Comprehensive Evaluation of the Community Health Program in Rwanda

Survey of Community Health Workers and Health Centres 2016

Liverpool School of Tropical Medicine
Centre for Maternal and Newborn Health
October 2016
## CONTENTS

LIST OF TABLES .......................................................................................................................... 5

TABLE OF FIGURES .................................................................................................................. 6

LIST OF ACRONYMS ................................................................................................................... 7

### 1. INTRODUCTION .................................................................................................................. 8

1.1. BACKGROUND .................................................................................................................. 8

1.2. OBJECTIVES OF THE SURVEY .................................................................................... 9

1.3. IMPLEMENTATION ARRANGEMENTS ............................................................................. 9

1.4. ETHICAL CONSIDERATIONS ......................................................................................... 11

### 2. METHODS .......................................................................................................................... 13

2.1. STUDY DESIGN ................................................................................................................ 13

2.1.1 Study site ...................................................................................................................... 14

2.1.2 Study population .......................................................................................................... 15

2.2. SAMPLING METHODOLOGY .......................................................................................... 15

2.2.1. Sampling design .......................................................................................................... 15

2.2.2. Sampling frame ............................................................................................................ 15

2.2.3. Sampling procedures ................................................................................................... 16

2.2.4. Procedures of recruitment and replacement ............................................................. 17

2.2.5. Sample size calculations ............................................................................................. 19

2.3. SURVEY TOOLS ............................................................................................................. 22

2.3.1. Survey Instruments ..................................................................................................... 22

2.3.2. Translation of Questionnaires ...................................................................................... 22

2.3.3. The Process of Adaptation and Revision of the Questionnaire .................................. 23

2.3.4. The Conversion from Paper to Electronic Version .................................................... 23

2.4. SELECTION AND TRAINING OF SURVEY TEAMS ................................................... 23

2.4.1. Recruitment of survey teams ...................................................................................... 23

2.4.2. Training of survey teams ............................................................................................ 24

2.5. FIELD TEST .................................................................................................................... 24

2.5.1. Field-test Objectives ................................................................................................. 25

2.5.2. Pilot Participants ......................................................................................................... 25

2.5.3. Pilot Debrief ................................................................................................................ 25

2.6. DATA COLLECTION ....................................................................................................... 26

2.6.1. Data Collection Locations ......................................................................................... 26

2.6.2. Field Teams ............................................................................................................... 26

2.6.3. Supervision ................................................................................................................. 27

2.6.4. Survey Duration .......................................................................................................... 27

2.7. DATA ANALYSIS ............................................................................................................ 28

2.7.1. Estimates for Health Centres ..................................................................................... 28

2.7.2. Estimates for Community Health Workers ............................................................... 28

2.7.3. Limitations .................................................................................................................. 28

2.7.4. Weighing ..................................................................................................................... 28

2.8. QUALITY CONTROL PROCEDURES ............................................................................ 30

2.8.1. Data Handling ............................................................................................................. 30

2.8.2. Quality Assurance ...................................................................................................... 30
3. KEY FINDINGS.................................................................................................................................32

3.1. SURVEY OF HEALTH CENTRES ................................................................................................. 32
  3.1.1. General information on study population .............................................................................. 32
  3.1.2. Information on supervision of CHWs from the Health Facility ................................................. 35
  3.1.3. Equipment and supplies for CHWs at the Health Centre ........................................................ 44

3.2. SURVEY OF COMMUNITY HEALTH WORKERS ........................................................................ 51
  3.2.1. Background characteristics of the population under study ..................................................... 51
  3.2.2. Training of community health workers .................................................................................... 55
  3.2.3. Scope of practice ..................................................................................................................... 58
  3.2.4. Workload .................................................................................................................................. 66
  3.2.5. Supervision and coordination .................................................................................................. 70
  3.2.6. Reporting .................................................................................................................................. 74
  3.2.7. Equipment and supplies .......................................................................................................... 75
  3.2.8. Referral ..................................................................................................................................... 81
  3.2.9. Motivation .................................................................................................................................. 82

4. ANNEXES .............................................................................................................................................85
LIST OF TABLES

Table 1. Activities performed by each cadre of CHWs ................................................. 13
Table 2. Evaluation questions and survey ................................................................. 14
Table 3. Sampling of districts, HCs and CHWs ......................................................... 17
Table 4. Replacement during survey of CHWs ......................................................... 19
Table 5. Margin of error at national level for health centres if percentage is 50% .......... 20
Table 6. Margin of error at national level for CHWs if percentage is 50% ............. 21
Table 7. Margin of error at national level for ASMs, binômes and CHWs with more than 12 months of experience, if percentage is 50% ................. 21
Table 8. Overview of training program ................................................................. 24
Table 9. Mean population covered by health facilities ............................................. 32
Table 10. Mean number of Health Care Workers involved in community health at the Health Centre (N=80) ........................................ 32
Table 11. Mean number of CHWs working in the catchment areas of surveyed facilities (N=80) ......................................................... 33
Table 12. Average number of coordination meetings of HCs with CHWs during the quarter preceding the survey (N=80) ......................................................... 33
Table 13. Proportion of CHWs in the catchment area of the HCs who were active during the month preceding the survey (N=80) ......................................................... 33
Table 14. Proportion of active CHWs who attended the CHWs coordination meeting at health centre in the month preceding the survey (N=75) ......................................................... 34
Table 15. Proportion of HCs whose CHWs attending the last coordination meetings in the month preceding the survey received travel allowance, and source (N=76) ......................................................... 34
Table 16. Age and gender of in-charge of CHWs at the health facility (N=76) .......... 35
Table 17. Education level of in charge of CHWs (N=76) ........................................ 35
Table 18. Median n. of years in post of in-charges of CHWs (N=76) .................. 35
Table 19. Means of communication of HF with CHW (N=80) .................................. 36
Table 20. Training on CHP of in charge of CHWs (N=76) .................................... 36
Table 21. Training on CHP of in charge of CHWs: type of training received (N=76) ......................................................... 36
Table 22. Proportion of in charge of CHWs reporting the need for additional training (N=63) ......................................................... 38
Table 23. Reported area of need of additional training (N=61) ............................. 38
Table 24. Reported modes of supervision of CHWs from in-charges of CHWs (N=76) ......................................................... 39
Table 25. Technical areas of focus during supervision from in-charges of CHWs (N=76) ......................................................... 39
Table 26. Availability of tools and guidelines for supervision (N=76) .................. 40
Table 27. Availability of tools and guidelines for supervision, by type (N=74) .... 40
Table 28. Provision of feedback to CHWs from in-charges of CHWs (N=76) ...... 40
Table 29. Areas where CHWs need more support/supervision from the in charge of CHWs (N=76) ......................................................... 41
Table 30. Actions taken by the in charges of CHWs when he/she identifies the need for additional training of CHW (N=76) ......................................................... 41
Table 31. Most common barriers faced by in-charges of CHWs to provide supervision to CHWs (N=76) ......................................................... 42
Table 32. In-charges of CHWs reporting to easily access data on CHWs at the health centre (N=76) ......................................................... 42
Table 33. Reported proportion of active CHWs supervised by the in-charges of CHWs by visiting them in the community during the month preceding the survey (N=71) ......................................................... 43
Table 34. Means of transport used by HCs staff to visit CHWs in communities and median time to reach the most remote CHW (N=80) ......................................................... 43
Table 35. Average n. of supervision visits received by in-charges of CHWs at HC from the district hospital supervisor of CHWs during the quarter preceding the survey (N=73) ......................................................... 44
Table 36. Assessment of the in-charges of CHWs of the performance of CHWs in catchment area (N=76) ......................................................... 44
Table 37. Indicators on equipment and supplies at Health Centre (N=80) ............. 45
Table 38. Rating of the in-charges of CHWs / pharmacist of the provision of equipment, medicines and supplies for the CHP (N=80) ......................................................... 45
Table 39. Availability of equipment and materials for CHWs at the HC (N=80) ......................................................... 46
Table 40. Availability of essential tools for CHWs at the HC (N=80) ................. 46
Table 41. Availability of medical supplies for CHWs at the HC (N=80) ............... 47
Table 42. Availability of medicines and health products for CHWs at the HC (N=80) ......................................................... 47
Table 43. Reason for shortage of selected medicines and health products ............ 48
Table 44. Items in stock expired during the 3 months preceding the survey .......... 49
Table 45. Management of health products which are about to expire (N=80) ...... 49
Table 46. Average time needed to process orders for CHWs (from order to receipt of products) (N=80) ......................................................... 50
Table 47. Methods used for storage of health products (N=80) .......................... 50
Table 48. Characteristics of CHWs: gender and age ................................................................. 51
Table 49. Characteristics of CHWs: education; employment; marital status; employment status ................................................................. 52
Table 50. CHW deployment history ........................................................................................... 53
Table 51. CHW recruitment background: selection process and information on the role ........................................................................... 54
Table 52. Recruitment background: motivation to become a CHWs ........................................................................................................... 54
Table 53. CHWs’ induction training ............................................................................................. 55
Table 54. CHWs’ training in various CHP modules ...................................................................... 56
Table 55. CHWs’ training in various CHP modules: additional information .............................. 57
Table 56. CHWs’ scope of practice: health promotion ................................................................. 58
Table 57. CHWs’ scope of practice: nutrition promotion ............................................................. 59
Table 58. Mode of delivering behaviour change communication ............................................... 59
Table 59. CHWs’ scope of practice: TB and iCCM .................................................................... 60
Table 60. CHWs’ scope of practice: Family planning ................................................................. 61
Table 61. CHWs’ scope of practice: Maternal and Newborn Health ........................................... 62
Table 62. Self-reported confidence in delivering tasks: least confidence .................................. 63
Table 63. Self-reported confidence in delivering tasks: highest confidence ............................... 64
Table 64. CHW’s Knowledge of essential practices ................................................................. 65
Table 65. CHWs’ scope of practice: mode of service delivery ................................................... 65
Table 66. Dealing with clients who cannot afford paying fees .................................................... 66
Table 67. CHW’s workload: hours spent on various activities during the week ......................... 66
Table 68. CHW’s workload: average time spent per task (minutes) .......................................... 68
Table 69. Perception of workload from CHWs ........................................................................... 68
Table 70. Primary supervisors and supervisors at HC level ......................................................... 70
Table 71. Supervisory visits received during the 12 months preceding the survey ...................... 70
Table 72. Supervisor who provided the last supervisory visit preceding the survey .................... 71
Table 73. Support person during the last supervisory visit preceding the survey ......................... 71
Table 74. Topics covered during last supervision ...................................................................... 71
Table 75. Checks performed during last supervision ................................................................. 72
Table 76. Time spent by supervisor during the past visit ............................................................. 72
Table 77. Rating of last supervisory visit from CHWs ............................................................... 73
Table 78. Action plans .............................................................................................................. 73
Table 79. Monthly meetings ................................................................................................... 73
Table 80. Reasons for non-attending monthly meetings ............................................................ 74
Table 81. Reporting .................................................................................................................. 75
Table 82. Availability of essential equipment for CHWs ............................................................ 76
Table 83. Availability of tools for CHWs .................................................................................... 76
Table 84. Availability of medical supplies for CHWs ............................................................... 77
Table 85. Availability of medicines for CHWs ........................................................................... 78
Table 86. Ordering of health products from CHWs ................................................................. 79
Table 87. Time needed for processing orders of health products ............................................... 79
Table 88. CHWs’ rating of the provision of equipment, medicines and material ...................... 79
Table 89. Methods used for storage of health products ............................................................ 80
Table 90. Management of expired products ............................................................................. 80
Table 91. Referral of patients to the health facility .................................................................... 81
Table 92. Barriers to referral of patients .................................................................................... 81
Table 93. Reasons for delay encountered by CHW during emergency referral .......................... 82
Table 94. Most motivating factors for being a CHW ............................................................... 82
Table 95. Main obstacles encountered during work as CHW ..................................................... 83
Table 96. Incentives and job satisfaction .................................................................................... 83

TABLE OF FIGURES
Figure 1. Districts selected for the survey ............................................................................. 16
Figure 2. Supervision structure .............................................................................................. 27
## LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC</td>
<td>Antenatal care</td>
</tr>
<tr>
<td>ASM</td>
<td>Assistante de Santé Maternelle</td>
</tr>
<tr>
<td>BCC</td>
<td>Behaviour Change Communication</td>
</tr>
<tr>
<td>CBHI</td>
<td>Community-Based Health Insurance</td>
</tr>
<tr>
<td>CHP</td>
<td>Community Health Programme</td>
</tr>
<tr>
<td>CHU</td>
<td>Community Health Unit</td>
</tr>
<tr>
<td>CHWs</td>
<td>Community Health Workers</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence interval</td>
</tr>
<tr>
<td>CMNH</td>
<td>Centre for Maternal and Newborn Health</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Treatment Short-course</td>
</tr>
<tr>
<td>EBF</td>
<td>Exclusive Breast Feeding</td>
</tr>
<tr>
<td>ECD</td>
<td>Early Childhood Development</td>
</tr>
<tr>
<td>FC</td>
<td>Field Coordinators</td>
</tr>
<tr>
<td>FGDs</td>
<td>Focus Group Discussions</td>
</tr>
<tr>
<td>GBV</td>
<td>Gender Based Violence</td>
</tr>
<tr>
<td>HCs</td>
<td>Health Centres</td>
</tr>
<tr>
<td>HMIS</td>
<td>Health Management Information System</td>
</tr>
<tr>
<td>ICC</td>
<td>Intra-cluster Correlation Coefficient</td>
</tr>
<tr>
<td>iCCM</td>
<td>Integrated Community Case Management</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
</tr>
<tr>
<td>LSTM</td>
<td>Liverpool School of Tropical Medicine</td>
</tr>
<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MoE</td>
<td>Margin of Error</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MNH</td>
<td>Maternal and Newborn Health</td>
</tr>
<tr>
<td>NCD</td>
<td>Non Communicable Disease</td>
</tr>
<tr>
<td>NGOs</td>
<td>Non-Governmental Organizations</td>
</tr>
<tr>
<td>NISR</td>
<td>National Institute of Statistics of Rwanda</td>
</tr>
<tr>
<td>PBF</td>
<td>Performance Based Financing</td>
</tr>
<tr>
<td>PNC</td>
<td>Post Natal Care</td>
</tr>
<tr>
<td>PPH</td>
<td>Post-Partum Haemorrhage</td>
</tr>
<tr>
<td>RDHS</td>
<td>Rwanda Demographic and Health Survey</td>
</tr>
<tr>
<td>RNEC</td>
<td>Rwanda National Ethics Committee</td>
</tr>
<tr>
<td>SFS</td>
<td>Senior Field Supervisors</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Message Service</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
</tbody>
</table>
INTRODUCTION

1.1. BACKGROUND

Located in Eastern Africa, Rwanda is a small land locked country with an estimated population of 11.6 million people, of which approximately 15% are children under the age of five years.

According to the African Development Bank, “Rwanda has evolved through a period of economic prosperity and macroeconomic stability in the past two decades. Real GDP grew by an average of 8% annually, during the period 2000 to 2013, which is among the highest average growth rates in East Africa. (...) Peace, political stability, high and sustained real GDP growth and sound macroeconomic management have contributed significantly to poverty reduction, increased income equality, improved social indicators and progress towards the MDGs.”\(^1\)

In line with such socio economic development, Rwanda has achieved remarkable progress in improving maternal and child health outcomes. According to recent estimates, the under-five mortality rate has declined from 152 per 1,000 live births in 2005\(^2\) to 50 per 1,000 live births in 2014\(^3\); the neonatal mortality rate has also reduced from 35 per 1,000 live births to 20 per 1,000 live births. The maternal mortality ratio (MMR) has also successfully reduced. In 2005, the estimated MMR was 750 per 100,000 live births and 210 per 1,000 live births in 2014-15\(^4\). Thus, Rwanda has met MDG 4 and 5 targets. Progress in improving child nutrition has also been observed, although at a more modest pace: child stunting prevalence was estimated at 51% in 2005\(^2\), and it was still as high as 38% in 2015\(^5\).

Established in 1995, the **Community Health Program** (CHP) aimed to enhance access to essential health services for the population of Rwanda. From 2005, after the decentralization policy, sustained capacity building of the Community Health Workers (CHWs) was introduced through training, mainly in maternal and child health (MCH) service delivery; this was complemented with supplying relevant health materials for CHWs. After 20 years of CHP implementation, the Ministry of Health (MoH) in partnership with UNICEF has commissioned an independent evaluation of the program. It is envisaged that the evaluation will guide the MoH on how to use CHWs most effectively to achieve national health goals, contributing to the achievement of post-2015 global sustainable development goals (SDGs).

In January 2016, the Centre for Maternal and Newborn Health (CMNH), Liverpool School of Tropical Medicine (LSTM), was contracted by UNICEF to perform the independent evaluation of the CHP in Rwanda. The evaluation started in January 2016, and it will be completed by the end of November 2016. The aim of the evaluation is to document the Rwanda CHP, assessing programmatic achievements and constraints by reviewing the existing conceptual framework and overall system, including financial support, human resources, management structure, supervision mechanism and governance. The evaluation entails a mixed-method approach (quantitative, qualitative and theory-based methods) using various methods of data collection and analysis including: a cross-sectional survey at health centres level and CHWs level, Focus Group Discussions (FGDs) at community level and in-depth interviews at all level (central, district, sector, cell and community level), and analysis of secondary data, literature and reports.

This report presents the findings of the **cross sectional survey of health centres and of community health workers**, performed by LSTM as a key component of the evaluation of the CHP.
The survey, implemented in August 2016 in 10 Districts of Rwanda, was designed in coordination with the MoH, RBC, UNICEF and other stakeholders. Relevant approvals from the LSTM Research and Ethics Committee; Rwanda National Ethics Committee and National Institute of Statistics of Rwanda were sought and obtained prior to data collection.

1.2. OBJECTIVES OF THE SURVEY

The objective of the evaluation is to understand whether the CHW program has achieved its intended objectives, thus contributing to the overarching objectives defined in the Health Sector Strategic Plan III (HSSP III) of improving the health status of the population by ensuring universal accessibility of quality health services for all Rwandans.

Within such evaluation framework, the objective of the survey is to generate evidence concerning the community health program in Rwanda, assessing in particular critical aspects of the program that will inform evaluation questions related to relevance, effectiveness, and efficiency of the program.

The survey has been performed at both community health workers (CHWs) and Health Centres (HC) level. At CHWs level, the survey was designed to cover the following aspects of the program:

1) Socio-demographic background of CHWs
2) Recruitment
3) Training
4) Scope of practice and service delivery
5) Workload
6) Supervision and coordination
7) Recording and reporting activities
8) Equipment and supplies
9) Referral
10) Motivation

At Health Centre (HC) level, the survey aimed at collecting general data on three main aspects related to the CHP:

1) Density of health workers involved in community health, population of CHWs covered and coordination mechanism regarding the CHP;
2) Information about the health centre staff in-charge of CHWs, including: training, workload, practice and supervision aspects;
3) Availability of equipment, health products and medicines for CHWs at health centre level.

1.3. IMPLEMENTATION ARRANGEMENTS

LSTM has been in charge and is accountable for the design, implementation and report writing for this survey. During the inception phase of the evaluation, LSTM invited four Rwandan data collection companies to submit technical proposals and financial offers for the delivery of data collection for this survey. Offers from these four companies were analysed and scored independently by the members of an internal LSTM procurement committee. The company Laterite Ltd. was selected and has been sub-contracted to perform data collection, following the approval of the inception report by the Steering Committee, the 6th of April, 2016.
LSTM was responsible of the following survey activities:

- **Obtaining approvals**: LSTM was responsible for obtaining approvals to conduct the study from Rwanda National Ethics Committee (RNEC), the National Institute of Statistics of Rwanda (NISR) and the Ministry of Health (MINISANTE)/Rwanda Biomedical Centre (RBC).

- **Sampling**: LSTM was in charge of sampling the CHWs and the HCs to be surveyed. LSTM was in charge of providing contact details for the HCs and the CHWs included in the survey as well as contact details for replacement CHWs and HCs when necessary. LSTM was responsible for ensuring that HCs and CHWs were informed by RBC about the research project.

- **Designing the research instruments**: The LSTM team led on the design of the survey tools, including ad hoc questionnaires for CHWs and HCs, and on the validation of such tool via a participatory workshop with key stakeholders, held in Rwanda in April 2016.

- **Testing survey instruments**: In collaboration with Laterite, LSTM was responsible for testing the survey programming. LSTM also took part in the pilot test debrief and was responsible for refining the survey instruments as necessary.

- **Training**: LSTM developed training materials related to the CHW survey and the HC survey and delivered training related to the survey instruments.

- **Data collection**: LSTM reviewed incoming data on a daily basis.

- **Post – data collection**: LSTM audited incoming data, to identify outliers and challenges in data quality. Identified issues were communicated to Laterite which informed and questioned field teams accordingly. Whenever needed, Laterite called back interviewees to provide further clarifications.

- **Data analysis and Report writing**: the LSTM team, inclusive of a statistician and of health specialists, was in charge of the design of the analysis plan for the survey, as well as for the report writing of the survey results.

Laterite’s main role on this study was to organize, implement and coordinate data collection activities at HC level and with CHWs.

- **Obtaining approvals**: Once central level approvals were obtained, Laterite was responsible of informing and obtaining clearance for conducting the study from local authorities at district, sector, cell and village levels.

- **Sampling**: LSTM designed the sampling strategy. Once given the contact information for HCs and CHWS, Laterite was responsible for making calls to the sampled HCs/CHWs to set appointments for when data collection would take place. Laterite worked together with LSTM to manage situations where sampled participants were not available or eligible for participation and identify need for replacements.

- **Designing research instruments**: Laterite was responsible for programming the survey questionnaires and uploading them onto tablets using SurveyCTO software.
- **Translation of survey instruments:** Laterite was responsible for translating survey instruments from English to Kinyarwanda.

- **Recruitment and training of field staff:** Laterite hired a team of enumerators to carry out field preparation activities to seek local approvals (2 in each of the 10 districts). Five field Coordinators and 15 Enumerators were hired for quantitative data collection. Laterite delivered introductory training to the team in conjunction with LSTM.

- **Data collection:** Laterite staff conducted data collection in 10 districts over a period of 2.5 weeks. In total, 400 interviews were conducted with CHWs and 80 with HC staff.

- **Post-data collection activities:** Laterite worked with LSTM to follow up on cases of errors, outliers and abnormal patterns by enumerators. Laterite held a detailed debrief session with the enumerator team to gather general impressions and follow up on specific questions.

**1.4. ETHICAL CONSIDERATIONS**

CMNH operates in accordance with the Helsinki declaration for medical research (World Medical Association 1964 and subsequent amendment 2013). Where applicable, proposals are subjected to review and approval of the LSTM Research Ethics Committee and in-country research ethics bodies to ensure the highest standards and quality of our work. All studies are implemented according to standard operating procedures with data collection activities planned and conducted in cooperation with local partners, in line with local requirements. As part of the research conduct, the principle of minimising harm to participants is a guiding one in our studies. Informed consent is sought with voluntary participation and right to withdraw guaranteed to all participants. Use of data is restricted to agreed purposes and data management practices are based on set standards (including with regard to integrity, transparency and clarity).

In line with such principles, the following measures were adopted for the implementation of the CHP Survey in Rwanda:

**Prior to implementing the survey:**
Ethical approval for the evaluation was obtained from to the LSTM Research and Ethics Committee, and from the Rwanda National Ethics Committee (RNEC). Consequently, a Visa was also sought and obtained from the National Institute of Statistics in Rwanda, as per national requirements. LSTM received NISR approval to conduct the survey the 27th of June 2016. All the approvals related to this survey can be find in Annex I.

**Data collection:**
Information sheets and consent forms were designed for health care workers at HC level and for community health workers, in both English and Kinyarwanda, and validated by RNEC prior to the survey implementation. During fieldwork, all participants received explanations prior to data collection, and were given the full right of withdrawing from the exercise at any time. Consent was obtained prior to initiating the survey from all participants.

**Data analysis:**
All data has been managed in accordance with the LSTM internal data management policy and protocols and every effort has been made to ensure that confidentiality and privacy of respondents is protected at
all stages of data collection and processing. The questionnaires were electronically recorded and sent to
the Laterite Ltd. server and then to the CMNH-LSTM team in Liverpool under the format of raw data. All
data collected have been kept strictly confidential, and access was only granted to the research team.
Data stored on the tablets have been deleted at the end of data collection.
All data are stored in an encrypted server at LSTM.
Data have been for statistical analysis only and identity information of the participants (name, district, HC
and village) have been numerically coded to maintain anonymity. Only the research team has access to
the link matching identity information and coded numbers.
Should the survey findings lead to any publication in future, data will be presented only on an aggregate
form so that no health centres or individuals could be identified.
2. METHODS

2.1. STUDY DESIGN

The quantitative survey consisted of a questionnaire administered at CHWs level and health centres level. According to the CHP strategy, there are three CHWs in each village: two binômes (one female, one male) and one Assistante de Santé Maternelle (ASM). The responsibilities of each cadre is detailed in Table 1.

<table>
<thead>
<tr>
<th>Cadre</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binôme</td>
<td>• Growth monitoring</td>
</tr>
<tr>
<td></td>
<td>• Nutrition</td>
</tr>
<tr>
<td></td>
<td>• integrated Community Case Management (iCCM) of childhood illness</td>
</tr>
<tr>
<td></td>
<td>• Community-Based Provision of Family Planning (CBPFP)</td>
</tr>
<tr>
<td></td>
<td>• Detection of tuberculosis suspects and Direct Observation of Treatment for Tuberculosis (DOTS TB)</td>
</tr>
<tr>
<td></td>
<td>• Health promotion, Behaviour Change Communication (BCC) activities</td>
</tr>
<tr>
<td></td>
<td>• Sensitisation to mass campaign</td>
</tr>
<tr>
<td></td>
<td>• Sensitisation to Community-based Health Insurance (CBHI)</td>
</tr>
<tr>
<td>ASM</td>
<td>• Growth monitoring</td>
</tr>
<tr>
<td></td>
<td>• Nutrition (breastfeeding, pregnant women and lactating mothers)</td>
</tr>
<tr>
<td></td>
<td>• Maternal and Newborn Health</td>
</tr>
<tr>
<td></td>
<td>• Detection of tuberculosis suspects and Direct Observation of Treatment for Tuberculosis (DOTS TB)</td>
</tr>
<tr>
<td></td>
<td>• Health promotion, Behaviour Change Communication (BCC) activities</td>
</tr>
<tr>
<td></td>
<td>• Sensitisation to mass campaign</td>
</tr>
<tr>
<td></td>
<td>• Sensitisation to Community-based Health Insurance (CBHI)</td>
</tr>
</tbody>
</table>

Community Health Workers are supervised by the health centre (HC) to which they are attached. In each HC, a health care worker is in-charge of CHWs. Other HC staff can also be involved in the training and supervision of CHWs.

