

# Modelling the Cost of Community Health Services in Sierra Leone: the Results of Piloting a New Planning and Costing Tool



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## **Modelling the Cost of Community Health Services in Sierra Leone: the Results of Piloting a New Planning and Costing Tool**

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Knowledge Management and Implementation Research Unit, Health Section, Program Division  
UNICEF  
3 UN Plaza, New York, NY 10017  
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COVER PHOTO: “Community Health Workers in Kono District,” Colin Gilmartin (Management Sciences for Health)



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The Results of Piloting a New Planning and  
Costing Tool

Colin Gilmartin, Kemi Tesfazghi,  
Christopher Villatoro, and David Collins

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Keywords: Community Health Services, Sierra Leone, Costing, Finance, Planning

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Comments may be addressed by email to Jerome Pfaffman ([jpffaffman@unicef.org](mailto:jpffaffman@unicef.org))

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# Executive Summary

There is growing evidence on the benefits of community health services (CHS) and the importance of community health workers (CHWs) in achieving access to universal health coverage. However, there is minimal information on the costs and required financing for effective, integrated community health worker (CHW) programs. It has become clear that there is a need for a methodology and tool to facilitate the planning and costing of comprehensive packages of community health services to ensure they are impactful, adequately financed, and sustained.

UNICEF engaged Management Sciences for Health (MSH) to develop a methodology and tool for planning and costing CHS and this tool was piloted in Malawi and Sierra Leone in 2016. In Sierra Leone, CHWs play a critical role in extending access to health services, particularly in underserved and hard-to-reach areas, through support from the state government, UNICEF, non-governmental organizations, among other stakeholders. Recognizing the important role CHWs play in delivering high-impact services, the Government of Sierra Leone (GoSL) is currently revising its 2012 National CHW Policy with plans to scale-up the provision of a comprehensive set of CHS in all communities across the country with the overall objective of reducing maternal and child morbidity and mortality. As of August 2016, the MOHS was in the process of finalizing the 2016 National CHW Policy.

With the proposed introduction of the revised National CHW Strategy in 2016, there will be significant changes to the National CHW Program including increased geographic coverage of CHWs, an expanded package of CHS, greater emphasis on CHW supervision and training, and increased financial incentives for CHWs, supervisors, and program support personnel.

Given the proposed changes to the CHW program, Sierra Leone served as an ideal country to pilot the new methodology and tool with the understanding that the results could be beneficial in improving and expanding CHS, as well as understanding the cost implications of the proposed policy changes.

In February and March 2016, a team of MSH staff and consultants collaborated with the MOHS, UNICEF/Sierra Leone, and other stakeholders to collect data for piloting the methodology and tool. MSH staff conducted interviews and collected data at all levels of the health system, including visits to health facilities in two districts where facility staff, CHW supervisors, and CHWs were interviewed. MSH staff then analyzed the data using the tool. The piloting was successful and the relevant lessons learned have been incorporated in the final version of the methodology and tool.

The exercise provided an invaluable analysis of the cost of CHS in Sierra Leone. The time and resources available for the study were limited and therefore results are not definitive and do not represent the country as a whole. However, there were many relevant findings, which include the following:

- With the proposed introduction of the revised National CHW Strategy in 2016, there will be significant changes to the National CHW Program. These programmatic changes include increased geographic coverage of CHWs, expanded package of CHS, greater emphasis on CHW supervision and training, and increased financial incentives provided to CHWs, Peer Supervisors, and program support personnel. These changes will in turn impact the total costs of the program.
- There were significant variations in the package of CHS offered in both districts in 2015 as CHWs in Bombali District did not provide integrated community case management (iCCM) treatments and the majority of services provided were for MNCH (ANC and PNC promotional home visits)

and iCCM referrals. In Kono District in 2015, the majority of services were for iCCM and MNCH. By 2025, the majority of services would be for iCCM and adult malaria case management.

- Based on utilization estimates of services, it appears that CHS were under-utilized in 2015. In Bombali District, CHWs spent an estimated five percent of their time (based on an estimated 20 working hours per week) providing nine of the 42 services included in the package of CHS in 2015. In Kono District, CHWs spent an estimated eight percent of their time providing 10 of the 42 services included in the package of CHS in 2015.
- Given the modelled increases in services for 2016-2025, it estimated that CHWs would need to spend considerably more time (beyond the number of working hours) to provide the package of services at the modelled coverage rates by 2025.
- The issue of stock-outs of medicines and commodities at both the community and health facility level represent a significant bottleneck which, unless resolved, will limit the success and impact of the proposed expansion of the National CHW program. Solutions for addressing this bottleneck should be further explored and additional quantification should be conducted in all districts implementing the National CHW program.
- The average total cost per capita in 2015 for the two districts was USD 3.92 in Bombali District and USD 2.48 in Kono District. With the projected increases in coverage and utilization, in addition to the introduction of revised National CHW Policy, the cost per capita would decrease to USD 3.81 in Bombali District<sup>1</sup> and increase to USD 4.07 in Kono District.
- In 2015, the main cost drivers of the CHW programs in Bombali and Kono Districts were program management and equipment. With the projected increases in coverage and utilization, as well as the programmatic changes resulting from the introduction of the revised National CHW Policy, the main cost drivers of the CHW programs in Bombali and Kono Districts would be for medicines, supplies, and commodities as well as for management and CHW salaries (i.e. financial incentives).
- In 2015, the majority of programs costs were for iCCM services and disease prevention and control in Bombali and Kono Districts. In 2025, with the projected increases in coverage and utilization, the majority of program costs would be for iCCM, adult malaria case management, and other services (e.g. house-to-house visits and community mapping conducted by CHWs).

As noted in the discussion section, the costs of expanding CHS in the two districts relate mainly to increases in medicines, supplies and commodities. These costs may not all be incremental, since, to some, degree they may be replacing the medicines, supplies and commodities that are currently provided at health facilities. If that is the case, the expansion of services may reduce health system unit costs and household costs and contribute to the delivery of more cost-effective services at both the community and health facility levels.

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<sup>1</sup> The cost per capita in Bombali appears to fall because a significant amount of start-up costs were included in 2015.



## Acronym List

ACT	Artemisinin Based Combination Therapy
AIDS	Acquired Immunity Deficiency Syndrome
ANC	Antenatal Care
ARI	Acute Respiratory Infection
BEmONC	Basic Emergency Obstetric and Neonatal Care
BPEHS	Basic Package of Essential Health Services
CEBS	Community Events Based Surveillance
CHWs	Community Health Workers
CHC	Community Health
CHP	Community Health Post
CHS	Community Health Service
CMAM	Community-Based Management of Acute Malnutrition
DHMT	District Health Management Team
DMO	District Medical Officer
DPC	Disease Prevention and Control
EVD	Ebola Virus Disease
FANC	Focused Antenatal Care
Fefol	Iron and Folate
FHCI	Free Health Care Initiative
FP	Family Planning
GoSL	Government of Sierra Leone
HIV	Human Immune-Deficiency Virus
HMIS	Health Management Information System
iCCM	Integrated Community Case Management
IDSR	Integrated Disease Surveillance Reporting
IEC	Information, Education and Communication
IPTp	Intermittent Preventive Treatment for Pregnant Women
IRC	International Rescue Committee
ITN	Insecticide Treated Net
IYCF	Infant and Young Child Feeding

LLIN	Long Lasting Insecticide Net
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MCHP	Maternal and Child Health Post
MDGs	Millennium Development Goals
M+E	Monitoring and Evaluation
MNCH	Maternal, newborn, and child health
MOHS	Ministry of Health and Sanitation
MSH	Management Sciences for Health
MUAC	Mid-Upper Arm Circumference
NGO	Non-Governmental Organization
NIDS	National Immunization Days
ORS	Oral Rehydration Salts
PHU	Peripheral Health Unit
PMTCT	Prevention of Mother to Child Transmission
RDT	Rapid Diagnostic Tests
RH	Reproductive Health
RMNCH	Reproductive, maternal, and child health
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SECHN	State Enrolled Community Health Nurses
SFP	Supplementary Feeding Program
SIAPS	Systems for Improved Access to Pharmaceuticals and Services Program
SLDHS	Sierra Leone Demographic and Health Survey
TB	Tuberculosis
TBA	Traditional Birth Attendant
UNDP	United Nations Development Programme
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
VDC	Village Development Committee
WHI	World Hope International
WHO	World Health Organization

# Background: Importance of Costing and Community Health Services

There is growing evidence on the benefits of community health services (CHS) as a key strategy to promote healthy behavior and improve access to high-impact maternal, newborn, and child health interventions from pregnancy to adolescence. Much less is known, however, of the financing needs for effective, comprehensive CHS and, without this information, programs are often under-funded and financially unsustainable. Additionally, opportunities to include CHS financing in insurance packages or in new global funding mechanisms (such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria) are frequently missed.

Adequate financing can only be achieved if costs are known. While certain elements of CHS (e.g. malaria case management and prevention, family planning, reproductive health, and iccm) have been costed individually, there is little or no information on the cost of comprehensive CHS. Effective CHS depend on a sound overall health platform which ensures that all key elements (e.g. training, equipment, medicines and supplies, management and supervision, transport, financing, information systems, quality control, demand generation, governance, etc.) function well. These resources must be combined efficiently to maximize outputs and outcomes while ensuring high-quality service provision. Demand generation is particularly important as health services are not cost-effective unless they are well-utilized. Equally important is the use of financial and non-financial incentives for CHWs to ensure they are motivated and well-performing as programs with high rates of CHW attrition are generally neither cost-effective nor sustainable.

