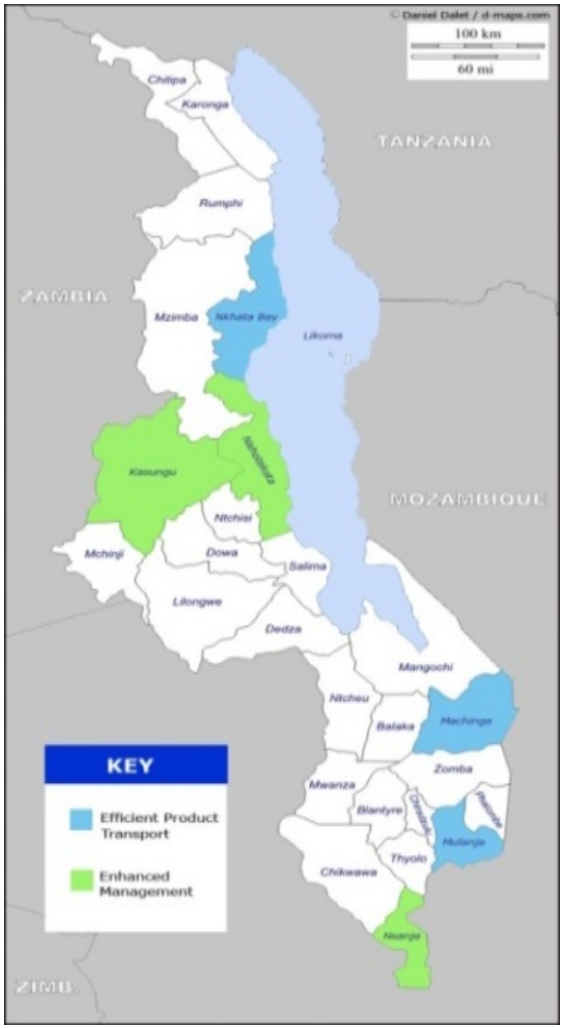
By the time children reach health centers or hospitals, it is often too late. Training community health workers (CHWs) to **treat sick children early and close to home** is proven to **save many lives.**

While CHWs strive to treat sick children in the community, they are often hampered by **poor supply chains** that do not provide **consistent supply of the essential low cost medicines.**

SC4CCM is a learning project that aims to identify proven, simple, affordable solutions for the unique supply chain challenges faced by CHWs.

Malawi iCCM Program Overview

- iCCM nationwide strategy - initiated in Malawi in 2008
- Run and managed by CHWs – called Heath Surveillance Assistants (HSAs)
- HSAs are one of the lowest cadre in Malawi Civil Service- paid by MOH
- Target for implementation is in hard to reach areas
- Conditions – Malaria, Pneumonia, and Diarrhea
- Supply chain commodities for iCCM – ACTs, zinc and ORS and cotrimoxazole (amoxycillin)



Malawi Baseline Assessment 2010

- **Product availability hampered by poor use and visibility of community level data**
  - **27% of HSAs** who manage health products had four CCM tracer drugs* in stock on day of visit
  - **43% HSAs** submitting reports that contain logistics data to HC
  - **14% of HCs** reported passing that information to higher levels

- **Opportunity for mHealth**
  - **94% of HSAs** surveyed had a mobile phone
  - **85% had mobile network coverage** at least sometimes
  - District and central level staff have access to computers and internet at least some of the time

*cotrimoxazole, artemether lumefantrine 1x6 and 2x6, ORS

Enhanced Management: Design

mHealth system called **cStock** to address data visibility challenges

District Product Availability Teams (DPATs) with a common goal to improve supply chain performance

cStock

- HSAs use their personal, basic GSM phones to report logistics data monthly
- System calculates resupply quantities for HCs to prepack
- Provides different management reports via easy-to-use, web-based dashboard
- Data is hosted on ***The Cloud***, an inexpensive, reliable and easy to manage option for a small scale system.