One questionnaire has been designed for CHWs, another for HC staff, with a main focus on personnel in-charge of CHWs. As mentioned in the objectives, each of them contain different sections to address evaluation questions.

The objective of the cross-sectional survey at CHWs level and health centres level was to inform evaluation questions identified by the MoH and RBC at inception, regarding the relevance, effectiveness, efficiency and sustainability.

The rationale of the survey design and of its contribution to the evaluation questions is summarized in Table 2 below.
Table 2. Evaluation questions and survey

<table>
<thead>
<tr>
<th>Evaluation criteria</th>
<th>Evaluation questions covered</th>
<th>Contribution from the CHWs survey</th>
<th>Contribution from the HCs survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevance</td>
<td>How well is the CHP accepted and owned by the community?</td>
<td>• CHWs socio-demographic background • CHWs recruitment • CHWs scope of practice</td>
<td></td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Has the CHP achieved its objectives? To what extent and how? What were the main facilitators and barriers to achieving the program objectives?</td>
<td>• CHWs recruitment • CHWs training • CHWs scope of practice • CHWs workload • CHWs recording, reporting • CHWs equipment and supplies • CHWs referral</td>
<td>• General data on health workers density, population of CHWs covered, coordination mechanisms (section 1)</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Are the available resources (financial, human and commodities) efficiently used to achieve the programme objectives?</td>
<td>• CHWs recruitment • CHWs training • CHWs scope of practice • CHWs workload • CHWs recording, reporting • CHWs equipment and supplies • CHWs referral</td>
<td>• In-charge of CHWs training, workload, practice, supervision (section 2) • Equipment, health products and medicine availability (section 3)</td>
</tr>
<tr>
<td>Sustainability</td>
<td>What are the main factors influencing the future sustainability of the program (human, social, financial, institutional)?</td>
<td>• CHWs socio-demographic background • CHWs recruitment • CHWs workload • CHWs motivation</td>
<td></td>
</tr>
</tbody>
</table>

CMNH-LSTM has designed the questionnaire for CHWs and HCs, based on the *LQAS Generic Community Health Worker Survey Tools (LSTM, UNICEF; 2015)*, which was considerably expanded and adapted to the context of Rwanda and to the objectives of the evaluation. Tools were then refined during a workshop in Bugesera, the 4 and 5th of April 2016, gathering inputs from stakeholders from Community Health Unit (CHU) of RBC, United Nations Agencies technical staff, directors of district hospitals and CHWs supervisors at district hospital, district pharmacy manager, titulaires of health centres and in-charge of CHWs at HC.

### 2.1.1 Study site

The estimates produced are to be nationally representative of all CHWs and all HCs. Study site is therefore Rwanda, nationwide.
2.1.2 Study population
The study population is all active CHWs and all public health centres in Rwanda.

2.2. SAMPLING METHODOLOGY

2.2.1. Sampling design
The sample of CHWs and HCs has been designed to provide estimates for the country as a whole. The sampling frame was provided by the RapidSMS database and included all functional public health centres and active CHWs. By active, we mean CHWs who have not resigned or defaulted. The sampling frame was clustered by HCs and districts and stratified by provinces to which the CHWs are attached.

CMNH-LSTM used a multi-stage stratified cluster random procedure:
1) The sampling frame was stratified by province to ensure that all provinces are represented in the sample.
2) Health centres were clustered by districts.
3) In each province, we randomly selected two districts using probability proportional to size (number of health centres per district). In total, 10 districts were selected.
4) In each of the 10 selected districts, we randomly selected eight health centres using probability proportional to size (number of CHWs attached to HC). In total, 80 HCs were selected.
5) In the catchment area of each selected HC, we randomly selected five villages using simple random sampling. In total, 400 villages were selected.
6) In each of the first two selected villages, we selected one ASM, in the three remaining selected villages, we selected one binôme. In total, 400 CHWs were selected including 160 ASMs and 240 binômes.
7) A reserve list of CHWs was prepared. In the catchment area of each selected HC, among villages not sampled in the initial sample, five villages randomly selected using simple random sampling. In total 400 alternate villages were selected. This was to ensure that when a replacement was necessary the replacement was not sampled from a village in which a CHW had declined to consent to participate / or was not reachable. In total, 400 alternate CHWs were selected including 158 ASMs and 242 binômes.

2.2.2. Sampling frame
The sampling frame was provided by the RapidSMS database. RapidSMS is an open source information technology platform using mobile technology innovation. RapidSMS allows the Community Health Workers (CHWs) to collect data, on pregnant women, postpartum women and children until the age of two years. Community Health Workers send data collected via cell phone SMS to an MOH central server hosting the RapidSMS application. They receive then automated feedbacks to acknowledge reception of each SMS sent and the corresponding relevant actions.

Each CHW reports monthly all collected data through RapidSMS. In June 2016, the Community Health Unit (CHU) of the Rwanda Biomedical Centre (RBC) provided to CMNH-LSTM the most updated RapidSMS database of CHWs, inclusive of information regarding the village, health centre, district and province to which they are attached.

All CHWs who are reported to be active are included in this database. CHWs who resigned and CHWs who are defaulters are not included in the database.

At the time of the survey, the database included 44,898 CHWs. Among them, 14,857 were ASMs and 30,132 were binômes.

They were attached to 480 public health centres.
2.2.3. Sampling procedures

Based on this sampling procedure, CMNH-LSTM has randomly selected 10 districts using probability proportional to size (Figure 1).

Figure 1. Districts selected for the survey

The list of districts and Health Centres sampled according to sampling procedures described above is available in Annex II, and summarized in Table 3 below.

Ten districts were selected for inclusion in this study, 2 in each province: Kigali City (Kicukiro, Gasabo); Eastern Province (Kayonza, Nyagatare); Northern Province (Gicumbi, Rulindo); Western Province (Nyabihu, Ngororero) and Southern Province (Muhanga, Ruhango).

In each of the 10 selected districts, 8 health centers were selected for inclusion in this study. In total, staff at 80 HCs were interviewed.

In the catchment area of each selected HC, 5 villages were selected for inclusion. In total, 400 villages were selected.

In each of the first two selected villages, 1 ASM was selected, in the three remaining selected villages, 1 binôme was selected. In total, 400 CHWs were selected including 160 ASMs and 240 binômes.

Four hundred replacement villages and 160 ASMs and 240 binômes were selected in the same process among villages that were not sampled in the initial sample.

In four HCs catchment areas, where the survey team could not reach 5 CHWs among the 10 randomly sampled (including the 5 replacements), additional villages (and their ASM/binome) were sampled using simple random sampling among the villages that were not yet included in the sample. In total 20 additional villages have been sampled, all in Kicukiro district (8 in Bethsaida HC catchment area, 4 in Busanza HC catchment area, 4 in Gahanga HC catchment area and 4 in Gikondo catchment area).
Table 3. Sampling of districts, HCs and CHWs

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>HC s</th>
<th>ASMs</th>
<th>CHWs</th>
<th>Binomes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kicukiro</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Gasabo</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Kayonza</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Nyagatare</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Gicumbi</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Rulindo</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Nyabihu</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Ngororero</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Ruhango</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Muhanga</td>
<td>8</td>
<td>16</td>
<td>24</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>TOTAL</td>
<td>80</td>
<td>160</td>
<td>240</td>
<td></td>
<td>240</td>
</tr>
</tbody>
</table>

2.2.4. Procedures of recruitment and replacement

a) Procedures of recruitment for CHWs
Community Health Workers were identified through the RapidSMS database and were contacted by phone prior to the survey. They were explained the nature of the survey, the time required to answer questions, withdrawal, confidentiality and anonymity principles, as well as the method used to record the answers (tablets). If they agreed to participate, the researcher convened an appointment with the CHWs. The day of the interview, the researcher showed the letter of approval from district authorities and CHWs received the information sheet and was asked to give their informed consent.

b) Procedures of recruitment for HC staff
Health centres were identified through the RapidSMS database. The Community Health Unit (CHU) of RBC provided the phone number of the HCs titulaires, in-charge of CHWs and data managers to the research team. When calling the titulaire, the researcher explained the nature of the survey, the time required to answer questions, withdrawal, confidentiality and anonymity principles, as well as the method used to record the answers (tablets).
If the titulaire agreed that the HC participates, the researcher convene an appointment.

The day of the interview, the researcher showed the letter of approval of district authorities and all participants to the survey at HC level received an information sheet and were asked to give their informed consent.

a) Replacement

Health Centres
The survey team interviewed all of the Health Centres that were originally selected by LSTM.
In terms of the staff at the Health Centres, the objective was to interview the Titulaire, the In-charge of Community Health Workers, the Data Manager and/or the Pharmacist.

For a number of reasons, we were not always able to ensure that all positions of interest were present at the interview. In many cases there were no times when all three were available, due to conflicting schedules and staff members being on leave. The survey team convened that the In-Charge of CHWs was the most crucial staff member at the HC for this study without whom the interview couldn’t be conducted.
There were four Health Centres where the In-Charge of CHWs was not present at the interview. These HCs didn’t have an In-Charge of CHWs at the time – i.e. the In-Charge left the job or was on leave – in which case the acting In-Charge of CHWs was interviewed instead. These acting staff included Data Managers and Nutrition Officers.

For 19 HCs, the Titulaire wasn’t available, their assistant replaced them in the interview.

Community Health Workers

In the catchment area of each HC the plan was that 2 ASMs and 3 Binomes would be interviewed. The following replacement criteria were used during the survey implementation:

- LSTM sampled a total of 2 ASMs and 3 Binomes for each HC’s catchment area, as well as 2 replacement ASMs and 3 replacement binomes in case the first were unavailable.
- The survey team contacted the first two ASMs and the first three binomes.
- Cell coordinators contact details were provided by CHU and survey team contacted them to try and find secondary and/or tertiary phone numbers for CHWs when:
  - the survey team could not reach the first 2 ASMs and 3 binomes.
  - The survey team could not get in touch with a CHW who had agreed to the interview but couldn’t be reached on the day of the interview.
- When the first 2 ASMs and 3 Binomes were unavailable or unreachable, the survey team contacted the replacements.
- In Kicukiro district, the survey team faced significant challenges in contacting the sampled CHWs. The reason for is that CHWs used personal SIM cards in their Rapid SMS phones or did not keep their Rapid SMS phones on. In 4 Health Centres catchment areas, the survey team could not reach 5 CHWs out of the list of 10 sampled CHWs (including replacements). LSTM had to extend the list of randomly selected replacement CHWs. In 2 Health Centres catchment area, LSTM re-sampled randomly 4 and one ASM in each village. In 1 Health Centre catchment area, LSTM re-sampled randomly 4 villages and 1 binome in each village. In the fourth Health Centre catchment area, LSTM re-sampled 4 villages and 1 ASM in each village and 4 villages and 1 binome in each village.
- In Gatenga Health Centre catchment area in Kicukiro district, the survey team was only able to get in touch with 3 CHW out of the sampled 10 CHWs (including replacements). However, even these 3 CHWs couldn’t be interviewed because they kept shifting the time of the interview, until later on they finally declined to participate. The reason for this is that Health Centre was going through a CHWs restructuring exercise. Most CHWs had been recently replaced but the new ones had not yet been availed tools and equipment (including Rapid SMS phones) to start work. Therefore, LSTM discarded the former list of CHWs for Gatenga Health Centre. Gatenga Health Centre provided an updated list of active CHWs in its area and LSTM sampled randomly 5 villages. In the first two villages, LSTM sampled 1 ASM, in the other 3 villages, LSTM sampled 1 binome. With the same process, LSTM also sampled randomly five replacement villages among villages not yet sampled and 2 replacement ASMs and 3 replacement binomes. The survey team used this updated sample to survey 5 CHWs.
- In 18 cases the survey team found out that CHWs of the sample had left their position and have been replaced. As the contact details (i.e. Rapid SMS phone), village and role (ASM / binome) were the same, the new CHW was interviewed instead.

A summary of the replacement is provided in Table 4 below:
In total, the survey team attempted to contact 611 CHWs. All of them have been sampled randomly and contacted by priority order.

The survey team first tried to contact the 2 first ASMs and the three first binomes. When they were not reachable, the survey team contacted the HC to which they are attached and their cell coordinator. If those ones could not provide alternate phone numbers, the survey team started contacting their replacements.

Out of these 611 CHWs, 400 were interviewed, 197 could not be contacted, and 14 agreed to participate to the interview by phone but were not present the day of the interview and could not be reached.

Among the 400 CHWs who were interviewed, 18 of them had been replaced by a new CHW at the time that the survey team contacted them. The replacement CHWs come from the same village, have the same function (binome / ASM) and have the same RapidSMS number. Therefore, the survey team interviewed the replacement CHW.

2.2.5. Sample size calculations
The sampling design for the survey entailed:

a) Random sampling of 10 out of 30 districts stratified by province: 2 districts per province, sampled using probability proportional to size (number of health centres).
b) Random sampling of 80 health centres: 8 health centres per district, sampled using probability proportional to size (number of CHWs attached to HC)
c) Simple random sampling of 400 CHWs (160 ASMs and 240 binômes): 5 CHWs (2 ASMs and 3 binômes) in the coverage area of each health centre.

Our primary focus is estimates at CHWs level, our secondary focus is estimates at HC. This sample size has been determined to provide national estimates for CHWs and HCs characteristics with margins of error that will not exceed 11.5% and 13.1% respectively, using 95% confidence levels if intra-cluster correlation coefficients (ICCs) do not exceed 0.10.

a) Margin of error for estimation at HC levels
The margin of error for estimation of a proportion measured at health centre level for the nation depends on cluster size and intra-cluster correlation coefficient (ICC) between health centres. When cluster sampling is used, there is a need to adjust for the impact on the margin of error. To determine a margin of error (MoE) at facility level the following formulae have been used:
\[
\text{ess}_f = \frac{n_c \times m}{\text{deff}}
\]

Where:
\[
deff = 1 + (m - 1) \rho
\]
\(m\) = the number of health centres selected per cluster (\(m=8\))
\(n_c\) = the number of clusters (HCs) selected (10 districts)
\(\rho\) = the intra-cluster correlation (assumed to lie between 0 and 0.10)

Then since:

\[
\text{se}_f = \sqrt{\frac{\pi(1 - \pi)}{\text{ess}}}
\]

\[
\text{MoE} = z_\alpha \times \text{se}_f \leq 1.96 \times \frac{0.5}{\sqrt{\text{ess}}}
\]

Where:
\(z_\alpha\) = the critical values of the standard normal distribution which is associated with the assumed two-sided significance level (\(\alpha = 0.05\); \(z_\alpha = 1.96\)).
\(\pi\) = the proportion to be estimated (conservatively set to 0.5)

The margin of error at health centre level, when the proportion being estimated is 50% is indicated in Table 5 for a range of values of the ICC. The further the proportion to be estimated deviates from 50%, the smaller the margin of error is.

**Table 5. Margin of error at national level for health centres if percentage is 50%**

<table>
<thead>
<tr>
<th>ICC</th>
<th>Sampling unit: health centre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deff</td>
</tr>
<tr>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>0.01</td>
<td>1.07</td>
</tr>
<tr>
<td>0.02</td>
<td>1.14</td>
</tr>
<tr>
<td>0.04</td>
<td>1.28</td>
</tr>
<tr>
<td>0.06</td>
<td>1.42</td>
</tr>
<tr>
<td>0.10</td>
<td>1.70</td>
</tr>
</tbody>
</table>

*If a proportion to be estimated differs from 0.5, the margin of error will be less than indicated.

b) **Margin of error for estimations at CHWs level**

For estimation at CHW level, the same approach as for estimation at HC level, modified for the additional level, was used.
The margin of error at CHWs level, when the proportion being estimated is 50% is indicated in Table 6 for a range of values of the ICC. The further the proportion to be estimated deviates from 50%, the smaller the margin of error is.

Table 6. Margin of error at national level for CHWs if percentage is 50%

<table>
<thead>
<tr>
<th>Deff</th>
<th>MoE if proportion 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>0.01</td>
<td>1.36</td>
</tr>
<tr>
<td>0.02</td>
<td>1.68</td>
</tr>
<tr>
<td>0.04</td>
<td>2.21</td>
</tr>
<tr>
<td>0.06</td>
<td>2.63</td>
</tr>
<tr>
<td>0.10</td>
<td>3.25</td>
</tr>
</tbody>
</table>

*If a proportion to be estimated differs from 0.5, the margin of error will be less than indicated.

In the questionnaire to be administered to CHWs, some questions are specifically designed for ASMs, some are specifically designed for binômes and some require the CHWs to have been in post for at least 12 months or 3 months.

In the sampling frame, there were 14,857 ASMs and 30,132 binômes. At the stage of sampling, the data on “date of recruitment” were not complete in the Rapid SMS database. However, because the annual CHWs turnover rate had been estimated at 10% by CHU and because the programme had been in place for a long time with no recent new CHWs recruitment policy, we expected the number of CHWs in post for more than 12 months to be around 90% of the total number of CHWs. We sampled 160 ASMs out of 14,857 and 240 binômes out of 30,132. We expected therefore to survey around 360 CHWs who had been in post for more than 12 months out of the expected 40,490 CHWs in post since more than 12 months. When disaggregating analysis, the sample size was aimed to provide national estimates for characteristics of ASMs, binômes and CHWs in post for more than 12 months with margins of error that would not exceed 13.7%, 12.5% and 11.7% respectively, using 95% confidence levels if intra-cluster correlation coefficients (ICCs) do not exceed 0.10 (Table 7).

Table 7. Margin of error at national level for ASMs, binômes and CHWs with more than 12 months of experience, if percentage is 50%

<table>
<thead>
<tr>
<th>ICC</th>
<th>MoE at national level if percentage is 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MoE at national level if percentage is 50%</td>
</tr>
<tr>
<td></td>
<td>All CHW</td>
</tr>
<tr>
<td>0</td>
<td>1.00</td>
</tr>
<tr>
<td>0.01</td>
<td>1.36</td>
</tr>
<tr>
<td>0.02</td>
<td>1.68</td>
</tr>
<tr>
<td>0.04</td>
<td>2.21</td>
</tr>
<tr>
<td>0.06</td>
<td>2.63</td>
</tr>
<tr>
<td>0.10</td>
<td>3.25</td>
</tr>
</tbody>
</table>
2.3. **SURVEY TOOLS**

2.3.1. **Survey Instruments**

Two survey instruments were used to collect data for this study; one to collect data from CHWs and the other to collect data at the HC level.

The survey instruments were questionnaires. Both questionnaires were commented and reviewed by key stakeholders during a workshop in Bugesera the 4th and 5th of April, 2016.

Both survey instruments were programmed using Survey CTO software and administered to respondents using electronic tablets.

The **CHWs questionnaire** covered the following topics:
1. General information about the CHW
2. CHWs’ background including where they live/work and the people in the area they are in charge of.
3. Recruitment including when, how and why CHWs were recruited.
4. Training including details on the various types of training received by CHWs.
5. Scope of practice looking at CHWs’ roles and responsibilities.
6. Activities looking at CHWs’ workload and time use.
7. Supervision and Coordination of CHW activities including who supervises them, when do coordination meetings take place, etc.
8. Recording and Reporting looking at how/when CHWs report on their activities
9. IEC/BCC looking at public sensitisation sessions by the CHWs and their impact on the general population.
10. Equipment and supplies exploring the availability (or lack of) of essential equipment and materials among different categories of CHWs.
11. Referral exploring the referral of patients to the HC and/or DH and how easy/difficult this process is.
12. Motivation looking at what they do and what would increase their motivation

The **HC questionnaire** covered the following topics:
1. General information on the Health Centre and HC staff working in community health. This section was addressed to all staff categories at the HC (the Titulaire, the In-Charge of CHWs, the Data Manager and/or The Pharmacist)
2. Activities and supervision of CHWs. This section was addressed only to the In-Charge of CHWs at the HC.
3. Equipment and supplies at the Health Centre. This section was addressed only to the Pharmacist or the In-Charge of CHWs where there was no Pharmacist.

Survey questionnaires are enclosed in **Annex III**

2.3.2. **Translation of Questionnaires**

The survey company Laterite translated the consent forms and survey instruments from English to Kinyarwanda. All translations were made first by a professional translator hired by Laterite for this project. They were then reviewed and revised by a Rwandan medical professional to ensure that the medical terminology was correctly translated.

During the training and piloting process field staff made suggestions to improve the clarity of translations for certain questions. Translation of these changes were made by Laterite staff during the training and piloting period. LSTM research team also administered English and Kinyarwanda final questionnaires to CHU staff to ensure validate translations of technical terms.
2.3.3. The Process of Adaptation and Revision of the Questionnaire
LSTM provided Laterite with paper copies of the survey instruments in May for the purposes of translation. LSTM then provided revised versions of the HC survey and CHW survey with validation paths that were used for the first round of programming in June.

In the week during training and leading up to data collections a number of changes were made to the questionnaires, thanks to inputs from field teams involved in the training and in the pilot, and in testing the survey tool. Changes included:
- Modifications of validation paths
- Modifications of question types (single / multiple choice)
- Modifications of response options
- Re-wording of questions
- Modifications of translations
- Addition of questions hints
- Deletion of questions

After each round of changes the survey was tested and issues recorded until the survey instrument was completed and approved by LSTM and Laterite.

2.3.4. The Conversion from Paper to Electronic Version
The company Laterite, subcontracted by LSTM for data collection, was in charge of designing the electronic platform for data collection. Data was collected using Google Nexus tablets with SurveyCTO, a version of ODK software.
Laterite programmed the survey in an Excel form which was then uploaded to the SurveyCTO server.
The SurveyCTO app was then used on tablets for offline electronic data collection in the field.

2.4. SELECTION AND TRAINING OF SURVEY TEAMS

2.4.1. Recruitment of survey teams
The recruitment and deployment of survey teams was under the responsibility of Laterite.
Laterite hired a team of enumerators to carry out field preparation activities to seek local approvals (2 in each of the 10 districts). Afterwards, 5 field Coordinators and 15 Enumerators were hired for quantitative data collection.
Laterite maintains a pool of qualified individuals to act as enumerators for data collection projects. In order to qualify for enumeration work, individuals must pass through a rigorous testing process that looks at logic, problem solving, and most importantly, communication skills. The interview process includes an Excel test, a written test and a situational face-to-face interview, which tests their ability to interact with respondents in a professional manner. The successful candidates are then added to our roster/database.
It is from that roster that we selected candidates for this study. Below is a description of the tasks of the field staff that worked on this survey:

- **Senior Field Supervisor (SFS)** travelled to the field as needed to provide oversight and address challenges on the ground.
- **Field Coordinators (FC)** conducted interviews at HC and with CHWs but also had the added responsibility of oversight of the field teams, acting as a conduit of information between the main office and the field.
• Enumerators were responsible for conducting interviews with CHWs.

2.4.2. Training of survey teams

Training was carried out during the week of August 8th 2016 over a period of four days. The entire team participated in an initial introductory day where they were introduced to LSTM, the objective of the research and the different areas of the Community Health programme as well as Laterite processes and protocols. The second day of training was limited to the field coordinators and focused on the contents of the Health Centre survey. The third and fourth days of training was attended by the whole quantitative data collection team and focused on the contents of the Community Health Worker survey. Training was held at Laterite’s offices in Gacuriro, Kigali. Laterite delivered introductory training on logistics aspects, and LSTM delivered training on specifics of Community Health Programme, and the HC and CHW surveys. An SFS from Laterite attended all training sessions to facilitate translation where necessary.

Training activities included:
• Introduction to objectives of the survey
• Introduction of different packages of services offered by CHWs and CHWs supervision mechanisms
• Familiarisation with consent forms
• Question by question review of paper questionnaires
• Practicing data entry on tablets
• Mock interviews
• Demonstration of health equipment

An overview of the training program is provided in Table 8 below. A detailed training agenda is provided in Annex IV.

Table 8. Overview of training program

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic</td>
<td>Introduction to objectives of the survey</td>
<td>HC Survey</td>
<td>Informed consent</td>
<td>CHW Survey</td>
</tr>
<tr>
<td>Attendees</td>
<td>5 Field Coordinators and 15 enumerators (and 4 alternates)</td>
<td>5 Field Coordinators</td>
<td>5 Field Coordinators and 15 enumerators (and 4 alternates)</td>
<td>5 Field Coordinators and 15 enumerators (and 4 alternates)</td>
</tr>
<tr>
<td>Trainers</td>
<td>Laterite &amp; LSTM</td>
<td>LSTM</td>
<td>LSTM</td>
<td>Laterite &amp; LSTM</td>
</tr>
</tbody>
</table>

2.5. FIELD TEST

The quantitative field test took place on Friday August 12th 2016 in Gasabo District, Kigali Province. All field coordinators and half of the enumerator team participated in the pilot and carried out 6 complete CHW interviews and 4 complete HC interviews. The field coordinators interviewed HCs staff at HCs. This is required as part of the questions in the questionnaire for Health Centre include observation to validate the availability of tools and health products. The enumerators met the CHWs at home. This is required as several sections of the questionnaire for CHWs require observation before validating availability of tools or health products.
2.5.1. Field-test Objectives
There were three main objectives of the field test:

1. **To test the approach to field preparation.**
The field test revealed some challenges in the planned approach to field preparation. Many of the RapidSMS phone numbers of CHWs in the sampled list were not working – it became evident that CHWs did not use their RapidSMS phone as their primary means of communication. To get around this for the pilot the survey team called the Health Centres associated with each CHW to see if their personal number could be found. When the survey team could not get a hold of the individuals the survey team asked the HC staff to communicate the date and time of the interview to the CHW. These challenges in communicating with CHWs caused logistical challenges in carrying out the interviews. As is typical in interviews in Kigali, the respondents were busy and not always in the locations they said they would be at the fixed time. In addition, some of the respondents with who the survey team could not directly communicate with were unaware of the fixed time for the appointment. During data collection the survey team encountered this problem with field preparation only in urban Health Centres in Kigali (Kicukiro district), logistics were much easier to manage in rural locations.

2. **To test the survey instrument**
The field test provided an important opportunity to test (1) the questions and response options, (2) the translation and (3) the survey coding. The field test provided some insights into challenges in these areas that were addressed in the survey instruments during the week between the field test and data collection. The pilot also provided valuable insight into the length of the survey. The logistical issues generated challenges with regards to timing, but once the surveys started it became apparent that the questionnaires were too long taking between 2 to 4 hours to complete.

3. **To provide experience to the enumerators team**
The field test provided an important opportunity to the field coordination team as well as a portion of enumerators to practice the survey before data collection. The debrief session provided an opportunity to clarify a number of questions and to provide feedback on issues.

2.5.2. Pilot Participants

The participating Health Centres to the pilot tests were Avega Kigali, Kagugu, Kinyinya and Kabuye in Gasabo district. None of these health centres were part of the sampled 80 Health Centres.