Recognizing the need to assist countries in the development and scale-up of effective CHS, Management Sciences for Health (MSH), through funding and technical contributions from the United Nations International Children's Emergency Fund (UNICEF), has developed a methodology and tool to support the creation of CHS investment cases. MSH has piloted this methodology and tool in Malawi and Sierra Leone, countries which were selected given the important role that CHWs play within each of the country's health system. The purpose of this piloting was to test the methodology and tool in real situations with the understanding that the results could be beneficial in improving and expanding CHS, as well as understanding the cost implications of the proposed policy changes by the Sierra Leone Ministry of Health and Sanitation (MOHS)

The following report details the results and findings of the pilot study conducted in Sierra Leone in February – March 2016. The results of this study serve to support the MOHS and partners across a range of countries in the development of comprehensive community health strategies. The lessons learned from the piloting have been incorporated in the final version of the methodology and Community Health Planning and Costing Tool and guidelines, which are available from UNICEF and MSH.

# Country Introduction: Sierra Leone's Health Situation and Health Care System

## Health Situation

Prior to the outbreak of the Ebola virus disease (EVD) in 2014, Sierra Leone had made considerable progress toward achieving its Millennium Development Goals (MDGs). Following the 2010 launch of its Free Health Care Initiative (FHCI), which abolished user fees for children under five years of age as well as for pregnant and breast-feeding women, the country reportedly experienced marked reductions in childhood and maternal mortality as well as increased access for family planning, skilled birth attendance, and nutrition services<sup>i</sup> in the face of some of the highest rates of infant, child and maternal mortality rates worldwide.<sup>ii</sup> An overview of the country's key health indicators are included below in Table 1.

**Table 1. Overview of Health Indicators in Sierra Leone<sup>2</sup>**

Indicator	National Value (2013)
Total fertility rate	4.9 births per woman
Contraceptive prevalence rate <sup>iii</sup>	16.6%
Antenatal care coverage: at least one visit with a skilled provider	97.1%
Antenatal care coverage: four or more visits with any health care provider	76.0%
Births assisted by a skilled provider	60%
Maternal mortality ratio	1,165 per 100,000 live births
Adolescent birth rate	125.1 per 1,000 women ages 15-19
Under five mortality rate	156 per 1,000 live births
Infant mortality rate	92 per 1,000 live births
Neonatal mortality rate	39 deaths per 1,000 live births
Under-5 children sleeping under an insecticide treated net (ITN)	49.0%

Source: Sierra Leone Demographic and Health Survey 2013

However, as the EVD outbreak intensified and interruptions to the delivery of health services increased, the public's confidence in the health system grew weak and previous gains toward improving health outcomes and achieving the MDGs were reversed in the context of unprecedented economic effects.<sup>iv 3</sup> While most peripheral health units (PHUs) remained functional during the EVD outbreak,<sup>v</sup> attendance and national coverage for maternal and child health services decreased significantly, as evidenced by a 14 percent reduction in antenatal care (ANC) visits, a seven percent reduction in women attendance, and a 43 percent reduction in under-five treatment for malaria

<sup>ii</sup> 2013 indicators: Infant mortality: 92 deaths per 1,000 live births; Under-five mortality: 156 under-five deaths per 1,000 live births; Maternal mortality: 1,165 maternal deaths per 100,000 live births. Source: Sierra Leone Demographic and Health Survey 2013.

<sup>iii</sup> Percentage of currently married women age 15-49 using any method of contraception.

<sup>iv</sup> Between 2013 and 2015, Sierra Leone's Human Development Index ranking dropped from 177 to 181.

<sup>v</sup> Sierra Leone Health Facility Assessment 2015: Impact of the EVD Outbreak on Sierra Leone's Primary Health Care System

between May 2014 and January 2015.<sup>4</sup> Supportive supervision visits to CHWs declined during this period as financial and human resources were diverted to address the EVD epidemic, with many CHWs enlisting as contact tracers, social mobilizers, and surveillance monitors.<sup>5</sup> CHWs that were previously trained on iCCM also stopped providing rapid diagnostic tests (RDTs) for malaria and provided presumptive treatment (based on signs and symptoms) for fever, due to the *no-touch policy* put in place by the MOHS.<sup>6</sup>

As outlined in its National Post Ebola Recovery Strategy (2015-2017), the country's key post-EVD objectives are to restore access to basic health care, restore trust among the population, and strengthen its fragile health system. Some of the most significant challenges facing the health system include a significant shortage of skilled health workers, frequent stock-outs of essential drugs and medicines, and sub-standard quality of care for basic health services. Fifty-four percent of all health positions remain vacant and an estimated 50 percent of all health professionals are based in Freetown serving an estimated 16 percent of the population.<sup>7</sup> Among the country's 1,185 PHUs, only 35 percent reported having the basic equipment required for service delivery and only 28 percent of the 14 essential medicines were available where needed.<sup>8</sup>

### ***Health System Overview***

Sierra Leone's health system is comprised of a network of 1,280 health facilities which deliver health services throughout the country's four regions and 13 health districts. The country's health system is structured in three tiers: 1) regional and national hospitals for secondary and tertiary care; 2) district hospitals for secondary care; and 3) PHUs for first line, primary health care.

Primary health care is delivered at four levels (three levels of PHUs and the community level through CHWs). PHUs are sub-categorized according to defined functions and catchment population sizes: Community Health Centers (CHCs), Community Health Posts (CHPs), and Maternal and Child Health Posts (MCHPs). At the community level, CHWs are responsible for providing a range of preventive and curative services.

At the central level, the MOHS focuses on policy formulation, including setting standards and quality assurance, resource mobilization, capacity development, technical support, and the provision of nationally coordinated services (e.g. epidemic control, monitoring and evaluation of overall sector performance, and training). At the district level, the District Health Management Team (DHMT) is responsible for the implementation of national health policies and district-level planning and management including the overall planning, implementation, coordination, monitoring and evaluation, and supervision of the district health services (including at the PHU level) under the leadership of the District Medical Officer (DMO). At the district level, routine health data is managed by the district health information system 2 (DHIS-2) and is used for decision making at all levels; however, reporting is often delayed and incomplete.

An overview of the health services provided at each level of the health system is included below in Table 2.

**Table 2. Overview of Sierra Leone's Health System**

Level	Description
<b>Regional Hospital</b>	Regional hospitals are situated within provincial capital towns and provide the full package of services available in district hospitals in addition to specialty and referral services, additional diagnostic imaging services, and treatment of cancers and rare diseases. Regional hospitals are staffed with specialists and are equipped with more complex equipment.
<b>District Hospital</b>	District hospitals serve the entire district with catchment populations of approximately 500,000 people, providing primary care, secondary medical care, emergency medical services, and comprehensive obstetric and neonatal care (CEmONC). District hospitals receive referrals from primary health care facilities, have more than 100 beds, and are staffed with doctors, midwives, nurses, nutritionists, among other categories of health workers.
<b>Community Health Center (CHC)</b>	CHCs are located at the Chiefdom level and serve a catchment population of 10,000 to 20,000 persons. CHCs provide Basic Emergency Obstetric and Neonatal Care (BEmONC), treatment of some severe childhood illnesses, laboratory and pharmacy services same services, screening and referrals for some non-communicable diseases, and surveillance and treatment of epidemic-prone diseases. CHCs are staffed with a community health officer (CHO), State Enrolled Community Health Nurses (SECHN), Maternal and Child Health (MCH) Aides, an epidemiological disease control assistant, and an environmental health assistant.
<b>Community Health Post (CHP)</b>	CHPs are located in small towns and serve a catchment population of 5,000 to 10,000 persons. CHPs address some pregnancy complications and complicated deliveries, treatment of some severe childhood diseases, and surveillance for epidemic-prone diseases. CHPs are staffed by SECHNs and MCH Aides and may have a midwife on staff.
<b>Maternal and Child Health Post (MCHP)</b>	MCHPs are considered the closest health facility to the community and typically serve a population of fewer than 5,000 persons. Staffed by MCH Aides, MCHPs provide a range of basic services including antenatal care, routine deliveries, immediate postnatal and antenatal care, routine vaccination, treatment of childhood illnesses and malnutrition, basic first aid, community outreach services, and surveillance for epidemic-prone diseases. MCHPs are typically staffed by MCH Aides who are supported by community health workers including traditional birth attendants (TBAs).
<b>Community</b>	At the community level, CHWs provide a range of preventive and curative services including community sensitization on priority health topics, iCCM for diarrhea, malaria, and pneumonia, antenatal and postnatal promotional visits, and referrals, among other services. As per the 2012 National CHW Policy, CHWs typically serve a population of between 100 and 500 persons, which can vary depending on the size of the community.

## Community Health Services

### *National Community Health Worker Policy and Program Overview*

Recognizing the critical role that CHWs play in extending access to health services, particularly in underserved and hard-to-reach areas, the GoSL, in 2012, introduced its National CHW Policy. In addition to consolidating decades of vertical community health programs, the policy set the

foundation for the National CHW Program while outlining the guiding principles of CHWs, defining the package of health services, and setting the standards for CHW training, supervision, and reporting (see Annex 1 for the 2012 CHW scope of work).

Building upon efforts in 2012, the 2016 National CHW Policy aims to strengthen and harmonize different community-based programs to provide comprehensive primary health care at the community level. The revised policy provides a detailed scope of work for CHWs (see Annex 2) and guidance for the coordination and implementation of the National CHW Program, supervision for CHWs, remuneration for CHWs, and training requirements. Through this policy, the MOHS aims to scale-up the provision of a comprehensive set of CHS in all communities across the country with the overall objective of reducing maternal and child morbidity and mortality. As of August 2016, the MOHS was in the process of finalizing the 2016 National CHW Policy.