DPATs

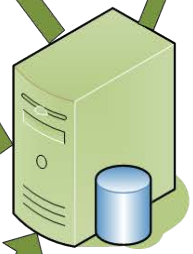
- Product availability teams made up of HSAs, HC and district staff who set combined performance goals
- Teams use structured approach for problem solving and action planning
- Recognize individual and facility level improvements in supply chain performance and achievements

cStock: Data and Product Flow

District and Central levels **monitor** resupply and stock levels through SMS alerts and a dashboard

The dashboard **displays** reporting rates, stock outs, lead times, consumption and more

3. Health Center receives request via SMS, prepacks the order and notifies HSA either **"order ready"** or "out of stock".



2. cStock **calculates the resupply quantity** and sends SMS to HC Pharmacy

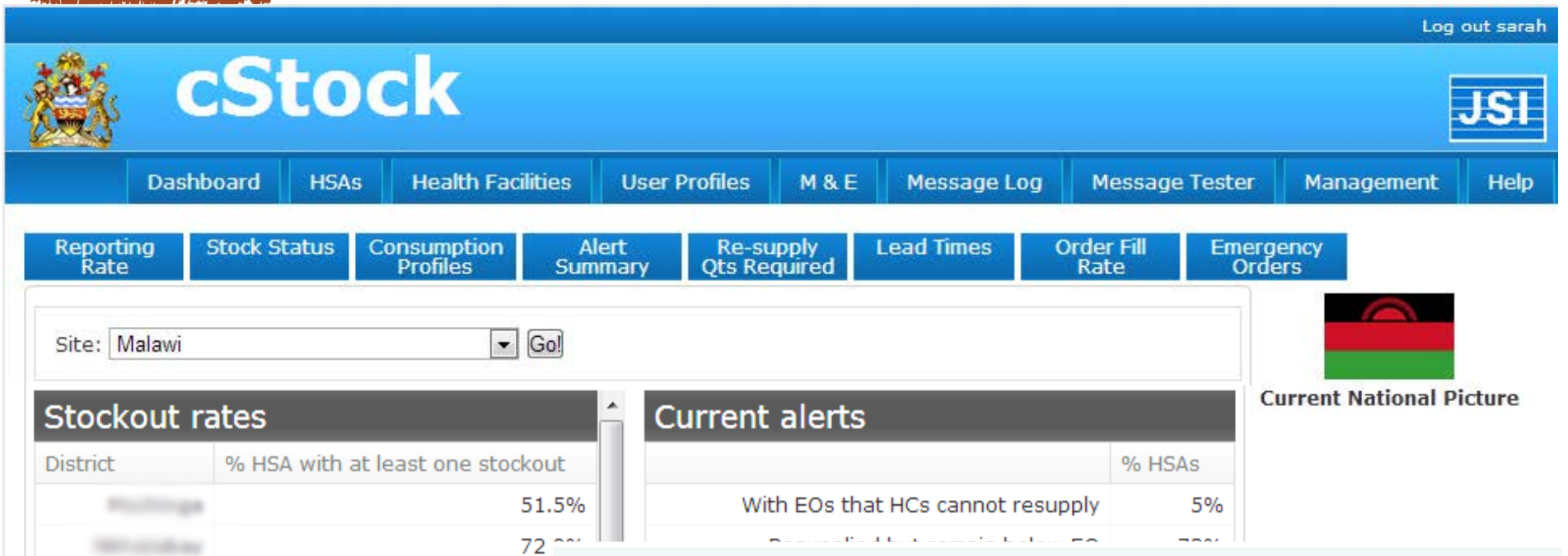
4. HSAs collects products and sends SMS with **receipt**

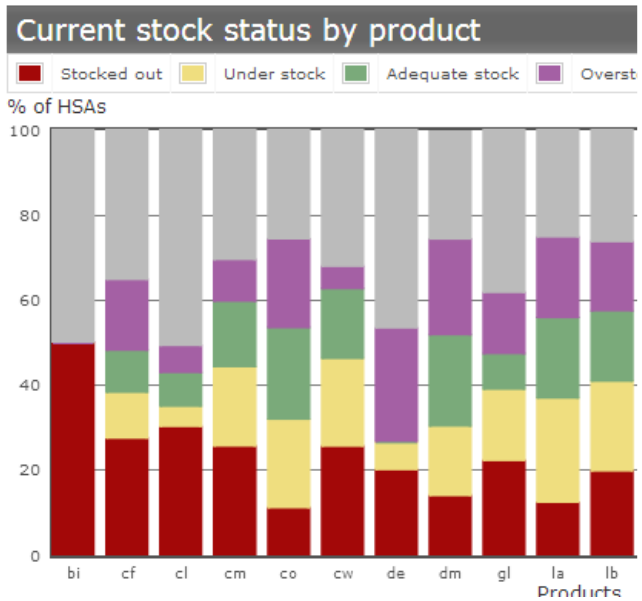
1. HSA sends SMS wth **stock on hand** each month