For the pilot test, two binomes and one ASM were interviewed in the catchment area of Avega Kigali Health Centre and 2 ASMs and 1 binome were interviewed in the catchment area of Kabuye Health Centre.

2.5.3. Pilot Debrief
At the end of the pilot test, Laterite hosted a debrief session with field coordinators and enumerators, together with LSTM. The Director of CHU attended the feedback meeting and contributed to clarify questions.

First issue was the survey length. The first challenge with length was the amount of time to find the participants and to begin the survey. First, the survey team faced the issue of not being able to communicate with sampled CHWs through their Rapid SMS phones. The alternative methods used was
to contact them through friends or colleagues, which did not prove to be reliable. The pilot was carried out in Kigali where individuals are busy, moving around frequently and engaged in other income-generating activities. For the Health Centres the survey team also faced logistical difficulties with time as all of the staff required for the interview were not available at the same time.

As a corrective action, LSTM requested contact details of cell coordinators of all CHWs sampled. When the survey team didn’t manage to contact CHWs, in addition to refer to the HC in-charge of CHWs, the survey team could also contact the cell coordinators to get the personal phone numbers of CHWs.

In terms of length of the actual interviews the Health Centre surveys appeared on average to fit within the allocated two-hour time frame.

With regards to the CHW survey however time was a concern. Some surveys were extraordinarily long due to frequent interruptions in the survey. Only one survey during the pilot was under 3 hours in length. In addition, enumerators stated that the participants complained about the length of the questionnaire in particular the time it took to recall activities during the week.

As a corrective action, LSTM added constraint validation paths, ensuring that questions are only addressed to CHWs that conducted the notified activity.

A second issue was the translations. Enumerators brought up certain terms that were confusing to participants or that they did not understand. These were noted by LSTM team and updated in the survey. Those terms were also verified by CHU staff.

A third issue was around the questions and response options for certain questions. Enumerators pointed out areas where the response options were not appropriate. LSTM also analysed all the pilot-tested questionnaires and added response options when a response not included in the survey came out regularly under the “Other (specify)” question. For example, the list of positions at the Health Centre – response options for nutrition officers and environmental health officers were added following this feedback session.

2.6. DATA COLLECTION

Data collection was carried out over a period of 2.5 weeks between August 22nd and September 6th 2016. Five districts were covered in week one, the additional 5 districts were covered in week two, and ‘mop-up’ of missing interviews was carried out in the first few days of the third week.

2.6.1. Data Collection Locations

Data collection was carried out in 10 Districts in 5 Provinces in Rwanda: **Kigali City** (Kicukiro, Gasabo); **Eastern Province** (Kayonza, Nyagatare); **Northern Province** (Gicumbi, Rulindo); **Western Province** (Nyabihu, Ngororero) and **Southern Province** (Muhanga, Ruhango). In each District, interviews were carried out at 8 Health Centres and with CHWs in the catchment areas of those 8 Health Centres.

2.6.2. Field Teams

Data collection was carried out by a team of 5 Field Coordinators and 15 enumerators and was managed by a Senior Field Supervisor. The field staff was divided into five team each made up of one field coordinator and three enumerators. These teams of four each covered one district each week. Having each team based in a central location in a District for five days allowed for maximum flexibility in the schedule and allowed the team to come together each night. Field Coordinators met with enumerators under their supervision each night to debrief on the interviews of the day, communicate challenges with the Senior Field Supervisor, and manage the logistical plan.
2.6.3. Supervision

Each field coordinator had three enumerators under his or her direct supervision and the Senior Field Supervisor had five field coordinators under his direct supervision. This hierarchical structure allowed for daily oversight of field teams and for challenges to be communicated from the field to the research team and vice versa.

One Senior Technical Officer and one Research Assistant from LSTM worked closely with the Senior Field Supervisor to overcome challenges during the data collection. LSTM staff were based in Laterite offices in Kigali during the time of the data collection. In parallel, three LSTM researchers were conducting Key Informant Interviews in the same districts. They could meet enumerators and Health Centre in-charge of CHWs to help overcome challenges.

Figure 2. Supervision structure of data company Laterite

2.6.4. Survey Duration

The average HC survey took 104 minutes to complete with a minimum of 48 minutes and a maximum of 298 minutes. For these calculations, outliers about 300 minutes were excluded. These are cases where the enumerator may have not saved the survey directly after completing the survey.

The CHW survey took an average of 122 minutes to complete with a minimum of 53 minutes and a maximum of 286 minutes. For these calculations, outliers about 300 minutes were excluded. These are cases where the enumerator may have not saved the survey directly after completing the survey.
2.7. DATA ANALYSIS

Raw data were imported from CTO Survey platform into Excel 2013 workbook format. One Excel worksheet was provided for each survey level (HCs and CHWs). These were each then imported into Stata version 14, using Stata’s import commands. Missing values which were coded (999) and Not applicable option which was coded (888) were designated as missing values before analysis.

2.7.1. Estimates for Health Centres

The analysis was structured around estimation of coverage of the indicators included in the analysis plan for health centres and CHWs. Estimates are provided for Rwanda. Estimates at health centre level used data for all health facilities, except where there was no eligible respondent at the facility to provide a response. For some indicators, only HCs where the in-charge of CHWs was present during the interview were included in the analysis. In total, 4 out of the HCs didn’t have any in-charge of CHWs present during the interview. They were replaced by acting in-charge of CHWs. However, for indicators related to background (age, education level, etc.) and personal experience, the answers of these four HCs were not included in the calculations of the estimates for these indicators.

Similarly, if the question only applied to a subset of respondents, such as Health Centres which experienced a shortage of Ongera (or other medicines), only those to whom the question applied were included in the analysis. In such cases the number available for analysis were fewer, resulting in higher levels of uncertainty and correspondingly wider confidence intervals.

2.7.2. Estimates for Community Health Workers

Estimates among CHWs used either all CHWs, ASMs or binomes, or the subset to whom the question was applicable. In the case of indicators which applied to practices or events over a specified period of time only those who had been in post for the full period were included.

2.7.3. Limitations

Each estimated means, proportion or rate is reported with a 95% confidence interval, which reflects the sampling strategy. Stata’s svy commands which apply the sampling design to the derivation of estimates does not include one to derive the median. Thus to derive medians the proportions command was used to determine in which category the cumulative proportion lays. For this reason, no confidence intervals could be derived for medians.

Where all respondents had the same response for an outcome (i.e. the proportion was either 0% or 100%), no confidence interval is available, since the estimated variability is 0. The possibility that a Health Centre or a CHW not sampled differed from those sampled exists; however, given that all of those sampled were on the boundary the true proportion will be close to the boundary. Exceptions arise where the sample was a subset of respondents, in which case the uncertainty increases as the sample size diminishes.

2.7.4. Weighing

Since the distribution of the sample among the different strata is non-proportional, weighing was used to ensure the validity of the estimates at national level. Analyses were performed using the suite of commands (svy commands) in STATA version 14 which are applicable to such designs with appropriate specification of sampling structure, weights and finite population corrections. These were based on the de facto sampling frame.
Following the notation and description provided in the STATA version 14 Survey data manual, let $h = 1, \ldots, L$ index province, $(h, i)$ index the $i$ districts within province $h$, where $i = 1, \ldots, N_h$ and $N_h$ is the number of districts in province $h$. Let $(h, i, j)$ denote the $j^{th}$ facility in district $(h, i)$ and $M_{hi}$ be the number of facilities in district $(h, i)$.

The estimated total number of health facilities with the characteristic of interest is given by:

$$
\hat{Y} = \sum_{h=1}^{L} \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} w_{hij} y_{hij}
$$

Where:

$$
w_{hij} = \left( \frac{N_h}{n_h} \right) \left( \frac{M_{hi}}{m_{hi}} \right)
$$

are sampling weights

$y_{hij}$ indicates the presence (1) / absence (0) of the characteristic of interest

The proportion of health centres with the characteristic is determined by taking

$$
\hat{\pi} = \frac{\hat{Y}}{N}
$$

where:

$$
N = \sum_{h=1}^{L} \sum_{i=1}^{n_h} M_{hi}
$$

denotes the total number of health centres in all districts in Rwanda.

The variance of $\hat{Y}$ is then estimated by:

$$
\hat{\text{Var}}(\hat{Y}) = \sum_{h=1}^{L} \left( 1 - f_{hi} \right) \frac{n_h}{(n_h - 1)} \sum_{i=1}^{n_h} \left( y_{hi} - \bar{y}_h \right)^2 + \sum_{h=1}^{L} f_{hi} \sum_{i=1}^{n_h} \left( 1 - f_{hi} \right) \frac{m_{hi}}{(m_{hi} - 1)} \sum_{j=1}^{m_{hi}} \left( y_{hij} - \bar{y}_{hij} \right)^2
$$

where:

-$f_h$ and $f_{hi}$ denote sampling fractions in province $h$ and district $(h, i)$ respectively

-$y_{hi}$ is the weighted total for district $(h, i)$

-$\bar{y}_h$ is the mean of the totals in province $h$

-$y_{hij}$ is the value for health centre $(h, i, j)$

and $y_{hi} = \frac{1}{m_{hi}} \sum_{j=1}^{m_{hi}} y_{hij}$.

The analyses performed assume that the sampling was performed using stratified cluster sampling. As detailed in Section 2.2 there were some deviations from the sampling plan. There were four Health Centres for which the number of CHWs sampled deviated from the intended 2 ASMs and 3 Binomes. These are as follows: there were 4 binomes and only 1 ASM surveyed in Rubungo and Rwankeri HC's catchment areas (instead of 3 binomes and 2 ASMs).

This deviation from the initial sampling is due to the fact that in the sampling frame the selected ASM under Rubungo HC catchment area is recorded as ASM; however, she has recently also been given the tasks of binome because of a lack of binomes in her geographic area. She answered the questionnaire as binome. The case for Rwankeri HC is due to an error in the field preparation. Four binomes (including one replacement) and only one ASM were contacted and surveyed. This error slipped through the meshes of the quality assurance process and was only spotted during data analysis.
2.8. QUALITY CONTROL PROCEDURES

2.8.1. Data Handling

Data was collected on Google Nexus tablets using Survey CTO. Data was uploaded by enumerators each evening to Laterite’s server on SurveyCTO. The data was downloaded from the server the next morning by Laterite research staff and saved in a shared Laterite-LSTM Dropbox folder. In order to maintain confidentiality, Laterite did not save the full dataset into Dropbox. Laterite created two files each morning, one with participant information (name, phone number) and the second with the survey information. These two separate files were uploaded each day to the shared Dropbox folder where they could be accessed by authorized LSTM and Laterite staff. In addition to the data files, Laterite shared the media files for each survey which include a record of the time spent on each question on each survey, and an automated cleaning stata do file.

2.8.2. Quality Assurance

Data quality was maintained through an intensive four-day training session, a strong structure of supervision on the field and regular communication between the research team monitoring incoming data and the teams on the field.

During data collection, LSTM team (based in Kigali and Liverpool) analyzed data as they were uploaded in the Dropbox folder by Laterite. When LSTM research team identified outliers, they communicate the cases and questions to Laterite’s senior field coordinator. In some cases, the enumerator was able to provide necessary context, in other cases additional follow up was needed. Laterite made call backs to HCs and CHWs to follow up on all points raised by LSTM that were not explained by enumerators.

After field work was completed, Laterite hosted a debrief session on Wednesday Sept 7th. During this debrief session, Laterite collected feedback from enumerators on the perceptions of the project and what they learnt on the field.

Once data collection was completed, estimates calculated for a number of indicators were unexpected. The first set of indicators was related to Performance Based-Finance (PBF) incentives received by CHWs. The question asked about PBF incentives that ‘came from the cooperative.’ As there are two sorts of incentives that come from the cooperative, this likely caused confusion among respondents. To clarify the data, Laterite called back a random sample of 40 CHWs. All the CHWs who previously stated that they did not get PBF incentives changed their answer. Performance-based finance incentives are provided by the Rwandan government to the CHWs cooperatives, which then redistribute them to CHWs. When calling back the CHWs, it appears that they link PBF incentives with coming from the government and not from CHWs cooperatives. When they answered that they were not receiving PBF incentives, they actually meant that were not receiving any benefits from the income generating activities of the CHWs cooperatives. As the number of CHWs who receive PBF incentives can be obtained through other channels (secondary data), LSTM decided not to call back the 400 CHWs and the indicators related to this were not included in the analysis.

The second set of questions that posed some challenges was related to the population of residents covered by the CHW. The population figures are kept in a register in the village by the Binome in charge of family planning or the cell coordinator. Some CHWs did not have access to this register and gave inaccurate numbers. LSTM research team analyzed the ratios children under 5: total population, women in a reproductive age: total population. When women in a reproductive age and children represented more than 80% of the total population, Laterite called back the CHW. It appeared that CHWs didn’t access the population register. They had to call the Binome/Cell coordinator who keeps that register. Some CHWs had previously given the total population that they covered and not the total population of their umudugudu. Despite cleaning obvious outliers, LSTM research team decided to exclude the estimates for this set of indicators as they were not totally
reliable.

The last set of questions that required call-back of CHWs was the number of cases treated/identified/referred by CHWs. LSTM analyzed the ratio number of cases treated: children under 5 or number of cases treated: women in reproductive age. According to the package services, LSTM set cut-off for outliers. Laterite called back CHWs whose number of treated cases were outliers. This set of indicators is included in the survey as the enumerators checked the register with CHWs when recording the answers and most of outliers have been explained.

Finally, LSTM analyzed the answers provided in questions “Other (specify)”. When similar answers were provided for more than 3% of HCs or CHWs, a new category of response was created and has been included in the analysis of the survey. For example, a consequent number of Health Centres reported that they don’t provide artificial contraceptives because they are faith-based. This response was not part of the response options offered. LSTM research team created a new category of response and provided the estimates for this answer.
3. KEY FINDINGS

3.1. SURVEY OF HEALTH CENTRES

3.1.1. General information on study population

The survey assessed essential information about the health centres, to which community health workers report and refer in performing their duties.

Table 9. Mean population covered by health facilities

<table>
<thead>
<tr>
<th>Average population covered by the health facility</th>
<th>N.</th>
<th>Mean</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>25,826</td>
<td>23,230 – 28,422</td>
<td></td>
</tr>
</tbody>
</table>

On average, Health Centres cover a population of 25,826 (95% CI, 23,230 – 28,422). Out of the 80 Health Centres surveyed, the minimum population size served by facilities is estimated at 1,257 and the maximum population size is 66,145.

A second aspect surveyed at health centre level is the density of health care workers involved in community health (Table 10).

Table 10. Mean number of Health Care Workers involved in community health at the Health Centre (N=80)

<table>
<thead>
<tr>
<th>Cadre of health care worker</th>
<th>Mean</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwives</td>
<td>0.66</td>
<td>0.24 – 1.07</td>
</tr>
<tr>
<td>Nurses</td>
<td>10.95</td>
<td>9.71 – 12.18</td>
</tr>
<tr>
<td>In charge of CHWs</td>
<td>1.02</td>
<td>0.95 – 1.08</td>
</tr>
<tr>
<td>Environmental health officers</td>
<td>0.42</td>
<td>0.21 – 0.62</td>
</tr>
<tr>
<td>Laboratory technician</td>
<td>2.43</td>
<td>2.10 – 2.77</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>0.99</td>
<td>0.86 – 1.12</td>
</tr>
<tr>
<td>Other</td>
<td>0.87</td>
<td>0.62 – 1.12</td>
</tr>
<tr>
<td>Auxiliary nurse</td>
<td>0.19</td>
<td>&gt; 0.00 – 0.39</td>
</tr>
<tr>
<td>Doctor</td>
<td>0.04</td>
<td>&gt; 0.00 – 0.12</td>
</tr>
<tr>
<td>Social worker</td>
<td>0.26</td>
<td>0.13 – 0.39</td>
</tr>
</tbody>
</table>

On average, Health Centres have 0.66 midwives involved in community health (95% CI, 0.24 – 1.07). Out of the 80 HCs surveyed, the maximum number of midwives was 3. Health Centres have an average of 10.95 nurses involved in community health (95% CI, 9.71 – 12.18). Out of the 80 HCs surveyed, the range goes from 4 to 28 nurses. On average, HCs have 1.02 personnel in charge of CHWs (95% CI, 0.95 – 1.08). Out of the 80 HCs surveyed, only one HC didn’t have any personnel in charge of CHWs and two HCs have two personnel in-charge of CHWs. The 77 other HCs had 1 personnel in-charge of CHWs, in accordance to CHP guidelines.
Health Centres have an average of 0.42 Environmental Health Officers (95% CI, 0.21–0.62), an average of 2.43 laboratory technicians (95% CI, 2.10 – 2.77) and an average of 0.99 nutritionists (95% CI, 0.86 – 1.12) involved in the community health.

Health Centres have an average of 0.87 other personnel involved in community health (95% CI, 0.62 – 1.12). When asked what other cadres were involved in community health, HCs reported having an average of 0.19 auxiliary nurses (95% CI, >0.00 – 0.39), 0.04 doctors (95% CI, >0.00 – 0.12) and 0.26 social workers (95% CI, 0.13 – 0.39) involved in community health.

We also measured the mean number of CHWs working in the health centres’ catchment areas.

Table 11. Mean number of CHWs working in the catchment areas of surveyed facilities (N=80)

<table>
<thead>
<tr>
<th>Cadre of health care worker</th>
<th>Mean</th>
<th>95% C.I.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binomes</td>
<td>67.0</td>
<td>53.9</td>
<td>80.1</td>
<td>18</td>
</tr>
<tr>
<td>ASM</td>
<td>32.9</td>
<td>26.3</td>
<td>39.5</td>
<td>9</td>
</tr>
<tr>
<td>Total CHWs</td>
<td>99.9</td>
<td>80.4</td>
<td>119.5</td>
<td>27</td>
</tr>
</tbody>
</table>

On average, HCs have approximately 100 CHWs working in their catchment area (mean: 99.9; 95% CI, 80.4 – 119.5). Health Centres have on an average of 67 binomes (95% CI, 53.9 – 80.1) and 32.9 ASMs (95% CI, 26.3 – 39.5). Among the 80 HCs that were surveyed, the minimum number of CHWs was 27 and the maximum number was 237.

As indicated in Table 12, Ninety-seven per cent of CHWs in HCs catchment area were active the month preceding the survey (95% CI, 96 – 99). Ninety-eight per cent of binomes (95% CI, 95 – 100) and 96 per cent of ASMs (95% CI, 96 – 100) in HCs catchment area were active in the month preceding the survey.

Table 12. Proportion of CHWs in the catchment area of the HCs who were active during the month preceding the survey (N=80)

<table>
<thead>
<tr>
<th>Cadre of health care worker</th>
<th>Proportion</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binomes</td>
<td>0.98</td>
<td>0.95</td>
</tr>
<tr>
<td>ASM</td>
<td>0.96</td>
<td>0.91</td>
</tr>
<tr>
<td>Total CHWs</td>
<td>0.97</td>
<td>0.96</td>
</tr>
</tbody>
</table>

On average, HCs held 2.5 (95% CI, 2.4 – 2.7) coordination meetings with CHWs during the quarter preceding the survey, which is less than one meeting per month.

Table 13. Average number of coordination meetings of HCs with CHWs during the quarter preceding the survey (N=80)

<table>
<thead>
<tr>
<th>N. of meetings</th>
<th>Mean</th>
<th>95% C.I.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5</td>
<td>2.4</td>
<td>2.7</td>
<td>1</td>
</tr>
</tbody>
</table>
Eighty-four per cent of active CHWs attended the last CHWs coordination meeting preceding the survey (95% CI, 77 – 91). Note that for this indicator, only the health centres that had organised a CHWs coordination meeting in the month preceding the survey, the health centres knowing the number of active CHWs and knowing the number of active CHWs who attended the meeting were included.

For this indicator, only the health centres that had organised a CHWs coordination meeting in the month preceding the survey and the HCs knowing how many CHWs were active and attended the CHWs coordination meeting were included.

The proportion of HCs providing travel allowance to CHWs to attend the monthly meetings is estimated in Table 15.

14% of HCs provided CHWs with travel allowances when attending monthly coordination meeting (95% CI, 4 – 39).

Among these 14% of HCs whose CHWs are provided with travel allowances, more than half of them (54%) have travel allowances funded by NGOs. Only 11% of them have travel allowances provided by cooperatives. However, due to the small proportion of HCs whose CHWs receive travel allowances, the confidence intervals for the source of funding are very wide.

For this indicator, only the health centres that had organised a CHWs coordination meeting in the month preceding the survey were included.
3.1.2. Information on supervision of CHWs from the Health Facility

The second section of the survey of health facilities explored aspects related to the supervision function provided by HCs to CHWs in their catchment areas; this section covers aspects related to: characteristics of the in charge of CHWs; training of in charge; means of communication; reporting; supervision.

Two third of the personnel in-charge of CHWs at Health Centres (66%) are female (95% CI, 56 – 75). Median age of personnel in charge of CHWs at Health Centre is 36 years.

For these indicators, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 16. Age and gender of in-charge of CHWs at the health facility (N=76)

<table>
<thead>
<tr>
<th>Gender of in charge of CHWs</th>
<th>Proportion</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>0.66</td>
<td>0.56</td>
</tr>
<tr>
<td>Male</td>
<td>0.34</td>
<td>0.25</td>
</tr>
</tbody>
</table>

| Median age of in charge of CHWs | 36.5 | - | - |

Table 17. Education level of in charge of CHWs (N=76)

<table>
<thead>
<tr>
<th>Education level</th>
<th>Proportion</th>
<th>95% C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary school</td>
<td>0.11</td>
<td>0.07</td>
</tr>
<tr>
<td>Post-secondary (university/college)</td>
<td>0.89</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Eighty-nine per cent of personnel in-charge of CHWs has a post-secondary education level (95% CI, 82 – 93). They have attended university or college, but this doesn’t imply that they necessarily completed it. The remaining 11 per cent of personnel in-charge of CHWS completed secondary school (95% CI, 7 – 18).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 18. Median n. of years in post of in-charges of CHWs (N=76)

<table>
<thead>
<tr>
<th>Years in post as in-charge</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median number of years in post</td>
<td>6</td>
</tr>
</tbody>
</table>

The median number of years that the personnel in-charge of CHWs has been in post is 6 years.

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

The usual mean of communication between the HCs and the CHWs is the phone.
Ninety-seven per cent of personnel in-charge of CHWs at HC (or acting as personnel in-charge of CHWs) mentioned the phone as a usual mean of communication (95% CI, 83 – 100). The second most usual mean of communication between CHWs and the HCs is when HC personnel visit CHWs in their community (74%) and the third one is when the CHWs come to Health Centre (47%). (Table 19)

Table 19. Means of communication of HF with CHW (N=80)

<table>
<thead>
<tr>
<th>Mean of communication</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>By phone</td>
<td>0.97</td>
<td>0.83</td>
</tr>
<tr>
<td>When CHWs comes to HF</td>
<td>0.47</td>
<td>0.30</td>
</tr>
<tr>
<td>When visiting communities</td>
<td>0.74</td>
<td>0.56</td>
</tr>
<tr>
<td>Other</td>
<td>0.04</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Eighty-two per cent of in-charges of CHWs have received training on how to supervise CHWs (95% CI, 65 – 92). For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included (Table 20).

Table 20. Training on CHP of in charge of CHWs (N=76)

<table>
<thead>
<tr>
<th>In-charge of CHWs who received any training on how to supervise CHWs</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of personnel in-charge of CHWs who received any training:</td>
<td>0.82</td>
<td>0.65</td>
</tr>
</tbody>
</table>

The type of training received by the in charges surveyed is reported in Table 21.

Table 21. Training on CHP of in charge of CHWs: type of training received (N=76)

<table>
<thead>
<tr>
<th>Type of training received by in charges of CHWs</th>
<th>Proportion</th>
<th>95% CI</th>
<th>Of in-charges who received training, proportion who received refresher training by package:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95% CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>iCCM</td>
<td>0.72</td>
<td>0.51</td>
<td>0.87</td>
</tr>
<tr>
<td>Family Planning</td>
<td>0.67</td>
<td>0.52</td>
<td>0.79</td>
</tr>
<tr>
<td>Maternal and Newborn Health</td>
<td>0.77</td>
<td>0.57</td>
<td>0.90</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>0.47</td>
<td>0.33</td>
<td>0.61</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.74</td>
<td>0.55</td>
<td>0.87</td>
</tr>
<tr>
<td>IEC/BCC</td>
<td>0.46</td>
<td>0.30</td>
<td>0.62</td>
</tr>
<tr>
<td>ECD</td>
<td>0.65</td>
<td>0.49</td>
<td>0.79</td>
</tr>
<tr>
<td>Other</td>
<td>0.70</td>
<td>0.57</td>
<td>0.80</td>
</tr>
</tbody>
</table>
Seventy-seven per cent of in-charges of CHWs reported having received training on how to supervise CHWs on maternal and newborn health (95% CI, 57 – 90), 74% reported having received training on how to supervise CHWs on Community Based Nutrition Programme (95% CI, 55 – 87), 72% reported having received training on how to supervise CHWs on integrated Community Case Management (iCCM) (95% CI, 51 – 87), 67% reported having received training on how to supervise CHWs on Community Based Provision of Family Planning (95% CI, 52 – 79) and 65% reported having received training on how to supervise CHWs on Early Childhood Development (ECD) (95% CI, 49 – 79). Less than half of them reported having received training on how to supervise CHWs on tuberculosis (47%; 95% CI, 33 – 61) and on how to supervise CHWs on Information Education Communication / Behaviour Change Communication (IEC/BCC) (46%; 95% CI, 30 – 62).

Seventy per cent of in-charges of CHWs reported to have received other training than the ones mentioned above. Among the CHWs who reported having received other trainings, 55% of them mentioned training on how to supervise CHWs on RapidSMS, 20% of them mentioned training on how to supervise CHWs on the management of CHWs cooperatives, 17% of them on how to supervise CHWs on Gender Based Violence (GBV) and 7% of them on how to supervise CHWs on administering misoprostol for mothers who do not deliver at health centre.

Among in-charges of CHWs who reported having received training on how to supervise CHWs on maternal and newborn health (N=58), 41% of them reported having received at least one refresher training. Among those who reported having received training on how to supervise CHWs on Community-Based Nutrition (N=57), 72% of them reported having received at least one refresher training. Among those who reported having received training on how to supervise CHWs on iCCM (N=57), 70% reported having received at least one refresher training. Among those who reported having received training on how to supervise CHWs on Community Based Provision of Family Planning (N=46), only 19% reported having received at least one refresher training. Among those who reported having received training on how to supervise CHWs on ECD (N=51), 35% reported having received at least one refresher training. Among those who reported having received training on how to supervise CHWs on tuberculosis (N=34), only 8% reported having received at least one refresher training and among those who reported having received training on how to supervise CHWs on IEC/BCC (N=35), 27% reported having received at least one refresher training.