There are considerable differences between the 2012 and 2016 National CHW Policies which will result in significant changes to the National CHW Program. In particular, the 2016 National CHW Policy (draft July 2016) will increase the geographic coverage of CHWs, expand the package of health services that CHWs provide, and place greater emphasis on CHW supervision and training, while increasing the financial incentives provided to CHWs and Peer Supervisors and harmonizing financial incentives provided to program support personnel from the MOHS and implementing partner NGOs. A summary of the key programmatic changes are provided below. For the purpose of this pilot, MSH modelled all policy changes to demonstrate the corresponding implications on total program costs.

- **Geographic coverage:** As per the 2012 National CHW Policy, CHWs focused primarily on hard-to-reach areas, defined as communities that are more than five km (or one hour's walk) from a health facility, and CHWs were to serve a population of 100 to 500 people. As per the 2016 policy, CHWs will serve the entire population including persons living adjacent to the PHU. The ratio of hard-to-reach CHWs (i.e. those beyond three km from the PHU) is one to 250 persons and the ratio of CHWs within three km of the PHU is one to 1,000 persons. It is expected that with this policy change, the number of CHWs will increase significantly. According to the MOHS, an estimated 10,500 hard-to-reach CHWs and 4,500 CHWs (within three km of the PHU) will be trained nationally; however, it will be the responsibility of each DHMT to determine the required number of CHWs to implement this policy.
- **Package of CHS:** As per the 2012 policy, CHWs primarily conducted community sensitization and advocacy; conducted home visits (including ANC and PNC promotional visits); provided growth monitoring and iCCM services (i.e. assessment and treatment of diarrhea, malaria, and pneumonia); and provided referrals. However, the package of health services was not standardized across districts. The 2016 policy will harmonize and expand the package of CHS to include adult malaria case management; family planning (e.g. refills of oral contraceptives and provision of male condoms); the provision of intermittent preventive therapy for pregnant women (IPTp) during second and third ANC promotional visits; and integrated-disease surveillance and reporting, among other health services. A complete list of the revised package of CHS can be found in Annex 2.
- **Training:** The 2012 policy recommended a basic 10-day standardized CHW training program and refresher training twice every year; however, training curricula varied by district depending on

the availability of funding and the implementing partner NGO which supported the CHW program. The 2016 National CHW Policy specifies that CHWs will complete three eight-day training modules in the first year (24 days total) followed by an annual refresher training lasting five days. The Peer Supervisors will receive the same training as the CHWs in addition to a five-day standard supervisor training followed by one annual four-day refresher training.

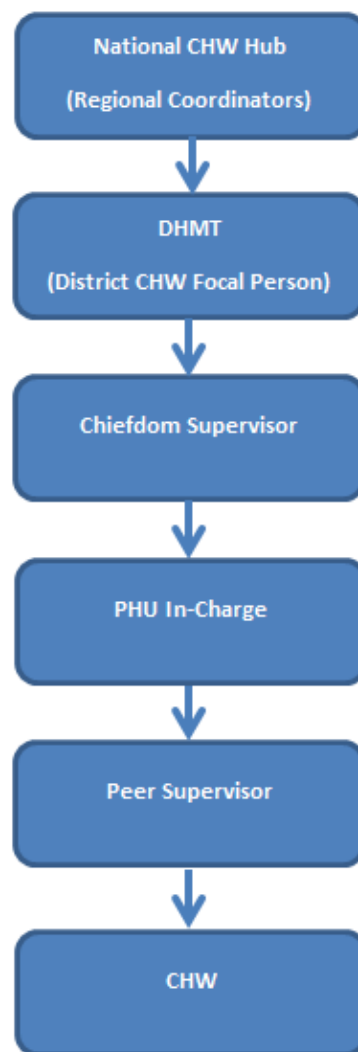
- **Supervision:** The 2016 policy places greater emphasis on supervision compared to the 2012 National CHW Policy which primarily emphasized data collection from CHWs and allowed peer supervisors to simultaneously serve as CHWs and provide health services.<sup>9</sup> The 2016 National CHW Policy aims to ensure that CHWs receive supportive supervision to ensure the provision of high-quality services. Peer supervisors will no longer serve as CHWs and will only provide supervision to CHWs, serving as a link between CHWs and PHU staff. CHWs will be supervised by PHU In-Charges, Chiefdom Supervisors, implementing partner NGO staff, DHMT CHW Focal Points, and personnel from the National CHW Hub office in Freetown.
- **Financial incentives:** The 2012 policy recommended that each CHW receives a standard minimum motivation package. As evidenced in Bombali and Kono districts, CHWs received 15,000 SLL per month for transport reimbursement while Peer Supervisors received 100,000 SLL per month. As per the 2016 policy, CHWs will receive a minimum of 100,000 SLL per month in addition to transport reimbursement (100,000 SLL per month for those living in hard-to-reach areas and 50,000 SLL per month for those living within three km from the PHU). Peer Supervisors will receive 150,000 SLL per month in addition to 100,000 in transport and communications credit (250,000 SLL total per month). Services provided by CHWs are to be free-of-charge and all medicines are to be sourced from PHU staff (via District Medical Stores) during CHW monthly meetings. The MOHS will also seek to harmonize non-financial incentives and equipment for CHWs, Peer Supervisors, and program support personnel.

In addition to these key policy changes, financial incentives will also be increased for MOHS personnel at the district, chiefdom, and PHU levels to ensure high-quality supervision of CHWs. According to the Directorate of Primary Health, District CHW Focal persons will receive 500,000 SLL per month, Chiefdom Supervisors will receive 150,000 SLL per month, and PHU In-Charges will receive 100,000 SLL per month. This represents a significant increase within districts (e.g. Kono District) which did not previously provide financial incentives to MOHS staff. MOHS Regional Coordinators will conduct quarterly visits to the district level; MOHS DHMT personnel will conduct three-day supervision visits to the PHU and community levels every month; both PHU and Peer supervisors will conduct regular supervision visits and facilitate monthly meetings at the PHU. According to the MOHS, Chiefdom Supervisors are expected to receive motorcycles and fuel allowances to facilitate program coordination and supervision.

An overview of the CHW coordination and supervision structure is shown in Figure 1. It is important to note that implementing partner NGOs will continue to support the MOHS in overall program coordination and supervision efforts.



**Figure 1. National CHW Program Coordination and Supervision Structure<sup>10</sup>**



### ***2016 Package of Community Health Services***

The national minimum package of CHS is aimed at addressing the priority health areas of reproductive, maternal, and child health (RMNCH) and disease prevention and control. These services include antenatal (ANC) and postnatal (PNC) promotional visits to pregnant and post-partum women and newborns, the identification and treatment of non-severe cases of diarrhea, pneumonia, and malaria (iCCM), malnutrition screening, and community integrated disease surveillance (IDSR), among key services. CHWs are also tasked with *general* activities (e.g. conducting routine house visits and providing referrals to the PHU). A detailed scope of work listing the national minimum package of CHS is included in Annex 2 and the list of the national package of CHS is included in Annex 3.

## **Methodology**

Data for this analysis were collected at three levels of the health system: first, at the central level from the MOHS, UNICEF and implementing partner NGOs; second, at the district level from the MOHS DHMT and implementing partner NGOs; and third, at the PHU and community level from PHU

personnel, Peers Supervisors, and CHWs. Semi-structured questionnaires were used for interviews with the CHWs and their supervisors. Actual service and cost data were collected for 2015. The data collection visit took place in February and March 2016.

For the purpose of this pilot, actual data were collected in districts based upon preferences and input from the MOHS and UNICEF. The MOHS and UNICEF selected CHW programs in two districts which are managed by international non-governmental organizations (NGOs): World Hope International (WHI) and the International Rescue Committee (IRC). WHI began implementation of its CHW program in 2012 while the IRC began implementation in 2006. These two programs provide key interventions from the national package, in particular iCCM and MNCH services.

While other community-based programs are currently being implemented throughout the country, they were excluded from this pilot as they are relatively vertical (i.e. disease-focused), small-scale, (including some with only 25 to 50 CHWs), and some provide salaries to CHWs who are employed full-time. These programs were not, therefore, considered to be representative of the National CHW Program and were therefore excluded from the analysis.

### ***Central Level Data Collection***

The main purpose of the data collection at the central level was to gather data on the services, expenditures, standards, and norms of community-based services. This was done through two exercises:

1. An expert panel meeting which convened representatives from the MOHS, UNICEF, and key implementing partner NGOs. This served as an opportunity to determine and validate the package of CHS, incidence and utilization rates, and service delivery norms (including the package of CHS, required medicines and commodities, and estimated time spent per service).
2. Using a standardized data collection tool, implementing partner NGO national office staff provided data on the numbers of services provided as well as expenditure data for the year of the study (2015) and two prior years. In addition, the MOHS provided data on the costs of management and supervision of CHW programs. Both NGO and MOHS personnel also provided information on key bottlenecks affecting the program.

### ***District Level Data Collection***

District level data was collected from the two sample districts - Bombali and Kono. The time and resources available for the study were limited and therefore MSH staff only collected data from two districts. For the purposes of piloting the tool and methodology, a larger sample was not necessary. The two districts were selected with guidance from the MOHS CHW Hub Office and UNICEF according to the following criteria:

1. Ongoing implementation of the National CHW Program and CHS package;
2. Maturity of the CHW program, i.e., long-running, more established versus a newly established CHW program; and
3. Different implementation arrangements, i.e., NGO implementing through primary support from NGO personnel versus NGO implementing in close collaboration with MOHS structures.

