



Supply Chains **4** Community Case Management

## Rwanda

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### Intervention Strategy for Improving the Community Health Supply Chain

### Implementation and M&E Plan

October 2011 – April 2013



# Rwanda

## Intervention Strategy for Improving the Community Health Supply Chain: Implementation & M&E Plan

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## **SC4CCM Project**

The Improving Supply Chains for Community Case Management of Pneumonia and Other Common Diseases of Childhood Project is funded by the Bill & Melinda Gates Foundation under grant agreement no. OPP1002868, beginning November 2, 2009. The grant is implemented by JSI Research & Training Institute, Inc. The project aims to demonstrate that supply chain constraints at the community level can be overcome, and that doing so may yield significant improvements in the effectiveness, scale, and impact of CCM. SC4CCM will identify, demonstrate, and institutionalize supply chain management (SCM) practices that improve the availability and use of selected essential health products for treating children under five in community-based programs.

## **Recommended Citation**

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## **Abstract**

In 2010, the SC4CCM Project conducted a baseline assessment of the community health supply chain in Rwanda. Based on the results of the baseline assessment, SC4CCM developed interventions to learn how to significantly improve CCM product availability at the community level and strengthen the community health supply chain accordingly. This implementation plan presented to the MOH includes the basis for how the interventions were developed and the anticipated methods for monitoring and evaluating the impact of the interventions.

Cover photo: SC4CCM Project.



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## Acronyms

ACT	Artemisinin-based combination therapy
CCM	community case management
CHD	Community Health Desk
CHW	community health worker
HC	health center
HF	health facility
IMCI	Integrated Management of Childhood Illnesses
IcSCI	Incentives for Community Supply Chain Improvement
KII	key informant interviews
LIAT	Logistics Indicators Assessment Tool
LMIS	logistical management information system
LSAT	Logistics System Assessment Tool
MOH	Ministry of Health
MPDD	Medicines Procurement and Distribution Department
ORS	oral rehydration solution
PBF	performance-based financing
PBI	performance-based incentive
QC	quality improvement collaboratives
QIT	quality improvement team
SC	supply chain
SCM	supply chain management
SOPs	standard operating procedures
TOC	Theory of Change

## Executive Summary

In Rwanda, SC4CCM's objective is to collaborate with the Ministry of Health (MOH) and its community case management (CCM) and supply chain partners to learn how to significantly and sustainably improve the availability of pediatric medicines at the community level. The project believes that learning how to achieve significant improvements in supply chains for CCM and other products managed at the community level will lead to significant improvements in product availability to treat sick children at the community level.

SC4CCM, in partnership with the National University of Rwanda, School of Public Health conducted a baseline assessment of the community health supply chain in September-November 2010. Results from the baseline were validated by health workers at all levels of the system and then used to identify chronic weaknesses in the community health supply chain. Intervention strategies were designed based on the premise that clear supply chain management procedures needed to be established as a foundational approach, and that subsequent improvements should then aim to result in significant rather than incremental change. An equally important characteristic, especially given the vast network of volunteer community health workers (CHWs) that exist in Rwanda, was that all interventions needed to be sustainable from a resource perspective if taken to scale. Developing the strategy was an iterative process, as the project consulted widely with MOH counterparts and local implementers at all levels of the system and concurrently performed analyses on the sustainability of the approach.

The project and its MOH partner, the Community Health Desk, prioritized three interventions:

- **Development of Standard Resupply Procedures for CHWs**, which are simple tools and procedures designed to ensure that CHWs always have enough CCM products to serve clients;
- **Supply Chain Quality Improvement Collaboratives (QCs)**, which rely on establishing and training Quality Improvement (QI) teams at health centers to find solutions for operationalizing the new resupply procedures at the CHW level; and
- **Incentives for Community Supply Chain Improvement (IcSCI)**, which builds on the current performance-based incentive (PBI) system as a way to motivate volunteer CHWs, and provides an incentive package that specifically rewards regular attention to and proper performance of routine SC tasks.

The standard resupply procedures—designed for all CHWs in the country—have been implemented in the six SC4CCM focus districts, and are currently rolling out to the rest of the country. Building on this foundational intervention, the project is testing which method of operationalizing the resupply procedures is more effective in improving product availability – Quality Improvement Collaboratives or Incentives for Community Supply Chain Improvement.

The intervention strategies and implementation plan were shared with CHD and other key MOH and partner stakeholders in October 2011. Activities identified in the plan began immediately in preparation for launching both interventions from December 2011 through April 2012. To launch the QCs, SC4CCM will conduct five-day trainings for district coaches and QI team members in three districts: Ngoma, Nyabihu and Rutsiro. The trainings will run from January-March 2012. The IcSCI design began in October with the project conducting focus groups with CHWs, cell coordinators, health center and district staff and central level MOH managers and donor partners to understand what types of incentives could be effective to promote performance of supply chain tasks. The results were analyzed and matched as closely as possible to existing elements of the MOH's PBI, so as to maximize a smooth transition and adoption if the system were to be taken to scale. SC4CCM then held district based meetings in Bugesera, Burera and

Huye to solicit further input and finalize the design. The IcSCI launch will be complete in April 2012, after the project holds orientations and trainings for targeted members of districts, health centers, cooperatives and cell coordinator staff.

In May 2013, a midline assessment will be undertaken to measure the impact of each intervention and results will be presented at data validation workshops to ensure adequate consultation. Based on the results and using a consultative process with MOH and partners, a scale up strategy for the community health supply chain will be developed.

## Introduction

The purpose of this document is to share the implementation plan and M&E plan to support the rollout of the intervention strategies for improving the community health supply chain in Rwanda. SC4CCM, in collaboration with the Community Health Desk/Ministry of Health in Rwanda and its CCM and supply chain implementing partners, used a systematic process of collecting baseline data and applying it to a framework to best understand what aspects of the community health supply chain in Rwanda needed improvement. Using an iterative and consultative process, the project devised a series of interventions to address supply chain weaknesses at the community level. The interventions build on successful applications of each strategy in other areas of health service delivery and were adapted to accommodate the unique requirements of community health workers (CHW) and supply chain considerations for the community level. All ideas were also screened for their affordability in taking to scale and their ability to be sustainable at scale, especially given that the target audience was 30,000 volunteer CHWs. For example, allowances provided to cell coordinators in the IcSCI group for communication and transport were derived from existing practices and do not cover the total costs, since that might not be an affordable amount for all cooperatives to pay. Similarly, the Quality Improvement Collaborative (QC) approach, which has been implemented previously in Rwanda to improve clinical practices for detection and prevention of TB/HIV co-infection, was tailored so that the roles of individual QIT members mirrors existing the hierarchical relationships within the Rwanda public health system and does not add additional allowances if unnecessary..

This document deliberately includes multiple components in an effort to serve as a comprehensive reference for this phase of the project, including:

- Relevant excerpts from the baseline assessment data,
- A description of the Theory of Change both as a technical framework and as an M&E framework,
- The purpose and intent behind the intervention strategies,
- The explanation of our role in the implementation plan and the plan as a Gantt chart, and
- The M&E plan

These elements comprise all the project plans in Rwanda and provide the context for the current learning phase. Draft versions have already been shared with the MOH for approval; this final version will be disseminated to MOH and all relevant stakeholders in Rwanda as a project guide and reference.

# Theory of Change for the Community Health Supply Chain in Rwanda

In Rwanda, SC4CCM's objective is to collaborate with the Ministry of Health (MOH) and its community case management and supply chain partners to learn how to significantly and sustainably improve product availability at the community level. The project believes that learning how to achieve significant improvements in supply chains for community case management (CCM) and other products managed at the community level will lead to significant improvements in product availability for serving clients.

SC4CCM uses a Theory of Change (TOC) that serves as a technical framework for analyzing the performance of community health supply chains in its focus countries. SC4CCM has a project TOC, which serves as the umbrella framework for country-specific TOCs. While all the TOCs aim to achieve the same objective, the country-specific TOCs have variations in steps that constitute the causal pathways that are necessary to achieve that objective. The country level objective for all TOCs on the SC4CCM project is to achieve CCM product availability at the community level when, and in the quantities, needed in order to enable community health workers (CHWs) in Rwanda, to treat common, curable illnesses of childhood in the community.

The TOC serves multiple purposes. From an operational perspective, the TOC provides a way in which data can be organized to guide strategic decisions about where in the supply chain to test interventions that are likely to result in significant improvements in product availability, and helps to identify the kinds of interventions that are needed. From a learning perspective, the TOC serves as a monitoring and evaluation framework to guide data collection, analysis and interpretation as well as to develop hypotheses and causal pathways for change within the community health supply chain. Each precondition leading up to the overall main country objective on the TOC has a corresponding indicator to provide an assessment of performance.

Appendix A depicts the complete Rwanda-specific TOC, with its causal pathways linked to each of the learning interventions being implemented. The second and third rows show the main country level objective and the five important preconditions that contribute to achieving the main objective.

## Baseline Results from the TOC

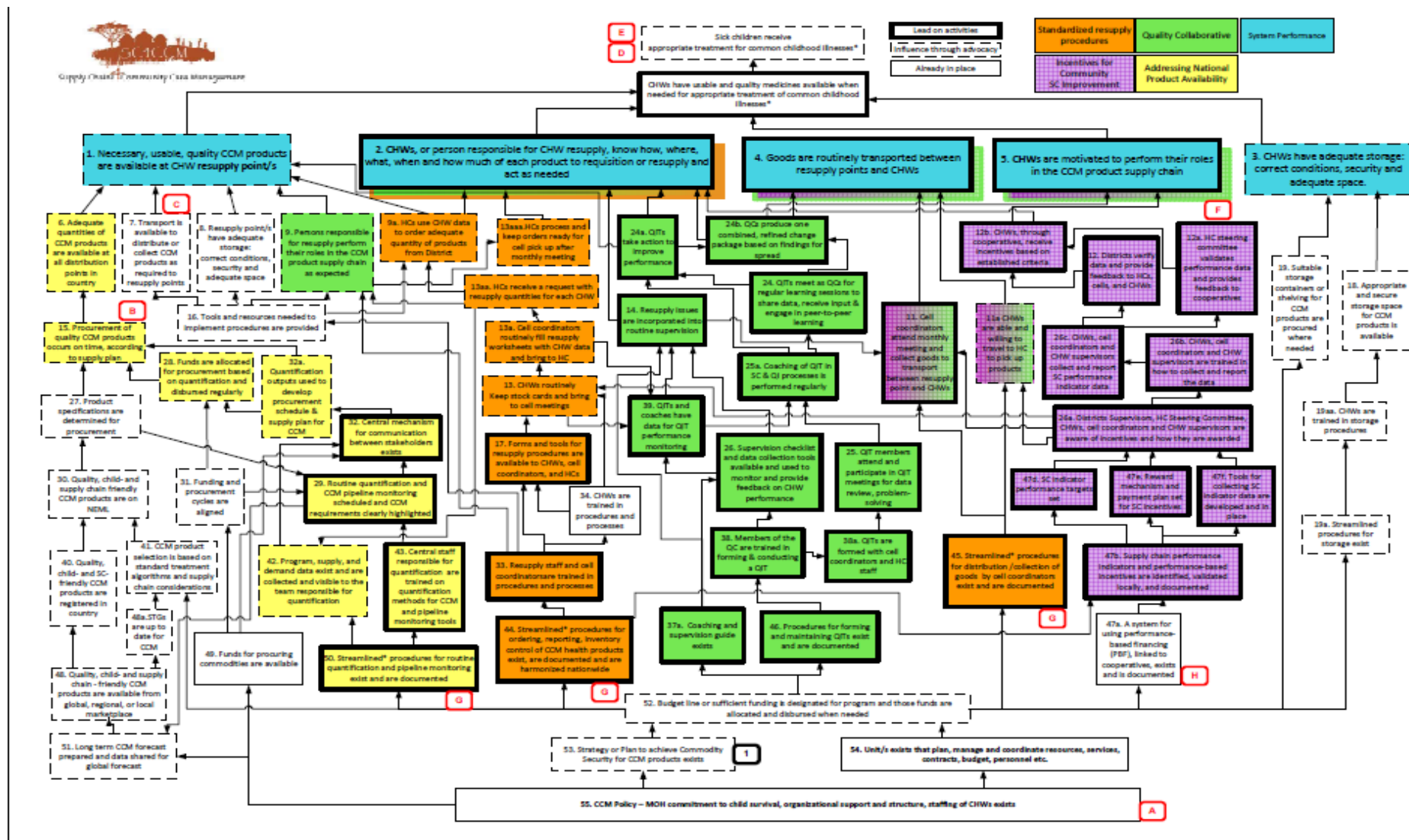
To develop the Rwanda-specific TOC, SC4CCM conducted a baseline assessment between September-November 2010 that evaluated the overall performance of the community health supply chain and provided indicators for each of the five main pre-conditions of the Theory of Change. The baseline measured availability of all nine products managed at the community level; the following analysis focuses primarily on the five CCM products (amoxicillin, ORS, zinc, ACTs - Primo Rouge & Jaune) used to treat three common childhood illness (pneumonia, malaria and diarrhea). Full details of the baseline results are contained in a separate report<sup>1</sup>. Organized by the TOC framework, the results enabled SC4CCM and its partners to identify the major drivers of product availability at the community level. Further, the results for multiple preconditions on the TOC were used to identify possible solutions to overcoming SC bottlenecks and barriers to product availability at the community level.