For the above reported indicators, only HCs where personnel in-charge of CHWs was present for the interview were included.

The survey also estimated the self-reported need of additional training from the in-charge of CHWs (Table 22).
Table 22. Proportion of in charge of CHWs reporting the need for additional training (N=63)

<table>
<thead>
<tr>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>In charges reporting need for additional training</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Among the in-charges of CHWs who reported having received training on how to supervise CHWs (N=63), 95% reported having need for additional training (95% CI, 79 – 99).

For these indicators, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 23. Reported area of need of additional training (N=61)

<table>
<thead>
<tr>
<th>Reported area of need of additional training by in-charge of CHWs</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>iCCM</td>
<td>0.53</td>
<td>0.07</td>
</tr>
<tr>
<td>Family Planning</td>
<td>0.60</td>
<td>0.40</td>
</tr>
<tr>
<td>Maternal and Newborn Health</td>
<td>0.47</td>
<td>0.28</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>0.57</td>
<td>0.44</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.34</td>
<td>0.18</td>
</tr>
<tr>
<td>IEC/BCC</td>
<td>0.29</td>
<td>0.18</td>
</tr>
<tr>
<td>ECD</td>
<td>0.25</td>
<td>0.13</td>
</tr>
<tr>
<td>Other</td>
<td>0.41</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Among others (N=25):

| Management of CHWs cooperatives                               | 0.20       | 0.08   | 0.41 |
| HIV counseling                                                | 0.17       | 0.06   | 0.41 |

Among the in-charges of CHWs who self-reported to need additional training (N=61), 60% of them indicated Community Based Provision of Family Planning as an area of need for further training; 57% tuberculosis; 53% iCCM; 47% Maternal and Newborn Health; 34% n Community Based Nutrition Programme; 29% IEC/BCC and 25% ECD.

Forty-one per cent of in-charges of CHWs who reported having received training on how to supervise CHWs and who reported having needs in additional training, reported having training needs in other areas than the ones mentioned above. Among those in-charges of CHWs (N=25), 20% mentioned training in management of CHWs cooperatives and 17% mentioned training in HIV counseling.

For these indicators, only HCs where personnel in-charge of CHWs was present for the interview were included. Also for this question, the enumerators were asked not to read the proposed answers. They ticked the answers as they came from the in-charge of CHWs.

An important function of the in-charge of CHWs is that of providing supportive supervision to those ASMs and binomes who work in the catchment area of their facility.

A first aspect assessed through the survey is the mode of provision of such supervision (Table 24).
Table 24. Reported modes of supervision of CHWs from in-charges of CHWs (N= 76)

<table>
<thead>
<tr>
<th>Mode of Supervision</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the job supervision in community</td>
<td>0.92</td>
<td>0.53</td>
</tr>
<tr>
<td>Individual supervisory meeting in the community</td>
<td>0.48</td>
<td>0.35</td>
</tr>
<tr>
<td>Group supervisory visit in defined location</td>
<td>0.27</td>
<td>0.12</td>
</tr>
<tr>
<td>Other</td>
<td>0.20</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Ninety-two per cent of in-charges of CHWs usually supervise CHWs in the community, on the job (95% CI, 53 – 99). Forty-eight per cent provide usually individual supervisory meeting in the community (95% CI, 35 – 61) and 27 per cent of them usually organize group supervisory visits in a defined location (95% CI, 12 – 50).

For these indicators, only HCs where personnel in-charge of CHWs was present for the interview were included.

A second aspect of supervision from HCs assessed through the survey is the technical area of focus of supervisory visits (Table 25).

Table 25. Technical areas of focus during supervision from in-charges of CHWs (N=76)

<table>
<thead>
<tr>
<th>Area</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of register</td>
<td>0.89</td>
<td>0.78</td>
</tr>
<tr>
<td>Review of forms and cards</td>
<td>0.65</td>
<td>0.41</td>
</tr>
<tr>
<td>Check of quality of data</td>
<td>0.33</td>
<td>0.25</td>
</tr>
<tr>
<td>Check expiration dates of health products</td>
<td>0.30</td>
<td>0.22</td>
</tr>
<tr>
<td>Check storage of health products</td>
<td>0.39</td>
<td>0.26</td>
</tr>
<tr>
<td>Check hygiene</td>
<td>0.30</td>
<td>0.19</td>
</tr>
<tr>
<td>Filling checklist</td>
<td>0.24</td>
<td>0.15</td>
</tr>
<tr>
<td>Observe CHWs during home visit or consultation</td>
<td>0.68</td>
<td>0.56</td>
</tr>
<tr>
<td>Visit one recent patient of CHW</td>
<td>0.33</td>
<td>0.18</td>
</tr>
<tr>
<td>Other</td>
<td>0.25</td>
<td>0.13</td>
</tr>
</tbody>
</table>

The main reported focus of in-charges of CHWs during the supervision of CHWs is to review the registers (89%; 95% CI, 78 – 95), then to observe CHWs during a home visit or a consultation (68%; 95% CI, 56 – 78) and to review patients’ forms and patients’ cards (65%; 95% CI, 41 – 83). Thirty-nine per cent also reported focusing on checking the storage of health products (95% CI, 26 – 54). Thirty-three per cent reported focusing on checking the quality of data (95% CI, 25 – 42) and visiting one recent patient (95% CI, 18 – 53). Thirty per cent reported focusing on checking expiration dates of health products (95% CI, 22 – 40) and checking hygiene (95% CI, 15 – 35). Only 24% reported focusing on filling checklist (95% CI, 15 – 35).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. Multiple answers were allowed for this question; during the survey, enumerators were asked not to read the proposed answers.

Overall, the survey provides a positive picture of the availability of tools and guidelines for the supervision of CHWs (Table 26).
Table 26. Availability of tools and guidelines for supervision (N=76)

<table>
<thead>
<tr>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.99</td>
<td>0.96</td>
</tr>
</tbody>
</table>

Ninety-nine per cent of in-charge of CHWs reported having tools and guidelines to supervise CHWs (95% CI, 96 – 100).
For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 27. Availability of tools and guidelines for supervision, by type (N=74)

<table>
<thead>
<tr>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checklist for iCCM</td>
<td>0.94</td>
</tr>
<tr>
<td>Checklist for family planning</td>
<td>0.73</td>
</tr>
<tr>
<td>Checklist for nutrition</td>
<td>0.71</td>
</tr>
<tr>
<td>Checklist for MNH</td>
<td>0.86</td>
</tr>
<tr>
<td>Checklist for TB</td>
<td>0.86</td>
</tr>
<tr>
<td>Other</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Ninety-four per cent of in-charges of CHWs who reported having tools or guidelines to supervise CHWs were able to show their checklist to supervise iCCM (95% CI, 86 – 98). Eighty-six of them were able to show their checklist for the supervision of Maternal and Newborn health (95% CI, 72 – 94) and their checklist for the supervision of tuberculosis (95% CI, 74 – 93). Seventy-three per cent were able to show their checklist to supervise Community based provision of Family Planning (95% CI, 73 – 95) and 71% their checklist to supervision Community Based Nutrition Programme (95% CI, 49 – 86).
For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.
The enumerators had for instructions to ask the in-charges of CHWs to show the checklist and to tick the proposed answers only if they could observe the checklists.

Table 28 summarized the survey findings regarding the provision of feedback to CHWs from the in-charge, following supportive supervision.

Table 28. Provision of feedback to CHWs from in-charge of CHWs (N=76)

<table>
<thead>
<tr>
<th>Modes used by in-charge to provide feedback to CHWs on their work in the communities</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>After supervisory visit</td>
<td>0.77</td>
<td>0.61</td>
</tr>
<tr>
<td>During monthly meeting</td>
<td>0.83</td>
<td>0.74</td>
</tr>
<tr>
<td>By phone</td>
<td>0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>Other</td>
<td>0.12</td>
<td>0.04</td>
</tr>
</tbody>
</table>
The most usual way of providing feedback to CHWs on the work that they carry out in the community appears to be during the monthly coordination meeting (95% CI, 74 – 89). Seventy-seven per cent also reported usually providing feedback after the supervisory visit (95% CI, 61 – 88) and only 6% by phone (95% CI, 3 – 12).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. Also for this question, the enumerators were asked not to read the proposed answers. They ticked the answers as they came from the in-charge of CHWs.

Through the survey, the in-charges interviewed were asked to provide their assessment of those technical areas where CHWs present more need for supervision. Also for this question, multiple answers were allowed and the enumerators were asked not to read the proposed answers.

Table 29. Areas where CHWs need more support/supervision from the in charge of CHWs (N=76)

<table>
<thead>
<tr>
<th>Areas on which CHWs are in need of more supervision</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>iCCM</td>
<td>0.84</td>
<td>0.72</td>
</tr>
<tr>
<td>Family Planning</td>
<td>0.61</td>
<td>0.43</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.37</td>
<td>0.24</td>
</tr>
<tr>
<td>MNH</td>
<td>0.53</td>
<td>0.43</td>
</tr>
<tr>
<td>TB</td>
<td>0.11</td>
<td>0.05</td>
</tr>
<tr>
<td>IEC/BCC</td>
<td>0.17</td>
<td>0.07</td>
</tr>
<tr>
<td>Reporting</td>
<td>0.29</td>
<td>0.15</td>
</tr>
<tr>
<td>Other</td>
<td>0.33</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Eighty-four per cent of in-charges of CHWs reported that CHWs need more supervision on iCCM (95% CI, 72 – 92). Sixty-one per cent of them reported that CHWs need more supervision on Community Based Provision of Family Planning (95% CI, 43 – 76), 53% of them on Maternal and Newborn Health (95% CI, 43 – 63), 37% of them on nutrition (95% CI, 0.24 – 51), 29% of them on reporting (95% CI, 15 – 48) and 17% of them on IEC/BCC (95% CI, 7 – 35). Only 11% of in-charges of CHWs reported that CHWs need more supervision on tuberculosis (95% CI, 5 – 21).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 30. Actions taken by the in charges of CHWs when he/she identifies the need for additional training of CHW (N=76)

<table>
<thead>
<tr>
<th>Actions taken when in-charge identifies needs for more training</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organize separate group session on the topic</td>
<td>0.53</td>
<td>0.41</td>
</tr>
<tr>
<td>Inform supervisor</td>
<td>0.64</td>
<td>0.50</td>
</tr>
<tr>
<td>Discuss the issue at monthly meeting</td>
<td>0.37</td>
<td>0.23</td>
</tr>
<tr>
<td>Visit CHW in the community</td>
<td>0.21</td>
<td>0.14</td>
</tr>
<tr>
<td>Other</td>
<td>0.17</td>
<td>0.06</td>
</tr>
</tbody>
</table>
When the in-charges of CHWs at HC identify needs for additional training for CHWs, 64% of them reported informing their supervisor (supervisor of CHWs at district hospital, titulaires at HC) (95% CI, 50 – 77), 53% reported organizing separate group session on the topic (95% CI, 41 – 66), 37% reported discussing the issue at CHWs monthly coordination meeting (95% CI, 23 – 55) and 21% reported visiting the CHWs in the community (95% CI, 14 – 31).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

Through the survey, we explored the main barriers encountered at health facility level in delivering regular supportive supervision to CHWs (Table 31).

Table 31. Most common barriers faced by in-charges of CHWs to provide supervision to CHWs (N=76)

<table>
<thead>
<tr>
<th>Barriers to perform supervision:</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited time</td>
<td>0.21</td>
<td>0.10</td>
</tr>
<tr>
<td>CHWs does not show up</td>
<td>0.20</td>
<td>0.12</td>
</tr>
<tr>
<td>Travel expenses</td>
<td>0.93</td>
<td>0.71</td>
</tr>
<tr>
<td>Geographical accessibility</td>
<td>0.59</td>
<td>0.42</td>
</tr>
<tr>
<td>Phone/network</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>Limited air-time</td>
<td>0.32</td>
<td>0.14</td>
</tr>
<tr>
<td>Other</td>
<td>0.28</td>
<td>0.15</td>
</tr>
</tbody>
</table>

The most common barrier reported by in-charges of CHWs at HC to supervise CHWs is the lack of funds to cover travel expenses (93%; 95% CI, 71 – 99), followed by difficulties related to the geographical accessibility of some areas (59%; 95% CI, 42 – 74). Thirty-two per cent of in-charges of CHWs also reported the limited air-time to communicate by phone with CHWs (95% CI, 14 – 56). Twenty-one per cent reported the lack of time (95% CI, 10 – 39) and 20% reported the absence of CHWs when the in-charges come to supervise them (95% CI, 12 – 31).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. Also for this question, the enumerators were asked not to read the proposed answers. They ticked the answers as they came from the in-charge of CHWs.

Ninety-one per cent of the in-charges of CHWs at HC reported accessing easily data on CHWs at HC (95% CI, 66 – 98). (Table 32)

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included.

Table 32. In-charges of CHWs reporting to easily access data on CHWs at the health centre (N=76)

<table>
<thead>
<tr>
<th>In charge easily accessing data on CHW at health facility</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.91</td>
<td>0.66</td>
</tr>
</tbody>
</table>

The Community Health Programme expects in-charges of CHWs to supervise all CHWs in the community every quarter, i.e. an average proportion of 33% active CHWs per month.
The Community Health Program expects that the in-charges of CHWs supervise all CHWs in the community every quarter, i.e. an average proportion of 33% active CHWs per month.

We assessed the self-reported proportion of CHWs supervised by the in-charge during the month preceding the survey.

**Table 33. Reported proportion of active CHWs supervised by the in-charges of CHWs by visiting them in the community during the month preceding the survey (N=71)**

<table>
<thead>
<tr>
<th>Active CHWs supervised by the in-charges of CHWs in the community</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.21</td>
<td>0.15</td>
</tr>
</tbody>
</table>

In-charges of CHWs reported that they had **supervised 21% of active CHWs per month** by visiting them in the community during the month preceding the survey (95% CI, 15 – 27).

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. Among them, four were excluded as they could not provide the number of active CHWs that they supervised in the community the month preceding the survey and one was excluded because he/she was recruited in the month of the survey.

**Table 34. Means of transport used by HCs staff to visit CHWs in communities and median time to reach the most remote CHW (N=80)**

<table>
<thead>
<tr>
<th>Most commonly used means of transport:</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>0.65</td>
<td>0.51</td>
</tr>
<tr>
<td>Health centre motorbike</td>
<td>0.31</td>
<td>0.15</td>
</tr>
<tr>
<td>Own motorbike</td>
<td>0.13</td>
<td>0.06</td>
</tr>
<tr>
<td>Taxi moto</td>
<td>0.52</td>
<td>0.38</td>
</tr>
<tr>
<td>Taxi</td>
<td>0.02</td>
<td>0.00</td>
</tr>
<tr>
<td>Other</td>
<td>0.02</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Median time needed to reach the most remote CHW in catchment area (hrs)</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5</td>
<td>-</td>
</tr>
</tbody>
</table>

In-charges of CHWs at HC (or acting in-charges of CHWs) reported that they usually walk to go and supervise CHWs in the community (65%; 95% CI, 51 – 77). Around half of them reported that they also use taxi moto to go and supervise CHWs in the community (52%; 95% CI, 38 – 66). A third of them also reported that they use HC motorbike (31%; 95% CI, 15 – 52). Few of them reported to use their own motorbike (13%; 95% CI, 6 – 27) or a taxi (2%; 95% CI, 0 – 12).

For this question, the enumerators were asked not to read the proposed answers. They ticked the answers as they came from the in-charge of CHWs.

The median time needed to reach the most remote CHWs in the catchment area of the HC is 1 hour 30 minutes.
Besides exploring the supervision of CHWs, the survey also explored the frequency of supervision from the District level to Health Facilities (Table 35).

Table 35. Average n. of supervision visits received by in-charges of CHWs at HC from the district hospital supervisor of CHWs during the quarter preceding the survey (N=73)

<table>
<thead>
<tr>
<th>Mean number of visits received from District</th>
<th>Mean</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.35</td>
<td>0.97</td>
</tr>
</tbody>
</table>

On average, in-charges of CHWs reported having received 1.35 supervisory visit from the supervisor of CHWs from district hospital (95% CI, 0.97 – 1.73). For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. Among them, three were excluded because they were recruited after the beginning of the quarter preceding the survey.

The last aspect assessed through the in-charge of CHWs was their assessment of the overall performance of CHWs (Table 36).

Table 36. Assessment of the in-charges of CHWs of the performance of CHWs in catchment area (N=76)

<table>
<thead>
<tr>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works very well</td>
<td>0.04</td>
</tr>
<tr>
<td>Works well</td>
<td>0.59</td>
</tr>
<tr>
<td>Room for improvement</td>
<td>0.28</td>
</tr>
<tr>
<td>Some shortfalls and challenges</td>
<td>0.08</td>
</tr>
</tbody>
</table>

The majority of in-charges of CHWs at HC think that the Community Health Programme (CHP) works well (59%; 95% CI, 44 – 73) or very well (4%; 95% CI, 1 – 18). Twenty-eight per cent think that there is room for improvement (95% CI, 12 – 53) and 8% that there are some shortfalls and challenges (95% CI, 2 – 31). None of them think that there are many shortfalls and challenges.

For this indicator, only HCs where personnel in-charge of CHWs was present for the interview were included. For this question, the enumerators were asked not to read the proposed answers. They were trained to tick the appropriate answers according to the level of satisfaction demonstrated by the in-charges of CHWs.

3.1.3. Equipment and supplies for CHWs at the Health Centre

The last section of the survey of HCs covers aspects related to the availability of equipment and supplies for CHWs at facility level.

At first, we have assessed whether the HF has a full list of the equipment, drugs and supplies that should be made available to CHWs as per program guidelines (Table 37).
Sixty-nine per cent of the in-charges of CHWs / pharmacists were able to show the list of equipment and material that the CHWs should have (95% CI, 59 – 77) and 85% of them were able to show the list of essential drugs and health products the CHWs should have (95% CI, 74 – 92).

The survey also collected information re the rating of the provision of medicines and supplies for the CHWs, from relevant HC staff (Table 38).

Table 38. Rating of the in-charges of CHWs / pharmacist of the provision of equipment, medicines and supplies for the CHP (N=80)

<table>
<thead>
<tr>
<th>Equipment/material</th>
<th>Tools</th>
<th>Medical supplies</th>
<th>Medicines/Health products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>0.00</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Good</td>
<td>0.30</td>
<td>0.46</td>
<td>0.60</td>
</tr>
<tr>
<td>Fair</td>
<td>0.24</td>
<td>0.21</td>
<td>0.19</td>
</tr>
<tr>
<td>Bad</td>
<td>0.41</td>
<td>0.27</td>
<td>0.15</td>
</tr>
<tr>
<td>Very bad</td>
<td>0.05</td>
<td>0.03</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Almost half of the in-charges of CHWs / pharmacists at HC qualified the provision of CHW equipment and material of bad (41%; 95%CI, 25 – 59) or very bad (5%; 95% CI, 2 – 13). Around one quarter (24%) qualified it as fair (95% CI, 14 – 37) and 30% qualified it as good (95% CI, 20 – 42).

Half of the in-charges of CHWs / pharmacists at HC qualified the provision of CHW tools as good (46%, 95% CI, 32 – 61) or very good (3%, 95% CI, 0 – 16). Twenty-one per cent qualified it as fair (95% CI, 9 – 42), 27% as bad (95% CI, 12 – 49) and 3% as very bad (95% CI, 0 – 17).

Around two third of the in-charges of CHWs / pharmacists at HC qualified the provision of CHWs medical supplies as good (60%; 95% CI, 41 – 77) or very good (5%; 95% CI, 2 – 13). Nineteen per cent qualified it as fair (95% CI, 10 – 33), 15% as bad (95% CI, 6 – 30) and 3% as very bad (95% CI, 0 – 18).

Around two third of the in-charges of CHWs / pharmacists at HC qualified the provision of medicines and health products for CHWs as good (61%; 95% CI, 45 – 76) or very good (6%; 95% CI, 2 – 20). Fifteen per cent qualified it as fair (95% CI, 7 – 29), 16% as bad (95% CI, 7 – 33) and 2% as very bad (95% CI, 0 – 18).

For these questions, the enumerators read the proposed answers to the surveyed HC staff.
Tables 39-42 here below present a mapping of the availability of essential items for the CHWs at facility level, on the day of the survey.

Table 39. Availability of equipment and materials for CHWs at the HC (N=80)

<table>
<thead>
<tr>
<th>Item</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification badge</td>
<td>0.33</td>
<td>0.21</td>
</tr>
<tr>
<td>Bag</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>Umbrella</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>Flashlight/torch</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>Boots</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>Storage box</td>
<td>0.17</td>
<td>0.09</td>
</tr>
<tr>
<td>Weighting scales</td>
<td>0.25</td>
<td>0.15</td>
</tr>
<tr>
<td>MUAC</td>
<td>0.51</td>
<td>0.44</td>
</tr>
<tr>
<td>Timer</td>
<td>0.42</td>
<td>0.31</td>
</tr>
<tr>
<td>Cupboard</td>
<td>0.16</td>
<td>0.07</td>
</tr>
<tr>
<td>Jerry Can</td>
<td>0.10</td>
<td>0.03</td>
</tr>
<tr>
<td>Raincoat</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cup</td>
<td>0.11</td>
<td>0.03</td>
</tr>
<tr>
<td>Spoon</td>
<td>0.14</td>
<td>0.05</td>
</tr>
<tr>
<td>Ballpoint pens</td>
<td>0.09</td>
<td>0.01</td>
</tr>
<tr>
<td>None of the above</td>
<td>0.29</td>
<td>0.25</td>
</tr>
<tr>
<td>All of the above</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Among the list of equipment and materials that CHWs are supposed to have, almost one third of HCs didn’t have any equipment items in stock the day of the survey (29%; 95% CI, 25 – 34).

For this question, survey enumerators would only classify an item as available after direct observation of the items itself at the facility.

Table 40. Availability of essential tools for CHWs at the HC (N=80)

<table>
<thead>
<tr>
<th>Item</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referral and counter referral forms</td>
<td>0.92</td>
<td>0.78</td>
</tr>
<tr>
<td>Monthly reporting forms</td>
<td>0.92</td>
<td>0.82</td>
</tr>
<tr>
<td>BBC cards</td>
<td>0.44</td>
<td>0.30</td>
</tr>
<tr>
<td>Stock Cards</td>
<td>0.72</td>
<td>0.54</td>
</tr>
<tr>
<td>Code card (rapid SMS)</td>
<td>0.67</td>
<td>0.5</td>
</tr>
<tr>
<td>MIYCN counselling cards</td>
<td>0.74</td>
<td>0.63</td>
</tr>
<tr>
<td>Cooking recipe book</td>
<td>0.58</td>
<td>0.48</td>
</tr>
<tr>
<td>Growth charts</td>
<td>0.69</td>
<td>0.5</td>
</tr>
<tr>
<td>ANC counselling cards</td>
<td>0.69</td>
<td>0.54</td>
</tr>
<tr>
<td>PNC counselling cards</td>
<td>0.59</td>
<td>0.44</td>
</tr>
<tr>
<td>PPH counselling cards</td>
<td>0.49</td>
<td>0.41</td>
</tr>
<tr>
<td>Calendar</td>
<td>0.25</td>
<td>0.14</td>
</tr>
<tr>
<td>Artificial penis</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>None of the above</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>All of the above</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Among the list of essential tools that CHWs are supposed to have, almost all HCs had referral and counter referral forms (92%; 95% CI, 78 – 97) and monthly reporting forms (92%; 95% CI, 82 – 97) in stock the day of the survey. Only 27% of HC had artificial penis in stock (95% CI, 14 – 45) and only 25% of HCs had calendar in stock (95% CI, 14 – 40). No health facility had all the essential tools in stock on the day of the survey.

For this question, the enumerator had instructions to ask the HC staff to see the items, before classifying them as available (or not).

Table 41. Availability of medical supplies for CHWs at the HC (N=80)

<table>
<thead>
<tr>
<th>Medical Supplies</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>0.94</td>
<td>0.85</td>
</tr>
<tr>
<td>Cotton wool</td>
<td>0.75</td>
<td>0.64</td>
</tr>
<tr>
<td>Thermometer</td>
<td>0.55</td>
<td>0.38</td>
</tr>
<tr>
<td>Alcohol bottle</td>
<td>0.57</td>
<td>0.48</td>
</tr>
<tr>
<td>Pisset</td>
<td>0.34</td>
<td>0.20</td>
</tr>
<tr>
<td>Chlorhexidine</td>
<td>0.61</td>
<td>0.43</td>
</tr>
<tr>
<td>Sharp disposal box</td>
<td>0.86</td>
<td>0.59</td>
</tr>
<tr>
<td>Plaster</td>
<td>0.55</td>
<td>0.49</td>
</tr>
<tr>
<td>Sanitary towels</td>
<td>0.32</td>
<td>0.15</td>
</tr>
<tr>
<td>Kit for RTDs</td>
<td>0.85</td>
<td>0.70</td>
</tr>
<tr>
<td>Syringe/needles</td>
<td>0.90</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Among the medical supplies that the CHWs are supposed to have, a high proportion of HCs had gloves (94%; 95% CI, 85 – 98), syringes/needles (90%; 95% CI, 79 – 96), sharp disposal boxes (86%; 95% CI, 59 – 96), and kits for Rapid Diagnosis Test (85%; 95% CI, 70 – 93) in stock the day of the survey. Only 32% had sanitary towels (95% CI, 15 – 56) and only 34% had pissets (95% CI, 20 – 52) in stock the day of the survey.

For this question, the enumerator had instructions to ask the HC staff to see the items, before classifying them as available (or not).

Table 42. Availability of medicines and health products for CHWs at the HC (N=80)

<table>
<thead>
<tr>
<th>Medicines and Health Products</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongera</td>
<td>0.41</td>
<td>0.11</td>
</tr>
<tr>
<td>Amoxycillin</td>
<td>0.92</td>
<td>0.75</td>
</tr>
<tr>
<td>Primo tuku (coartem children 6 – 35 months)</td>
<td>0.95</td>
<td>0.79</td>
</tr>
<tr>
<td>Primo hondo (coartem children 36 – 59 months)</td>
<td>0.93</td>
<td>0.82</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.78</td>
<td>0.60</td>
</tr>
<tr>
<td>ORS</td>
<td>0.25</td>
<td>0.13</td>
</tr>
<tr>
<td>Microgynon</td>
<td>0.84</td>
<td>0.68</td>
</tr>
<tr>
<td>Microlut pills</td>
<td>0.78</td>
<td>0.66</td>
</tr>
<tr>
<td>Depo provera</td>
<td>0.82</td>
<td>0.70</td>
</tr>
<tr>
<td>Female condoms</td>
<td>0.39</td>
<td>0.24</td>
</tr>
</tbody>
</table>
Among the essential drugs and health products that CHWs are supposed to have, only 41% of HCs had Ongera in stock the day of the survey. However, the confidence interval is very wide. Only 25% of HCs had Oral Rehydration Solution in stock (95% CI, 13 – 44) and only 15% had misoprostol in stock (95% CI, 7 – 29). Few HCs had also female condoms in stock (39%; 95% CI, 24 – 58). On the contrary, the availability of essential medicines for malaria and ARI was high.