The main purpose of the data collection at the district level was to gather additional relevant costs of the CHW program, including those incurred by implementing partner NGOs at the district level and by the MOHS District Health Office (DHO). The DHMT plays a leading and supervisory role in the CHW program, led by the CHW Focal Person. The GoSL pays the salaries of these staff and these staff costs are included in this costing study based on the estimated time each spends supporting the CHW program. DHMT staff provided detailed information on DHMT staff time spent on CHW supervision and management, reporting, meetings, and trainings. Additionally, they provided salary estimates for each DHMT staff involved with the CHW program. All data were collected via oral interviews and information was captured electronically.

### ***PHU and Community Level Data Collection***

Data collection at the PHU and community level served as a ‘reality check’ for information collected at the central and district levels, providing on-the-ground context for the costing study and bottleneck analysis. Through semi-structured interviews with CHWs, data collectors obtained information on CHWs’ time, availability, and activities as well as information related to the types of CHS provided, the frequency of meetings and trainings, financial and non-financial incentives received, etc. Through interviews with Chiefdom Supervisors and PHU In-Charges, data collectors obtained information on time spent on CHW program management and supervision, standard treatment protocols of CHS, incentives, and bottlenecks hampering the delivery and/or quality of CHS. Data collectors conducted one-on-one interviews with Chiefdom Supervisors and PHU In-Charges and conducted joint focus group discussions with CHWs and Peer Supervisors.<sup>vi</sup> Within the two districts, the PHUs were selected based on the following criteria:

1. Proximity – i.e. time required to access the PHU in the context of weather and road conditions;
2. Representation – ideally CHWs providing a range of services within the CHS package with varying catchment population sizes and geography; and
3. Availability of staff (CHWs and their supervisors) to participate in interviews.

Based on these criteria, five PHUs were selected: three PHUs in Bombali district and two PHUs in Kono district (see Table 3). With this small sample, it is recognized that the districts and health facilities cannot be considered completely representative of the country as a whole but it is believed that they are sufficiently representative to both pilot the tool and methodology and for results to be useful to the MOHS in considering the costs of developing and scaling up the National CHW Program.

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<sup>vi</sup> At the time of this study, in both Bombali and Kono Districts, Peer Supervisors also served as CHWs.

**Table 3. Summary of Data Collection Points in Bombali and Kono Districts**

District	PHUs	CHWs	Peer Supervisors	PHU In-Charges	Chiefdom supervisors	DHMT Staff
Bombali	District Health Office					2
	Mosongu CHC	2	5	0	1	
	Kapethe CHP	7	3	1	1	
	Kayonkoro CHP	1	7	1	1	
Kono	District Health Office					2
	Motema CHC	5	1	1	0	
	Woama CHP	10	1	1	0	
<b>Total</b>		<b>25</b>	<b>17</b>	<b>4</b>	<b>3</b>	<b>4</b>

**Data Analysis**

In total 53 people were interviewed in the two districts - 25 CHWs, 17 peer supervisors, four PHU In-Charges, three chiefdom supervisors, and four DHMT staff. All data were collected via oral interviews using pre-designed questionnaires and the information was captured electronically using MS Excel.

Following data collection in each district, responses from interviewees were compared with the information collected during the expert panel meeting to ensure that responses were consistent for standard treatment protocols and time spent per health intervention. The data collectors also compiled information on human resource availability and time spent, supervision structures, supply chain systems, availability of medicines, health information systems, and costs associated with the current CHW program (e.g. cost of medicines, supplies, equipment, trainings, salaries, supervision, etc.). The data collectors also identified and synthesized bottlenecks reported at all levels of the health system.

The data was analyzed using the Community Health Planning and Costing Tool. The spreadsheet-based tool helps planners and managers to determine the costs and finances of comprehensive CHS packages. The tool allows users to calculate the costs and financing elements linked to all aspects of the CHS packages, including service delivery, training, supervision, and management from community to central levels.

**Limitations**

This analysis was conducted to pilot the new methodology and tool. It was anticipated that the district models and results would be useful for the GoSL, UNICEF, implementing partner NGOs, and other stakeholders. However, there are several limitations that need to be taken into account when reviewing the results. These are mainly due to the lack of time and resources to collect and analyze more data. The main limitations are as follows:

- Data were collected for two districts and interviews were conducted with 25 CHWs, 17 peer supervisors and a total of 11 PHU In-Charges, Chiefdom Supervisors and DHMT staff. A total of five PHUs were visited. This sample size was sufficient for piloting the approach and tool but would not be sufficient for providing a comprehensive analysis of CHS in Sierra Leone.

- The two sampled districts were not selected randomly and may not have been representative of the country as a whole.
- The average cost per service across all services is not shown since that is greatly affected by the mix of services and can lead to false conclusions regarding efficiency.
- Issues of data quality (i.e. incorrect and/or both under- or over-reporting) could have impacted this analysis. It is unknown if other services were provided by CHWs but not reported.

## Findings

The findings of the analysis are outlined in the following tables and descriptions. The findings are presented first for Bombali District and then for Kono District and lastly, compared across the two districts.

For the baseline year of 2015, MSH used actual service and cost data obtained by the MOHS and implementing partner NGOs in both Bombali and Kono Districts. However, at the request of the MOHS, MSH modelled the introduction of the revised 2016 National CHW Strategy (see Annex 2 for the revised CHW scope of work) and the corresponding programmatic changes beginning in 2016, although, in reality, the implementation of this policy has been delayed. With the proposed policy changes, a number of new services will be introduced into the package of CHS that had either not previously been provided or reported on in 2015 (see Annex 3 for the complete list of CHS). These include:

- The introduction of IPTp for second and third ANC promotional visits;<sup>vii</sup>
- iCCM assessment and treatments for diarrhea, malaria, and pneumonia (and the removal of the *no-touch policy*);
- Reporting of births, under-five deaths, and maternal deaths;
- Integrated disease surveillance reporting;
- Male condom distribution and refills of oral contraceptives;
- Malaria case management services for adults;
- Infant and young child feeding (IYCF) and referrals for micronutrients;
- Participation in campaigns (e.g. measles, national immunization days, Welbodi weeks, Polio campaigns, long lasting insecticide net [LLIN] distribution)<sup>viii</sup>; and
- Quarterly house visits and community mapping.

For the purpose of modelling, the numbers of services provided in the baseline year of 2015 and the years 2016-2025 were based on the following assumptions:

- 2015: Coverage rate at baseline of all services in the package (reported actual number of services in 2015 divided by the expected number of services in 2015);

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<sup>vii</sup> According to the MOHS National CHW Strategy, CHWs should receive IPTp during the first and second ANC promotional visits (see Annex 2). However, according to the World Health Organization guidelines on IPTp (2014), pregnant women should receive IPTp during the second and third ANC visits.

<sup>viii</sup> For the purpose of the modelling, it is assumed that all CHWs will regularly participate in mobilizing people within their respective communities for campaigns.

- 2016-2025: Coverage rate increased by 20 percent per year for the majority services in the package (with the exception of third ANC promotional visits as well as refills of male condom distribution and oral contraceptives which remained at three percent coverage);
- For all services with reported 100 percent coverage in 2015, no increase is calculated. Once a service in the package reaches 100 percent coverage, no further increase is calculated; and
- Presumptive treatment for fever (as mandated by the MOHS with the no-touch policy) was phased out in 2016. Also, beginning in 2016, the second and third ANC promotional visits included the provision of IPTp.

For the modelling, a 20 percent annual coverage increase was used for most services from 2016-2025; however, the coverage rate could be set at any increased rate, with population growth being the only variance. The rates used do not represent targets set by the GoSL, MOHS, or implementing partner NGOs and were determined by MSH for the purpose of piloting the tool.

The estimates of actual resources for each year are based on three main components:

- Costs related to CHWs and supervisors training, relevant equipment, meetings and payments, which vary with the numbers of CHWs and supervisors;
- Costs related to medicines, supplies and commodities, which vary with the numbers of services; and
- Costs related to management and management equipment and other costs which are treated as fixed costs.

Since each district is believed to be fully covered by CHS with the introduction of the revised National CHW Policy in 2016, it was assumed that for the modelling, no additional geographic scaling-up was needed between 2016-2015. Therefore, the increases in service coverage only represent the expanded utilization of CHS and existing CHWs.

## **Bombali District**

In the baseline year of 2015, Bombali District had a population of 506,838 of which an estimated 33 percent (168,092 persons) lived in the coverage area served by the CHWs (see Annex 4 for a breakdown of the population).<sup>ix</sup> In total, WHI supported 650 trained CHWs and 100 Peer Supervisors which served catchment populations of 88 PHUs in 13 chiefdoms.

Although CHWs had been trained on providing a comprehensive package of CHS (e.g. iCCM, ANC and PNC promotional visits, referrals, etc.), in reality CHWs only provided a limited number of non-curative services. This was due to issues of planning (i.e. the unavailability of medicines and commodities for CHWs) and a directive by the MOHS for CHWs to immediately refer iCCM cases to the PHU, following the outbreak of the EVD epidemic.

In 2015, CHWs reported providing a total of 110,317 individual health services (see Annex 5 for details on the services provided by CHWs). Figures were reported for nine of the 42 services included in the CHS package; however, it is unknown if other services were provided by CHWs but not

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<sup>ix</sup> WHI provided the 2015 estimate of the Bombali District population and the population living in the CHW coverage area.

reported. The majority of the services provided by CHWs were for iCCM referrals, ANC and PNC promotional visits, and malnutrition screening and follow-up of children with moderate acute malnutrition.