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<sup>1</sup> SC4CCM 2012. Rwanda Final Report on Baseline Assessment of Community Case Management Supply Chain. Arlington, VA.: SC4CCM



Figure 1: Theory of Change Diagram



The baseline results show that 208 of the total 321 CHWs visited (65%) managed all five CCM products in Rwanda. Furthermore, only 49% of the 208 CHWs had them all in stock on the day of visit. Therefore, only about half of CHWs could provide the full range of services to treat any child who might present with one of the three illnesses.

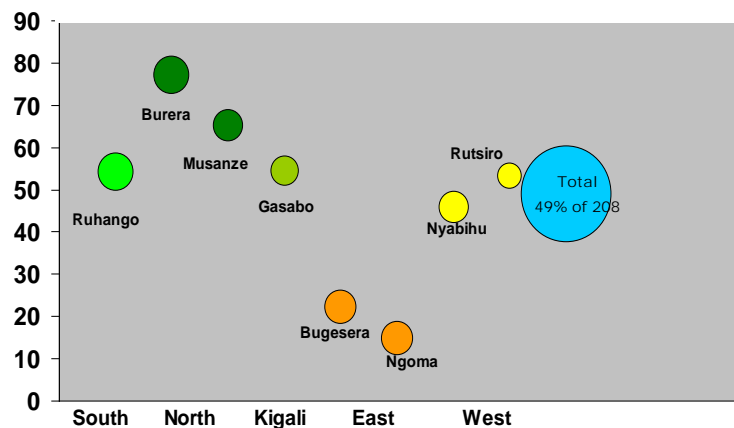
The results also suggest that the preconditions that appear to be important contributors to product availability at the community level in Rwanda are:

- **Precondition 1:** Product availability at the resupply point is a factor in predicting product availability at the CHW but is not the only predictor,
- **Precondition 2:** Lack of clear procedures defining the resupply process, no standard formulas for calculating resupply quantities, poor data visibility into CHW consumption and stock levels, and lack of basic supply chain knowledge and skills among CHWs
- **Precondition 4:** Transportation challenges including the lack of motivation to travel to collect supplies, and
- **Precondition 5:** Low motivation levels by CHWs to perform their supply chain roles.

### Precondition 1

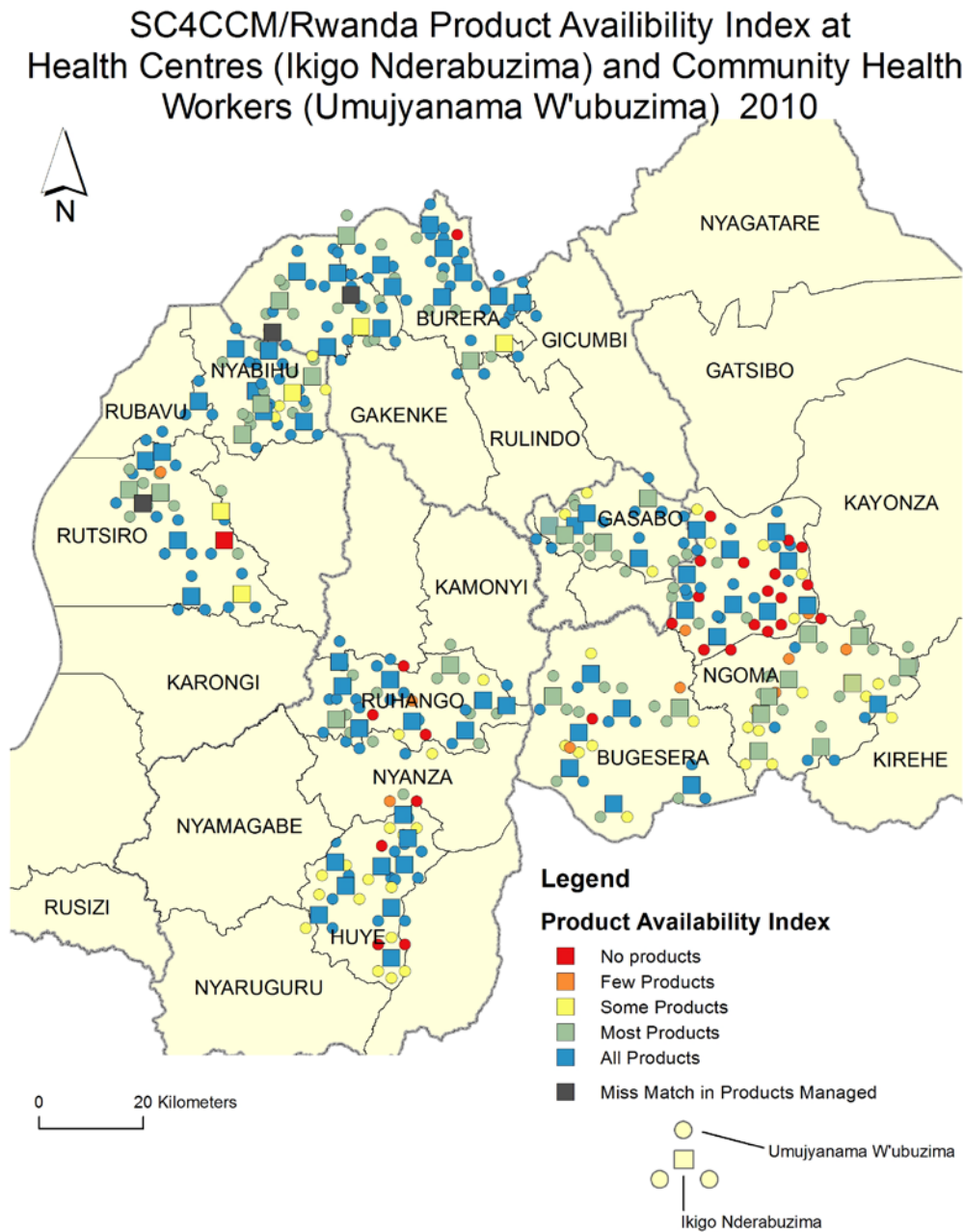
Product availability of the five CCM products varied substantially at different levels of the public sector pipeline. 70% and 64% of districts and health centers, respectively, had all five products in stock on the day of visit. Figure 2 shows how districts had striking differences in product availability as an overall indicator. Burera and Musanze had higher product availability on the day of visit compared to Ngoma and Bugesera which had the lowest availability. However, trends by region (represented by color) were fairly consistent.

**Figure 2: Percentage of CHWs with Five Key Drugs in Stock (amoxicillin, ORS, zinc, ACTs - Primo R&J)**



Another interesting finding, demonstrated in Figure 3, was that often, if products were available at the resupply point they were also available at CHWs. However, other scenarios included resupply points fully stocked, but CHWs in the area stocked out (of some or all products), and the reverse with CHWs fully stocked but the resupply point stocked out. This indicates that the availability of products at the resupply point is not the only factor influencing product availability at CHWs. See appendix C for full map of Rwanda.

Figure 3: Products availability between CHWs and resupply points in Southern Province



The project hypothesized that leadership and commitment were important factors explaining the variation in district results, while the lack of standard resupply procedures contributed to the inconsistencies in availability of the different products.

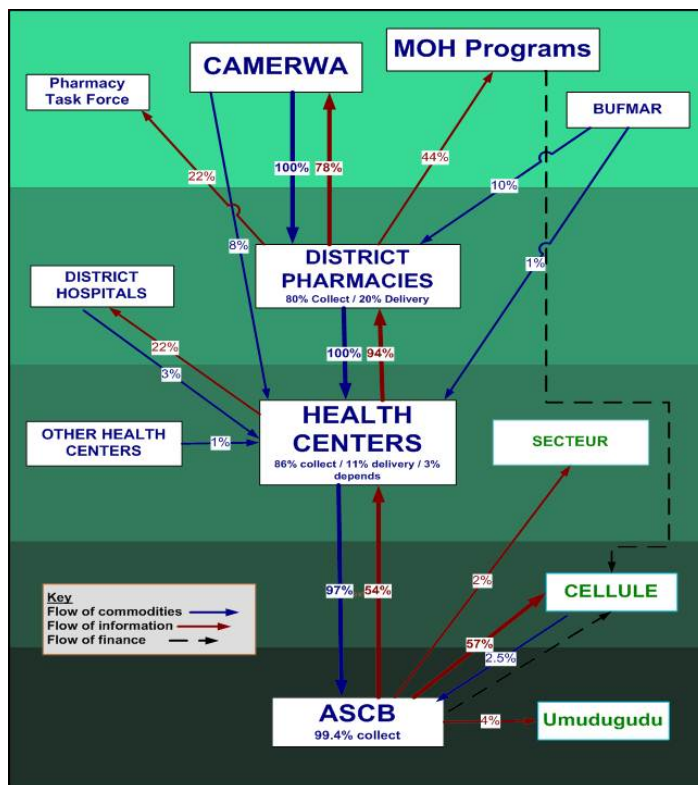
## Precondition 2

The findings of the assessment show that there are no standard operating procedures or standard formulas for calculating resupply quantities of health products for CHWs. When CHWs were asked if they knew how to determine their requirements; 31% said ‘do not know’, 29% said ‘someone else’ has to decide their quantities, about 19% said ‘based on forms submitted’ and 4% said they request for resupply ‘whenever they are about to finish their stock’ (see table 3). On asking health center staff how they determine how much to resupply CHWs, 62% said ‘based on forms submitted,’ 19% said ‘other’ and only 4% said ‘based on a formula.’ A lack of consistency in responses from both CHWs and HC staff indicate that there are currently no harmonized procedures for determining resupply quantities for CHWs.

The recording of stock transactions in a timely manner on stock cards is one good indication, among others, of proper stock management. The results showed that a large majority of CHWs were using stock cards: 60% of CHWs who managed Primo Rouge (Artemether/lumefantrine 6x1) had a stock card for it and 60% had one for Primo Jaune (Artemether/lumefantrine 6x2); for both zinc and amoxicillin 83% of CHWs had stock cards while 78% had one for ORS and 28% had one for RDTs. It is important to note that on average less than 3 months of data were available on stock cards, suggesting it was a newly introduced initiative at the time of the survey.

Another aspect evaluated under this precondition was how products and logistics information flow between different levels, to both establish whether distribution is streamlined and to determine if the right people have access to the right information. The results depicted in figure 4 shows that while the flow of products is mainly streamlined, the flow of information is not streamlined nor is it aligned with the flow of products. CHWs report to multiple places, but often not to the place from where they are getting resupplies. Therefore, information from CHWs is not available to resupply points to use for good decision making.