For this question, the enumerator had instructions to ask the HC staff to show the essential drugs and health products before ticking the answers. The enumerators only tick the answers when they could observe the essential drugs and health products.

Table 43 below presents the main reasons reported by HC staff for shortage of selected medicines at the facility.

Table 43. Reason for shortage of selected medicines and health products

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Ongera N=44</th>
<th>ORS N=56</th>
<th>Microgynon N=14</th>
<th>Microlut N=18</th>
<th>Depo provera N=15</th>
<th>Male condoms N=15</th>
</tr>
</thead>
<tbody>
<tr>
<td>National stock out</td>
<td>0.03</td>
<td>0.13</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not available at district pharmacy</td>
<td>0.23</td>
<td>0.82</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.09</td>
</tr>
<tr>
<td>Delay in delivery</td>
<td>0.01</td>
<td>0.19</td>
<td>-</td>
<td>0.06</td>
<td>-</td>
<td>0.09</td>
</tr>
<tr>
<td>Item not ordered</td>
<td>0.03</td>
<td>-</td>
<td>0.11</td>
<td>0.08</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>CHW never require the item</td>
<td>0.05</td>
<td>-</td>
<td>0.21</td>
<td>0.29</td>
<td>0.36</td>
<td>0.37</td>
</tr>
<tr>
<td>Order forms not available at HF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No transport means to take item from district pharmacy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HC is faith based and does not allow to use artificial FP products</td>
<td>-</td>
<td>-</td>
<td>1.00</td>
<td>0.93</td>
<td>0.91</td>
<td>0.65</td>
</tr>
<tr>
<td>HC staff doesn’t know it</td>
<td>0.26</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HC has never been given it</td>
<td>0.44</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>0.03</td>
<td>-</td>
<td>0.07</td>
<td>0.09</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Health Centre staff in charge of pharmacy reported that the main reasons for shortage of Ongera were that Ongera is not available at the district pharmacy (23%; 95% CI, 1 – 90), that the staff has not heard about it (26%; 95% CI, 4 – 77) and that the Health Centre has never been given it (44%; 95% CI, 3 – 95).

The main reason for shortage for ORS is that it is not available at district pharmacy (82%, 95% CI, 70 – 89). Results suggest that this unavailability might be due to national stock out.
The main reason for shortage in Microgynon and Microlut contraceptive pills, as well as Depo Provera injection and male condoms is that some of the faith-based Health Centres do not allow the use of artificial Family Planning contraceptives. In all health centres where Microgynon is not available, the main reason for shortage is prohibited use due to religious believes. In health centres where Microlut and Depo Provera are not available, respectively 93% (95% CI, 19 – 100) and 91% (95% CI, 19 – 100) of HCs also reported that the main reason is due to religious believes. Regarding the shortage of male condoms, 65% (95% CI, 37 – 85) of HCs that experienced shortage the day of the survey also reported religious believes as the reason for shortage.

Another aspect of procurement and supply management for CHWs assessed through the survey has been the management of expired products (Table 44 and Table 45).

Table 44. Items in stock expired during the 3 months preceding the survey

<table>
<thead>
<tr>
<th>Proportion of facilities reporting item in stock expiring in the 3 months preceding the survey</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ongera (N=36)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amoxycillin (N=72)</td>
<td>0.02</td>
<td>0.0</td>
</tr>
<tr>
<td>Primo Tuku (coartem children 6 – 35 months) (N=76)</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>Primo hondo (coartem children 36 – 59 months) (N=75)</td>
<td>0.06</td>
<td>0.01</td>
</tr>
<tr>
<td>Zync (N=64)</td>
<td>0.03</td>
<td>0.0</td>
</tr>
<tr>
<td>ORS (N=24)</td>
<td>0.18</td>
<td>0.02</td>
</tr>
<tr>
<td>Microgynon (N=66)</td>
<td>0.01</td>
<td>0.0</td>
</tr>
<tr>
<td>Microlut pills (N=62)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Depo provera (N=65)</td>
<td>0.02</td>
<td>0.0</td>
</tr>
<tr>
<td>Female condoms (N=34)</td>
<td>0.01</td>
<td>0.0</td>
</tr>
<tr>
<td>Male condoms (N= 65)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Misoprostol (N=15)</td>
<td>0.30</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Among the 15 HCs who had misoprostol in stock the day of the survey, 30% reported to have in the 3 months preceding the survey misoprostol that expired. However, the confidence interval is wide due to the small proportion of HCs with misoprostol in stock. Among the 24 HCs who had ORS in stock the day of the survey, 18% reported to have in the 3 months preceding the survey ORS that expired. Again the confidence interval is wide due to the small proportion of HCs having ORS in stock. Among the 76 HCs that had primo tuku in stock the day of the survey, 8% reported to have in the 3 months preceding the survey primo tuku that expired (95% CI, 3 – 22) and among the 75 HCs that had primo hondo the day of the survey, 6% reported to have in the 3 months preceding the survey primo hondo that expired (95% CI, 1 – 24).

Table 45. Management of health products which are about to expire (N=80)

<table>
<thead>
<tr>
<th>Reported action to manage items which are about to expire</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Send items back to RBC, district pharmacy or NGO</td>
<td>0.41</td>
<td>0.34</td>
</tr>
<tr>
<td>Dispose items (destroy/dismiss)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Contact district health officer in charge of HC</td>
<td>0.38</td>
<td>0.23</td>
</tr>
<tr>
<td>Keep item at HC until expiration</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>Other</td>
<td>0.37</td>
<td>0.28</td>
</tr>
</tbody>
</table>
Eighty per cent of in-charges of CHWs / pharmacists at HC send back CHWs items that are about to expired to RBC, district pharmacy or NGO (95% CI, 34 – 48), 38% contact district officer in charge of HC (95% CI, 23 – 55) and 9% keep them at HC until they reach the expiration date (95% CI, 2 – 29).

Table 46. Average time needed to process orders for CHWs (from order to receipt of products) (N=80)

<table>
<thead>
<tr>
<th>% of in charges reporting the following time needed to process orders for CHWs</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day</td>
<td>0.02</td>
<td>0.0</td>
</tr>
<tr>
<td>Less than 3 days</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>Less than 1 week</td>
<td>0.21</td>
<td>0.10</td>
</tr>
<tr>
<td>Less than 2 weeks</td>
<td>0.28</td>
<td>0.16</td>
</tr>
<tr>
<td>More than two weeks</td>
<td>0.34</td>
<td>0.22</td>
</tr>
<tr>
<td>Varies depending on item</td>
<td>0.08</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Thirty-four per cent of in-charges of CHWs / pharmacists at HCs reported that it takes more than two weeks to receive ordered products (95% CI, 22 – 48). Only 2% reported receiving their order the same day as they order (95% CI, 0 – 13), 8% reported receiving their order the day after and 2 days after they order (95% CI, 3 – 18), 21% reported receiving their order in less than 1 week (95% CI, 10 – 38), 28% reported receiving their order in less than 2 weeks (95% CI, 16 – 44), 34% reported receiving their order two weeks after ordering (95% CI, 22 – 48) and 8% reported that it depends on the items ordered (95% CI, 2 – 22).

Table 47. Methods used for storage of health products (N=80)

<table>
<thead>
<tr>
<th>No specific storage room</th>
<th>Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlocked cupboard</td>
<td>0.02</td>
<td>0.0</td>
</tr>
<tr>
<td>Locked cupboard</td>
<td>0.45</td>
<td>0.45</td>
</tr>
<tr>
<td>Metal/plastic/waterproof box</td>
<td>0.13</td>
<td>0.02</td>
</tr>
<tr>
<td>Cardboard box</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shelves</td>
<td>0.33</td>
<td>0.16</td>
</tr>
<tr>
<td>Other</td>
<td>0.09</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Most of HCs keep CHWs drugs and health products in unlocked cupboard (45%; 95% CI, 45 – 45) or shelves (33%; 95% CI, 16 – 35)
3.2. SURVEY OF COMMUNITY HEALTH WORKERS

The survey of community health workers analysed a number of key features related to key program features including: deployment; training; workload; scope of practice and service delivery; supervision and coordination; reporting; availability equipment and supplies; motivation of the community health workers in Rwanda. The key findings of the survey are presented in the following paragraphs where national level estimates and 95% confidence intervals are report for national level estimates. Where relevant, estimates are also disaggregated by cadre (ANMs; binomes).

3.2.1. Background characteristics of the population under study

Age, education and gender

Table 48 and table 49 report the background characteristics of the CHWs. In terms of gender distribution, all ANMs surveyed were women as per program guidelines; for binomes, 52% of respondents were women and 48% men. Approximately 51% of CHWs surveyed by LSTM are within the age group 35-50 years, whereas 20% are below 35 years and 20% above 50 years. The median age of CHWs surveys is estimated at 41 years. No particular difference in the age structure is observed amongst ANMs and binomes.

Table 48. Characteristics of CHWs: gender and age

<table>
<thead>
<tr>
<th>Gender</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>0.0</td>
<td>0.48</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>(0.39;0.57)</td>
<td>(0.24;0.35)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>1.0</td>
<td>0.52</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>(0.43;0.61)</td>
<td>(0.65;0.76)</td>
<td></td>
</tr>
</tbody>
</table>

Age of CHWs

<table>
<thead>
<tr>
<th>Median Age</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
</tbody>
</table>

Distribution by age groups

<table>
<thead>
<tr>
<th>Distribution by age groups</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-35 years</td>
<td>0.19</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>(0.11;0.30)</td>
<td>(0.11;0.33)</td>
<td>(0.13;0.29)</td>
<td></td>
</tr>
<tr>
<td>35-50 years</td>
<td>0.62</td>
<td>0.55</td>
<td>0.58</td>
</tr>
<tr>
<td>(0.47;0.75)</td>
<td>(0.47;0.63)</td>
<td>(0.54;0.62)</td>
<td></td>
</tr>
<tr>
<td>50-75 years</td>
<td>0.20</td>
<td>0.24</td>
<td>0.23</td>
</tr>
<tr>
<td>(0.12;0.30)</td>
<td>(0.16;0.36)</td>
<td>(0.16;0.31)</td>
<td></td>
</tr>
</tbody>
</table>

In terms of CHWs educational background, most of the CHWs have at least completed primary education (56%), and overall only 10% of CHWs had an educational level below primary level. Most of CHWs are married (83%) and have a primary job/occupation (84%), besides their voluntary work as CHWs. Of the CHWs surveyed, 47% reported that their primary occupation is not in the village.
Table 49. Characteristics of CHWs: education; employment; marital status; employment status

<table>
<thead>
<tr>
<th></th>
<th>ASM Proportion</th>
<th>95%CI</th>
<th>Binomes Proportion</th>
<th>95%CI</th>
<th>TOTAL Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incomplete primary</td>
<td>0.13</td>
<td>0.07;0.23</td>
<td>0.09</td>
<td>0.05;0.16</td>
<td>0.1</td>
<td>0.07;0.15</td>
</tr>
<tr>
<td>Complete primary</td>
<td>0.58</td>
<td>0.5;0.65</td>
<td>0.55</td>
<td>0.47;0.63</td>
<td>0.56</td>
<td>0.51;0.62</td>
</tr>
<tr>
<td>Incomplete secondary</td>
<td>0.19</td>
<td>0.12;0.28</td>
<td>0.23</td>
<td>0.17;0.3</td>
<td>0.21</td>
<td>0.16;0.27</td>
</tr>
<tr>
<td>Complete secondary</td>
<td>0.04</td>
<td>0.01;0.17</td>
<td>0.04</td>
<td>0.02;0.06</td>
<td>0.04</td>
<td>0.02;0.08</td>
</tr>
<tr>
<td>Vocational training</td>
<td>0.06</td>
<td>0.03;0.13</td>
<td>0.09</td>
<td>0.04;0.18</td>
<td>0.08</td>
<td>0.04;0.15</td>
</tr>
<tr>
<td>Post-secondary (univ./college)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>0.02</td>
<td>0.0;0.06</td>
<td>0.06</td>
<td>0.04;0.11</td>
<td>0.05</td>
<td>0.02;0.09</td>
</tr>
<tr>
<td>Married</td>
<td>0.82</td>
<td>0.75;0.87</td>
<td>0.84</td>
<td>0.76;0.9</td>
<td>0.83</td>
<td>0.77;0.88</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>0.02</td>
<td>0.0;0.15</td>
<td>0.02</td>
<td>0.01;0.04</td>
<td>0.02</td>
<td>0.01;0.05</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>0.01</td>
<td>0.0;0.07</td>
<td>0.01</td>
<td>0.0;0.05</td>
<td>0.01</td>
<td>0.0;0.03</td>
</tr>
<tr>
<td>Widowed</td>
<td>0.13</td>
<td>0.08;0.2</td>
<td>0.07</td>
<td>0.04;0.12</td>
<td>0.09</td>
<td>0.06;0.14</td>
</tr>
<tr>
<td><strong>Employment/work</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of CHWs who have any employment/occupation</td>
<td>0.86</td>
<td>0.75;0.93</td>
<td>0.83</td>
<td>0.74;0.9</td>
<td>0.84</td>
<td>0.75;0.91</td>
</tr>
<tr>
<td><strong>Type of employment/occupation, amongst CHWs who have any</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture/livestock/fishing</td>
<td>0.9</td>
<td>0.83;0.95</td>
<td>0.86</td>
<td>0.76;0.92</td>
<td>0.88</td>
<td>0.81;0.92</td>
</tr>
<tr>
<td>Teaching</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Crafts</td>
<td>0.01</td>
<td>0.0;0.06</td>
<td>0.02</td>
<td>0.0;0.15</td>
<td>0.01</td>
<td>0.0;0.08</td>
</tr>
<tr>
<td>Business/shop</td>
<td>0.03</td>
<td>0.01;0.07</td>
<td>0.04</td>
<td>0.01;0.15</td>
<td>0.03</td>
<td>0.01;0.07</td>
</tr>
<tr>
<td>Construction</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.01;0.13</td>
<td>0.02</td>
<td>0.01;0.08</td>
</tr>
<tr>
<td>Other</td>
<td>0.06</td>
<td>0.01;0.23</td>
<td>0.05</td>
<td>0.02;0.13</td>
<td>0.05</td>
<td>0.03;0.11</td>
</tr>
</tbody>
</table>
**Deployment and recruitment background**

Amongst CHWs surveyed, the median period in post is estimated at 7.2 years (Table 50), with a slightly higher median duration in post reported by binomes (8.1 years).

Overall, 44% of the CHWs were recruited during the period 2005-2009 and about 27% during the period 2010-2014.

The proportion of CHWs recruited prior to 2005 and still in post is estimated at 13%, this proportion being higher for binomes (19%) than for ASMs (4%).

**Table 50. CHW deployment history**

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Statistic</th>
<th>95%CI</th>
<th>Binomes</th>
<th>Statistic</th>
<th>95%CI</th>
<th>TOTAL</th>
<th>Statistic</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of CHWs who</td>
<td>0.99</td>
<td>0.88; 1.0</td>
<td>0.99</td>
<td>0.95; 1.0</td>
<td>0.99</td>
<td>0.96; 1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>work in the village</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>where they practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time in post as CHW</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median time in post</td>
<td>7</td>
<td>-</td>
<td>8.1</td>
<td>-</td>
<td>7.2</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>since recruitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Distribution of CHWs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>by recruitment period:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 2005</td>
<td>0.04</td>
<td>0.01; 0.18</td>
<td>0.19</td>
<td>0.13; 0.27</td>
<td>0.13</td>
<td>0.08; 0.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 2005 and 2009</td>
<td>0.5</td>
<td>0.4; 0.6</td>
<td>0.4</td>
<td>0.34; 0.47</td>
<td>0.44</td>
<td>0.38; 0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 2010 and 2014</td>
<td>0.3</td>
<td>0.23; 0.37</td>
<td>0.19</td>
<td>0.19; 0.33</td>
<td>0.27</td>
<td>0.23; 0.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From 2015</td>
<td>0.04</td>
<td>0.06; 0.21</td>
<td>0.07</td>
<td>0.07; 0.19</td>
<td>0.12</td>
<td>0.08; 0.18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td>0.04</td>
<td>0.02; 0.11</td>
<td>0.02</td>
<td>0.02; 0.09</td>
<td>0.04</td>
<td>0.03; 0.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In terms of recruitment, virtually all of the CHWs (94%) report to have been selected via a community meeting (umuganda) (Table 51).

More than half of CHWs (54%) were selected and recruited to replace another CHW who had left his/her post vacant; this indicates that there has been a natural generational rotation of CHWs over time.

About 70% of CHWs had received some information about the role and responsibilities of CHWs prior to accepting the role; this information was primarily obtained from other CHWs in the community, or from community leaders and/or health centre staff.

Motivation (45%) and trust from the community (83%) are the most commonly perceived reasons from CHWs for being selected by their own communities.

As shown in Table 52, the leading factor motivating individuals to take on the role of CHW in their own community is the possibility to improve the health status of village members (84%); career opportunities and incentives have no reported influence in considering taking this post.
Table 51. CHW recruitment background: selection process and information on the role

<table>
<thead>
<tr>
<th>Selection process</th>
<th>Proportion</th>
<th>95%CI</th>
<th>Proportion</th>
<th>95%CI</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of CHWs who were selected by a community meeting (umuganda)</td>
<td>0.91</td>
<td>0.79; 0.97</td>
<td>0.95</td>
<td>0.90; 0.97</td>
<td>0.94</td>
<td>0.88; 0.97</td>
</tr>
<tr>
<td>Proportion of CHWs who were selected to replace another CHW</td>
<td>0.52</td>
<td>0.41; 0.62</td>
<td>0.55</td>
<td>0.45; 0.65</td>
<td>0.54</td>
<td>0.45; 0.62</td>
</tr>
</tbody>
</table>

Table 52. Recruitment background: motivation to become a CHWs

<table>
<thead>
<tr>
<th>Main reasons to accept becoming a CHW</th>
<th>Proportion</th>
<th>95%CI</th>
<th>Proportion</th>
<th>95%CI</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social status/recognition from community members</td>
<td>0.1</td>
<td>0.05; 0.19</td>
<td>0.08</td>
<td>0.05; 0.11</td>
<td>0.09</td>
<td>0.06; 0.13</td>
</tr>
<tr>
<td>Improve own knowledge</td>
<td>0.19</td>
<td>0.11; 0.32</td>
<td>0.31</td>
<td>0.24; 0.38</td>
<td>0.26</td>
<td>0.21; 0.33</td>
</tr>
<tr>
<td>Improve health status of relatives</td>
<td>0.09</td>
<td>0.05; 0.17</td>
<td>0.15</td>
<td>0.1; 0.23</td>
<td>0.13</td>
<td>0.08; 0.2</td>
</tr>
</tbody>
</table>
3.2.2. Training of community health workers

According to the CHP guidelines, CHWs have to receive an induction training soon after their appointment. The survey data (Table 53) confirm that about 88% of CHWs received an induction training. The median duration of such initial training is reported to be 3 days. On average, the time elapsed between the initial appointment as CHWs and the induction training is 3 months. Of all CHWs who received an induction training (88%), 91% received further training after the induction. Such percentage is higher for binomes (94% were trained after induction) than for AMS (86%).

### Table 53. CHWs’ induction training

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th></th>
<th>Binomes</th>
<th></th>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
<td>95%CI</td>
</tr>
<tr>
<td>CHWs reporting to have</td>
<td>0.84</td>
<td>0.68; 0.92</td>
<td>0.91</td>
<td>0.8; 0.96</td>
<td>0.88</td>
<td>0.84; 0.91</td>
</tr>
<tr>
<td>received an induction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>training received:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group training organized</td>
<td>0.97</td>
<td>0.87; 0.99</td>
<td>0.98</td>
<td>0.94; 0.98</td>
<td>0.98</td>
<td>0.93; 0.99</td>
</tr>
<tr>
<td>by HC, DH or NGO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual on the job</td>
<td>0.02</td>
<td>0.005; 0.12</td>
<td>0.08</td>
<td>0.001; 0.059</td>
<td>0.015</td>
<td>0.004; 0.059</td>
</tr>
<tr>
<td>training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
<td>0.03</td>
<td>0.0; 0.038</td>
<td>0.002</td>
<td>0.0; 0.023</td>
</tr>
<tr>
<td>Median duration of</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>induction training (days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median n. of months</td>
<td>4</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>elapsed from recruitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to induction training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHWs who received any</td>
<td>0.99</td>
<td>0.93; 1.0</td>
<td>0.94</td>
<td>0.85; 0.98</td>
<td>0.96</td>
<td>0.9; 0.98</td>
</tr>
<tr>
<td>incentive to attend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>induction training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of incentive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>received:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 54 reports the proportion of surveyed CHWs who received individual, relevant training modules, as regulated by the CHP program guidelines.

Overall, the coverage of training for modules related to data collection and reporting estimated at 81% for c-HIS and at 94% for Rapid SMS. For ASMs, the coverage of training modules which are specific to their work, is high, with 94% of ASMs reporting to receive training on MNH and 89% on prevention of post-partum haemorrhage.

For training modules specific to binomes’ work, i.e. integrated community case management, the coverage is estimated at 80%.

For the modules which are supposedly pertinent to both binomes and ASM, there are discrepancies in coverage of training amongst the two cadres: the proportion of binomes trained in health promotion is higher than ASMs (41% vs 24%), and the same applies to hygiene and sanitation (73% vs 46%) and early childhood development (74% vs 15%). Contrarily, ASM have proportionately been trained more in mental health than binomes (63% vs 39%).

Overall, the survey found that none of the CHWs had received training in all the packages relevant to their own cadre.

Table 54. CHWs' training in various CHP modules

<table>
<thead>
<tr>
<th>Module</th>
<th>ASM Proportion</th>
<th>95%CI</th>
<th>Binomes Proportion</th>
<th>95%CI</th>
<th>TOTAL Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>0.62</td>
<td>0.43; 0.79</td>
<td>0.85</td>
<td>0.72; 0.92</td>
<td>0.76</td>
<td>0.62; 0.86</td>
</tr>
<tr>
<td>Community Health information system</td>
<td>0.86</td>
<td>0.7; 0.94</td>
<td>0.79</td>
<td>0.7; 0.86</td>
<td>0.81</td>
<td>0.73; 0.88</td>
</tr>
<tr>
<td>Rapid SMS</td>
<td>0.94</td>
<td>0.84; 0.98</td>
<td>0.92</td>
<td>0.85; 0.96</td>
<td>0.93</td>
<td>0.86; 0.96</td>
</tr>
<tr>
<td>iCCM</td>
<td>n/a</td>
<td>n/a</td>
<td>0.80</td>
<td>0.7; 0.87</td>
<td>n/a</td>
<td>0.73; 0.88</td>
</tr>
<tr>
<td>Home based MNH</td>
<td>0.94</td>
<td>0.87; 0.97</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Prevention of PPH</td>
<td>0.89</td>
<td>0.8; 0.95</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Family Planning</td>
<td>0.30</td>
<td>0.21; 0.4</td>
<td>0.56</td>
<td>0.43; 0.69</td>
<td>0.46</td>
<td>0.36; 0.57</td>
</tr>
<tr>
<td>Health Promotion</td>
<td>0.24</td>
<td>0.1; 0.47</td>
<td>0.41</td>
<td>0.31; 0.51</td>
<td>0.34</td>
<td>0.24; 0.47</td>
</tr>
<tr>
<td>TB DOTS</td>
<td>0.37</td>
<td>0.18; 0.6</td>
<td>0.55</td>
<td>0.47; 0.62</td>
<td>0.48</td>
<td>0.37; 0.59</td>
</tr>
<tr>
<td>Mental Health</td>
<td>0.63</td>
<td>0.3; 0.87</td>
<td>0.39</td>
<td>0.22; 0.59</td>
<td>0.48</td>
<td>0.29; 0.68</td>
</tr>
<tr>
<td>Gender based violence</td>
<td>0.33</td>
<td>0.13; 0.62</td>
<td>0.4</td>
<td>0.24; 0.58</td>
<td>0.37</td>
<td>0.21; 0.57</td>
</tr>
<tr>
<td>Hygiene and sanitation</td>
<td>0.46</td>
<td>0.33; 0.61</td>
<td>0.73</td>
<td>0.57; 0.85</td>
<td>0.64</td>
<td>0.5; 0.75</td>
</tr>
<tr>
<td>Early Childhood Development</td>
<td>0.15</td>
<td>0.05; 0.31</td>
<td>0.74</td>
<td>0.67; 0.8</td>
<td>0.52</td>
<td>0.44; 0.6</td>
</tr>
<tr>
<td>Cell coordination*</td>
<td>0.81</td>
<td>0.39; 0.96</td>
<td>0.68</td>
<td>0.29; 0.91</td>
<td>0.74</td>
<td>0.47; 0.9</td>
</tr>
<tr>
<td>Other</td>
<td>0.15</td>
<td>0.07; 0.27</td>
<td>0.16</td>
<td>0.08; 0.29</td>
<td>0.16</td>
<td>0.09; 0.26</td>
</tr>
</tbody>
</table>

*the reported coverage relates only to those CHWs who are also cell coordinators.
The median duration of training varies according to the different packages.

The training package with the longest median duration is Family planning (5 days) whereas training on TB dots and on mental health are the shortest (1 day). (Table 55)

Following the training in various individual modules, the proportion of CHWs exposed to a refresher training varies according to the specific packages. In general, the proportion of CHWs who received refresher is below 50% for all the training modules, with exception of nutrition (55%). The lowest coverage of refresher training is reported for mental health (19%) and prevention of PPH (12%).

The survey also assessed whether CHWs who reported to have received training on each package had relevant training manuals available on the day of the survey. Most of CHWs had their training manual available on the MNH module (94%), whereas the manual on health promotion was barely available to any CHW (7%).

Overall, the availability of training manuals is quite inconsistent across modules, highlighting a gap in the access to resources and material for the CHWs.