Product Flow

Data Flow

cStock: Reports & Dashboard





The dashboard provides district and central level managers with visibility into HSA logistics data:

- cStock provides **real time data** enabling supply chain managers to respond immediately to issues
  - alerts, stock out rates and current stock status
- cStock **calculates and displays supply chain indicators** for system monitoring and coordination
  - reporting rates, lead times, consumption rates, and order fill rates

District Product Availability Teams

District Product Availability Teams (DPATs) were introduced to use the data generated from cStock to improve supply chain performance

Enhanced Management (EM)

DPAT/HPAT Meetings

- Quarterly District Meetings with District staff and HSA supervisors
- Monthly HC Meetings with HC and HSAs
- Topics discussed include
  - Performance plans & recognition
  - Reporting timeliness and completeness
  - Stock management , expiries & overstocks, and product availability

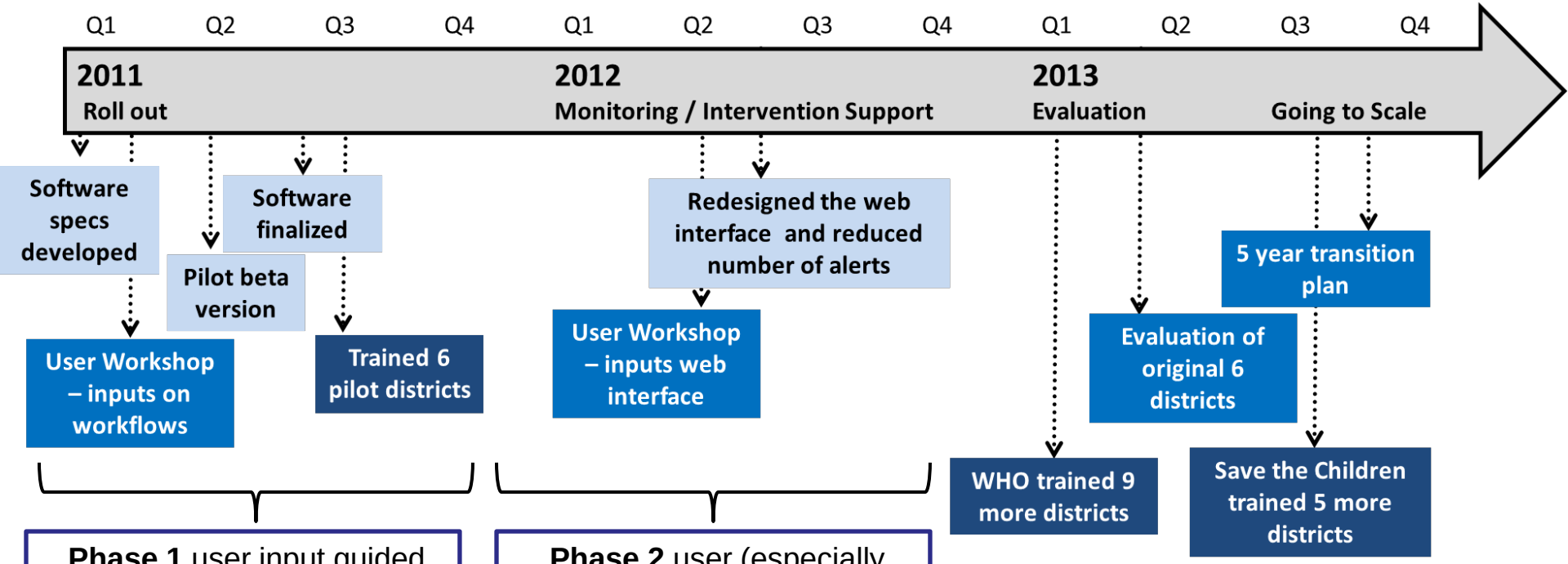
Performance Plan

- Supply chain performance indicators and targets
- cStock data and resupply worksheets used to track performance
- Formal recognition system to drive SC performance
- Management diaries used to track issues and actions taken

cStock Data

Enhanced Management: Deployment Timeline

An iterative and user-centered approach was implemented in two phases of user input resulted in an easy-to-use dashboard that meets the needs of the users.