Figure 4: Flow of Products and Information



### Pre-condition 3

Storage results also reflected a balance of good performance in some areas, and need for improvement in others. 16% of CHWs were observed as having insufficient storage space and 37% did not secure the storage box with a lock and key. 15% of CHWs did not appear to store products in a clean, dry, well-lit and well-ventilated storage area, while 24% of CHWs did not indicate removal of damaged and/or expired products on stock cards.

Participants during the LSAT workshop, a consultative, qualitative data collection workshop conducted during the baseline, expressed that storage boxes were old, in poor conditions, but could not be replaced due to lack of funds. During data validation workshops CHWs reported insufficient storage space/conditions, boxes are too small for products, reports, and cash and carrying bags are not waterproof. Participants explained that those boxes were no longer adequate as the number and quantities of products have increased over time but boxes remained of the same size.

### Precondition 4

In general most CHWs reported that there were no arrangements for transportation to get to the resupply point and most CHWs (88%) travel on foot, while a few (10%) had access to a bicycle and a very small proportion (1.2%) used other means of transport like private vehicles and public transport.

The results showed that a large percentage of CHWs travel on all dirt roads and many of those roads are in bad condition. On average CHWs reported traveling between two to three hours to and from the resupply points to collect products.

At the data validation workshops held to disseminate and validate baseline survey results, CHW participants expressed that their greatest challenge is traveling long distances but with no compensation to pay for a bike or motorcycle ride, and having to pay out of pocket when they need one. It was further stated that the challenge of transportation sometimes results in stock outs at CHW level when they cannot find means to get to the resupply point for more products.

### Precondition 5

Motivation is an essential component of a functioning supply chain, as the tasks required to manage stock are several of many that CHWs must conduct in their role. . In spite of the challenges that CHWs face and the fact that it is a volunteer position, many indicated satisfaction with their job. When asked what motivates them to perform their roles the majority responded that they are motivated by building social relationships, trust and esteem from neighbors (47%) and by being able to save children's lives/help communities (27%).

Even though the CHWs interviewed did not mention supervision as a source of motivation the health field considers well-conducted supervision to be a motivating factor for workers. Through conversation with CHWs many reported that if they receive feedback on what they are doing they are encouraged to put forth more effort and improve. The findings from this survey indicate that in Rwanda a health center level supervisor oversees an average of 88 CHWs. Given the transport constraints and bad road conditions in most areas, the difficulty of trying to visit each CHW at their home regularly to view products and forms, and give feedback is clear. Yet, these are the requirements for effective supervision on supply chain topics. Therefore, although this assessment finds that supervision takes place at least once a quarter for 90% of CHWs, it remains questionable whether the frequency or quality is enough to make a difference in health worker motivation to perform supply chain tasks.

When CHWs were asked what they would consider as their main challenge to managing health products 40% said lack of *remuneration*, 27% said lack of *transport*, and 11% said lack of adequate *storage* space. Other problem raised during DVW related to challenges was the lack of any mechanism to communicate about stock status between CHWs and resupply points.

## Learning Hypotheses:

Based on the results from the baseline assessment and analysis within the context of the TOC, SC4CCM and its partners developed an intervention strategy for improving community health supply chains based on the following hypotheses.

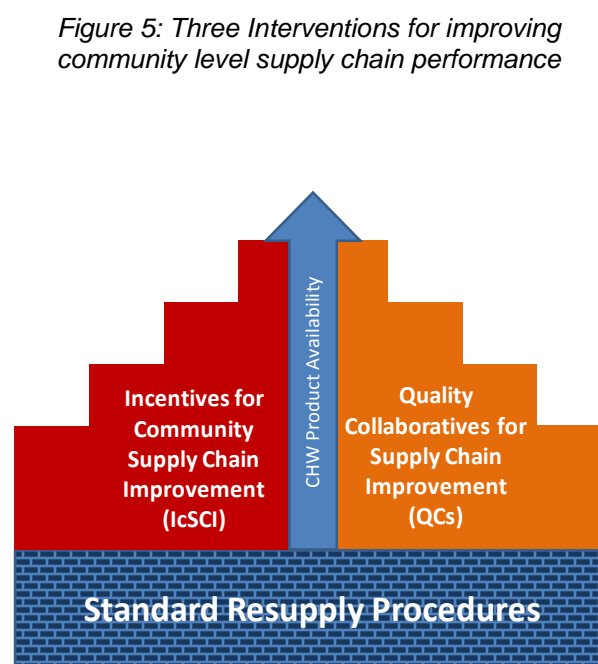
1. Designing simple, standard procedures and tools for resupply of CHWs and providing appropriate training will establish the necessary foundation for a well-performing supply chain and ensure the success of subsequent efforts to improve product availability at the community level.
2. Using a quality improvement approach to test innovations and generate local best practices that can be shared amongst peers in the supply chain will catalyze change in the performance of the supply chain and significantly improve product availability at the community level
3. Building on the success of the performance based incentive system at the community level in Rwanda by developing an incentive system to improve supply chain performance will significantly improve product availability at the community level.

These hypotheses have been translated into three interventions for improving the performance of the community level supply chain:

The first intervention, **Standard Resupply Procedures**, aims to establish a solid foundation of procedures, tools and skills for the community level supply chain. The goal of the design is to keep the system as simple as possible while ensuring that CHWs always have enough products to serve their clients. The training approach relies on a cascade method where districts train appropriate health center staff and cell coordinators, who are primarily responsible for collecting and reporting logistics data and ensuring supplies reach all CHWs in their cells. Designating reporting and transportation responsibilities to the cell coordinator was a deliberate design decision aimed at promoting quality of logistics reporting and ensuring the training rollout is affordable for the public health system.

Strategically, the second and third interventions build upon the first intervention and explore two different ways of implementing the resupply procedures with a view to significantly improving supply chain practices amongst CHWs, and therefore product availability at the community level. In the second intervention, **Quality Improvement Collaboratives**, a network of Quality Improvement Teams (QITs) test innovations and generate best practices in how to close the gap between actual and desired supply chain performance as a way to catalyze system-wide change in the supply chain. As part of the third intervention, **Incentives for Community Supply Chain Improvement (ICSCI)**, the project has designed an incentive system for motivating cell coordinators and their CHWs to achieve supply chain performance targets for the supply chain tasks believed to have the most impact on product availability. Cell coordinators will receive a monthly allowance to contribute towards their telecommunication and transport costs and the entire cooperative will receive a quarterly incentive based on the target levels achieved by CHWs in the cooperative.

In addition to these two interventions, SC4CCM is also working at the national level to establish, support and build capacity in



quantification and supply planning for CCM products. Recognizing that product availability at the national level – or first mile of the supply chain – is a critical prerequisite for ensuring product availability at the community level, SC4CCM is taking a catalytic and advocacy role in resource mobilization and coordination for CCM commodity security, with an emphasis on pediatric- and supply chain- friendly products. The purpose is to ensure that appropriate CCM products for CHWs are effectively quantified for and that sufficient funding can be made available for their purchase by working with the MOH to create systems for identifying and sharing important information on product need, supply plans, and any availability gaps between donors and partners at the national level to support commodity procurement.

## Intervention Strategies for Improving Product Availability at the Community Level

### Standard Resupply Procedures

The Standard Resupply Procedures are designed to provide a simple, predictable way in which CHWs can be resupplied every month, using a standard calculation and easy-to-use tools. The objectives of the intervention are:

- To document procedures for ordering, reporting, inventory control of CCM health products, and have the procedures be harmonized for the entire country
- To train district and health center staff and cell coordinators in the standard procedures and processes and clarify their respective roles in recording, reporting and resupply
- To provide CHWs, cell coordinators and HC staff with forms and tools for resupply
- To create simple procedures, to avoid over-burdening CHWs, who are volunteers and may have limited time to devote to routine supply chain tasks.

Figure 6: “Magic Resupply Calculator”

Balance →	0	1	2	3	4	5	6	7
↓ Cons.								
0	4	3	2	1	0			
1	4	3	2	1	0			
2	4	3	2	1	0			
3	6	5	4	3	2	1	0	
4	8	7	6	5	4	3	2	1
5	10	9	8	7	6	5	4	3
6	12	11	10	9	8	7	6	5
7	14	13	12	11	10	9	8	7
8	16	15	14	13	12	11	10	9
9	18	17	16	15	14	13	12	11
10	20	19	18	17	16	15	14	13

To meet these objectives, requirements were condensed so that only three, simple tools are needed for the CHW resupply process: a stock card, the resupply worksheet and the “magic resupply calculator” (Figure 5). Also, the procedures deliberately take advantage of the cell coordinator’s existing role; the procedures assign cell coordinators primary responsibility for logistics data recording, reporting and resupply. Given the large number of CHWs in the system, targeting cell coordinators as primarily responsible for supply chain tasks will improve quality of data and tasks performed and significantly reduce training costs, and therefore enable CHD/MOH to afford rolling out the system nationwide. Understanding that product transport is also a barrier to product availability, the cell coordinator also plays a backup role to ensure that CHWs receive products even when they are not able to travel to the monthly meeting.

While the Standard Resupply Procedures on their own may only contribute incrementally to improvements in product availability, their successful implementation is expected to bring about the following outcomes:

- To lay the foundation for an efficient and effective supply chain by ensuring that staff responsible for performing supply chain roles have the necessary knowledge, skills and capacity
- To improve data visibility and accuracy to the HC (resupply point) for effective decision making
- To improve regularity of transport of products between HC and CHWs

- To ensure that CHWs always have enough products to serve their clients, but don't significantly add to supply chain wastage by holding excessive inventory.

## Quality Improvement Collaboratives

The quality improvement collaborative (QC) approach will be implemented in Ngoma, Nyabihu and Rutsiro districts and involves implementing Quality Improvement Teams (QITs) at the health center level consisting of: Director of the health center, CHW Supervisors from HC level, pharmacy store managers from HC Levels, data manager at health center and cell coordinators. The QC is a short term initiative (12 months) and works by having the network of individual QITs all focus on a single topic area and have shared objectives and indicators.

The objectives of this intervention are to:

- Find solutions to the challenges associated with operationalizing the new resupply procedures at the CHW level, and ensure the feasibility of solutions by stressing local team work in the identification of problems and possible solutions
- Identify and test innovations to address gaps in system performance to generate best practices
- Close the gap between desired and actual supply chain performance by developing, testing and scaling-up successful changes quickly across many teams
- Build local capacity and ownership in existing supervisors, pharmacy staff, and cell coordinators to use QI tools and techniques to make changes that close performance gaps.

Within the QIT, HC staff and cell coordinators will take the lead in bringing CHWs associated with that QIT on board with the QI/QC objectives. They will also supervise and coach CHWs on their performance of their resupply standard operating procedures (SOPs)/tasks, engage the CHWs in identifying problems, make changes in their practice, and test changes in order to better apply the resupply SOPs and/or refine the SOPs where necessary. HC staff and cell coordinators will also ensure data use and documentation of the QIT actions at the cell and HC levels.

The QC approach acknowledges that multiple stakeholders at district, HC and community levels play roles in helping improve performance and, consequently, assigns roles to a variety of staff at each level beyond membership in the QIT. For example, district based coaches will support the work of QIT teams, and various district staff will participate in the QC as follows:

- District Hospital Monitoring and Evaluation Officer
- Monitoring and Evaluation Officer from Mayor's Office
- District Pharmacist
- District Data Manager
- District CHW Supervisor

Successful implementation of the Quality Improvement Collaborative approach is expected to bring about the following outcomes:

1. Resupply procedures for the 7 key products (5 CCM products, RDTs, gloves) are applied according to standards at:
  - a. All resupply points (health center)
  - b. All service delivery points (CHWs and cell coordinators)
2. Goods are routinely transported between resupply points and CHWs
3. All CHWs and Cell Coordinators have all 7 key products in stock.