Comparisons of actual and expected numbers of services show that, in some cases, the actual number of services provided by CHWs was far less than the total expected number of cases (see Annex 7 for details on the actual and projected services). For example, for first and second ANC promotional visits and first and second PNC promotional visits, CHWs provided more services than the expected number of services (based on the assumption that all pregnant women living in the coverage area would require ANC and PNC promotional visits once during and after a pregnancy, respectively). The number of iCCM treatments was lower than expected as CHWs only provided referrals for children presenting with signs of diarrhea, malaria, and pneumonia and did not provide curative treatment. CHWs provided follow-up visits for 100 percent of the estimated children ages 6-59 months with severe acute malnutrition, based on the expected incidence rate.<sup>x 11</sup> Ninety-four percent of children ages 6-59 months living in the coverage area were screened for malnutrition, based on the expectation that each child would be screened once per year. All of the expected utilization rates of the corresponding services are shown in Annex 3.

In summary, the coverage rates of services were relatively high with the exception of iCCM. Coverage rates which were higher than the expected coverage rates (based on the expected utilization rates of each service) could be due to a number of factors. These include incorrect coverage population estimates, inaccurate recording and/or reporting of data, or because of a higher number of services provided (possibly due to the provision of services beyond an optimal level or due to populations outside of the coverage area accessing services).

Beginning in 2016 with the introduction of the revised National CHW Policy, it is expected that 100 percent of Bombali District's population would be served by CHWs. Based on the recommended coverage ratios provided by the MOHS, an estimated 1,249 CHWs would be needed to serve the catchment populations of all 106 PHUs in the 14 Chiefdoms.<sup>xi</sup> An estimated 125 Peer Supervisors would be needed in Bombali District, in accordance with MOHS guidelines of one Peer Supervisor per 10 CHWs. For the purpose of this modelling, the number of CHWs and Peer Supervisors would not increase in future years with the expected population growth.<sup>xii</sup>

For the majority of services,<sup>xiii</sup> the numbers of services for years 2016-2025 represent an average coverage increase of 20 percent per year of the total expected utilization of services (based on the target population and the normative incidence and intervention rates). These increases were capped at 100 percent of the expected utilization levels. These annual increments result in a substantial increase from the current numbers of services, with 4.04 million expected services by 2025 (a

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<sup>x</sup> According to the 2010 Report on the Nutritional Situation of Sierra Leone, 1.4 percent of children 6-59 months in Sierra Leone had MUAC <11.5.

<sup>xi</sup> This estimate is based on the MOHS recommended ratio of CHWs per population. According to a national population survey conducted in 2014, in Bombali District an estimated 53 percent of the population lives within three km from a PHU and 47 percent lives more than three km from a PHU.

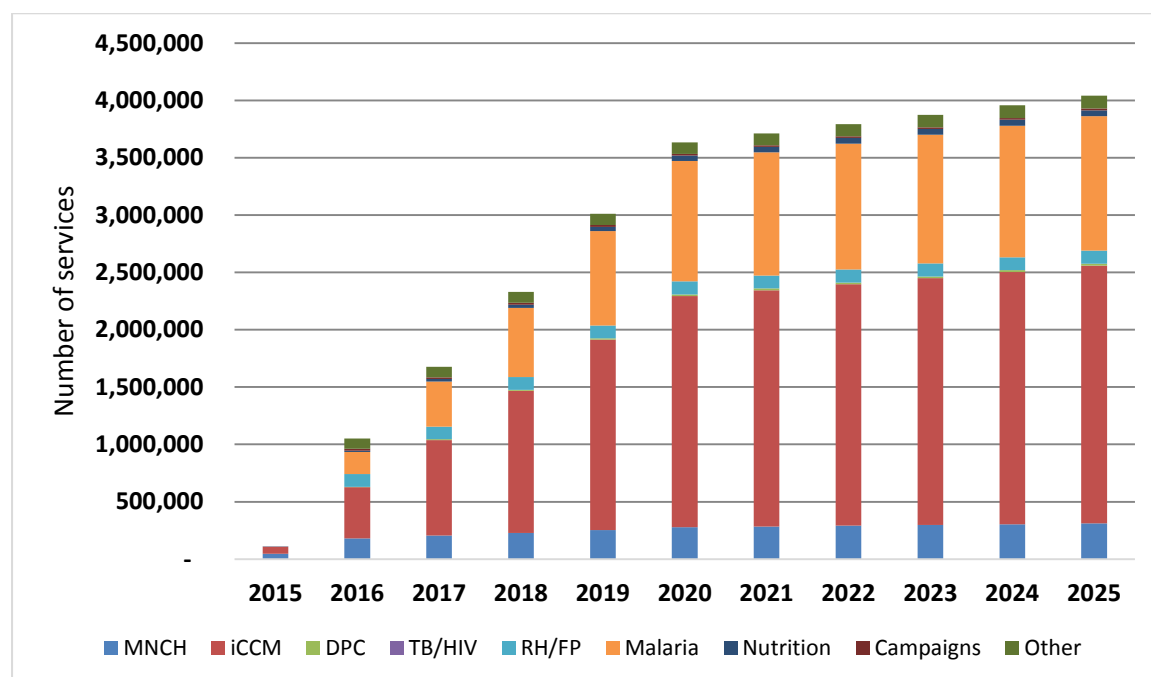
<sup>xii</sup> This should be considered for future planning in order to adhere to the proposed MOHS guidelines of the ratio of CHWs to population.

<sup>xiii</sup> This excludes third ANC visits as well as refills of male condom distribution and oral contraceptives which remained at three percent coverage.

significant overall increase from the baseline number of services of 110,317 in 2015). A significant number of services in 2025 would be for iCCM and for adult malaria case management which were not provided in 2015.

The programmatic breakdown of services emphasizes the dominance of MNCH and iCCM services, with 43 and 56 percent of all services, respectively, in 2015 (Figure 3). However, in 2025, MNCH services represent only eight percent of all services while iCCM services remain at 56 percent of all services. Adult malaria case management would make up 29 percent of all services in 2025.

**Figure 2. Bombali District - Total Number of Services, by Program (2015-2025)**



In 2015, CHWs spent five percent of their time (based on an estimated 20 working hours per week) providing services in 2015. However, it is possible that some of their services were not recorded or reported. With the modelled increases in services, it would appear that CHWs would need to work more than the available number of working hours in 2025 to provide the package of services (See Annex 5).

All services provided by CHWs are categorized as promotional, preventive, or curative. In 2015, 25 percent of services provided were promotional, 20 percent were preventive, and 55 percent were curative. By 2025, with projected coverage increases, 25 percent of services will be promotional, 20 percent will be preventive, and 55 percent will be curative.

It should be noted that comparisons of the numbers of services provided should be made with caution as each service is counted as “one” interaction and corresponds to different times and costs. For instance, the *reporting of a maternal death* counts as one service and would require an estimated 20 minutes of a CHW’s time. However, *diarrhea diagnosis and treatment* for a child (age 2-59 months) counts as one service and would require an estimated 30 minutes of a CHW’s time in addition to the costs of ORS and zinc for treating the child. For the purpose of this modelling, CHW participation in campaigns has been calculated based on the numbers of campaigns per year. For example, polio campaigns are expected to occur three times per year, each lasting four days. If a

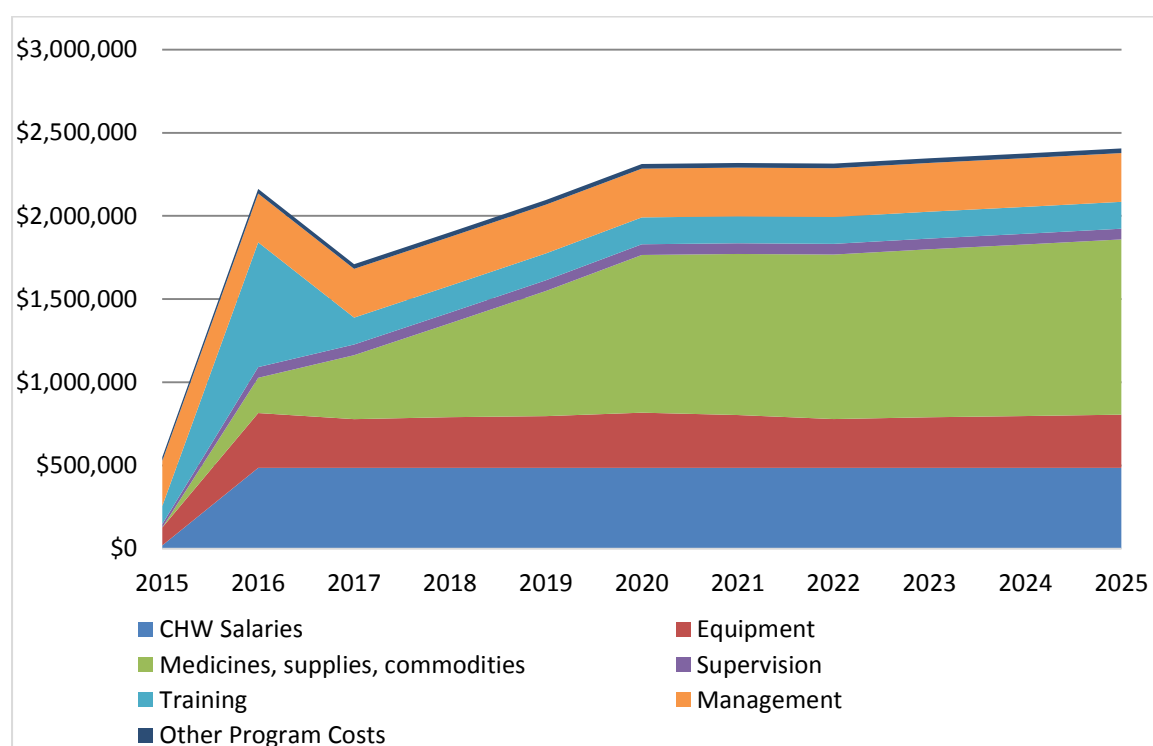


CHW participated in all three campaigns during a year, the number of services would be represented as three.