Table 55. CHWs’ training in various CHP modules: additional information

<table>
<thead>
<tr>
<th>Module</th>
<th>Median duration of Training (days)</th>
<th>Incentives received to attend training*</th>
<th>Availability of training manuals on the day of the survey *</th>
<th>Any refresher received after training*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>3</td>
<td>0.95</td>
<td>0.89; 0.97</td>
<td>0.56</td>
</tr>
<tr>
<td>Community Health information system</td>
<td>2</td>
<td>0.83</td>
<td>0.68; 0.92</td>
<td>0.18</td>
</tr>
<tr>
<td>Rapid SMS</td>
<td>2</td>
<td>0.95</td>
<td>0.88; 0.98</td>
<td>0.54</td>
</tr>
<tr>
<td>iCCM</td>
<td>3</td>
<td>0.86</td>
<td>0.76; 0.93</td>
<td>0.41</td>
</tr>
<tr>
<td>Home based MNH</td>
<td>3</td>
<td>0.95</td>
<td>0.89; 0.98</td>
<td>0.93</td>
</tr>
<tr>
<td>Prevention of PPH</td>
<td>2</td>
<td>0.94</td>
<td>0.71; 0.99</td>
<td>0.53</td>
</tr>
<tr>
<td>Family Planning</td>
<td>5</td>
<td>0.97</td>
<td>0.89; 0.99</td>
<td>0.61</td>
</tr>
<tr>
<td>Health Promotion</td>
<td>2</td>
<td>0.93</td>
<td>0.48; 1.0</td>
<td>0.07</td>
</tr>
<tr>
<td>TB DOTS</td>
<td>1</td>
<td>0.87</td>
<td>0.81; 0.91</td>
<td>0.10</td>
</tr>
<tr>
<td>Mental Health</td>
<td>1</td>
<td>0.85</td>
<td>0.76; 0.91</td>
<td>0.57</td>
</tr>
<tr>
<td>Gender based violence</td>
<td>2</td>
<td>0.88</td>
<td>0.76; 0.94</td>
<td>0.11</td>
</tr>
<tr>
<td>Hygiene and sanitation</td>
<td>2</td>
<td>0.74</td>
<td>0.53; 0.88</td>
<td>0.18</td>
</tr>
<tr>
<td>Early Childhood Development</td>
<td>3</td>
<td>0.89</td>
<td>0.81; 0.93</td>
<td>0.53</td>
</tr>
<tr>
<td>Cell coordination</td>
<td>3</td>
<td>0.92</td>
<td>0.4; 0.99</td>
<td>0.66</td>
</tr>
</tbody>
</table>

*the coverage refers only to those CHWs who reported to have been trained on each specific module
3.2.3. Scope of practice

CHWs are trained and deployed to provide an essential package of preventive and curative services at community level. The LSTM survey has assessed the level and degree of involvement of ASMs and Binomes in providing specific services as per CHP guidelines. This is reported below.

**Health and nutrition promotion**

A vast proportion of CHWs have provided health promotion (Table 56) and nutrition promotion (Table 57) during the quarter preceding the survey, with 85% of CHWs providing health promotion sessions in the communities, and 88% providing nutrition promotion sessions.

The most reported topics on which health promotion sessions are provided are hygiene and sanitation (79%), use of LLINs (64%); health care seeking behaviour (61%); payment of community based health insurance (76%). Sessions on non-communicable diseases (NCD) and on gender based violence (GBV) are instead the least commonly reported as topics offered by CHWs to the communities.

### Table 56. CHWs’ scope of practice: health promotion

<table>
<thead>
<tr>
<th>Sessions</th>
<th>ASM Proportion</th>
<th>95% CI</th>
<th>Binomes Proportion</th>
<th>95% CI</th>
<th>TOTAL Proportion</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWs providing health promotion during the quarter preceding the survey</td>
<td>0.81</td>
<td>0.70; 0.88</td>
<td>0.88</td>
<td>0.79; 0.94</td>
<td>0.85</td>
<td>0.77; 0.91</td>
</tr>
<tr>
<td>Hygiene and sanitation</td>
<td>0.68</td>
<td>0.57; 0.78</td>
<td>0.85</td>
<td>0.76; 0.91</td>
<td>0.79</td>
<td>0.71; 0.85</td>
</tr>
<tr>
<td>Use of ITNs/LLINs</td>
<td>0.65</td>
<td>0.54; 0.75</td>
<td>0.63</td>
<td>0.53; 0.72</td>
<td>0.64</td>
<td>0.55; 0.72</td>
</tr>
<tr>
<td>Health care seeking behaviours</td>
<td>0.71</td>
<td>0.55; 0.82</td>
<td>0.56</td>
<td>0.46; 0.66</td>
<td>0.61</td>
<td>0.51; 0.7</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>0.57</td>
<td>0.47; 0.66</td>
<td>0.38</td>
<td>0.31; 0.45</td>
<td>0.45</td>
<td>0.39; 0.51</td>
</tr>
<tr>
<td>Infant feeding</td>
<td>0.36</td>
<td>0.25; 0.48</td>
<td>0.56</td>
<td>0.45; 0.66</td>
<td>0.49</td>
<td>0.41; 0.57</td>
</tr>
<tr>
<td>Immunization</td>
<td>0.39</td>
<td>0.30; 0.49-</td>
<td>0.34</td>
<td>0.24; 0.46</td>
<td>0.36</td>
<td>0.27; 0.45</td>
</tr>
<tr>
<td>ECD</td>
<td>0.29</td>
<td>0.21; 0.38</td>
<td>0.49</td>
<td>0.41; 0.57</td>
<td>0.42</td>
<td>0.36; 0.47</td>
</tr>
<tr>
<td>Sensitization on VCT for HIV</td>
<td>0.44</td>
<td>0.3; 0.59</td>
<td>0.4</td>
<td>0.29; 0.53</td>
<td>0.42</td>
<td>0.31; 0.53</td>
</tr>
<tr>
<td>TB screening</td>
<td>0.26</td>
<td>0.15; 0.42</td>
<td>0.32</td>
<td>0.22; 0.44</td>
<td>0.30</td>
<td>0.21; 0.41</td>
</tr>
<tr>
<td>Sensitization on family planning NCDs</td>
<td>0.41</td>
<td>0.32; 0.51</td>
<td>0.54</td>
<td>0.38; 0.69</td>
<td>0.49</td>
<td>0.4; 0.59</td>
</tr>
<tr>
<td>Sensitization on family planning GBV</td>
<td>0.14</td>
<td>0.09; 0.22</td>
<td>0.13</td>
<td>0.07; 0.22</td>
<td>0.13</td>
<td>0.09; 0.19</td>
</tr>
<tr>
<td>Timely payment of CBHI</td>
<td>0.76</td>
<td>0.66; 0.84</td>
<td>0.76</td>
<td>0.65; 0.83</td>
<td>0.76</td>
<td>0.68; 0.82</td>
</tr>
</tbody>
</table>

In terms of nutrition promotion, the sessions most commonly offered by CHWs include kitchen gardens (90%) and cooking demonstrations (80%).
Sessions on home based food fortification are instead the least common, with 35% of CHWs reporting to have offered such session during the quarter preceding the survey.

Table 57. CHWs’ scope of practice: nutrition promotion

<table>
<thead>
<tr>
<th>Sessions:</th>
<th>ASM</th>
<th>95%CI</th>
<th>Binomes</th>
<th>95%CI</th>
<th>TOTAL</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWs providing nutrition promotion during the quarter preceding the survey</td>
<td>0.79</td>
<td>0.63; 0.90</td>
<td>0.94</td>
<td>0.84; 0.98</td>
<td>0.88</td>
<td>0.77; 0.94</td>
</tr>
<tr>
<td>Setting up kitchen gardens</td>
<td>0.90</td>
<td>0.76; 0.96</td>
<td>0.90</td>
<td>0.82; 0.95</td>
<td>0.90</td>
<td>0.84; 0.94</td>
</tr>
<tr>
<td>Rearing of livestock</td>
<td>0.47</td>
<td>0.37; 0.57</td>
<td>0.59</td>
<td>0.50; 0.66</td>
<td>0.55</td>
<td>0.48; 0.61</td>
</tr>
<tr>
<td>Breastfeeding</td>
<td>0.79</td>
<td>0.60; 0.90</td>
<td>0.61</td>
<td>0.53; 0.69</td>
<td>0.67</td>
<td>0.58; 0.75</td>
</tr>
<tr>
<td>Cooking demonstrations</td>
<td>0.79</td>
<td>0.59; 0.91</td>
<td>0.81</td>
<td>0.68; 0.90</td>
<td>0.80</td>
<td>0.66; 0.90</td>
</tr>
<tr>
<td>Home based food fortification using micronutrients powder</td>
<td>0.34</td>
<td>0.14; 0.62</td>
<td>0.35</td>
<td>0.12; 0.69</td>
<td>0.35</td>
<td>0.13; 0.65</td>
</tr>
<tr>
<td>Other</td>
<td>0.01</td>
<td>0.00; 0.08</td>
<td>0.02</td>
<td>0.00; 0.08</td>
<td>0.01</td>
<td>0.00; 0.05</td>
</tr>
</tbody>
</table>

For both health and nutrition promotion, as shown in Table 58 below, in most cases (83%) CHWs report to collaborate with other cadres who are active in their community, to plan and deliver the sessions. In most cases, this is done with other binomes who are active in the community.
The topic of the health education session is also commonly selected in coordination with other CHWs (58%).

Table 58. Mode of delivering behaviour change communication

<table>
<thead>
<tr>
<th>CHWs collaborated with other cadres in delivering health education</th>
<th>CHWs</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collabrated with:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Binome</td>
<td>0.87</td>
<td>0.77; 0.93</td>
</tr>
<tr>
<td>ASM</td>
<td>0.39</td>
<td>0.28; 0.51</td>
</tr>
<tr>
<td>Other cadre</td>
<td>0.11</td>
<td>0.08; 0.16</td>
</tr>
</tbody>
</table>

Methods of selection of topics for health education:

<table>
<thead>
<tr>
<th>Action plan</th>
<th>CHWs</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>In collaboration with other CHWs</td>
<td>0.58</td>
<td>0.52; 0.64</td>
</tr>
<tr>
<td>In collaboration with HC</td>
<td>0.09</td>
<td>0.06; 0.12</td>
</tr>
<tr>
<td>Based on demand/needs of community</td>
<td>0.15</td>
<td>0.11; 0.19</td>
</tr>
<tr>
<td>Asked by supervisors/cell coordinator</td>
<td>0.06</td>
<td>0.04; 0.1</td>
</tr>
<tr>
<td>Confidence in the topic/subject</td>
<td>0.07</td>
<td>0.05; 0.1</td>
</tr>
<tr>
<td>Other</td>
<td>0.02</td>
<td>0.01; 0.07</td>
</tr>
</tbody>
</table>
**Tuberculosis**

According to the CHP guidelines, both binomes and ASMs provide services to adults in their community for the control of tuberculosis (TB). In particular, CHWs are trained to identify cases of TB suspects and to refer them to the health facility for testing, as well as to provide TB treatment (DOTs) to TB patients under treatment.

According to our survey, 63% of CHWs were actively providing TB services to their communities at the time of the interview (Table 59).

At the time of the survey, the median number of patients under supervision for DOTs was 0, whereas the median number of patients referred to the HC for testing was 1 per CHW.

**Integrated community case management (iCCM)**

Integrated community case management (iCCM) is a critical intervention provided at community level by binomes, which entails the assessment, diagnosis and treatment of common, life threatening childhood diseases including malaria; acute respiratory infections; and diarrhoea.

In 2016, following the increase of cases of malaria in Rwanda, binomes were also trained to provide malaria diagnostic and treatment services to adults. At the time of the survey, 91% of binomes reported to provide iCCM services to their communities (Table 59).

On average, binomes reported to have treated approximatively 4 cases of malaria in children during the quarter preceding the survey, and approximatively 8 cases of malaria in adults. This statistic makes malaria the most common reason for communities to seek CHWs’ iCCM services.

The mean number of cases of pneumonia treated during the quarter preceding the survey was 1.2, whereas the mean number of cases of diarrhoea treated during the same period was less than 1 (0.6).

<table>
<thead>
<tr>
<th>Table 59. CHWs’ scope of practice: TB and iCCM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuberculosis</strong></td>
</tr>
<tr>
<td>CHWs providing TB services</td>
</tr>
<tr>
<td>Median number of patients under supervision for DOTs at time of survey</td>
</tr>
<tr>
<td>N. TB suspects referred to HC for diagnosis during the quarter preceding the survey</td>
</tr>
<tr>
<td><strong>iCCM (binomes only)</strong></td>
</tr>
<tr>
<td>Binomes providing iCCM services</td>
</tr>
<tr>
<td>Mean n. of U-5 treated for malaria during the quarter preceding the survey</td>
</tr>
<tr>
<td>Mean n. of U-5 treated for pneumonia during the quarter preceding the survey</td>
</tr>
<tr>
<td>Mean n. of U-5 treated for diarrhoea during the quarter preceding the survey</td>
</tr>
<tr>
<td>Mean n. of adults treated for malaria during the quarter preceding the survey</td>
</tr>
</tbody>
</table>
**Family planning (FP)**

Both binomes and ASMs are trained to offer family planning services at community level. In particular, they are tasked to refer potential FP clients to the health facility to initiate any modern family planning method of choice, and subsequently to provide various FP methods at community level.

At the time of our survey, only 27% of interviewed CHWs referred to actually provide FP to the community (Table 60); in particular, 43% of binomes and 1% of ASMs reported to provide such services. Amongst those CHWs providing any FP service at the time of the survey, the reported mean number of clients referred to the HF to initiate family planning during the quarter preceding the survey was of 9.

For follow up services at community level, the most common method offered to active FP clients was injection, with a mean n. of 16 women receiving it through CHWs at community level during the quarter preceding the survey. Contraceptive pills were the second most common method offered to clients at community level, with a reported mean number of 7 women being offered such method by CHWs during the quarter preceding the survey.

**Table 60. CHWs’ scope of practice: Family planning**

<table>
<thead>
<tr>
<th>Family planning</th>
<th>CHWs providing FP services at the time of the survey</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean n. of clients referred to HF to initiate FP during the quarter preceding the survey</td>
<td>9.06</td>
<td>5.9; 12.1</td>
</tr>
<tr>
<td>Mean n. of clients offered FP methods in community during the quarter preceding the survey</td>
<td>Cycle beads</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Male condoms</td>
<td>5.05</td>
<td>0.34; 9.76</td>
</tr>
<tr>
<td></td>
<td>Female condoms</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Contraceptive pills</td>
<td>7.1</td>
<td>3.7; 10.5</td>
</tr>
<tr>
<td></td>
<td>Injection</td>
<td>15.96</td>
<td>10.7; 21.1</td>
</tr>
</tbody>
</table>

**Maternal and newborn health (MNH)**

One the main tasks of ASMs is to provide maternal and newborn services at community level. This entails the identification of pregnant women at community level; counselling and referral to HF during the antenatal period; home visits to pregnant women and identification of danger signs during pregnancy; referral of pregnant women to the health facility for delivery; administration of misoprostol to women who deliver at home; and referral of women and babies for post-natal care after delivery.
At the time of our survey, 98% of ASMs referred to actively provide MNH services at community level (Table 61). During the quarter preceding the survey, the mean number of pregnant women identified was of 5.5, and the mean number of women accompanied and/or referred to the health facility for an ANC consultation was of 2.2. The mean number of cases of pregnant women presenting danger signs and referred to the health facilities is estimated at 0.4, during the quarter preceding the survey.

The mean number of women accompanied to the facility for delivery was of 2.6, whereas the reported number of home deliveries was in comparison negligible and estimated at 0.2. No ASM reported to have administered misoprostol to women delivering at home.

According to survey results, ASM referred approximately 53% of the women who had delivered at home for post-natal care during the 24 hours following delivery.

**Table 61. CHWs’ scope of practice: Maternal and Newborn Health**

<table>
<thead>
<tr>
<th>MNH (ASM only)</th>
<th>Statistic</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of ASMs providing MNH services at the time of the survey</td>
<td>0.98</td>
<td>0.95; 1.0</td>
</tr>
<tr>
<td>Mean n. of PWs identified during the quarter preceding the survey</td>
<td>5.5</td>
<td>3.8; 7.2</td>
</tr>
<tr>
<td>Mean n. of PWs referred/accompanied to HF for ANC during the quarter preceding the survey</td>
<td>2.2</td>
<td>1.47; 3.04</td>
</tr>
<tr>
<td>Mean n. of PWs identified with danger signs and referred/accompanied to HF during the quarter preceding the survey</td>
<td>0.38</td>
<td>0.09; 0.66</td>
</tr>
<tr>
<td>Mean n. of PWs accompanied to HF for delivery during the quarter preceding the survey</td>
<td>2.67</td>
<td>1.73; 3.6</td>
</tr>
<tr>
<td>Mean n. of PWs from CHW catchment area who did not deliver at the health facility during the quarter preceding the survey</td>
<td>0.2</td>
<td>0.12; 0.26</td>
</tr>
<tr>
<td>Proportion. of PWs who delivered at home and were administered misoprostol, during the quarter preceding the survey</td>
<td>0.0</td>
<td>-</td>
</tr>
<tr>
<td>Proportion. of PWs who delivered at home and were referred by CHW for PNC at HF within 24 hrs of delivery, during the quarter preceding the survey</td>
<td>0.53</td>
<td>0.10; 0.95</td>
</tr>
</tbody>
</table>

**CHWs knowledge and self-reported confidence in delivering tasks.**

Through the survey of CHWs, we assessed the confidence of ASMs and binomes in delivering the interventions that they are trained and deployed to offer to communities (Tables 62 and 63) as well as their knowledge of selected, essential interventions.
CHWs reported that the interventions that they are least confident to offer are mainly TB screening (35% of respondents); the provision of family planning services (41% of respondents) and treatment of malaria in adults (47% of binomes).

Whilst the low confidence in treating malaria in adults can be associated to the fact that this intervention was newly introduced in 2016, the reported gaps in offering TB services and FP services appear to be in line with the fact that less than 50% of CHWs reported to have received training in these two packages (Ref. table 54), and that these interventions are not widely practices by CHWs (Ref. Tables 59 and 60).

More than 40% of ASMs reported to have full confidence in providing ANC services and more than 50% in providing PNC services.

Binomes instead reported a high level of confidence (more than 30% of respondents) in delivering nutrition services, and in particular malnutrition screening and growth monitoring.

Amongst binomes, iCCM was not reported as an intervention which they feel highly confident to deliver.

Table 62. Self-reported confidence in delivering tasks: least confidence

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>95%CI</th>
<th>Binomes</th>
<th>95%CI</th>
<th>TOTAL</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB screening</td>
<td>0.31</td>
<td>0.25; 0.37</td>
<td>0.37</td>
<td>0.29; 0.46</td>
<td>0.35</td>
<td>0.29; 0.41</td>
</tr>
<tr>
<td>TB DOTS</td>
<td>0.13</td>
<td>0.06; 0.26</td>
<td>0.15</td>
<td>0.1; 0.22</td>
<td>0.14</td>
<td>0.1; 0.21</td>
</tr>
<tr>
<td>iCCM</td>
<td>--</td>
<td>--</td>
<td>0.24</td>
<td>0.17; 0.34</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Treating malaria in adults</td>
<td>--</td>
<td>--</td>
<td>0.47</td>
<td>0.36; 0.58</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Malnutrition screening</td>
<td>0.11</td>
<td>0.05; 0.22</td>
<td>0.11</td>
<td>0.05; 0.21</td>
<td>0.11</td>
<td>0.06; 0.19</td>
</tr>
<tr>
<td>Growth monitoring</td>
<td>0.15</td>
<td>0.07; 0.29</td>
<td>0.08</td>
<td>0.04; 0.16</td>
<td>0.11</td>
<td>0.06; 0.18</td>
</tr>
<tr>
<td>Referral of women for ANC</td>
<td>0.07</td>
<td>0.02; 0.23</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Identification/referral of PWs for danger signs</td>
<td>0.09</td>
<td>0.05; 0.18</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Accompany/referral of PWs for delivery</td>
<td>0.07</td>
<td>0.03; 0.17</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Provision of misoprostol for home deliveries</td>
<td>0.44</td>
<td>0.35; 0.54</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Visit mother and newborn after delivery</td>
<td>0.11</td>
<td>0.06; 0.2</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Health promotion</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.02; 0.08</td>
<td>0.02</td>
<td>0.01; 0.05</td>
</tr>
<tr>
<td>Nutrition education</td>
<td>0.03</td>
<td>0.01; 0.09</td>
<td>0.01</td>
<td>0.0; 0.05</td>
<td>0.02</td>
<td>0.01; 0.04</td>
</tr>
<tr>
<td>Parents’ education/ECD</td>
<td>0.09</td>
<td>0.03; 0.23</td>
<td>0.07</td>
<td>0.04; 0.12</td>
<td>0.08</td>
<td>0.04; 0.14</td>
</tr>
<tr>
<td>Community mobilization</td>
<td>0.03</td>
<td>0.01; 0.13</td>
<td>0.03</td>
<td>0.01; 0.11</td>
<td>0.03</td>
<td>0.01; 0.09</td>
</tr>
<tr>
<td>Adherence to CBHI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Family planning services</td>
<td>0.30</td>
<td>0.22; 0.38</td>
<td>0.48</td>
<td>0.37; 0.6</td>
<td>0.41</td>
<td>0.32; 0.5</td>
</tr>
<tr>
<td>Rapid SMS</td>
<td>0.14</td>
<td>0.08; 0.25</td>
<td>0.06</td>
<td>0.03; 0.12</td>
<td>0.09</td>
<td>0.06; 0.14</td>
</tr>
<tr>
<td>Reporting</td>
<td>0.06</td>
<td>0.02; 0.14</td>
<td>0.08</td>
<td>0.03; 0.21</td>
<td>0.07</td>
<td>0.03; 0.17</td>
</tr>
<tr>
<td>Other</td>
<td>0.27</td>
<td>0.18; 0.38</td>
<td>0.2</td>
<td>0.12; 0.33</td>
<td>0.23</td>
<td>0.18; 0.29</td>
</tr>
</tbody>
</table>
Table 63. Self-reported confidence in delivering tasks: highest confidence

<table>
<thead>
<tr>
<th>Task</th>
<th>ASM Proportion</th>
<th>ASM 95%CI</th>
<th>Binomes Proportion</th>
<th>Binomes 95%CI</th>
<th>TOTAL Proportion</th>
<th>TOTAL 95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB screening</td>
<td>0.01</td>
<td>0.0; 0.07</td>
<td>0.04</td>
<td>0.02; 0.09</td>
<td>0.03</td>
<td>0.01; 0.05</td>
</tr>
<tr>
<td>TB DOTS</td>
<td>0.01</td>
<td>0.0; 0.03</td>
<td>0.08</td>
<td>0.02; 0.22</td>
<td>0.02</td>
<td>0.01; 0.05</td>
</tr>
<tr>
<td>iCCM</td>
<td>--</td>
<td>--</td>
<td>0.01</td>
<td>0.0; 0.07</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Treating malaria in adults</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malnutrition screening</td>
<td>0.01</td>
<td>0.0; 0.1</td>
<td>0.31</td>
<td>0.22; 0.42</td>
<td>0.19</td>
<td>0.14; 0.26</td>
</tr>
<tr>
<td>Growth monitoring</td>
<td>0.08</td>
<td>0.02; 0.22</td>
<td>0.34</td>
<td>0.21; 0.5</td>
<td>0.24</td>
<td>0.15; 0.35</td>
</tr>
<tr>
<td>Referral of women for ANC</td>
<td>0.41</td>
<td>0.34; 0.49</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Identification/referral of PWs for danger signs</td>
<td>0.25</td>
<td>0.14; 0.42</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Accompany/referral of PWs for delivery</td>
<td>0.42</td>
<td>0.33; 0.51</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Provision of misoprostol for home deliveries</td>
<td>0.08</td>
<td>0.04; 0.14</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Visit mother and newborn after delivery</td>
<td>0.51</td>
<td>0.36; 0.64</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Health promotion</td>
<td>0.04</td>
<td>0.01; 0.16</td>
<td></td>
<td></td>
<td>0.02</td>
<td>0.0; 0.06</td>
</tr>
<tr>
<td>Nutrition education</td>
<td>0.08</td>
<td>0.04; 0.15</td>
<td>0.22</td>
<td>0.14; 0.33</td>
<td>0.16</td>
<td>0.11; 0.23</td>
</tr>
<tr>
<td>Parents’ education/ECD</td>
<td>0.09</td>
<td>0.03; 0.21</td>
<td>0.07</td>
<td>0.03; 0.15</td>
<td>0.08</td>
<td>0.04; 0.14</td>
</tr>
<tr>
<td>Community mobilization</td>
<td>0.15</td>
<td>0.08; 0.25</td>
<td>0.21</td>
<td>0.14; 0.3</td>
<td>0.18</td>
<td>0.12; 0.27</td>
</tr>
<tr>
<td>Adherence to CBHI</td>
<td>0.11</td>
<td>0.06; 0.2</td>
<td>0.2</td>
<td>0.12; 0.31</td>
<td>0.16</td>
<td>0.12; 0.22</td>
</tr>
<tr>
<td>Family planning services</td>
<td>0.02</td>
<td>0.01; 0.05</td>
<td>0.21</td>
<td>0.13; 0.32</td>
<td>0.14</td>
<td>0.09; 0.21</td>
</tr>
<tr>
<td>Rapid SMS</td>
<td>0.28</td>
<td>0.18; 0.4</td>
<td>0.22</td>
<td>0.15; 0.3</td>
<td>0.24</td>
<td>0.17; 0.32</td>
</tr>
<tr>
<td>Reporting</td>
<td>0.14</td>
<td>0.08; 0.25</td>
<td>0.14</td>
<td>0.07; 0.25</td>
<td>0.14</td>
<td>0.08; 0.24</td>
</tr>
<tr>
<td>Other</td>
<td>0.08</td>
<td>0.03; 0.21</td>
<td>0.08</td>
<td>0.05; 0.13</td>
<td>0.08</td>
<td>0.05; 0.13</td>
</tr>
</tbody>
</table>

Although the survey was not designed to assess knowledge and competencies of CHWs, we administered a set of five simple questions to ASMs and binomes to draw a broad indication of their knowledge of essential issues related to RMNCHN (Table 64). All respondents (99%) could report the recommended schedule for exclusive breastfeeding (EBF), and more than 60% of surveyed CHWs could report at least 3 benefits of EBF for infants. Less than 40% of respondents could instead report at least three benefits of EBF for the mother.

Only more than a third of surveyed ASMs (34%) could report at least three danger signs of pregnancy. The individual conditions that ASMs could most commonly and correctly report as danger signs of pregnancy were: vaginal bleeding (90%), strong headache (63%), high fever (45%), convulsions (43%). The least reported signs were blurred vision (7%), vaginal discharge (3%), painful urination (3%), difficult breathing (5%).