## Incentives for Community Supply Chain Improvement (IcSCI)

The IcSCI intervention will be implemented in Bugesera, Burera, and Huye districts and aims to operationalize the standard resupply procedures by incentivizing CHWs to improve supply chain performance and product availability. IcSCI builds on and aims to strengthen the commodity supply chain portion of the existing community based performance-based financing (PBF) scheme for CHWs that is in place in Rwanda as a means of improving delivery of health services at the village level. Through the existing PBF system, robust national structures are in place to implement, validate, monitor and evaluate existing schemes, and CHWs are organized into self-managed cooperatives. The incentive system works by determining a key set of health indicators for cooperative members/CHWs to achieve; after submitting results every quarter, cooperatives receive incentive payments from health centers related to their achievement levels. The objectives of this intervention are to:

- Improve performance in three priority supply chain areas by providing monetary incentives to CHWs through their community cooperatives if they achieve certain supply chain performance goals
- Promote record keeping and use of data for decision making at district and lower levels
- Reduce transportation and communication barriers by providing monthly allowances to cell coordinators to help them stimulate changes in behavior of CHWs
- Use the existing PBF structure and processes to the greatest extent possible while implementing the IcSCI intervention to facilitate its integration into PBF should it prove to be successful

A list of nine indicators was developed for the three priority supply chain areas of meeting attendance, reporting and good inventory control procedures. The indicators have been weighted to reflect the level of priority of behavior necessary for improved performance of supply chain tasks at the community level, and to prevent “gaming” so that CHWs don’t hoard product (rather than dispensing to clients) in order to get extra points. Data to evaluate performance will be collected at the cell and HC levels and will be validated each quarter by the existing PBF HC Steering Committee, who will then make recommendations about incentive amounts to be paid out. Once quarterly reports from the HC steering committee are received by the project, a separate verification exercise will be conducted by the project in partnership with district staff. The verification team will prepare a feedback report for all health centers that will contain: 1) confirmation of the scores obtained by each cooperative for the quarter under review; and 2) confirmation of the amount and schedule of the incentives/rewards to be received by the cooperatives for the level of performance attained by the CHWs. Two types of payments will be made to cooperatives:

1. A **monthly** transport and communication allowance given to cell coordinators in all intervention districts to facilitate performance of supply chain tasks
2. A **quarterly** incentive paid out to each cooperative in the three intervention districts based on performance of supply chain tasks

Successful implementation of the Incentives for Community Supply Chain Improvement intervention is expected to bring about significant improvements in product availability at the community level as a result of significant improvements or 100% attainment of the following indicators:

- The proportion of CHWs (binomes) who attend health center monthly meetings
- The proportion of CHWs for whom stock card data is included on all resupply worksheets
- The proportion of CHWs with stock cards for CCM products
- The proportion of CHWs with stock cards for CCM products where physical inventory matches stock card balance
- The proportion of CHWs with no expired CCM products
- The proportion of CHWs who have at least one treatment for a five year old child in stock, for each CCM product
- The proportion of cell coordinators who present complete resupply worksheets during monthly health center meetings

- The proportion of cell coordinators who presented complete resupply worksheets without any calculation errors during monthly health center meetings
- The proportion of cell coordinators who need products, who collect them for their cell from the pharmacy after health center meetings.

## Implementation Plan

The implementation plan outlines the specific activities that the SC4CCM project will oversee, lead and support for each intervention area during the testing phase in Rwanda. The implementation plan is divided into activity streams around the intervention groups – standard resupply procedures, quality improvement collaboratives and incentives for community supply chain improvement (see Appendix C).

### Activity Stream 1 – Overall

The first activity stream is focused on mechanisms for communicating with MOH, districts and stakeholders regarding the progress of interventions to share lessons learned and successes. Activities include participation in regular CCM TWG meetings to share data from intervention monitoring and pipeline monitoring. Keeping stakeholders involved during the testing phase will enable a smooth transition from testing to scale up and institutionalization of the interventions.

### Activity Stream 2 – Monitoring and Evaluation

Activity stream two refers to the monitoring and evaluation activities as outlined in the M&E plan that follows this section. The implementation plan clearly shows the beginning and ending of the testing period in Rwanda. The testing period will last twelve months covering a full national procurement cycle and multiple reordering cycles at the lower levels. The midline evaluation will be conducted in May 2013 and the endline in April 2014.

### Activity Stream 3 – Standard Resupply Procedures

Developing standard resupply procedures involves first coordinating with the Community Health Desk (CHD) as well as ensuring consistency and flow with the existing supply chain procedures from the HC to central level. The procedures will then be validated by users and stakeholders in a review workshop and finalized accordingly.

SOPs will be developed that clearly outline the system and procedures and contain roles and responsibilities and job aids providing step by step instructions for each task. The SOPs will be designed for use by district and health center staff and job aids will be designed primarily with visuals to be appropriate for cell coordinators use.

A Training of Trainers will be conducted for district pharmacists, first in all six focus districts, then for all districts as per CHD's rollout plan. District pharmacists will then rollout the system through cascade training of HC pharmacy staff, CHW supervisors and cell coordinators. Cell coordinators are the only types of CHWs that will be trained – other CHWs will rely on cell coordinators to make the system work, and will just have responsibility for bringing stock cards to their monthly meetings with cell coordinators. All trainees will be provided with tools (e.g. job aids, resupply worksheets) to enable the new procedures to be operationalized.

## Activity Stream 4 – Quality Improvement Collaboratives

The QC involves training QITs and coaches on their respective roles, setting up the parameters for monthly QIT meetings, establishing a mechanism for allowances associated with monthly meetings and coaching responsibilities and determining the purpose for the quarterly learning sessions.

Materials to support a five day training for 100+ members in each of the three districts will be developed, including SOPs, manuals and guides and six different tools to be used in data collection, monitoring and evaluation of the QIT progress by its members. The training strategy and plan, and the design of the launch workshop, was proposed to meet the needs of both the QITs and the district coaches. All participants in the QC need to have a shared understanding and basic knowledge and skill set relevant to the basics of quality improvement (including data collection and management) in order to take part in the QITs, and the larger QC.

All QIT members and additional district staff will participate in the five day workshop, although cell coordinators will only attend two of the five days, so as to simplify their role and comprehension of the intervention. Three workshops consisting of QIT members from four health centers each will be held to launch the QC in Ngoma; three workshops with QIT members from five health centers each will be held to launch the QC in Nyabihu; and three workshops to accommodate 18 health centers will be held in Rutsiro.

Launch via the training will be followed by project staff conducting joint coaching of QIT members at regular monthly meetings at each health center and will culminate in quarterly learning sessions at the district, where a selected number of staff from each QIT will participate to share their solutions and results.

## Activity Stream 5 – Incentives for Community Supply Chain Improvement

The IcSCI activity was structured to ensure that the incentives would be affordable yet sufficient to motivate CHWs to engage in different behaviors. At the same time, the types of incentives and mode of distribution will have to be consistent with the existing PBF system to facilitate integration if the intervention proves to be successful. Thus to initiate the stream of activities, the project will conduct focus groups in the three intervention districts in October 2011 to identify indicators and options for suitable incentives. After narrowing the design down, the proposed incentives will then be validated through district meetings with the CHWs and health centers from the same three districts in December 2011.

SC4CCM will also consult extensively with relevant departments within the MOH to ensure that the flow and design of the incentives is as consistent as possible with the existing PBF. Because the PBF is a fully integrated system, the two aspects that will have to be managed separately by the project include the flow of funds until the HC level (after which it can mirror PBF) and the database in which data is captured. Until the intervention is proved to be successful, these aspects cannot be integrated into PBF. A database to capture IcSCI indicators along with SOPs and training materials will be developed and the intervention will be launched by conducting two one-day trainings at each district (3 district hospital staff from each district, 4 participants from each HC, including the CHW cooperative president, for a total of 27-36 per day of training, depending on the number of HCs per district).

A distribution mechanism for monthly allowances and quarterly incentive payments will be established through agreements with HCs. Project staff will randomly attend monthly meetings and form verification teams with district staff to evaluate HC Steering Committee reports and provide feedback prior to paying incentives.

## **Activity Stream 6 – Quantification**

SC4CCM will provide technical assistance to the quantification of CCM products during each year of the project. SC4CCM will endeavor to build capacity and institutionalize good quantification practices within CHD primarily as well as MPDD to ensure that products for the community are always in good supply nationally. To achieve this SC4CCM will participate in the annual integrated quantification exercise for all MCH products. SC4CCM will also advocate for and work with CHD and other relevant stakeholders each quarter to update the pipeline database to monitor the stock status and identify procurement needs. The results of the pipeline monitoring will be presented at the CCM TWG meetings included in activity stream one. SC4CCM will also evaluate the products in use for the CCM products for their age appropriateness and packaging characteristics for distribution at the community level and advocate for improvements, if necessary.

## **Activity Stream 7 – Scale-Up**

After completion of the midline assessment, a data validation workshop will be conducted with an added component on scaling up. The purpose is to gain consensus and recommendations for the scale up plan by stakeholders from all levels of the system. The results of the scaling up component of the workshop will be used to develop a scale up plan with CHD and other relevant stakeholders. Ongoing activities will include advocacy by project staff and potentially using district staff from the “successful” intervention to present and advocate for uptake with other non-focus districts.

## **Activity Stream 8 – Sustainability**

This activity stream includes the activities undertaken in the development of the intervention strategy to ensure that the strategy has the potential to be scaled up and is sustainable. Furthermore, the Pathway to Supply Chain Sustainability Tool will be administered at least twice but possibly three times: once in April 2012 as the QC and IcSCI interventions are launching; once at the time of the midline in May 2013 and at the time of the endline in May 2014.

## Monitoring & Evaluation Plan

The M&E plan describes how the project intends to monitor and evaluate the interventions developed for Rwanda and test the validity of the country-specific Theory of Change framework. It describes key monitoring and evaluation activities planned post-baseline, and explains the links with the country-specific TOC. Project core and sub-indicators for performance measurement, testing and learning are listed as annexes. This plan will focus primarily on the time frame between intervention start-up and the midline assessment. After midline evaluation activities are completed, results will be used to guide decisions on which strategy or strategies to scale up, if any, and whether any changes in the approaches are needed. An endline assessment will be carried out before the end of the project to assess the effectiveness of strategies selected for scale-up actions as determined by the MOH.

### District selection for intervention and non-intervention groups:

Of the 10 districts visited across the country at baseline (Huye, Burera, Bugesera, Rutsiro, Nyabihu, Ngoma, Musanze, Ruhango, Rwamagana, and Gasabo), 6 were chosen to be project intervention districts in order to measure intervention impact over time (see Appendix A). The remaining 4 districts visited at baseline will be considered non-intervention districts, and the project will re-visit them for comparison purposes during the midline evaluation. The process of selecting districts for intervention and non-intervention groups included matching characteristics across the districts. Characteristics of districts were used to create groups that are similar to each other for greater validity when making comparisons. The selection of districts for the non-intervention group was made by chance when the matching between other regions worked best in that way to create groups with equal characteristics.

Characteristics from baseline survey and external sources (e.g. DHS, 2005) considered for this exercise were the following:

- Total N (CHWs)
- CHWs who manage health products
- CHWs with all 4 products in stock on day of visit
- Distance from CHW to resupply point
- CHW job satisfaction
- Access to mobile phone network
- Access to internet
- Rates of malaria, cough and diarrhea in under 5 population
- Partners supporting CCM (PIH, MCHIP, UNICEF, Save the Children)
- Geographic diversity

### Key M&E activities

#### RNEC Approvals

SC4CCM submitted a baseline survey protocol and data collection instrument through the Rwanda National Ethics Committee (RNEC) for review and received approval from the body for this activity in 2010. The project submitted a second protocol for intervention monitoring and evaluation activities, up to and including the midline (comparison) survey planned for May 2013, and approval was granted in March 2012. The second protocol will be submitted for re-approval in early 2013, once midline data collection instruments are final.