The total cost of the amount of resources used for the services reported in 2015 was USD 659,263 which equates to USD 3.92 per capita. Based on the expected coverage scenarios, the total program cost would be 2.41 million by 2025 (USD 3.81 per capita). See Annex 6 for a summary of cost by input and by program.

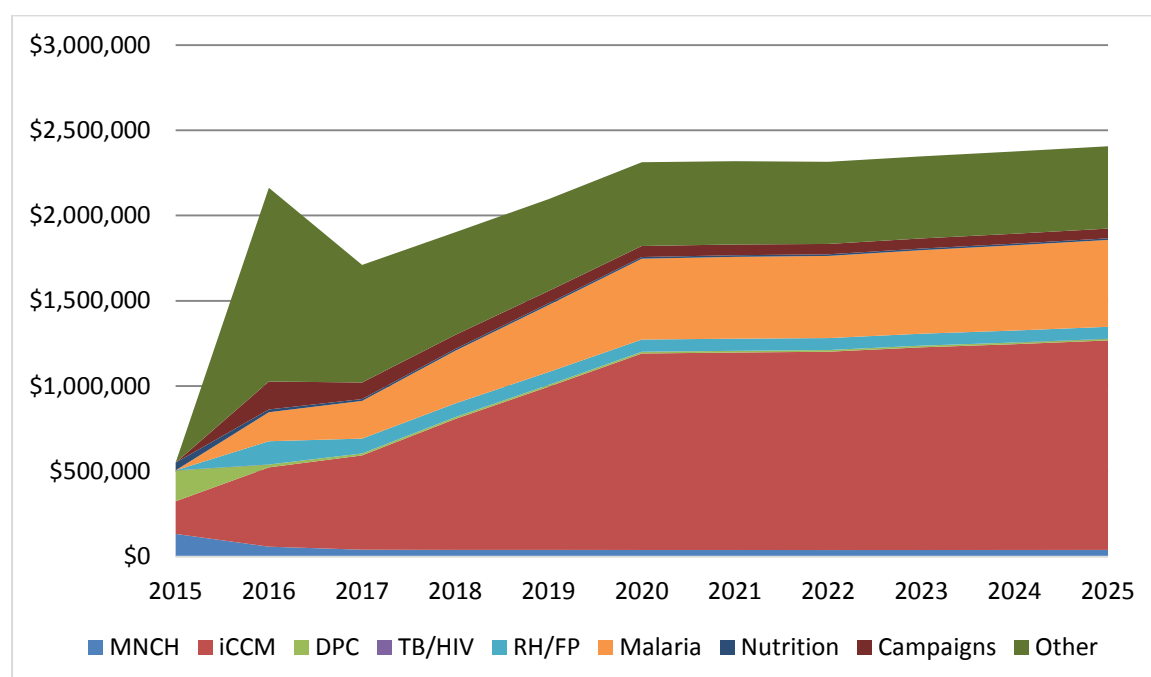
The main cost driver of the Bombali District CHW program in 2015 was program management (41.1 percent) followed by trainings (16.5 percent) and equipment (16.3 percent). By 2025, the costs of management would reduce to 12.2 percent of the total costs while the costs of medicines would increase from zero to 43.8 percent of total program costs. Many of the changes in programmatic cost drivers are due to the introduction of the revised National CHW Policy in 2016 (and the corresponding programmatic changes) and the increase in variable costs, particularly for medicines, supplies, and commodities which are based on the numbers of services provided by CHWs. The large increase in recurrent costs in 2016 is due to the planned introduction of training for CHWs, supervisors, and program managers. See Figure 3 for the CHS recurrent costs by input.

**Figure 3. Bombali District - Community Health Program Recurrent Costs, by Input, USD (2015-2025)**



In 2015, the majority of program costs were for iCCM (34.8 percent), Disease Prevention and Control (32.9 percent), and MNCH (24.1 percent). By 2025, the majority of program costs would be for iCCM (51.1 percent), adult malaria case management (21.2 percent), and other programs (20.1%) which include house-to-house visits and community mapping conducted by CHWs. See Figure 4 for the recurrent costs by program.

**Figure 4. Bombali District - Community Health Program Recurrent Costs, by Program, USD (2015-2025)**



For the purpose of this report, funding commitments and analysis of program financing have not been included; however, this information is available in the models.

## Kono District

In the baseline year of 2015, Kono District had a population of 533,104 of which an estimated 38 percent (200,127 persons) lived in the coverage area served by the CHWs (see Annex 8 for a breakdown of the population of Kono District).<sup>xiv</sup> In total, IRC supported 743 trained CHWs and 85 Peer Supervisors which served catchment area populations of 68 PHUs in 14 Chiefdoms.

In 2015, CHWs reported providing a total of 191,386 individual health services (see Annex 9 for details on the number of services provided by CHWs in Kono District). Figures were reported for 10 of the 42 services included in the package of CHS; however, it is unknown if other services were provided by CHWs but not reported. The majority of the services provided by CHWs were for iCCM assessments and treatments, malnutrition screening, and ANC and PNC promotional visits. CHWs in Kono District provided iCCM services in accordance with the no-touch policy (i.e. the provision of presumptive treatment based on signs and symptoms).

In some cases, the actual number of services provided by CHWs was less than the total expected number of cases. For example, only 19 percent of children ages 6-59 months with severe malnutrition were referred to a health facility by CHWs.<sup>xv</sup> CHWs provided diarrhea treatment for 13 percent of children ages 2-59 months and provided malaria treatment for 36 percent of children

<sup>xiv</sup> IRC provided the 2015 estimate of the Bombali District population (source: the World Health Organization and the Kono DHMT). IRC also provided the 2015 estimate of the population living in the CHW coverage area in Kono District.

<sup>xv</sup> According to the 2010 Report on The Nutritional Situation of Sierra Leone, 5.8% (5.3-6.4% 95% C.I.) of children aged 6-59 months had a MUAC < 12.5 cm.

ages 2-59 months with fever. For the first and second ANC promotional visits, CHWs reached 89 percent and 36 percent of the estimated pregnant women living in the coverage area, respectively. For first (within 24 hours of birth) and second (within seven days of birth) PNC visits, CHWs reached 57 percent and 41 percent of pregnant women and their newborns. However, CHWs reached an estimated 100 percent of the estimated children ages 2-59 months for pneumonia diagnosis and treatment. Also, 100 percent of children ages 6-59 months living in the coverage area were screened for malnutrition, based on the expectation that each child would be screened once per year.

In summary, the coverage rates of services varied. Coverage rates which were higher than the expected coverage rates could be due to a number of factors. These include incorrect coverage population estimates, inaccurate recording and/or reporting of data, or because of a higher number of services provided (possibly due to the provision of services beyond an optimal level or due to populations outside of the coverage area accessing services).

Beginning in 2016 with the introduction of the revised National CHW Policy, it is expected that 100 percent of Kono District's population would be served by CHWs including persons living in Koidu Township. Based on the recommended coverage ratios provided by the MOHS, an estimated 1,346 CHWs would be needed to serve the all 15 chiefdoms and the catchment populations of all 85 PHUs.<sup>xvi</sup> An estimated 135 Peer Supervisors would be needed in Kono District, in accordance with MOHS guidelines of one Peer Supervisor per 10 CHWs. For the purpose of this modelling, the number of CHWs and Peer Supervisors would not increase in future years with the expected population growth.