Phase 1 user input guided development of system workflows to ensure seamless integration with existing manual processes

Phase 2 user (especially DPATs) input into the cStock dashboard during redesign was critical to the usability and acceptance of cStock.

Evaluation Results

Eighteen months after the initial launch, SC4CCM and the MOH conducted a mixed method evaluation to assess the impact of the EM approach.

Improved Data Visibility

- ✓ Reporting rates among HSAs was consistently above 90% for the six months prior to the evaluation (compared to 43% at BL)

Improvements in Supply Chain Practices

- ✓ **91% of Drug Store in Charges** use cStock to inform resupply quantities (compared to 55% at BL who used some kind of formula to calculate resupply)
- ✓ The lead time (time between a request message and a receipt) was half that of comparison districts (**7.6 days compared to 13.5 days**).

Teamwork

- ✓ **100% of District & HSA Supervisors** reported finding district product availability teams useful

Benefits cited include:
reduces tension, promotes trust and coordination between team members, encourages problem solving and sharing experiences, improves performance, contributes to improving availability of essential health products at community level by helping identify ways of making sure HSAs have products in village clinic and stock management.

Evaluation Results cont.

Product Availability

- ✓ **62%** of HSAs had the 4 tracer drugs* in stock day of visit (compared to 27% BL)
- ✓ HSAs in districts using cStock and DPATs had **14% fewer stock outs or low stocks** than other districts on day of visit

*cotrimoxazole, LA 1x6, LA 2x6, ORS

"these meetings have enhanced our relationship with the in-charge, initially we could go HC and return to village clinics without drugs and sometimes they would ignore us and continue with their patients, however, now, they acknowledge our presence and refer us to the supervisor to get our products…" (HSA, Kasungu)

Translating Evidence into Action

Data Validation Workshops

- Presentation of intervention specific results to selected CHWs, HC, district staff from intervention districts
- Review of key data, interpretation within local context
- Discussion on effectiveness, affordability, value of intervention considering results and experience

Scale Up Package and Plan

MOH and partners endorsed scale of EM

A Structured, Planned Approach to Scale Up and Institutionalization

The Pathway to Supply Chain Sustainability Tool

- A planning tool for scaling and institutionalizing innovations within public sector supply chains
- Participants assessed “readiness” for scale up and institutionalization of the innovation on a scale of 1-5 and then developed action plans for how to move to the next level
- Five domains assessed: Organizational Coordination, Organizational Capacity, Funding & Resources, Community & Staff Preparation ,and Tools & Technology

Scale Up and Institutionalization

cStock and DPATs are now scaled up to
2700+ HSAs and over 400 HCs

Partnering for Scale

– 29 of 29 districts have committed funding for scale up: 9 WHO, 5 Save the Children, 2 IWG, 6 SSDI, and 7 SC4CCM; scale up will be complete by mid-2014

Operationalising MOH ownership

– Formation of a taskforce (MOH chair) dedicated to the scale up and sustainability of SC innovations

– Finding champions in MOH by having central level advocates and trainers in every districts

– Capacity building of MOH to provide management and leadership

– Development of comprehensive, five year transition plan that includes multi-year cost estimates for resource mobilization

Lessons Learned

- Combining an mHealth solution with interventions that introduce a structured processes for routine use of data so staff value the tool is critical
  - making data available to decision makers and managers through technology alone is not enough to improve supply chain outputs and outcomes
- Plan for scale up and sustainability from the outset, such as
  - MOH leadership and engagement of partners from the outset to build broad ownership
  - simple design of the mHealth system that is suitable for the context
  - use available technology, such as HSA's own phones
  - combining monthly meetings with existing activities, such as product collection days;
  - deploying an open source system that can be interoperable with other systems
  - consider cloud hosting as a cheap, reliable and easy to manage option for small scale systems