Finally, we assessed the knowledge of binomes of the cut-off respiratory rate for pneumonia, and 64% of surveyed respondents could report those correctly.
Table 64. CHW’s Knowledge of essential practices

<table>
<thead>
<tr>
<th>Practice</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWs who know the recommended schedule for EBF</td>
<td>0.99</td>
<td>0.98; 0.99</td>
</tr>
<tr>
<td>CHWs who know at least 3 benefits for the baby related to exclusive breastfeeding</td>
<td>0.63</td>
<td>0.57; 0.69</td>
</tr>
<tr>
<td>CHWs who know at least 3 benefits for the mother related to exclusive breastfeeding</td>
<td>0.37</td>
<td>0.29; 0.46</td>
</tr>
<tr>
<td>ASM who know at least 3 danger signs of pregnancy</td>
<td>0.34</td>
<td>-</td>
</tr>
<tr>
<td>Binomes who know cut-off respiratory rates for pneumonia for both age groups</td>
<td>0.64</td>
<td>0.49; 0.77</td>
</tr>
</tbody>
</table>

Mode of service delivery

The survey assessed specific aspects related to the mode of service delivery adopted by CHWs, an in particular: the location most commonly used for the provision of services in the community; and the approach in dealing with patients who cannot afford paying for services.

With regard to the most common location used by CHWs to deliver services, 37% of respondents report that they exclusively offer services through home visits and therefore that they do not receive patients at home (Table 65). Another 60% of CHWs do instead provide some services at their own residence, with 19% having a designated room available at home to provide health services, and 41% not having any dedicated ad hoc space at home for the provision of services.

Table 65. CHWs’ scope of practice: mode of service delivery

<table>
<thead>
<tr>
<th>Usual location for provision of services:</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate room designated in residence</td>
<td>0.19</td>
<td>0.11; 0.30</td>
</tr>
<tr>
<td>No room designated in residence</td>
<td>0.41</td>
<td>0.32; 0.51</td>
</tr>
<tr>
<td>Dedicated place assigned by the community</td>
<td>0.01</td>
<td>0.00; 0.06</td>
</tr>
<tr>
<td>CHW does not receive patients (only home visits)</td>
<td>0.37</td>
<td>0.31; 0.43</td>
</tr>
<tr>
<td>CHWs who have relevant program guidelines available for use on the day of the survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iCCM (binome)</td>
<td>0.85</td>
<td>0.7; 0.93</td>
</tr>
<tr>
<td>MNH(ASM)</td>
<td>0.94</td>
<td>0.87; 0.97</td>
</tr>
<tr>
<td>Misoprostol (ASM)</td>
<td>0.59</td>
<td>0.45; 0.71</td>
</tr>
<tr>
<td>Family planning</td>
<td>0.37</td>
<td>0.31; 0.43</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.81</td>
<td>0.73; 0.87</td>
</tr>
<tr>
<td>TB</td>
<td>0.49</td>
<td>0.41; 0.57</td>
</tr>
<tr>
<td>Malaria in adults</td>
<td>0.32</td>
<td>0.22; 0.44</td>
</tr>
<tr>
<td>None</td>
<td>0.02</td>
<td>0.01; 0.07</td>
</tr>
</tbody>
</table>
When dealing with clients who cannot afford paying fees, most CHWs report to offer them treatment regardless of their ability to pay, and to then register a loan/debt for the client, either if the client is on a community based health insurance scheme (75%) or not (68%). (Table 66)

Table 66. Dealing with clients who cannot afford paying fees

<table>
<thead>
<tr>
<th>Treatment Method</th>
<th>Proportion</th>
<th>95%CI</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat patients as if they were CBHI patients</td>
<td>---</td>
<td>0.04</td>
<td>0.02; 0.1</td>
<td></td>
</tr>
<tr>
<td>Do not treat patient</td>
<td>0.03</td>
<td>0.02; 0.05</td>
<td>0.04</td>
<td>0.02; 0.11</td>
</tr>
<tr>
<td>Treat patient and classify as loan/debt</td>
<td>0.75</td>
<td>0.66; 0.83</td>
<td>0.68</td>
<td>0.56; 0.78</td>
</tr>
<tr>
<td>Collect money from village members</td>
<td>0.01</td>
<td>0.0; 0.05</td>
<td>0.01</td>
<td>0.0; 0.02</td>
</tr>
<tr>
<td>Pay for the patient</td>
<td>0.09</td>
<td>0.05; 0.15</td>
<td>0.09</td>
<td>0.04; 0.17</td>
</tr>
<tr>
<td>Other</td>
<td>0.09</td>
<td>0.04; 0.18</td>
<td>0.08</td>
<td>0.03; 0.19</td>
</tr>
</tbody>
</table>

3.2.4. Workload

The survey administered by LSTM to community health workers attempted to estimate the workload of CHWs and the allocation of their time to various activities including work performed: in cooperatives; for other income generating activities; and for various tasks inherent to the function of community health volunteer in the community.

As summarized in Table 67 below, on average CHWs spent less than an hour per week in activities related to cooperatives during the week preceding the survey, and about 25 hours on other income generating activities related to the individual personal employment/work.

The hours allocated to health prevention and care in the community are reported to be approximately 8 in total during the week preceding the survey. The majority of such time is spent for home visits (2.9 hrs) and for community mobilization (2.75 hrs). Coordination and reporting activities also absorb a considerable amount of time, as they are estimated at ca. 1.5 hours per week.

The mean number of visits to the health facility is estimated at 2, during the month preceding the survey, with a mean time of 1.5 hours needed to reach the facility (one way). The most common mean used to reach the facility is reported to be walking (86% of respondents).

Table 67. CHW's workload: hours spent on various activities during the week

<table>
<thead>
<tr>
<th>Activity</th>
<th>All CHWs Mean (hrs)</th>
<th>95% CI</th>
<th>ASMs Mean (hrs)</th>
<th>95% CI</th>
<th>Binom es Mean (hrs)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of hours spent on cooperative during the week preceding the survey</td>
<td>0.73</td>
<td>0.32; 1.14</td>
<td>0.35</td>
<td>0.05; 0.66</td>
<td>0.97</td>
<td>0.43; 1.52</td>
</tr>
<tr>
<td>Activity</td>
<td>Average Hours (Min; Max)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of hours spent on home visits during the week preceding the survey</td>
<td>2.96; 2.44; 3.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.60; 2.72; 4.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.55; 2.08; 3.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of hours spent on community mobilization during the week preceding the survey</td>
<td>2.73; 1.81; 3.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.93; 1.07; 2.78</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.24; 2.20; 4.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of hours spent on other (non CHW) tasks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iCCM and follow up</td>
<td>0.11; 0.04; 0.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02; 0.00; 0.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.17; 0.00; 0.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of FP</td>
<td>0.11; 0.00; 0.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.18; 0.00; 0.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompany/Refer TB suspects to HC</td>
<td>0.01; -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02; 0.00; 0.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB-DOTS</td>
<td>0.02; 0.0; 0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.03; 0.00; 0.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompanying TB patients for control examinations</td>
<td>0.03; 0.0; 0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.02; 0.00; 0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.00; 0.07; 0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04; 0.00; 0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.00; 0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompany PWs for ANC</td>
<td>0.02; 0.00; 0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04; 0.00; 0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.07; -</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompany PWs for delivery</td>
<td>0.14; 0.03; 0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.36; 0.08; 0.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompany PWs for danger signs</td>
<td>0.03; 0.00; 0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04; 0.00; 0.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Births notification</td>
<td>0.03; 0.00; 0.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04; 0.00; 0.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths verbal autopsy</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracking defaulters for HIV, TB, immunization, ANC</td>
<td>0.01; 0.0; 0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.01; 0.00; 0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting</td>
<td>0.95; 0.36; 1.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.91; 0.02; 1.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.97; 0.21; 1.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attend training</td>
<td>0.16; 0.00; 0.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.09; 0.00; 0.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.20; 0.00; 0.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending supervision</td>
<td>0.01; 0.02; 0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.04; 0.00; 0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordination meetings</td>
<td>0.41; 0.02; 0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.33; 0.14; 0.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.46; 0.00; 0.96--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.33; 0.15; 0.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.39; 0.02; 0.76</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.29; 0.06; 0.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL CHW activities (excluding cooperatives)</td>
<td>8.08; 6.39; 9.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.83; 5.86; 9.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.24; 6.40; 10.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average n. of hours spent on other (non CHW) income generating activities</td>
<td>25.64; 22.78; 28.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25.62; 20.71; 30.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25.65; 23.23; 28.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median n. of CHW visit to the health facility during the month preceding the survey</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median time needed to reach the health facility (hrs)</td>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most common mean of transport to reach HF:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk</td>
<td>0.86; 0.81; 0.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moto-taxy</td>
<td>0.06; 0.04; 0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td>0.01; 0.0; 0.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxi</td>
<td>0.02; 0.01; 0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private bicycle</td>
<td>0.05; 0.03; 0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private motorcycle</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private car</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Besides estimating the total distribution of work hours of CHWs, the survey also assessed the mean time needed by CHWs to perform individual tasks (Table 68).
The most time consuming activities are those related to accompanying patients to the health facility; in terms of curatives activities delivered in communities, the provision of TB DOTs (61 mins) is the most demanding for CHWs, followed by the provision of iCCM services (25 mins for malaria treatment).

**Table 68. CHW’s workload: average time spent per task (minutes)**

<table>
<thead>
<tr>
<th></th>
<th>Mean time (mins)</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultation for the provision of contraceptive pills</td>
<td>7.2</td>
<td>4.3; 10.1</td>
</tr>
<tr>
<td>Provision of injectable contraception</td>
<td>7.8</td>
<td>4.5; 11.1</td>
</tr>
<tr>
<td>Provision of condoms</td>
<td>3.4</td>
<td>1.5; 5.3</td>
</tr>
<tr>
<td>Provision of cycle beads</td>
<td>0.7</td>
<td>&gt;0.0; 1.7</td>
</tr>
<tr>
<td>Consultation to assess and treat diarrhoea</td>
<td>18.2</td>
<td>15.4; 20.9</td>
</tr>
<tr>
<td>Consultation to assess and treat pneumonia</td>
<td>22.0</td>
<td>18.5; 25.5</td>
</tr>
<tr>
<td>Consultation to assess and treat malaria</td>
<td>24.8</td>
<td>21.5; 28.1</td>
</tr>
<tr>
<td>Average time to accompany PW for ANC at health centre</td>
<td>171</td>
<td>138; 203</td>
</tr>
<tr>
<td>Average time to accompany PW with danger sign to HC</td>
<td>302</td>
<td>69; 534</td>
</tr>
<tr>
<td>Average time to accompany PW for delivery at HC</td>
<td>310</td>
<td>202; 418</td>
</tr>
<tr>
<td>Average time to accompany PW for PNC at health centre</td>
<td>152</td>
<td>108; 196</td>
</tr>
<tr>
<td>Home visit to a pregnant woman</td>
<td>139</td>
<td>95; 182</td>
</tr>
<tr>
<td>Home visit for post-natal care</td>
<td>105</td>
<td>83; 126</td>
</tr>
<tr>
<td>Provision of TB DOTS</td>
<td>61</td>
<td>46; 76</td>
</tr>
<tr>
<td>Accompany TB suspect to health centre for examination</td>
<td>212</td>
<td>176; 248</td>
</tr>
<tr>
<td>Accompany TB patient for TB control/examination</td>
<td>192</td>
<td>161; 224</td>
</tr>
<tr>
<td>Accompany TB patient for follow up visit</td>
<td>80</td>
<td>60; 100</td>
</tr>
</tbody>
</table>

When asked to make a judgement about their own perception of workload (**Table 69**), only 20% of CHWs reported that this is well balanced, whereas nearly 70% of CHWs assessed their workload as ‘heavy’ or ‘much too heavy’.

In 10% of cases, CHWs reported not to be able to cope with the demand of services from the community.

**Table 69. Perception of workload from CHWs**

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>Much too heavy</td>
<td>0.25</td>
<td>0.16; 0.36</td>
<td>0.30</td>
</tr>
<tr>
<td>Too heavy</td>
<td>0.39</td>
<td>0.29; 0.5</td>
<td>0.40</td>
</tr>
<tr>
<td>Cannot meet the demand</td>
<td>0.15</td>
<td>0.06; 0.36</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>0.18</td>
<td>0.09; 0.32</td>
<td>0.19</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>------------</td>
<td>------</td>
</tr>
<tr>
<td>Well balanced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light</td>
<td>0.02</td>
<td>0.0; 0.12</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Page 69 of 85
3.2.5. Supervision and coordination

Supervision

Supervision is an essential strategy aimed at ensuring the the CHWs receive appropriate support, guidance and on the job training from their assigned cell coordinators and health facilities. Most of the CHWs surveyed reported that the cell coordinator is their primary supervisor (82%) whereas all of them indicated the in-charge as the focal point at facility level (Table 70).

Table 70. Primary supervisors and supervisors at HC level

<table>
<thead>
<tr>
<th>Primary supervisors reported by CHWs:</th>
<th>CHWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell coordinator</td>
<td>0.82</td>
</tr>
<tr>
<td>Community leaders committee</td>
<td>-</td>
</tr>
<tr>
<td>Cooperatives board</td>
<td>0.04</td>
</tr>
<tr>
<td>CHWs committee</td>
<td>0.09</td>
</tr>
<tr>
<td>Other</td>
<td>0.05</td>
</tr>
</tbody>
</table>

CHWs reporting that the in charge of CHWs is the direct supervisor at HC: 1.0 0.97; 1.0

According to the CHP guidelines, CHWs should receive supervision on a quarterly basis from the health facility. Overall, 16% of CHWs reported that they had not received any supervision during the 12 months preceding the survey (24% in the case of ASMs). (Table 71).

The total, cumulative proportion of CHWs reporting to have received less than four visits during the 12 months preceding the survey (i.e. one per quarter) is of 60%.

The remaining 40% of respondents received four or more supervisory visits during the period.

Table 71. Supervisory visits received during the 12 months preceding the survey

<table>
<thead>
<tr>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
</tr>
<tr>
<td>None</td>
<td>0.24</td>
<td>0.16; 0.35</td>
</tr>
<tr>
<td>1</td>
<td>0.19</td>
<td>0.09; 0.35</td>
</tr>
<tr>
<td>2</td>
<td>0.14</td>
<td>0.09; 0.22</td>
</tr>
<tr>
<td>3</td>
<td>0.11</td>
<td>0.06; 0.19</td>
</tr>
<tr>
<td>4</td>
<td>0.09</td>
<td>0.04; 0.16</td>
</tr>
<tr>
<td>5</td>
<td>0.03</td>
<td>0.01; 0.13</td>
</tr>
<tr>
<td>More than 5</td>
<td>0.21</td>
<td>0.14; 0.3</td>
</tr>
</tbody>
</table>
In most cases (85%), the supervision visit was performed by the in charge of CHWs at the health facility (Table 72), whereas the most frequently reported person accompany the supervision was the cell coordinator (Table 73).

Table 72. Supervisor who provided the last supervisory visit preceding the survey

<table>
<thead>
<tr>
<th>CHWs</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>In charge of CHW at HF</td>
<td>0.85</td>
<td>0.76; 0.91</td>
</tr>
<tr>
<td>Nurses</td>
<td>0.13</td>
<td>0.09; 0.18</td>
</tr>
<tr>
<td>In charge of environmental health</td>
<td>0.03</td>
<td>0.01; 0.08</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>0.04</td>
<td>0.01; 0.12</td>
</tr>
<tr>
<td>NGO staff</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>0.07</td>
<td>0.03; 0.16</td>
</tr>
</tbody>
</table>

Table 73. Support person during the last supervisory visit preceding the survey

<table>
<thead>
<tr>
<th>CHWs</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell coordinator</td>
<td>0.43</td>
<td>0.26; 0.62</td>
</tr>
<tr>
<td>Community leaders committee</td>
<td>0.03</td>
<td>0.01; 0.14</td>
</tr>
<tr>
<td>Cooperatives board member</td>
<td>0.09</td>
<td>0.03; 0.22</td>
</tr>
<tr>
<td>NGO staff</td>
<td>0.04</td>
<td>0.01; 0.15</td>
</tr>
<tr>
<td>Other</td>
<td>0.5</td>
<td>0.29; 0.71</td>
</tr>
</tbody>
</table>

The focus of supervision is tailored to the cadre of CHWs receiving it.

In fact, for ASM the most commonly reported health topic covered during the last supervision is maternal and newborn health (58%), whereas in the case of binomes, the most commonly reported health topic of focus during supervision is iCCM (47%). (Table 74)

For both binomes and ASMs though, the most reported topic of focus during the last supervision visit is not related to any specific health intervention, and it is instead ‘data and reporting’ (66% of respondents).

Table 74. Topics covered during last supervision

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>95%CI</th>
<th>Binomes</th>
<th>95%CI</th>
<th>TOTAL</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td></td>
<td>Proportion</td>
<td></td>
<td>Proportion</td>
<td></td>
</tr>
<tr>
<td>iCCM</td>
<td>0.13</td>
<td>0.06; 0.26</td>
<td>0.47</td>
<td>0.31; 0.64</td>
<td>0.35</td>
<td>0.26; 0.47</td>
</tr>
<tr>
<td>Family planning</td>
<td>0.04</td>
<td>0.02; 0.13</td>
<td>0.25</td>
<td>0.18; 0.35</td>
<td>0.18</td>
<td>0.13; 0.26</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.16</td>
<td>0.07; 0.32</td>
<td>0.30</td>
<td>0.21; 0.42</td>
<td>0.25</td>
<td>0.17; 0.36</td>
</tr>
<tr>
<td>Maternal and newborn health</td>
<td>0.58</td>
<td>0.43; 0.72</td>
<td>0.10</td>
<td>0.05; 0.17</td>
<td>0.26</td>
<td>0.2; 0.34</td>
</tr>
<tr>
<td>ECD</td>
<td>0.14</td>
<td>0.06; 0.3</td>
<td>0.21</td>
<td>0.14; 0.29</td>
<td>0.18</td>
<td>0.12; 0.26</td>
</tr>
<tr>
<td>Data and reporting</td>
<td>0.71</td>
<td>0.49; 0.87</td>
<td>0.64</td>
<td>0.48; 0.76</td>
<td>0.66</td>
<td>0.53; 0.78</td>
</tr>
<tr>
<td>Provision of mosquito nets</td>
<td>0.03</td>
<td>0.01; 0.15</td>
<td>0.09</td>
<td>0.04; 0.19</td>
<td>0.07</td>
<td>0.03; 0.14</td>
</tr>
<tr>
<td>Other</td>
<td>0.24</td>
<td>0.08; 0.53</td>
<td>0.16</td>
<td>0.09; 0.27</td>
<td>0.19</td>
<td>0.11; 0.31</td>
</tr>
</tbody>
</table>
91% of CHWs reported that the supervisor checked their register during the last supervision visit; and 42% that the supervisors discussed areas in need of improvement which had been identified and agreed during the previous visit. *(Table 75)*

83% of CHWs also reported that the supervisor had used a checklist during supervision.

Training material was only reviewed in 24% of cases, and visits to homes of patients was only performed in 10% of cases.

**Table 75. Checks performed during last supervision**

<table>
<thead>
<tr>
<th>Checks performed</th>
<th>CHWs Proportion (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Register checked</td>
<td>0.91 (0.84; 0.96)</td>
</tr>
<tr>
<td>Discuss cases treated/referred by CHW</td>
<td>0.45 (0.38; 0.51)</td>
</tr>
<tr>
<td>Drug stocks checked</td>
<td>0.48 (0.39; 0.58)</td>
</tr>
<tr>
<td>Drugs storage checked</td>
<td>0.44 (0.36; 0.52)</td>
</tr>
<tr>
<td>Training material reviewed with CHW</td>
<td>0.24 (0.18; 0.32)</td>
</tr>
<tr>
<td>Visited house of a patient child</td>
<td>0.1 (0.07; 0.15)</td>
</tr>
<tr>
<td>Visited house of patient woman</td>
<td>0.1 (0.06; 0.17)</td>
</tr>
<tr>
<td>Checked areas in need of improvement as per last visit</td>
<td>0.42 (0.32; 0.52)</td>
</tr>
<tr>
<td>Other</td>
<td>0.02 (0.01; 0.06)</td>
</tr>
</tbody>
</table>

The supervisors used a checklist during last supervision: 0.83 (0.77; 0.88)

The duration of supervision as reported by respondents varies according to the cadre *(Table 76).*

In the case of binomes, 72% of respondents recalled that the supervision visit had a duration of more than 1 hour, whereas the majority of ASMs (58%) reported that the duration of the last supervision was between 30 and 60 minutes, hence shorter.

**Table 76. Time spent by supervisor during the past visit**

<table>
<thead>
<tr>
<th>Time spent</th>
<th>ASM Proportion (95%CI)</th>
<th>Binomes Proportion (95%CI)</th>
<th>TOTAL Proportion (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 30 mins</td>
<td>0.09 (0.05; 0.14)</td>
<td>0.05 (0.02; 0.1)</td>
<td>0.07 (0.05; 0.11)</td>
</tr>
<tr>
<td>30-60 mins</td>
<td>0.58 (0.48; 0.67)</td>
<td>0.23 (0.15; 0.35)</td>
<td>0.46 (0.39; 0.53)</td>
</tr>
<tr>
<td>More than 1 hour</td>
<td>0.33 (0.25; 0.43)</td>
<td>0.72 (0.6; 0.81)</td>
<td>0.47 (0.4; 0.54)</td>
</tr>
</tbody>
</table>

As indicated in *(Table 77)*, Most CHWs, both ASMs and binomes, rated the last supervisory visit as very useful for them (76%).
Coordination and planning

Coordination and planning are essential activities of the CHP program, aimed to ensure that the performance of CHWs at community level is well integrated with the planning at facility and district level, and that the plan of action developed at community level responds to the needs of the communities that the CHWs serve.

As reported in Table 78 below, 56% of CHWs surveyed had an action plan developed at the time of the survey. In most cases, respondents reported to have developed such plan alone (66%) or in cooperation with other CHWs in the community (42%). The proportion of CHWs reporting to have received support from either the cell coordinator or the in charge at HF is negligible (3% and 4% respectively).

### Table 77. Rating of last supervisory visit from CHWs

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>Not useful; inefficient</td>
<td>0.01</td>
<td>0.0; 0.06</td>
<td>-</td>
</tr>
<tr>
<td>Somewhat useful/efficient</td>
<td>0.23</td>
<td>0.12; 0.4</td>
<td>0.24</td>
</tr>
<tr>
<td>Very useful</td>
<td>0.76</td>
<td>0.61; 0.86</td>
<td>0.76</td>
</tr>
</tbody>
</table>

### Table 78. Action plans

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>CHWs who have an action plan developed</td>
<td>0.58</td>
<td>0.44; 0.7</td>
<td>0.55</td>
</tr>
<tr>
<td>Main source of support for developing action plan</td>
<td>Him/herself</td>
<td>0.66</td>
<td>0.45; 0.82</td>
</tr>
<tr>
<td>Other CHW in the village</td>
<td>0.42</td>
<td>0.27; 0.58</td>
<td>0.71</td>
</tr>
<tr>
<td>Cell coordinator</td>
<td>0.03</td>
<td>0.01; 0.11</td>
<td>0.07</td>
</tr>
<tr>
<td>In charge of CHW at HC</td>
<td>0.04</td>
<td>0.01; 0.19</td>
<td>0.06</td>
</tr>
</tbody>
</table>

The attendance to monthly meetings at the health facility is instead high, being estimated at 81% for the quarter preceding the survey (Table 79).

For those CHWs who did not attend coordination meetings at either cell or HC level, the lack of time was the most common single reason reported for such behaviour (Table 80).

### Table 79. Monthly meetings

<table>
<thead>
<tr>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
</tr>
<tr>
<td>CHWs attending monthly meetings at cell level during the quarter preceding the survey</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Page 73 of 85
Table 80. Reasons for non-attending monthly meetings

<table>
<thead>
<tr>
<th>Reasons</th>
<th>CELL LEVEL Meetings</th>
<th></th>
<th>HC LEVEL Meetings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
<td>95%CI</td>
</tr>
<tr>
<td>Another CHW from village represented you</td>
<td>0.01</td>
<td>0.0; 0.08</td>
<td>0.02</td>
<td>0.0; 0.17</td>
</tr>
<tr>
<td>Cell coordinator represents you</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No time</td>
<td>0.28</td>
<td>0.14; 0.46</td>
<td>0.22</td>
<td>0.14; 0.33</td>
</tr>
<tr>
<td>No transport means</td>
<td>0.09</td>
<td>0.02; 0.29</td>
<td>0.02</td>
<td>0.0; 0.24</td>
</tr>
<tr>
<td>No transport stipend</td>
<td>0.02</td>
<td>0.0; 0.24</td>
<td>0.03</td>
<td>0.01; 0.2</td>
</tr>
<tr>
<td>No incentives</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not informed about the meeting</td>
<td>0.04</td>
<td>0.01; 0.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Monthly report not completed on time</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not useful</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meeting did not happen</td>
<td>0.11</td>
<td>0.04; 0.29</td>
<td>0.11</td>
<td>0.02; 0.42</td>
</tr>
<tr>
<td>Other</td>
<td>0.58</td>
<td>0.36; 0.77</td>
<td>0.65</td>
<td>0.45; 0.81</td>
</tr>
</tbody>
</table>

3.2.6. **Reporting**

The CHP relies on a solid system of reporting that is designed to allow the analysis of data from CHWs in real time, and hence to ensure that performance gaps are timely addressed and that information from communities is used to tailor interventions to their needs, demand and epidemiological situation.

The system relies in particular on two pillars: the community health information system (SISCOM), which collects data on all programs aggregated at the level of each community where CHWs operate, that is then reported via monthly, paper-based summaries statistics to cell coordinators and then to health facilities; and the Rapid SMS system, which reports data at individual CHWs level via SMS, which are sent to a central server by CHWs for a limited set of conditions/interventions.

The survey assessed the availability of registers that CHWs are supposed to use to report their performance via SISCOM.

As shown in Table 81, most binomes (90%) had an iCCM register on the day of the survey, and most ASMs (91%) had a MNH register.

Less than a third of CHWs had a family planning register (29%) and less than 10% had a TB DOTs register.

The survey also assessed the self-reported compliance with Rapid SMS from CHWs: according to our survey results, only 53% of CHWs report to use rapid SMS ‘always’, whereas the remainder of respondents report to use it, but ‘not always’.