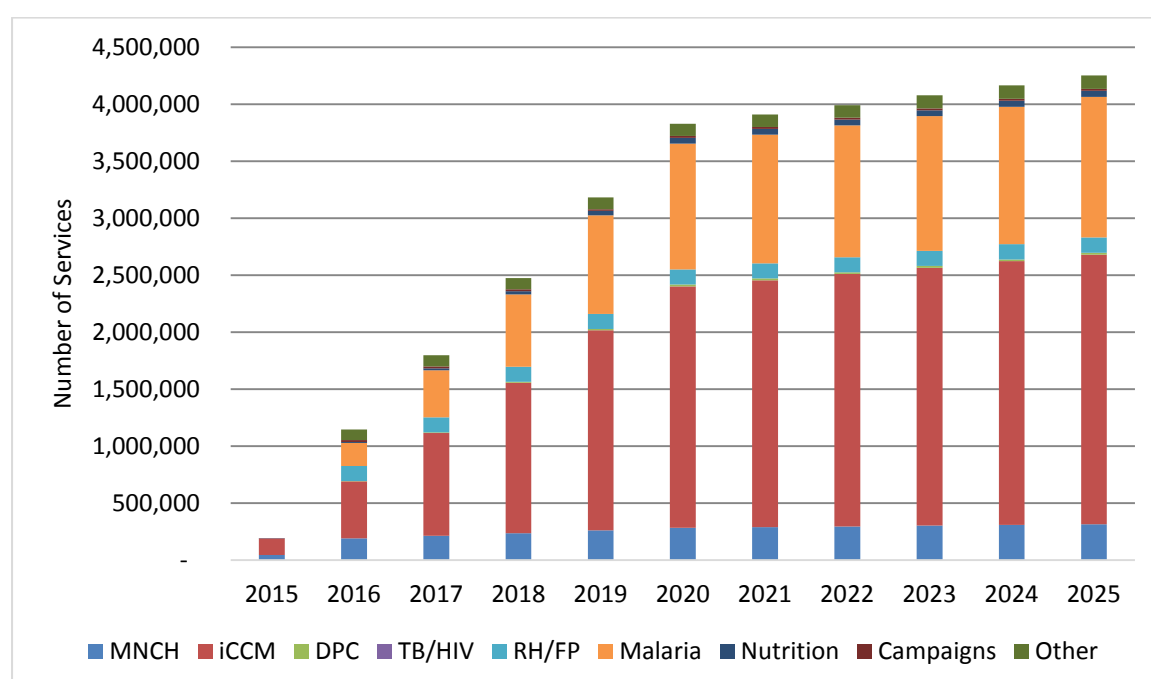
For the majority of services,<sup>xvii</sup> the numbers of services for years 2016-2025 represent an average coverage increase of 20 percent per year of the total expected utilization of services based on the target population and the normative incidence and intervention rates (see Annex 3 for the list of expected utilization rates for each service). These increases were capped at 100 percent of the expected utilization levels. These annual increments result in a substantial increase from the current numbers of services, with 4.25 million expected services by 2025 (an overall increase of 2,222 percent from the baseline number of services of 191,386 in 2015). A significant number of services in 2025 would be for iCCM and for adult malaria case management, which were not provided in 2015. See Annex 9 for details on the number of and percentage of services by program.

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<sup>xvi</sup> This estimate is based on the MOHS recommended ratio of CHWs per population. According to a national population survey conducted in 2014, in Kono District, an estimated 451 percent of the population lives within three km from a PHU and 49 percent lives more than three km from a PHU.

<sup>xvii</sup> This excludes third ANC promotional visits as well as refills of male condom distribution and oral contraceptives which remained at three percent coverage.

**Figure 5. Kono District - Total Number of Services, by Program (2015-2025)**



The programmatic breakdown of services emphasizes the dominance of iCCM and MNCH services, with 77 and 23 percent of all services, respectively, in 2015 (see Annex 11 for details on the actual and projected services). However, in 2025, iCCM services represent 56 percent of all services while MNCH services represent seven percent of all services. Adult malaria case management services would make up 29 percent of all services in 2025.

In 2015, CHWs spent eight percent of their time (based on an estimated 20 working hours per week) providing services in 2015. However, it is possible that some of their services were not recorded or reported on. Nevertheless, with the modelled increases in services for 2016-2025, it would appear that CHWs would need to spend more time (beyond the number of working hours) to provide the package of services at the modelled coverage rates by 2025 (see Annex 9 for details).

All services provided by CHWs are categorized as promotional, preventive, or curative. At baseline, nine percent of services provided were promotional, 15 percent were preventive, and 77 percent were curative. By 2025, with projected coverage increases, 25 percent of services will be promotional, 20 percent will be preventive, and 55 percent will be curative.

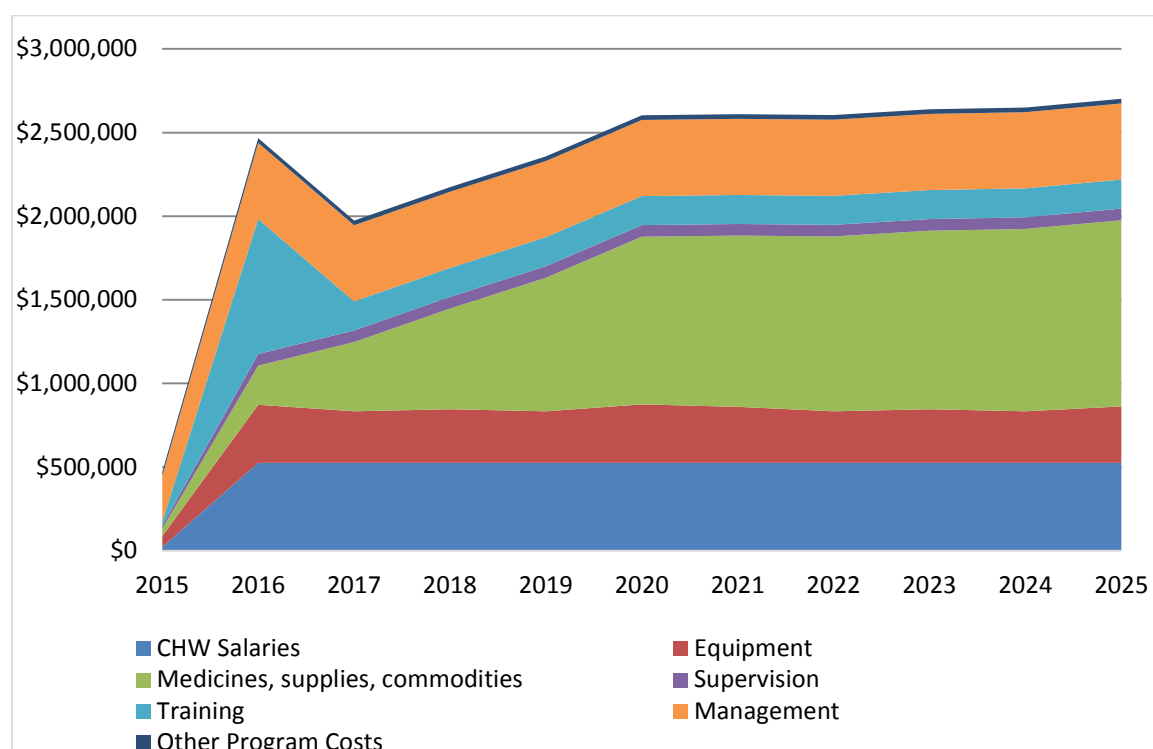
It should be noted that comparisons of the numbers of services provided should be made with caution as each service is counted as “one” interaction and corresponds to different times and costs.

The total cost of the amount of resources used for the services reported in 2015 was USD 495,332 which comes to USD 2.48 per capita. Based on the expected coverage scenarios, the total program costs would be 2.7 million by 2025 (USD 4.07 per capita). See Annex 10 for a summary of costs by input and by program.

The main cost drivers of the Kono District CHW program in 2015 were program management (55.6 percent) followed by equipment (13.1 percent) and medicines, supplies, and commodities (nine percent). By 2025, the costs of management would reduce to 16.8 percent of the total costs while

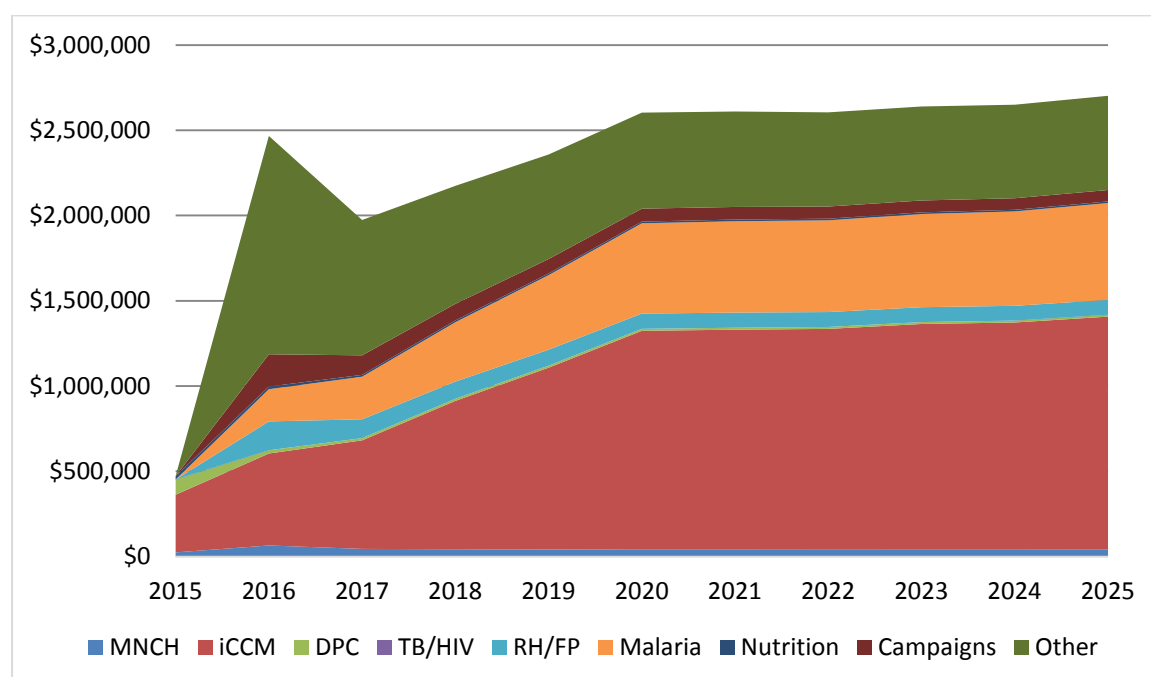
the costs of medicines would increase to 41.2 percent of total program costs. Many of the changes in programmatic cost drivers are due to the introduction of the revised National CHW Policy in 2016 (and the corresponding programmatic changes) and the increase in variable costs of medicines, supplies, and commodities which increase based on the numbers of services provided by CHWs. The large increase in recurrent costs in 2016 is due to the planned introduction of training for CHWs, supervisors, and program managers. See Figure 6.