## Routine Monitoring for Intervention Impact

Routine data is essential for decision making between periodic surveys to monitor the success of the interventions and adjust them as necessary, to ensure learning is continuous, and to support the achievement of desired outcomes. After the launch of the intervention implementation phase in 2012, the project will begin routine intervention monitoring activities right away to track progress and generate data for making programmatic adjustments over the one year testing period.

Routine monitoring will be done over one week of each month by 2-3 SC4CCM staff and accompanying MOH staff, as available. Visits will be made to approximately 18 CHWs, 18 CCs and 9 resupply HCs per intervention group, for a quarterly total of 36 CHWs, 36 CC 18 resupply HCs, and 6 districts visited. The first monitoring visits will occur following completed launch of both intervention groups in all 6 districts. The second visit will occur one month later in 2 of the 4 rollout districts, and the third will occur the following month with the remaining 2 districts to complete the quarter. See Table 1.

Monitoring visits will be made evenly across the 6 intervention districts to randomly selected resupply health facilities (HC) and associated CHWs who manage products, as well as their cell coordinators (CCs). Selection of sites will be done by project staff, at random within each district so that all sites have the same chance of selection each time. HCs will be selected first at random, and then 2 CHWs associated with those HCs will be selected at random, to be evenly divided over the number of sampled HCs. Finally CCs associated with the selected CHWs will be visited. If a CHW selected at random is also a CC, they will answer questions meant for both types of respondent.

At CHW level, monitoring data collection will include interviews, observation of reports, product inventory and storage conditions. Visits at CC level will capture indicators related to the respective intervention group in that district, including their training on QIT roles and possession of tools to carry out QC functions or training in SC incentive indicator data collection and reporting and regular execution of reporting. Even though CCs are also CHWs, and could answer questions for both persons, it is preferable to sample and collect data from CHWs separately because CCs are the most capable of their group and may produce a positively skewed picture of the community level. At HC level, records will be reviewed and interviews held with individuals including CHW supervisor, QIT leader, pharmacy manager, data manager, and HC steering committee representative, depending on intervention group. At District level, district supervisors and coaches will be interviewed. Some indicators for both intervention groups can only be collected at the end of the quarter, such as those tied with the HC-level validation process for incentives or QC learning sessions. However, the project will collect periodic data earlier in the first quarter to detect challenges with rolling out interventions and act quickly to address them. In the second and third quarter, data collection efforts will align with the end of the quarter in each group.

Table 1: Routine monitoring schedule and sample:

Details by Quarter:						end of ICSCI quarter				end of QC quarter							
		May/June 2012				July				Aug				Quarter 1			
		CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District
QC*	Ngoma	6	6	3	1							~		6	6	3	1
	Nyabihu	6	6	3	1							~		6	6	3	1
	Rutsiro	6	6	3	1							~		6	6	3	1
ICSCI**	Huye	6	6	3	1			~						6	6	3	1
	Burera	6	6	3	1			~						6	6	3	1
	Bugesera	6	6	3	1			~						6	6	3	1
<b>Total</b>		<b>36</b>	<b>36</b>	<b>18</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>36</b>	<b>18</b>	<b>6</b>
		Sept (Q1 review)				Oct				Nov				Quarter 2			
		CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District
QC*	Ngoma									6	6	3	1	6	6	3	1
	Nyabihu									6	6	3	1	6	6	3	1
	Rutsiro									6	6	3	1	6	6	3	1
ICSCI**	Huye					6	6	3	1					6	6	3	1
	Burera					6	6	3	1					6	6	3	1
	Bugesera					6	6	3	1					6	6	3	1
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>18</b>	<b>9</b>	<b>3</b>	<b>18</b>	<b>18</b>	<b>9</b>	<b>3</b>	<b>36</b>	<b>36</b>	<b>18</b>	<b>6</b>
		Dec (Q2 review)				Jan				Feb				Quarter 3			
		CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District	CHWs	CCs	HCs	District
QC*	Ngoma									6	6	3	1	6	6	3	1
	Nyabihu									6	6	3	1	6	6	3	1
	Rutsiro									6	6	3	1	6	6	3	1
ICSCI**	Huye					6	6	3	1					6	6	3	1
	Burera					6	6	3	1					6	6	3	1
	Bugesera					6	6	3	1					6	6	3	1
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>18</b>	<b>9</b>	<b>3</b>	<b>18</b>	<b>18</b>	<b>9</b>	<b>3</b>	<b>36</b>	<b>36</b>	<b>18</b>	<b>6</b>
		Mar (Q3 review)				Apr				May: Midline							
		CHWs	CCs	HCs	District	CHWs	CCs	HCs	District								
QC*	Ngoma																
	Nyabihu																
	Rutsiro																
ICSCI**	Huye							~									
	Burera							~									
	Bugesera							~									
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>								

~ End of quarter data collection only

\*Visits include interviews with CHW, CC, CHW Supervisor (QIT leader), HC Pharmacy manager, District Coaches: Data Manager, CHW Supervisor

\*\* Visits include interviews with CHW, CC, CHW Supervisor, HC Pharmacy manager, HC Steering Committee Head

Project staff and MOH counterparts will use a standard tool for routine monitoring visits. Forms will be formatted for and loaded onto smart phones via EpiSurveyor software, and SC4CCM staff will collect data using smart phones. They will send monitoring data by phone directly to a central web-based server from which data can be received, processed and used to generate tailored reports.

The project and MOH will formally review the first round of quarterly data in September 2012 and share outcomes with key stakeholders. Future monitoring activities will follow the same quarterly schedule over the implementation period, for

four rounds. The last round or quarter will consist of an abbreviated two months before midline survey activities begin, due to a compressed implementation period.

Data sources SC4CCM may utilize throughout the monitoring period include supervision checklists, quality collaborative documentation, incentives data validation activities and payments database, focus groups and/or routine data from CCM partners or regular supervision visits. Project staff will tie information from various sources together to create a complete picture of intervention performance for each quarterly review.

## Periodic Evaluations

In addition to the baseline, SC4CCM will carry out midline and endline assessments during the 5-year grant period in continued collaboration with the MOH. The midline assessment is planned for May 2013, and the endline for 2014. Similar to the baseline, assessment tools for these activities will draw from the LIAT (Logistics Indicators Assessment Tool) and LSAT (Logistics System Assessment Tool), both developed by JSI under the first USAID | DELIVER PROJECT and validated for assessing supply chain system performance. The project will employ quantitative and qualitative methods.

The midline assessment will attempt to measure changes in CCM supply chain performance at the community and HC levels achieved over the one year implementation phase. The midline will focus on performance of SC4CCM interventions in the testing districts by collecting quantitative and qualitative data on the majority of core and sub-indicators. The study design will be both a longitudinal from baseline to midline, and cross-sectional comparison between intervention and non-intervention groups. Using a ‘difference in differences’ approach (discussed in the ‘Analysis’ section) the midline will compare intervention groups to themselves at baseline for select indicators (e.g. product availability), and between intervention and non-intervention groups at one point in time (midline).

In many ways, the midline will look like the baseline survey. The quantitative portion of the midline assessment will cover the 10 districts visited at baseline, using the same sampling methodology (random selection of HCs and CHWs by probability proportional to number of CHW’s managing products). The project will continue to work with a local evaluation partner and local data collectors trained to collect data using smart-phone formatted forms for increased speed and efficiency.

One notable change in context between BL and ML is the blanket deployment of new resupply procedures for CHWs to all districts in Rwanda. With SC4CCM’s differences in differences evaluation design, this factor will fall out during analysis as it is common to both the intervention and non-intervention groups. However, the effectiveness of resupply procedures as an intervention in its own right can be shown in terms of change detected between BL and ML (though not a true evaluation without a control, so cannot be sure change is attributable to resupply procedures alone).

A second LSAT workshop will also be held at the time of the midline survey to collect qualitative data and re-visit supply chain functionality for CCM products at higher levels of the system, and to assess the project’s national level efforts. Qualitative results from the LSAT will complement the quantitative survey results and results from both activities will be presented together.

The project will rapidly analyze midline data to understand intervention performance as it relates to CCM product availability in all six intervention districts, and the level of success achieved in following causal pathways set out on the country-specific theory of change. Midline results are intended to inform MOH specifically about the potential for scale up of SC4CCM interventions to a national level, with focus on determining what method was most successful in improving product availability, while also considering the relative resource requirements of each intervention. The midline data will tell the story of what worked best, and why.

The endline assessment will also evaluate core indicators related to CCM product availability in the 10 interventions districts where SC4CCM’s interventions are expected to continue. However, endline activities will attempt to capture



achievements and lessons learned over a much broader geographic area and will likely rely more on qualitative data to evaluate the success of scale up efforts nationwide.

## Theory of Change and Causal Pathways

For evaluation purposes, the TOC provides a basis for tracking pre-conditions and causal pathways hypothesized to achieve reliable CCM product availability at community level. Therefore, in addition to testing significant change in the main project outcome measure (CCM product availability) over time, the project will also evaluate the validity of the TOC and the success of interventions by tracking progress on causal pathways. A causal pathway is a series of sequenced pre-conditions that the project intends to focus on in order to achieve one or more of the main pre-conditions at the top of the TOC.

The way to read the TOC is by starting at the bottom and moving up, understanding the pre-conditions as stepping stones on a causal pathway (different pathways are indicated by color-coding). By doing this, one can understand the sequence of outcomes (in the form of pre-conditions) that the project believes need to occur in order to reach the main preconditions at the top, and ultimately the country level objective of product availability. A causal pathway is created when the project defines an intervention that includes stepping stones all the way from the bottom of the TOC to one of the main preconditions at the top.

The colors of the TOC boxes are a visual representation of causal pathways linked with specific SC4CCM interventions. In Rwanda, three intervention causal pathways exist and are related to Standardized Resupply Procedures (orange), Quality Collaborative (green), and Incentives for Community Supply Chain Improvement (purple) interventions. The border around pre-condition boxes denotes the relative influence SC4CCM believes it will have on each pre-condition, through direct intervention or advocacy and partnership.

In addition to the causal pathways, yellow boxes represent national level project activities, and non-colored (white) boxes are areas which the project recognizes as pre-conditions but where in most cases will not lead. SC4CCM expects that white box preconditions will be met by either MOH or other partners and the project will intervene on a case by case basis, if relevant and appropriate. The white boxes are usually recognized to be outside the project mandate and are therefore not a purposeful part of the intervention strategy. They will be part of evaluation efforts to determine whether they are in place and contributing to the overall environment as described by the TOC.

By relating indicators to pre-conditions, the project will track the strengths and weaknesses of intervention performance both in terms of overall product availability as well as having the stepping stones in place that lead to change. Throughout evaluation activities, the project will relate indicator results to the sequence of pre-conditions on the TOC to understand and describe where the hypotheses have worked well or where there are still gaps, and why. If the process breaks down at any point and something is not working, for example, the TOC will be the tool that allows the project to understand where, how, and why something did not work. The project hopes to identify weaknesses early enough to adjust the TOC and/or interventions so that significant results are achieved during the life of the project. Midline results will be tied back to the TOC to articulate what has been learned about the project hypotheses and the stepping stones to reaching them. In this way, the project will be able to share results of the learning process and inform future efforts to improve community-level product availability.

## Indicators and Targets

The TOC gives rise to indicators that allow the project to track its progress along causal pathways. Each pre-condition on the TOC has at least one associated indicator that the project intends to monitor. The project identified five main pre-conditions at the top of the TOC (in light blue) as the primary pre-conditions to achieve the project-level objective of CCM product-availability at community level. These main pre-conditions gave rise to the 'core' indicators. Lower pre-conditions on the TOC are linked to 'sub-indicators'.