The most common barriers for not using the Rapid SMS system are the lack of network coverage (37%) and the difficulties in charging phones (40%).
### Table 81. Reporting

<table>
<thead>
<tr>
<th>CHWs who have the following registers on the day of the survey:</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>iCCM</td>
<td>0.90</td>
<td>0.84; 0.94</td>
</tr>
<tr>
<td><em>Maternal and newborn health</em></td>
<td>0.91</td>
<td>0.81; 0.96</td>
</tr>
<tr>
<td><em>Family planning</em></td>
<td>0.29</td>
<td>0.23; 0.37</td>
</tr>
<tr>
<td><em>Nutrition</em></td>
<td>0.37</td>
<td>0.28; 0.47</td>
</tr>
<tr>
<td><em>TB DOTs</em></td>
<td>0.06</td>
<td>0.03; 0.1</td>
</tr>
<tr>
<td><em>Integrated register</em></td>
<td>0.61</td>
<td>0.54; 0.68</td>
</tr>
<tr>
<td><em>Other</em></td>
<td>0.08</td>
<td>0.04; 0.14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CHWs using Rapid SMS to report</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Always</em></td>
<td>0.53</td>
<td>0.44; 0.61</td>
</tr>
<tr>
<td><em>Not always</em></td>
<td>0.46</td>
<td>0.37; 0.54</td>
</tr>
<tr>
<td><em>Not in use</em></td>
<td>0.01</td>
<td>0.01; 0.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main barriers in reporting via Rapid SMS</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Lack of Time</em></td>
<td>0.18</td>
<td>0.12; 0.26</td>
</tr>
<tr>
<td><em>Phone charger not working</em></td>
<td>0.40</td>
<td>0.32; 0.49</td>
</tr>
<tr>
<td><em>No network coverage</em></td>
<td>0.37</td>
<td>0.31; 0.44</td>
</tr>
<tr>
<td><em>Do not know how to do it</em></td>
<td>0.04</td>
<td>0.02; 0.06</td>
</tr>
<tr>
<td><em>Never received any feed back</em></td>
<td>0.05</td>
<td>0.03; 0.09</td>
</tr>
<tr>
<td><em>Do not see the purpose of using R-SMS</em></td>
<td>0.01</td>
<td>0.0; 0.02</td>
</tr>
<tr>
<td><em>No barrier</em></td>
<td>0.27</td>
<td>0.21; 0.34</td>
</tr>
</tbody>
</table>

### 3.2.7. Equipment and supplies

The CHP guidelines indicate the essential items that CHWs need to have in place in their community, in order to perform their work. These items include:

- Equipment;
- Essential tools;
- Medical supplies; and
- Medicines.

The availability of all the essential items has been assessed through the survey, and is reported below as per above product categories mentioned here above.

As indicated in **Table 82**, none of the CHWs surveyed had all the required equipment available on the day of the survey. The availability of equipment varies considerably for individual items, and differs amongst ASMs and binomes. The most commonly available items were cell phones (79%); MUAC measuring tapes (73%) and ARI timers (76%). The least commonly available equipment items included boots (9%), flashlights (7%) and raincoats (13%).
Table 82. Availability of essential equipment for CHWs

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>Mobile phone</td>
<td>0.79</td>
<td>0.65; 0.89</td>
<td>0.78</td>
</tr>
<tr>
<td>Charger</td>
<td>0.28</td>
<td>0.18; 0.41</td>
<td>0.38</td>
</tr>
<tr>
<td>Identification badge</td>
<td>0.25</td>
<td>0.18; 0.35</td>
<td>0.24</td>
</tr>
<tr>
<td>Bag</td>
<td>0.24</td>
<td>0.15; 0.35</td>
<td>0.38</td>
</tr>
<tr>
<td>Umbrella</td>
<td>0.19</td>
<td>0.11; 0.32</td>
<td>0.22</td>
</tr>
<tr>
<td>Flashlight/torch</td>
<td>0.04</td>
<td>0.01; 0.12</td>
<td>0.09</td>
</tr>
<tr>
<td>Boots</td>
<td>0.05</td>
<td>0.02; 0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>Storage boxes</td>
<td>0.08</td>
<td>0.04; 0.15</td>
<td>0.81</td>
</tr>
<tr>
<td>Weighting scales</td>
<td>0.8</td>
<td>0.74; 0.85</td>
<td>0.49</td>
</tr>
<tr>
<td>MUACC</td>
<td>0.53</td>
<td>0.37; 0.69</td>
<td>0.86</td>
</tr>
<tr>
<td>Timer</td>
<td>0.71</td>
<td>0.51; 0.86</td>
<td>0.80</td>
</tr>
<tr>
<td>Cup</td>
<td>0.07</td>
<td>0.03; 0.15</td>
<td>0.80</td>
</tr>
<tr>
<td>Jerry can</td>
<td>0.42</td>
<td>0.27; 0.58</td>
<td>0.47</td>
</tr>
<tr>
<td>Raincoat</td>
<td>0.01</td>
<td>0.0; 0.04</td>
<td>0.21</td>
</tr>
<tr>
<td>Cup</td>
<td>0.56</td>
<td>0.39; 0.72</td>
<td>0.71</td>
</tr>
<tr>
<td>Spoon</td>
<td>0.11</td>
<td>0.05; 0.23</td>
<td>0.63</td>
</tr>
<tr>
<td>Ballpoint pens</td>
<td>0.18</td>
<td>0.1; 0.29</td>
<td>0.29</td>
</tr>
<tr>
<td>None of the Above</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>All of the Above</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 83 reports the availability of essential tools (forms, cards, books) as required by the CHP guidelines. Again, none of the CHWs surveyed had all the tools available on the day of the survey.

The vast majority of CHWs had referral forms available (94%) and code cards for Rapid SMS (81%), whereas BCC cards were available to only 22% of CHWs.

Also, only 53% of surveyed CHWs had monthly reporting forms available.

Counselling for ANC, PNC and PPH cards were available to approximately 50% of the ASMs surveyed.

Table 83. Availability of tools for CHWs

<table>
<thead>
<tr>
<th></th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>Referral and counter referral forms</td>
<td>0.91</td>
<td>0.77; 0.97</td>
<td>0.95</td>
</tr>
<tr>
<td>Monthly reporting forms</td>
<td>0.37</td>
<td>0.24; 0.51</td>
<td>0.64</td>
</tr>
<tr>
<td>BCC cards</td>
<td>0.17</td>
<td>0.1; 0.27</td>
<td>0.25</td>
</tr>
<tr>
<td>Stock cards</td>
<td>0.03</td>
<td>0.01; 0.07</td>
<td>0.81</td>
</tr>
</tbody>
</table>
Medical supplies include essential items that are needed to provide services in the community, including thermometers, kits for malaria testing, gloves, cotton wool, plasters, alcohol and others.

As shown in Table 84, none of the CHWs surveyed had all the essential medical supplies available and in stock at the time of the survey.

The majority of CHWs had a thermometer available (74%). The availability of all other items, primarily required for binomes, varied significantly with only 3% of binomes having plasters available, and nearly 65% instead having globes and sharp disposal boxes.

Table 84. Availability of medical supplies for CHWs

<table>
<thead>
<tr>
<th>Proportion of CHWs who have the following medical supplies available on the day of the survey</th>
<th>ASM</th>
<th>95%CI</th>
<th>Binomes</th>
<th>95%CI</th>
<th>TOTAL</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>0.05</td>
<td>0.01; 0.19</td>
<td>0.64</td>
<td>0.56; 0.72</td>
<td>0.41</td>
<td>0.35; 0.48</td>
</tr>
<tr>
<td>Cotton wool</td>
<td>0.02</td>
<td>0.01; 0.09</td>
<td>0.52</td>
<td>0.44; 0.61</td>
<td>0.33</td>
<td>0.27; 0.39</td>
</tr>
<tr>
<td>Thermometer</td>
<td>0.73</td>
<td>0.59; 0.83</td>
<td>0.75</td>
<td>0.66; 0.82</td>
<td>0.74</td>
<td>0.67; 0.8</td>
</tr>
<tr>
<td>Alcohol bottle</td>
<td>0.01</td>
<td>0.0; 0.07</td>
<td>0.35</td>
<td>0.25; 0.46</td>
<td>0.22</td>
<td>0.16; 0.29</td>
</tr>
<tr>
<td>Pisset</td>
<td>0.01</td>
<td>0.0; 0.07</td>
<td>0.23</td>
<td>0.14; 0.35</td>
<td>0.14</td>
<td>0.09; 0.22</td>
</tr>
<tr>
<td>Chlorhexidine</td>
<td>0.01</td>
<td>0.0; 0.06</td>
<td>0.15</td>
<td>0.11; 0.2</td>
<td>0.09</td>
<td>0.07; 0.13</td>
</tr>
<tr>
<td>Sharp disposal box</td>
<td>0.01</td>
<td>0.0; 0.1</td>
<td>0.66</td>
<td>0.55; 0.75</td>
<td>0.41</td>
<td>0.34; 0.48</td>
</tr>
<tr>
<td>Plaster</td>
<td>-</td>
<td>-</td>
<td>0.03</td>
<td>0.01; 0.09</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sanitary towels</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kit for RDTs</td>
<td>-</td>
<td>-</td>
<td>0.46</td>
<td>0.28; 0.65</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Syringe/needles</td>
<td>-</td>
<td>-</td>
<td>0.45</td>
<td>0.32; 0.59</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>None of the above</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.15</td>
<td>0.11; 0.21</td>
</tr>
<tr>
<td>All of the above</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The list of essential medicines varies between ASMs and binomes, given the difference in the services that these two cadres provide (Table 85).

For binomes, who provide iCCM and nutrition services for children, the availability of Ongera (micronutrient powder) was relatively high (75%), whereas only half (51%) of them had amoxicillin available to treat ARI, and coartem for malaria treatment was only available to 55% (primo tuku) and 52% (primo hondo) of binomes. Zinc was available to 41% of binomes whereas ORS was only available to 10% of surveyed binomes. The shortage of ORS at community level mirrors a similar situation of insufficient stock also reported at HC level through the survey, and presented earlier in this report (Ref. Table 42).

For family planning, the proportion of ASMs having FP methods available was negligible, averaging 10% for most products, whereas the situation was more encouraging for binomes: most of them had depo provera (85%) and microgynon pills (75%), and 50% of them had male condoms in stock on the day of the survey.

Table 85. Availability of medicines for CHWs

<table>
<thead>
<tr>
<th>Proportion of CHWs who have the following medicines available on the day of the survey</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>Ongera (micronutrients)</td>
<td>0.75</td>
<td>0.42; 0.92</td>
<td>0.41</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>0.51</td>
<td>0.34; 0.68</td>
<td>0.29</td>
</tr>
<tr>
<td>Primo tuku (coartem for children)</td>
<td>0.55</td>
<td>0.42; 0.68</td>
<td>0.85</td>
</tr>
<tr>
<td>Primo hondo (coartem older children)</td>
<td>0.52</td>
<td>0.41; 0.63</td>
<td>0.02</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.10</td>
<td>0.06; 0.16</td>
<td>0.75</td>
</tr>
<tr>
<td>ORS</td>
<td>0.10</td>
<td>0.0; 1.0</td>
<td>0.02</td>
</tr>
<tr>
<td>Microlut pills</td>
<td>0.10</td>
<td>0.0; 1.0</td>
<td>0.85</td>
</tr>
<tr>
<td>Depo provera</td>
<td>0.10</td>
<td>0.0; 1.0</td>
<td>0.02</td>
</tr>
<tr>
<td>Female condoms</td>
<td>0.10</td>
<td>0.0; 1.0</td>
<td>0.50</td>
</tr>
<tr>
<td>Male condoms</td>
<td>0.19</td>
<td>0.0; 1.0</td>
<td>0.09</td>
</tr>
<tr>
<td>Cycle beads</td>
<td>0.10</td>
<td>0.0; 1.0</td>
<td>-</td>
</tr>
<tr>
<td>Mysoprostol</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Besides mapping the availability of essential medical equipment and products, the survey also explored the procedures used for procurement by CHWs.

The principle focal point for the submission of orders of health products is the cell coordinator (63%); alternatively, orders are directly placed via in charge of CHWs at the HC (21%) or via HC pharmacy (3%). (Table 86)

The time needed for the processing of orders does not appear to be a major bottleneck, with more than 45% of CHWs reporting that the time needed from order to delivery of products is less than 3 days, and 55% cumulatively reporting that such time is less than a week (Table 87).
Table 86. Ordering of health products from CHWs

<table>
<thead>
<tr>
<th>Most common focal point for the submission of orders of health products from CHWs</th>
<th>ASM Proportion 95%CI</th>
<th>Binomes Proportion 95%CI</th>
<th>TOTAL Proportion 95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell coordinator</td>
<td>0.44 0.34; 0.54</td>
<td>0.74 0.62; 0.84</td>
<td>0.63 0.53; 0.71</td>
</tr>
<tr>
<td>Health Centre Pharmacy</td>
<td>0.08 0.04; 0.14</td>
<td>0.16 0.12; 0.22</td>
<td>0.13 0.10; 0.17</td>
</tr>
<tr>
<td>In charge of CHWs at HF</td>
<td>0.29 0.21; 0.37</td>
<td>0.17 0.11; 0.24</td>
<td>0.21 0.17; 0.27</td>
</tr>
<tr>
<td>NGO</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Not applicable/not providing any drugs</td>
<td>0.27 0.18; 0.37</td>
<td>0.02 0.01; 0.09</td>
<td>0.12 0.08; 0.17</td>
</tr>
<tr>
<td>Other</td>
<td>0.01 0.0; 0.04</td>
<td>0.04 0.02; 0.08</td>
<td>0.03 0.01; 0.06</td>
</tr>
</tbody>
</table>

Table 87. Time needed for processing orders of health products

<table>
<thead>
<tr>
<th>Time needed for processing orders (time from order to receipt of products)</th>
<th>TOTAL CHWs Proportion 95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day</td>
<td>0.27 0.23; 0.33</td>
</tr>
<tr>
<td>Less than 3 days</td>
<td>0.19 0.15; 0.23</td>
</tr>
<tr>
<td>Less than 1 week</td>
<td>0.09 0.05; 0.15</td>
</tr>
<tr>
<td>Less than 2 weeks</td>
<td>0.03 0.02; 0.06</td>
</tr>
<tr>
<td>More than 2 weeks</td>
<td>0.18 0.12; 0.27</td>
</tr>
<tr>
<td>Varies depending on item</td>
<td>0.23 0.15; 0.33</td>
</tr>
</tbody>
</table>

Overall, more than 80% of CHWs rated the provision of medicines as good, very good or fair (Table 88). The rating was not as good for the procurement of equipment, where 33% of CHWs rated the provision as 'bad', and the proportion of positive rating dropped to 60%.

Table 88. CHWs’ rating of the provision of equipment, medicines and material

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Proportion 95%CI</th>
<th>Tools</th>
<th>Proportion 95%CI</th>
<th>Medical Supplies</th>
<th>Proportion 95%CI</th>
<th>Medicines</th>
<th>Proportion 95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>0.04 0.02; 0.07</td>
<td>0.08 0.05; 0.12</td>
<td>0.09 0.06; 0.13</td>
<td>0.12 0.07; 0.19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>0.31 0.25; 0.37</td>
<td>0.42 0.34; 0.5</td>
<td>0.36 0.31; 0.42</td>
<td>0.39 0.32; 0.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>0.26 0.2; 0.35</td>
<td>0.24 0.18; 0.31</td>
<td>0.23 0.19; 0.27</td>
<td>0.28 0.2; 0.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td>0.33 0.26; 0.39</td>
<td>0.22 0.17; 0.28</td>
<td>0.26 0.2; 0.33</td>
<td>0.19 0.12; 0.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very bad</td>
<td>0.06 0.03; 0.12</td>
<td>0.04 0.01; 0.1</td>
<td>0.06 0.03; 0.13</td>
<td>0.02 0.01; 0.04</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to the survey results, the methods used for the storage of health products varies significantly between ASMs and binomes (Table 89).

In fact, the majority of ASMs (51%) report to have no method to store health products; instead, in the case of binomes (who manage most medicines in communities), 79% report to have a locked cupboard available to store products.

Table 89. Methods used for storage of health products

<table>
<thead>
<tr>
<th>Most common method used by CHW to store health products</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>No storage</td>
<td>0.51</td>
<td>0.35; 0.67</td>
<td>0.05</td>
</tr>
<tr>
<td>Unlocked cupboard</td>
<td>0.03</td>
<td>0.01; 0.1</td>
<td>0.06</td>
</tr>
<tr>
<td>Locked cupboard</td>
<td>0.08</td>
<td>0.03; 0.21</td>
<td>0.79</td>
</tr>
<tr>
<td>Metal/plastic/waterproof box</td>
<td>0.02</td>
<td>0.01; 0.07</td>
<td>0.06</td>
</tr>
<tr>
<td>Cardboard box</td>
<td>0.08</td>
<td>0.04; 0.16</td>
<td>0.02</td>
</tr>
<tr>
<td>Shelves</td>
<td>0.06</td>
<td>0.01; 0.25</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>0.21</td>
<td>0.09; 0.39</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Overall, less than a quarter of CHWs (22%) had any medical product in stock which had expired during the quarter preceding the survey. This occurrence was higher in the case of binomes (29%). For those binomes reporting having any drug in stock which had expired, the most common reported drug which expired is coartem (56% for primo hondo and 58% for primo tuku).

Table 90. Management of expired products

<table>
<thead>
<tr>
<th>Most common method used by CHW to manage expired products</th>
<th>ASM</th>
<th>Binomes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Proportion</td>
<td>95%CI</td>
<td>Proportion</td>
</tr>
<tr>
<td>CHWs reporting any drug/health product which expired during the quarter preceding the survey</td>
<td>0.09</td>
<td>0.03; 0.25</td>
<td>0.29</td>
</tr>
<tr>
<td>Items expired in stock during the quarter preceding the survey</td>
<td>0.02</td>
<td>0.0; 0.24</td>
<td>0.21</td>
</tr>
<tr>
<td>Ongera</td>
<td></td>
<td></td>
<td>0.02</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td></td>
<td></td>
<td>0.21</td>
</tr>
<tr>
<td>Primo tuku</td>
<td></td>
<td></td>
<td>0.58</td>
</tr>
<tr>
<td>Primo hondo</td>
<td></td>
<td></td>
<td>0.56</td>
</tr>
<tr>
<td>Zinc</td>
<td></td>
<td></td>
<td>0.14</td>
</tr>
<tr>
<td>ORS</td>
<td></td>
<td></td>
<td>0.27</td>
</tr>
<tr>
<td>Microgynon pills</td>
<td>-</td>
<td>-</td>
<td>0.02</td>
</tr>
<tr>
<td>Microlut pills</td>
<td>-</td>
<td>-</td>
<td>0.07</td>
</tr>
<tr>
<td>Depo provera</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Misoprostol</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
3.2.8. Referral

Referral of patients with danger signs, or of community members requiring preventive services, is an essential task delivered by ASMs and binomes.

Our survey results indicate that 94% of CHWs report to regularly use a referral slip; of those CHWs using a referral slip, 84% report receiving feedback from the health facility following the referral (Table 91). In the majority of cases (87%), such feedback is received via a returned referral form.

<table>
<thead>
<tr>
<th>Table 91. Referral of patients to the health facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASM</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>Proportion</td>
</tr>
<tr>
<td>CHWs who report using a referral slip</td>
</tr>
<tr>
<td>CHWs who report receiving feedback from the HF to which they refer patients</td>
</tr>
<tr>
<td>Main mechanisms of feedback of HF to CHW on patient referral</td>
</tr>
<tr>
<td>Returned referral form</td>
</tr>
<tr>
<td>By phone</td>
</tr>
<tr>
<td>During meeting</td>
</tr>
<tr>
<td>Through patient</td>
</tr>
<tr>
<td>Type of transport used for referral of patients:</td>
</tr>
<tr>
<td>Walk</td>
</tr>
<tr>
<td>Ambulance</td>
</tr>
<tr>
<td>Private car</td>
</tr>
<tr>
<td>Taxi bus</td>
</tr>
<tr>
<td>Motor cycle</td>
</tr>
<tr>
<td>Bicycle</td>
</tr>
<tr>
<td>NGO</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

The most common barrier to referral (Table 92) are the lack or the irregular availability of means of transport. And in fact, as reported in table 91, referral is often done by walking to the facility (28%), via a private motorbike (32%), or with the support from NGOs (25%).

<table>
<thead>
<tr>
<th>Table 92. Barriers to referral of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL CHWs</td>
</tr>
<tr>
<td>Proportion</td>
</tr>
<tr>
<td>No barrier</td>
</tr>
</tbody>
</table>
Unpredictable access to transport means and difficulties in accessing cell-phone communication are also the leading reasons of delay encountered by CHWs during emergency referral (Table 93).

### Table 93. Reasons for delay encountered by CHW during emergency referral

<table>
<thead>
<tr>
<th>Main reasons for delay encountered by CHWs in referring patients to the HF</th>
<th>TOTAL CHWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance availability</td>
<td>0.38</td>
</tr>
<tr>
<td>Lack of airtime for communication</td>
<td>0.11</td>
</tr>
<tr>
<td>Low battery for mobile phone</td>
<td>0.16</td>
</tr>
<tr>
<td>No connectivity</td>
<td>0.04</td>
</tr>
<tr>
<td>No action taken after sending red alert</td>
<td>0.05</td>
</tr>
<tr>
<td>CHW not available in the village</td>
<td>0.02</td>
</tr>
<tr>
<td>Other</td>
<td>0.5</td>
</tr>
</tbody>
</table>

#### 3.2.9. Motivation

The survey assessed the main factors motivating individuals to work as volunteer CHWs in their communities. The most commonly reported motivating factor guiding such choice is the opportunity of helping the community (72%), followed by the status that the role entails at community level (35%) and by a strong sense of responsibility (30%).

The financial support received through the CHWs work is negligible as a motivational factor (3%), and the same applies to the decision of becoming a CHWs for possible career growth (4%). (Table 94).

On the other hand, the lack of incentives (Table 94) and of other means such as transportation or equipment are perceived by CHWs as the main barriers to performing successfully and satisfactorily their work.

### Table 94. Most motivating factors for being a CHW

<table>
<thead>
<tr>
<th>TOTAL CHWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion</td>
</tr>
<tr>
<td>0.5</td>
</tr>
</tbody>
</table>
Status in the community | 0.35 | 0.26; 0.46
Financial support | 0.03 | 0.01; 0.08
Gratitude from patients (food/items/financial) | - | -
Family support | 0.08 | 0.05; 0.14
Sense of Responsibility | 0.30 | 0.24; 0.35
Helping the community | 0.72 | 0.66; 0.77
Hope for future employment | 0.04 | 0.01; 0.12
Social contact | 0.19 | 0.16; 0.24
Other | 0.22 | 0.16; 0.29

Table 95. Main obstacles encountered during work as CHW

<table>
<thead>
<tr>
<th>TOTAL CHWs</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>0.26</td>
<td>0.17; 0.37</td>
</tr>
<tr>
<td>Number of households to assist</td>
<td>0.16</td>
<td>0.09; 0.27</td>
</tr>
<tr>
<td>Time</td>
<td>0.31</td>
<td>0.25; 0.39</td>
</tr>
<tr>
<td>Lack of incentives to cover costs of transport</td>
<td>0.48</td>
<td>0.38; 0.58</td>
</tr>
<tr>
<td>Lack of support from the community</td>
<td>0.04</td>
<td>0.02; 0.07</td>
</tr>
<tr>
<td>Lack of support from supervisors</td>
<td>0.03</td>
<td>0.01; 0.07</td>
</tr>
<tr>
<td>Lack of equipment</td>
<td>0.67</td>
<td>0.57; 0.75</td>
</tr>
<tr>
<td>Shortage of drugs</td>
<td>0.31</td>
<td>0.24; 0.39</td>
</tr>
<tr>
<td>Lack of incentives</td>
<td>0.48</td>
<td>0.33; 0.63</td>
</tr>
<tr>
<td>Other</td>
<td>0.25</td>
<td>0.19; 0.31</td>
</tr>
</tbody>
</table>

Not only remuneration is not a critical motivation factor for becoming a CHWs; also in most cases (92%) CHWs declared that they would not cease their function if the PBF incentives were stopped in future (Table 94).

At the time of the survey, 9% of the surveyed CHWs population reported to be currently considering the leave their job as CHWs; amongst those, the main reasons indicated for such possible decision are: incompatibility with family life (23%); weariness (27%); workload (21%).

Table 96. Incentives and job satisfaction

<table>
<thead>
<tr>
<th>TOTAL CHWs</th>
<th>Proportion</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHWs reporting to be satisfied with their remuneration (incentives)</td>
<td>0.31</td>
<td>0.25; 0.38</td>
</tr>
<tr>
<td>CHWs who would continue in their role if the PBF incentives payments were stopped</td>
<td>0.92</td>
<td>0.86; 0.95</td>
</tr>
</tbody>
</table>
CHWs considering to leave their job as CHWs at the time of the survey 0.09 0.06; 0.13

Main reasons for considering leaving the post of CHW:

<table>
<thead>
<tr>
<th>Reason</th>
<th>Probability</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible with employment timetable</td>
<td>0.07</td>
<td>0.02; 0.26</td>
</tr>
<tr>
<td>Incompatible with family life</td>
<td>0.23</td>
<td>0.07; 0.56</td>
</tr>
<tr>
<td>Change in family composition</td>
<td>0.08</td>
<td>0.01; 0.34</td>
</tr>
<tr>
<td>Change in professional life</td>
<td>0.06</td>
<td>0.01; 0.29</td>
</tr>
<tr>
<td>Starting studying</td>
<td>0.03</td>
<td>0.0; 0.18</td>
</tr>
<tr>
<td>Moving out of village</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No carrier progression possible</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Too much sacrifice for little incentives</td>
<td>0.4</td>
<td>0.19; 0.66</td>
</tr>
<tr>
<td>Unpredictability of incentives</td>
<td>0.15</td>
<td>0.05; 0.4</td>
</tr>
<tr>
<td>Too time demanding</td>
<td>0.21</td>
<td>0.11; 0.37</td>
</tr>
<tr>
<td>Lack of support of the community</td>
<td>0.02</td>
<td>0.0; 0.3</td>
</tr>
<tr>
<td>Lack of equipment and materials</td>
<td>0.06</td>
<td>0.01; 0.33</td>
</tr>
<tr>
<td>Lack of tools</td>
<td>0.08</td>
<td>0.01; 0.34</td>
</tr>
<tr>
<td>Lack of medical supplies</td>
<td>0.03</td>
<td>0.0; 0.23</td>
</tr>
<tr>
<td>Lack of essential drugs</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Few patients</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lack of support from supervisor/from HC</td>
<td>0.03</td>
<td>0.0; 0.17</td>
</tr>
<tr>
<td>Weariness</td>
<td>0.27</td>
<td>0.12; 0.5</td>
</tr>
<tr>
<td>Discord among cooperative members</td>
<td>0.12</td>
<td>0.04; 0.3</td>
</tr>
<tr>
<td>Other</td>
<td>0.11</td>
<td>0.04; 0.28</td>
</tr>
</tbody>
</table>
4. **ANNEXES**

**ANNEX I — ETHICAL APPROVALS**

**ANNEX II — LIST OF FACILITIES SURVEYED**

**ANNEX III — SURVEY QUESTIONNAIRES**

**ANNEX IV — TRAINING AGENDA FOR SURVEY**