Prior to the baseline assessment, a general project theory of change was developed with associated indicators as a starting point. Some of these indicators have not changed with the adaptation of the country-specific theory of change, and will carry forth to be monitored over time. However, with the design of interventions tailored to the CCM supply chain situation in Rwanda, new indicators have been added that are specific to project interventions. Therefore, the core and sub-indicators that will be used in Rwanda are a mix of original and ‘new’ indicators.

The project will use indicators in various ways, for diagnostic purposes (during monitoring) and for showing change over time and across intervention groups (at midline). ‘Diagnostic’ indicators attempt to identify problems either in the supply chain itself or in the intervention design, in order to take action to remedy the problem. Some core and sub-indicators will be comparable over time as they were established prior to the baseline assessment. Others are new and tailored specifically to project interventions, so have no baseline starting point and will only be measured across intervention groups.

Targets are set for indicators to articulate the project’s goals and gauge the success of interventions. They will be tracked through both monitoring and periodic evaluation activities. It is important to note that targets for new intervention-specific indicators are essentially best guesses, since no baseline measurements exist. In some cases, indicators operate like checkboxes instead of quantitative goals, and in these cases the target is often ‘yes’ to signify the associated pre-condition is in place. Indicators associated with pre-conditions for which SC4CCM supports but does not lead have no set targets, as the project’s interventions will only affect them indirectly. The time-frame for achieving all targets (unless otherwise noted) is the midline assessment. Targets are provided as part of the indicator tables in Appendix B.

## **Analysis**

Data collected by SC4CCM will include quantitative information collected by: interview responses, physical inventory, observations of storage conditions and reporting documentation; and qualitative information: open-ended questions that are part of routine interviews. Both types of data will be collected during routine monitoring and midline activities, analyzed using different methods, and triangulated to validate results. Results will be synthesized and filled into a pre-formatted report template for quarterly review. The presentation of data at midline will include greater depth, as it will cover a more comprehensive set of indicators over a larger sample from all 10 districts (intervention and non-intervention). After midline data are collected and validated, SC4CCM will also attempt to carry out cross-country analyses with Ethiopia and Malawi for further learning.

## **Quantitative Data**

Monitoring and midline activities will focus on CCM product availability individually (Amoxicilline 125mg comprimés, Sachets de SRO, Zinc 10mg comprimés, Primo-Rouge comprimés, Primo-Jaune comprimés) and as a bundle (e.g. “all five products in stock”). The core indicator “all five products in stock” is the ideal for CHWs in Rwanda where malaria is prevalent, so this will be the ultimate measure of success for the CCM supply chain reaching down to the community level. Several other tracer products, such as those used for family planning services, will also be included for comparison analysis. Product availability will continue to be assessed through routine monitoring, midline and endline to provide a constant barometer of program success.

The way SC4CCM will identify the portion of change in product availability over time that is attributable to the project is by comparing changes in product availability between baseline figures to midline figures between the intervention and non-intervention groups. This is done with a differences-in-differences design. Districts were first matched into groups as evenly as possible considering baseline characteristics as well as certain external dimensions, in an effort to make the groups as similar as possible and ensure the product availability will be starting from approximately the same point in both groups. Therefore, the total change in product availability less natural changes over time minus change attributable to external factors (that will appear in the non-intervention group), will be considered as the change attributable to SC4CCM interventions.

New indicators developed specifically for one intervention group, as well as those created for diagnostic purposes, will generally be examined on their own during routine monitoring. Indicators that apply across both groups (e.g. Data visibility indicators) may be compared by group throughout monitoring and reviewed next to non-intervention districts at midline, using caution in the absence of baseline measures. One example is adequate stock. Because no baseline measure exists for adequate stock indicators, but the project expects to calculate this indicator through the new resupply procedures documentation, the project may attempt to compare adequate stock levels across intervention and non-intervention groups.

## Qualitative Data

SC4CCM will also analyze qualitative data for monitoring and midline evaluation activities. During routine monitoring, open-ended questions for CHWs and HC personnel will explore problems with the supply chain, product characteristics, and/or barriers to implementing interventions. Project staff will record responses and compile them for quarterly review with quantitative data. Open-ended questions will collect qualitative data to triangulate midline quantitative data, and an LSAT workshop will provide complementary qualitative data at the end of the testing period as well. At endline, qualitative data will play an elemental role in describing and evaluating the adoption, scale up, and sustainability of innovations.

## Spillover

SC4CCM anticipates that news of success in either or both of the intervention groups will be difficult to contain, and may entice districts from the other intervention group to try adopting new successful activities before the implementation period ends. Although we believe it would be very unlikely for them to do so successfully, considering the resource and time-intensive nature of the interventions themselves, the project will attempt to prevent, detect and adjust to spillover with safeguards in place and through routine monitoring.

SC4CCM will employ the following safeguards to limit the potential effects of spillover between intervention groups:

- Approach CCM partners with potential interest in implementing intervention solutions and who have the resources to do so, and negotiate with them to avoid working in SC4CCM intervention districts until after the midline is complete.
- Convey to government officials that both interventions are designed to have an equal chance of success, but any spillover will make it almost impossible to determine what elements have truly worked versus what success was due to chance.
- Monitoring data will be used to connect with district staff during intervention support visits to help them carry out the intervention as designed. This will help avoid the temptation of choosing or adapting to an alternate path before the testing and learning phase is over. We assume people will mostly reach for other solutions if there is a perception that things are not going well with their current approach, so preventing this would be a key part of intervention support.

In short, we strongly believe the risk of contamination is practically impossible to eliminate, but unlikely to manifest without additional resources. Therefore, with safeguards in place and tools to monitor for potential spillover in order to address it as it may happen, the risk is substantially too low to pose any meaningful threat to the evaluation design.

## Data use and Dissemination

Data collected through routine monitoring will be reviewed and analyzed quarterly and jointly by SC4CCM staff (including country Resident Logistics Advisor and Logistics Officer, Regional Technical Advisors, and HQ staff) and key MOH counterparts. Quarterly data will also be shared more broadly with MOH counterparts and CCM partners, both to inform a larger group of stakeholders as well as seek input in interpretation and questioning of results.

After midline data collection is complete, results will be compiled and presented in-country for validation following a similar process to the baseline. Workshops will be geared towards validating data as well as seeking input, consensus and endorsements for the scaling up strategy for the community public health supply chain. Once data are validated and recommendations from stakeholders are made in this forum, evaluation results for the intervention-testing period will be documented in a comparison report and disseminated to MOH and other stakeholders.

Endline evaluation activities will also be summarized in a final report on scale-up efforts. Periodic evaluation reports will be shared with MOH in a timely manner, and made available online via the SC4CCM website.

## Appendix A

# Description of SC4CCM Theory of Change Model

The SC4CCM Theory of Change model provides the framework for the project assessment, identification of solutions and innovations, monitoring of change and demonstration of success. The interventions and solutions proposed by SC4CCM to strengthen supply chains for community case management are based in the analysis of the relative strength of these system performance elements or causal pathways (color coding) and their preconditions (boxes).

The TOC model diagrams the pathway of change to the intermediate and ultimate goals, or long term outcomes, of the SC4CCM project (represented in the light blue boxes at the top of the diagram). Described below are the key components that make up the pathway of change.

### Key components

**Preconditions** - The preconditions are the building blocks that the project believes necessary to achieving the long term outcomes. The preconditions are represented in the boxes below the two goals and are color coded to represent how each precondition fits into one of three hypothesized causal pathways. The size or position of the precondition box does not indicate the importance or significance of that precondition, each precondition is considered necessary for change to occur.

**Arrows** - The arrows indicate the sequence that preconditions should be addressed, with a belief that one precondition cannot be fully accomplished until the preconditions before are achieved. This sequence creates the pathway of change.

**Interventions** - Interventions are central to the theory of change as they describe the types of activities required to bring about each precondition on the pathway to change. Country specific interventions have been identified according to weak or missing preconditions found in the baseline assessment. Rather than adding more detail to the diagram, these are described in detail in the implementation plan.

**Indicators** - Each precondition is a preliminary outcome with indicators (numbers within each precondition box) that measure the success of interventions adopted to achieve the preconditions.

**Assumptions** - Assumptions, represented by letters, are the necessary factors for change that are outside the project control. These assumptions demonstrate the limitations to what the project can expect to change alone and emphasize the need for collaboration with governments and partners.

## Appendix B

### SC4CCM Theory of Change Assumptions

- A** Cadre of CHWs exists and CHWs are deployed in adequate numbers and are well distributed in remote, hard to reach areas
- B** Central level MOH procurement unit exists
- C** Fuel is available in the country when needed
- D** CHWs are trained to identify, classify and treat or refer common childhood diseases
- E** Demand for CCM services exists
- F** CHWs are in that role because they want to be, and are generally motivated to be an CHW (i.e. they have the capacity to be motivated)
- G** Budget exists for routine quantification and pipeline monitoring; ordering, reporting, inventory control; and distribution/collection of health products by cell coordinators
- H** Cooperatives are functional and capable of managing incentives for the CHWs who belong to them

#### Footnotes

**1** A commodity security strategy is not necessary for a CCM program per se, but is a powerful instrument for ensuring availability of product at the community by gaining commitments from stakeholders (includes government and non-government stakeholders).

\* Common childhood illnesses include pneumonia, malaria, malnutrition and diarrhea

\*\* Vehicles indicate any device or structure that transports persons or things; a truck, car, bike, bus.

#### Acronyms

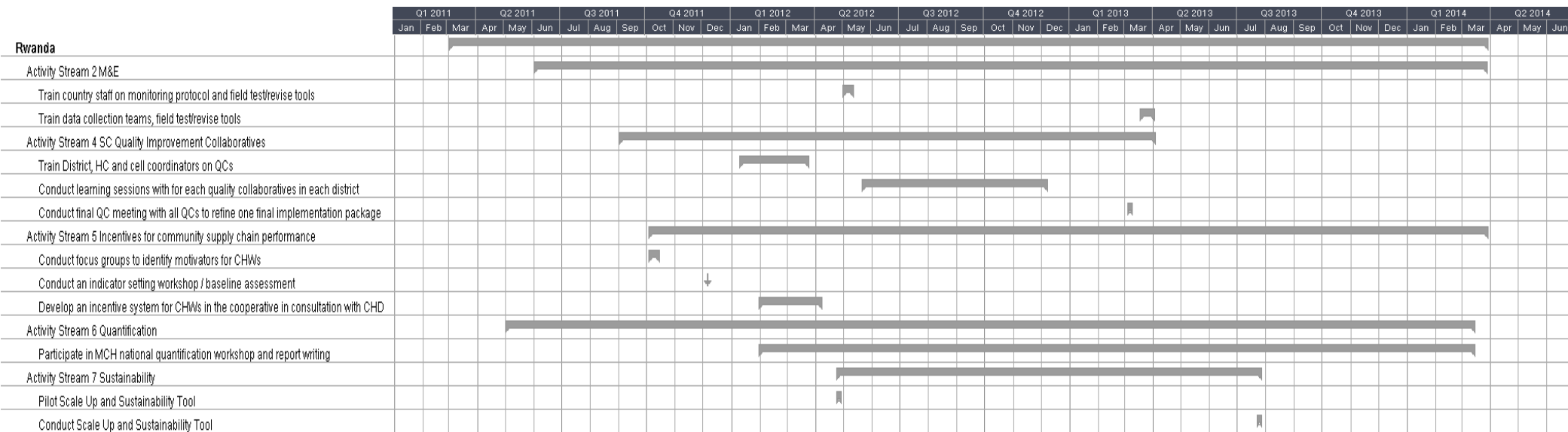
CHW	Community Health Worker
HC	Health Center (CHW resupply point)
CCM	community case management
ICSCI	Incentives for Community Supply Chain Improvement
LMIS	logistics management information system
MOH	Ministry of Health
QIC	Quality Improvement Collaborative
QI	Quality Improvement
QITs	Quality Improvement Teams
SC	supply chain

#### Definitions

*\*Streamlined:* A simple, easy to use version compared to previous versions where guidance on specific processes may have been unclear, undefined, or piecemeal.

## Appendix C

### Rwanda Implementation Plan



\*Activity streams 1 and 3 were completed prior to October 2011 as project start-up and baseline assessment. Activity streams 2 and 4-7 are covered in the Implementation Plan for October 2011-April 2013.

## Appendix D

### SC4CCM Intervention and Non-intervention Groups

<b>Group A:</b> Non-intervention	Gasabo	Rwamagana	Ruhango	Musanze
<b>Group B:</b> Quality Collaboratives to implement resupply procedures	Ngma	Nyabihu	Rutsiro	
<b>Group C:</b> Incentives for supply chain improvement	Burera	Bugesera	Huye	



# Appendix E

## Summary of Core Objective Level Indicators

### Main SC4CCM Objective: (Ensure that) CHWs have usable and quality medicines available when needed for appropriate treatment of common childhood illnesses

Summary Indicators	N	% CHWs In Stock on DOV	Midline TARGET %	% CHWs with Adequate Stock*	Midline TARGET %	% CHWs reporting no stockouts in past 30 days/6 months	Midline TARGET %	Source/frequency
ACTs: Primo Rouge and Primo Jaune	294	66	80	NA	60-65	69	85	Monitoring/midline
(6)All five CCM products (Zinc, Amoxicillan, both Primos, ORS)	208	49	65	NA	45-50	45	65	Monitoring/midline

\*Adequate stock is defined using an established min and max for each level, based on most recent consumption.

### ToC Box 1: Necessary, usable, quality CCM products are available at CHW resupply points

Summary Indicators	N	% HCs In Stock on DOV	Midline TARGET %	% HCs with Adequate Stock*	Midline TARGET %	% HCs reporting no stockouts in past 30 days/6 months	Midline TARGET %	Source/frequency
Primo Rouge and Primo Jaune	96	84	95	NA	80-85	61	75	Monitoring/midline
All five CCM products (Zinc, Amoxicillan, both Primos, ORS)	85	64	80	NA	65-70	36	50	Monitoring/midline

\*Adequate stock is defined using an established min and max for each level, based on most recent consumption.

### ToC Box 2: CHWs and HC Pharmacy staff responsible for CCM resupply know which products, how much of each, and where, when, and how to resupply and document

	N	BL	Midline TARGET %	Source/frequency
% cell coordinators who can show SOPs for resupply procedures	NA	NA	95	Monitoring, Midline
% pharmacy managers who can show SOPs for resupply procedures	NA	NA	95	Monitoring, Midline
% Orders filled completely (amoxicillan) per cell	NA	NA	75	Monitoring, Midline (cell resupply worksheet at HC)
% Orders filled completely (ORS) per cell	NA	NA	75	
% Orders filled completely (PrimoR) per cell	NA	NA	75	
% Orders filled completely (PrimoJ) per cell	NA	NA	75	
% Orders filled completely (zinc) per cell	NA	NA	75	

### ToC Box 3: CHWs have adequate storage: correct conditions, security and adequate space

	N	BL	Midline TARGET %	Source/frequency
% CHWs with storage box secured with a lock and key	321	63	63-70	Monitoring, Midline
% CHWs with products stored in a clean dry, well-ventilated place	318	85	85-90	Monitoring, Midline
% CHWs with expired products stored separately (of those with expiries)	321	87	87-90	Monitoring, Midline
% CHWs with storage area free of rodents or insects	321	85	85-90	Monitoring, Midline

### ToC Box 4: Goods are routinely transported between resupply points and CHWs

	N	BL	Midline TARGET %	Source/frequency
% CHWs who attended last monthly meeting at HC level	NA	NA	70-75	Monitoring (ICSCI database), Midline
% CHWs who report receiving supplies after last monthly meeting (either by collecting themselves or from cell coordinator distribution) (of those who needed any products)	NA	NA	85	Monitoring, Midline

### ToC Box 5: CHWs are motivated to perform their roles in the CCM product supply chain

	N	Period: BL	Midline TARGET %	Source/frequency
% CHWs who received supervision (from HC supervisor or cell coordinator) in the past 3 months where they discussed managing products	321	88	85	Monitoring, Midline
% CHWs who received feedback (from HC supervisor or cell coordinator) in the past 3 months about performance related to managing products	NA	NA	75	Monitoring, Midline
% Cell coordinators who have documented use of problem-solving skills to solve CCM product resupply issues (QC group only)	NA	NA	90	QC documentation; Monitoring, Midline

\*Qualitative methods will triangulate ToC Box 5 findings

# Appendix F

## Rwanda Sub-Indicators

TOC Box #	Outcome: Standardized Resupply Procedures	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
44.	*Streamlined procedures for ordering, reporting, inventory control of CCM health products exist, are documented and are harmonized nationwide	<ul style="list-style-type: none"> <li>Procedures for ordering, reporting, and inventory control of CCM products exist (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>Country Implementation Plan</li> </ul>
33.	Resupply staff and cell coordinators are trained in procedures and processes	<ul style="list-style-type: none"> <li>Number and % resupply staff trained in procedures and processes for CHW resupply</li> <li>Number and % cell coordinators trained in procedures and processes for CHW resupply</li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>90%</li> <li>90%</li> </ul>	<ul style="list-style-type: none"> <li>Program records</li> <li>Monitoring</li> <li>Midline</li> </ul>
17.	Forms and tools for resupply procedures are available to CHWs, cell coordinators, and HCs	<ul style="list-style-type: none"> <li>(3) Number and % CHWs who have stock cards available for all CCM products</li> <li>Number and % cell coordinators who have blank copies of the Cell Resupply Worksheet for ordering</li> <li>Number and % cell coordinators who have the SC job aid booklet</li> <li>Number and % cell coordinators who have the Cell Resupply Calculator (Fiche de Calcul) for ordering</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>90%</li> <li>90%</li> <li>90%</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring (QC-visits; ICSCI-database)</li> <li>Midline</li> </ul>

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45.	*Streamlined procedures for distribution /collection of goods by cell coordinators exist and are documented	<ul style="list-style-type: none"> <li>Procedures for distribution /collection of goods (including CCM products) by cell coordinators exists (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>Country Implementation Plan</li> </ul>
	<i>(indirect)</i>				
13.	CHWs routinely collect and report timely, accurate logistics data to cell coordinator	<ul style="list-style-type: none"> <li>(4) Number and % CHWs who maintain up to date stock cards for all 5 CCM products</li> <li>Number and % cell coordinators who report CHWs bring completed stock cards for filling out requisition forms</li> </ul>	<ul style="list-style-type: none"> <li>72% (n=321)</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring (QCs – visits; ICSCI-database)</li> <li>Midline</li> </ul>
13a.	Cell coordinators routinely fill resupply worksheets with CHW data and bring to HC	<ul style="list-style-type: none"> <li>Number and % cell coordinators submitting resupply worksheet to HC last month that are:                             <ul style="list-style-type: none"> <li><b>(7) Complete</b> (stock on hand and required quantities are filled out for all CHWs in the cell)</li> <li><b>(8) Accurate</b> (complete without any calculation errors)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> <li>NA</li> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring (QC-visits; ICSCI-database)</li> <li>Midline</li> </ul>
13aa.	HCs receive a request with resupply quantities for each CHW from cell coordinator	<ul style="list-style-type: none"> <li>Number and % cell coordinators who submitted resupply worksheets at the last monthly HC meeting</li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> </ul>
13aaa.	HCs process and keep orders ready for cell pick up after monthly meeting	<ul style="list-style-type: none"> <li>Number and % cell coordinators who report waiting longer than 1 hour after the monthly meeting to collect products from HC</li> <li>[qualitative] What obstacles prevent pharmacy managers from packing all CHW orders before the end of each monthly meeting at HC?</li> </ul>	<ul style="list-style-type: none"> <li>14% (n=320)</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> <li>QIT Documentation Journal</li> </ul>

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9a.	HCs use CHW data to order adequate quantity of products from District	<ul style="list-style-type: none"> <li>Number and % HCs where requisition forms show order quantities for CCM products from District are based on aggregated CHW data</li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> </ul>
-----	---	--	--	--	---

T O C B o x #	Outcome: Quality Improvement Collaborative	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
37 a.	Coaching and supervision guide exists	<ul style="list-style-type: none"> <li>Existence of CHW coaching and supervision guide (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>Country Implementation Plan</li> </ul>
46.	Procedures for forming and maintaining QITs exist and are documented	<ul style="list-style-type: none"> <li>Existence of procedures for forming and maintaining QITs (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>Country Implementation Plan</li> </ul>
38.	Members of the QC are trained in forming & conducting a QIT	<ul style="list-style-type: none"> <li>Number and % of <i>staff</i> at intervention sites trained in their roles and responsibilities on the QIT:                             <ul style="list-style-type: none"> <li>HC pharmacy managers</li> <li>data managers</li> <li>CHW supervisors</li> <li>cell coordinators</li> <li>coaches</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> <li>Zero</li> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>95-100%</li> <li>95-100%</li> <li>95-100%</li> <li>95-100%</li> <li>95-100%</li> </ul>	<ul style="list-style-type: none"> <li>Program records</li> <li>Monitoring</li> <li>Midline</li> </ul>
38 a.	QITs are formed with cell coordinators and HC staff	<ul style="list-style-type: none"> <li>Number of QI teams formed in the quality collaborative (of total HCs in the intervention area)                             <ul style="list-style-type: none"> <li>Number and % QITs who have selected and documented one or more SC improvement indicators</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>36 of 44</li> <li>95-100%</li> <li>95-100%</li> </ul>	<ul style="list-style-type: none"> <li>Program records</li> <li>QIT Documentation Journal or Synthesis</li> </ul>

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T O C B o x #	Outcome: Quality Improvement Collaborative	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
		<ul style="list-style-type: none"> <li>• Number and % of QITs with a documented 12-month target for each improvement indicator</li> </ul> <p>[Qualitative] Are member roles and tasks operational as defined on the QIT? If not, why not?</p>			<p>forms</p> <ul style="list-style-type: none"> <li>• Monitoring (LS)</li> <li>• Midline</li> </ul>
25.	QIT members attend and participate in QIT meetings for data review, problem-solving, and receiving recognition	<ul style="list-style-type: none"> <li>• Number and % <i>staff</i> in attendance at QIT scheduled meeting, out of total in QIT:               <ul style="list-style-type: none"> <li>• cell coordinators</li> <li>• CHW Supervisors</li> <li>• data managers</li> <li>• pharmacy managers</li> </ul> </li> <li>• Number and % QITs with at least one QIT Documentation Journal entry that includes action items from the last scheduled QIT meeting</li> </ul> <p>[Qualitative] Do teams receive recognition when earned, according to the recognition strategy (part of procedures for QITs)?</p> <p>[Qualitative] What data-based areas for improvement were identified by QITs this quarter?</p> <p>[Qualitative] Were solutions acted on by QITs this quarter? If not, why not?</p>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> <li>• Zero</li> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 85-90%</li> <li>• 85-90%</li> <li>• 85-90%</li> <li>• 85-90%</li> <li>• 95-100%</li> </ul>	<ul style="list-style-type: none"> <li>• Attendance lists from QIT meetings</li> <li>• QIT Documentation Journal or Synthesis forms</li> <li>• Program records (<i>core team</i>)</li> <li>• Monitoring</li> <li>• Midline</li> </ul>
26.	Supervision checklist and data collection tools available and used to monitor and provide feedback on CHW performance	<ul style="list-style-type: none"> <li>• Number and % cell coordinators who can show data collection tools:               <ul style="list-style-type: none"> <li>• Supervision checklist</li> <li>• Tally Sheet</li> <li>• Bar Graph template</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 85-90%</li> <li>• 85-90%</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring</li> <li>• Midline</li> </ul>

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T O C B o x #	Outcome: Quality Improvement Collaborative	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
		<ul style="list-style-type: none"> <li>Job aid</li> </ul>			
39.	QITs and coaches have data for QIT performance monitoring	<ul style="list-style-type: none"> <li>Number and % of QITs with a synthesis report for last quarter</li> <li>A representative of the QC maintains an inventory of changes/solutions to test at each site (y/n)</li> </ul> <p><i>[Qualitative]</i> What obstacles prevent making data (in the form of synthesis reports) available?  <i>[Qualitative]</i> Is data produced and used by the QITs good quality for performance monitoring?</p>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>100%</li> <li>yes</li> </ul>	<ul style="list-style-type: none"> <li>QIT Synthesis Form (LS)</li> <li>Monitoring</li> <li>Midline</li> </ul>
25 a.	Coaching of QIT in SC & QI processes is performed regularly	<ul style="list-style-type: none"> <li>Number and % of QITs with performance data prepared by data manager before last monthly meeting</li> <li>Number and % of QITs documenting use of problem-solving approaches (as defined by QC trainings) at the last monthly meeting</li> <li>Number and % of QIT leaders who report receiving SC performance feedback from coaches at district level in the past quarter</li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>100%</li> <li>100%</li> <li>1 learning session/quarter</li> <li>90%</li> </ul>	<ul style="list-style-type: none"> <li>QC level Synthesis</li> <li>Monitoring</li> <li>Midline</li> </ul>
14.	Resupply issues are incorporated into routine supervision	<ul style="list-style-type: none"> <li>Resupply issues are incorporated into routine supervision tool (y/n)</li> </ul> <p><i>[Qualitative]</i> Are issues related to improvement indicator(s) proactively addressed using the supervision checklist? If not, why not?</p>	<ul style="list-style-type: none"> <li>No</li> </ul>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> </ul>
24.	QITs meet as QCs for regular learning sessions to share data, receive input & engage in peer to peer learning	<ul style="list-style-type: none"> <li>Number of quarterly QC learning sessions held where QIT data are reviewed, by quarter</li> </ul>	<ul style="list-style-type: none"> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>1 learning session/quarter</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> </ul>

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T O C B o x #	Outcome: Quality Improvement Collaborative	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
24 a.	QITs take action to improve performance	<ul style="list-style-type: none"> <li>• Number and % of QITs showing performance improvements after adopting changes/solutions, based on chosen indicators &amp; targets</li> </ul> <p>[Qualitative] If actions not taken to improve QIT performance, why not?</p> <ul style="list-style-type: none"> <li>• [Long term] Number and % of quality improvements in QI/QC improvement areas maintained 6 months post-collaborative</li> <li>• [Long term] Number and % of intermediate outcome indicators maintained at satisfactory level 6 months post-collaborative</li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 50%</li> </ul>	<ul style="list-style-type: none"> <li>• QIT Documentation Journal or Synthesis forms (LS)</li> <li>• Monitoring</li> <li>• Midline</li> <li>• Endline</li> </ul>
24 b.	QCs produce one combined, refined change package based on findings for spread	<ul style="list-style-type: none"> <li>• Refined change package resulting from QC work exists (y/n)</li> <li>• Change package endorsed by MOH (y/n)</li> <li>• [Long term] Number of new districts (outside original intervention area) joining the QC in spread phase</li> <li>• [Long term] Number of new QITs formed (outside original intervention area) in spread phase</li> <li>• [Long term] % new QITs that adopt tested solutions in spread phase</li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• QIT documentation</li> <li>• Monitoring</li> <li>• Midline</li> <li>• Endline</li> </ul>
11	Cell coordinators attend monthly meeting and	<ul style="list-style-type: none"> <li>• (9) Number and % cell coordinators who need products, who collect them for</li> </ul>	<ul style="list-style-type: none"> <li>• NA</li> </ul>	<ul style="list-style-type: none"> <li>• 85-90%</li> </ul>	<ul style="list-style-type: none"> <li>• Incentives database,</li> </ul>

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T O C B o x #	Outcome: Quality Improvement Collaborative	Proposed Indicators	Baseline Results	Midline Targets	Data Source and Frequency
	collect goods to transport between resupply point and CHWs	their cell from the pharmacy after health center meetings  <i>[Qualitative]</i> If cell coordinators are not collecting goods at monthly meetings for their cell, why not?			Monitoring • Midline
	<i>(indirect)</i>				
11 a	CHWs are able and willing to travel to HC to pick up products	<ul style="list-style-type: none"> <li>Number and % CHWs who report no obstacles to traveling to HC to pick up products</li> </ul> <i>[Qualitative]</i> Reasons transport is an obstacle for CHWs, cell coordinators	<ul style="list-style-type: none"> <li>72% (n=321)</li> </ul>	<ul style="list-style-type: none"> <li>NA</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> </ul>
9.	Persons responsible for resupply perform their roles in the CCM product supply chain as expected	<ul style="list-style-type: none"> <li>Number and % Pharmacy managers from HC who submit SC reports to District that are:                             <ul style="list-style-type: none"> <li>Accurate (based on community level data)</li> <li>Complete</li> <li>On time</li> </ul> </li> </ul> <i>[Qualitative]</i> Cell coordinators: Are stockouts at resupply HC causing stockouts for CHWs?	<ul style="list-style-type: none"> <li>NA</li> <li>NA</li> <li>47% of n=181 who had stockouts at BL reported it was bc of SO at resupply</li> </ul>	<ul style="list-style-type: none"> <li>75%</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring</li> <li>Midline</li> </ul>



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<b>TOC Box #</b>	<b>Outcome: Incentives for Community SC Improvement</b>	<b>Proposed Indicators</b>	<b>Baseline Results</b>	<b>Midline Target</b>	<b>Data Source and Frequency</b>
47b	Supply chain performance indicators and performance-based incentives are identified, validated locally, and documented	<ul style="list-style-type: none"> <li>• SC performance indicators are identified, validated locally and documented (y/n)</li> <li>• Incentives linked to SC performance indicators are identified, validated locally and documented (y/n)</li> <li>• Criteria for awarding incentives based on SC performance indicators exists, has been validated locally and documented (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>• No</li> <li>• No</li> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Country Implementation Plan</li> </ul>
47d	SC indicator performance targets set	<ul style="list-style-type: none"> <li>• SC indicator performance targets documented as part of incentives plan (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Country Implementation Plan</li> </ul>
47e	Reward mechanism and payment plan set for SC incentives	<ul style="list-style-type: none"> <li>• Reward mechanism and payment plan for SC incentives documented as part of incentives plan (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Country Implementation Plan</li> </ul>
47f	Tools for collecting SC indicator data are developed and in place	<ul style="list-style-type: none"> <li>• Paper-based tools for collecting SC indicator data are developed (y/n)</li> <li>• Functioning database for data entry exists (y/n)</li> <li>• Trainings on data entry for SC indicators conducted (y/n)</li> </ul>	<ul style="list-style-type: none"> <li>• No</li> <li>• No</li> <li>• No</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Country Implementation Plan</li> </ul>

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26a	Districts Supervisors, HC Steering Committee, CHWs, cell coordinators and CHW supervisors are aware of incentives and how they are awarded	<ul style="list-style-type: none"> <li>• Number and % trained in managing SC performance indicators and incentives for CHW cooperatives:                             <ul style="list-style-type: none"> <li>○ District Supervisors</li> <li>○ HC Steering Committee heads</li> </ul> </li> <li>• Number and % CHWs who can name at least one SC performance indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 85-90%</li> <li>• 85-90%</li> <li>• 85-90%</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly Monitoring - <b>periodic</b></li> <li>• Midline</li> </ul>
26b	CHWs, cell coordinators and CHW supervisors are trained in how to collect and report <b>community SC performance data</b>	<ul style="list-style-type: none"> <li>• Number and % trained to collect and report SC indicator data:                             <ul style="list-style-type: none"> <li>○ Cell Coordinators</li> <li>○ CHW Supervisors</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 95-100%</li> <li>• 95-100%</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly Monitoring - <b>periodic</b></li> <li>• Midline</li> </ul>
26c	CHWs, cell coordinators and CHW supervisors collect and report SC performance indicator data	<ul style="list-style-type: none"> <li>• Number and % expected dispersals made to Cell Coordinators for transportation allowances</li> <li>• Number and % Cell Coordinators with documentation of SC indicator data collected during routine CHW visits available</li> <li>• Number and % CHW Supervisors with SC indicators log:                             <ul style="list-style-type: none"> <li>○ Available</li> <li>○ Up to date</li> <li>○ Complete</li> </ul> </li> </ul> <p>[Qualitative] What difficulties are encountered collecting data? Reporting data?</p>	<ul style="list-style-type: none"> <li>• Zero</li> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 90%</li> <li>• 90%</li> <li>• 90%</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly Monitoring – <b>periodic</b> (Finances tracking sheet)</li> <li>• Midline</li> </ul>
12	Districts verifies data and provide feedback to HCs, cells, and CHWs	<ul style="list-style-type: none"> <li>• Number of districts with at least one participating district staff person on the verification team</li> <li>• Number of verification reports complete at end of quarter</li> </ul>	<ul style="list-style-type: none"> <li>• Zero</li> </ul>	<ul style="list-style-type: none"> <li>• 3 of 3</li> <li>• 3 of 3</li> <li>• 95-100%</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly verification report</li> <li>• Quarterly Monitoring – <b>end of</b></li> </ul>

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		<ul style="list-style-type: none"> <li>Number and % CHW cooperatives receiving documented SC performance feedback report from District level of those visited for verification</li> </ul> <p><i>[Qualitative]</i> In what ways does feedback from District help cooperatives and CHWs improve their SC performance? What additional feedback would be useful?</p>			<p align="center"><b>quarter</b></p> <ul style="list-style-type: none"> <li>Midline</li> </ul>
12a	HC steering committee validates performance data and provides feedback to cooperatives	<ul style="list-style-type: none"> <li>Number and % CHW cooperatives validated by HC steering committee and entered into ICSCI database</li> <li>Number and % CHW cooperatives that received documented SC performance feedback from HC sector steering committee</li> </ul> <p><i>[Qualitative]</i> Can you describe challenges encountered to evaluating cooperatives' performance related to SC?</p> <p><i>[Qualitative]</i> In what ways does feedback from HC Steering Committee help cooperatives and CHWs improve their SC performance? What additional feedback would be useful?</p>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>95-100%</li> <li>95-100%</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly verification report</li> <li>Quarterly Monitoring – <b>end of quarter</b></li> <li>Midline</li> </ul>
12b	CHWs, through cooperatives, receive incentives based on established criteria	<ul style="list-style-type: none"> <li>Number and % CHW cooperative payment transfers made for SC incentives performance, of those eligible</li> <li>Number and % HC accounts that confirm receipt of payment for SC incentives, of those eligible</li> <li>Number and % CHW cooperatives receiving incentives payment at 70% total value or higher</li> </ul> <p><i>[Qualitative]</i> (HC Steering) If incentives were not received, why not?</p> <p><i>[Qualitative]</i> (HC Steering) Were any accounting challenges encountered for receiving payments? If so, what</p>	<ul style="list-style-type: none"> <li>Zero</li> <li>Zero</li> </ul>	<ul style="list-style-type: none"> <li>95-100%</li> <li>95-100%</li> <li>TBD, based on Q1</li> </ul>	<ul style="list-style-type: none"> <li>Program records (Finances tracking sheet, database)</li> <li>Quarterly Monitoring - <b>end of quarter</b></li> <li>Midline</li> </ul>

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		are they? [Qualitative] (CHW Supervisor) Are SC incentives having a motivating effect on CHWs? Why or why not?			
11	Cell coordinators attend monthly meetings and collect goods to transport between resupply point and CHWs	<ul style="list-style-type: none"> <li>(see QCs indicators)</li> </ul>			
	<i>(indirect)</i>				
11a	CHWs are able and willing to travel to HC to pick up products	<ul style="list-style-type: none"> <li>(see QCs indicators)</li> </ul>			

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