**Figure 6. Kono District - Community Health Program Recurrent Costs, by Input, USD (2015-2025)**



In 2015, the majority of program costs were for iCCM (71.7 percent) and disease prevention and control (19 percent) MNCH). By 2025, the majority of program costs would be for iCCM (50.6 percent), adult malaria case management (21 percent), and other services (20.4 percent) which include house-to-house visits and community mapping conducted by CHWs. See Figure 7.

**Figure 7. Kono District - Community Health Program Recurrent Costs, by Program, USD (2015-2025)**



For the purpose of this report, funding commitments and an analysis of program financing have not been included; however, this information is available in the district models.

### Comparison of Bombali and Kono Districts

There were considerable differences among the two districts in terms of their 2015 coverage populations, the numbers and types of services provided, as well as the CHW program structure. These differences impacted the cost per capita and total program costs in each of the districts.

In 2015, Bombali District had a significantly larger coverage population<sup>xviii</sup> and incurred higher costs for CHW training and program start-up expenses. Kono District incurred higher costs for medicines (as CHWs continued to presumptively treat children for diarrhea, malaria, and pneumonia); however, total program costs were considerably less than in Bombali District. As a result, the 2015 cost per capita in Bombali District was USD 3.92 in 2015 and USD 2.48 in Kono District.

By 2025, the cost per capita reduced to USD 3.81 in Bombali District and increased to USD 4.07 in Kono District. While the 2025 coverage populations were relatively similar among the districts,<sup>xix</sup> the management costs in Kono District were considerably higher than in Bombali District (USD 455,046 in Kono District and USD 292,990 in Bombali District). Higher management costs in Kono District are largely attributed to those incurred by the implementing partner NGO.

In Bombali and Kono districts, there were differences in CHW program management and supervision structures in place in 2015 which also contributes to differences in supervision and management costs. In 2015 in Bombali District, WHI provided financial incentive payments to MOHS personnel at

<sup>xviii</sup> The coverage population in Bombali District was 168,092 in 2015 and 631,165 in 2025. The coverage population in Kono District was 200,127 in 2015 and 663,874 in 2025.

<sup>xix</sup> 2025 coverage populations: Bombali District: 631,165; Kono District: 663,874.

the District, Chiefdom, and PHU levels for CHW supervision and management. In addition, WHI provided financial incentives (i.e. salaries) to its Field Monitors. In Kono District, the IRC only provided financial incentives (i.e. salaries) to its own staff (IRC CHW Supervisors) for supervision and management of CHWs and did not provide any financial incentives to MOHS personnel. However, with the introduction of the revised National CHW Policy, MOHS staff at the District, Chiefdom, and PHU levels would receive the same financial incentives in both districts in 2016.

**Table 4. CHW Program Support Personnel and Financial Incentives (2015-2016)**

Bombali District		Kono District	
2015 Personnel & Financial Incentives	2016 Personnel & Financial Incentives	2015 Personnel & Financial Incentives	2016 Personnel & Financial Incentives
1 DHMT CHW Focal Person (6 M SLL/year)	1 DHMT CHW Focal Person (6 M SLL/year)	1 DHMT CHW Focal Person <i>No incentive</i>	1 DHMT CHW Focal Person (6 M SLL/year)
13 Chiefdom Supervisors (1.8 M SLL/year)	14 Chiefdom Supervisors (1.8 M SLL/year)	0 Chiefdom Supervisors	15 Chiefdom Supervisors (1.8 M SLL/year)
13 WHI Field Monitors (20,174,013 SLL/year)	14 WHI Field Monitors (20,174,013 SLL/year)	13 IRC CHW Supervisors (28,251,113 SLL per year)	13 IRC CHW Supervisors (28,251,113 SLL per year)
88 PHU In-Charge (1.2 M SLL/year)	106 PHU In-Charge (1.2 M SLL/year)	68 PHU In-Charge <i>No incentive</i>	85 PHU In-Charge (1.2 M SLL/year)
100 Peer Supervisors (1.2 M SLL/year)	125 Peer Supervisors (3 M SLL/year)	85 Peer Supervisors (1.2 M SLL/year)	135 Peer Supervisors (3 M SLL/year)
650 CHWs (180,000 SLL/year)	1,249 CHWs <sup>xx</sup>  --  275 CHWs within 3km from PHU (1.8 M SLL/year)  974 CHWs more than 3km from PHU (2.4 M SLL/year)	743 CHWs (180,000 SLL/year)	1,346 CHWs <sup>xxi</sup>  --  278 CHWs within 3km from PHU (1.8 M SLL/year)  1,068 CHWs more than 3km from PHU (2.4 M SLL/year)

The time spent by MOHS personnel also varied considerably across the two districts in 2015, according to normative data collected using semi-structured questionnaires. For the purpose of modelling, an average reported time and salary were applied for each staff position. In 2015, the District CHW Focal Points in Bombali and Kono Districts spent an estimated 70 and 30 percent of their time on CHW program support, respectively. In Bombali District, it was reported that the District Logistic Officer spent an estimated 15 percent of their time on CHW program support; however, in Kono District, there was no reported support by a District Logistic Officer.

<sup>xx</sup> Based on 2016 estimates for Bombali District, there will be 974 hard-to-reach CHWs and 275 CHWs living within 3 km of the PHU. As per the 2016 policy, CHWs will receive a minimum of 100,000 SLL per month in addition to transport reimbursement (100,000 SLL per month for those living in hard-to-reach areas and 50,000 SLL per month for those living within three km of the PHU).

<sup>xxi</sup> Based on 2016 estimates for Kono District, there will be 1,068 hard-to-reach CHWs and 278 CHWs living within 3 km of the PHU.

In 2016, with the introduction of the revised National CHW Policy, it is expected that in Kono District, MOHS personnel will contribute considerably more time for CHW program management. For the purpose of modelling, the time of key positions (e.g. District CHW Focal Persons and PHU In-Charges) will also increase. Also, in accordance with MOHS recommendations, the role of Chiefdom Supervisors will be introduced in Kono District in 2016.

Salary and time estimates for MOHS personnel at the National level were provided by the CHW Hub at the Directorate of Primary Health Care (MOHS). Time and salary estimates remained constant for these personnel between 2015 and 2025.

**Table 5. CHW Program Support Personnel and Time Spent (2015-2016)**

Bombali District		Kono District	
2015 Personnel & Time Spent	2016 Personnel & Time Spent	2015 Personnel & Time Spent	2016 Personnel & Time Spent
District CHW Focal Point (salary estimate provided) 70%	District CHW Focal Point (salary estimate provided) 70%	District CHW Focal Person (grade 5) 30%	District CHW Focal Person (grade 5) 70%
District - Malaria point person (grade 5) 15%	District - Malaria point person (grade 5) 15%	District Health Sister (grade 6) 5%	District Health Sister (grade 6) 5%
District Health Sister (grade 7) 5%	District Health Sister (grade 7) 5%	District Health Sister (grade 6) 5%	District Health Sister (grade 6) 5%
District M+E (grade 4) 5%	District M+E (grade 4) 5%	District M+E Officer 1 (grade 4) 10%	District M+E Officer 1 (grade 4) 10%
District Logistic Officer (grade 7) 15%	District Logistic Officer (grade 7) 15%	District M+E Officer 2 (grade 4) 10%	District M+E Officer 2 (grade 4) 10%
District Pharmacist (grade 7) 15%	District Pharmacist (grade 7) 15%	--	--
Chiefdom Supervisor (grade 6) 45%	Chiefdom Supervisor (grade 6) 45%	--	Chiefdom Supervisor (grade 6) 45%
PHU In-Charge (blended rate of grades 4-5) 38%	PHU In-Charge (blended rate of grades 4-5) 38%	PHU In-Charge (blended rate of grades 4-5) 12%	PHU In-Charge (blended rate of grades 4-5) 38%

## Bottlenecks to Service Delivery

A number of bottlenecks were identified through the interviews conducted at all levels of the system with CHW program stakeholders, program managers, supervisors, and CHWs. Interview questions focused on supply and demand-side bottlenecks related to the CHW program. The results of the



bottleneck analysis for the two districts are described below and organized by determinants of coverage.<sup>xxii</sup> 12

### ***Initial Utilization***

Initial utilization can be measured by comparing the numbers of initial contacts (e.g. first visits) with the expected utilization levels for those services. According to 2015 data in Bombali and Kono Districts, the initial utilization of CHS varied. In Bombali District, both first ANC and PNC promotional visits had high utilization (i.e. more than 100 percent of expected coverage); however, iCCM treatments were not provided, only referrals. In Kono District, first ANC promotional visits were well-utilized (89 percent of expected coverage) while PNC promotional visits within three days of birth had only 57 percent coverage. The coverage for pneumonia diagnosis and treatment was also high (more than 100 percent of utilization) while presumptive malaria treatment and diarrhea treatment were relatively low (36 and 13 percent, respectively).

### ***Continuous Utilization***

Continuous utilization is measured when a service requires a specific follow-up intervention, such as a positive RDT requiring malaria treatment. While 2015 Health Management Information System (HMIS) data is available on key indicators such as the number of women completing all ANC and PNC visits at a health facility and the number of referrals for malnourished children, this data is not disaggregated by health facility and therefore cannot be attributed to the promotional efforts of or referrals from CHWs. Moreover, based on the 2015 data provided by implementing partner NGOs in Bombali and Kono Districts, it was not possible to determine the number of CHW referrals that received follow-up care at the health facility.

### ***Effective Coverage***

This requires data related to the outcome of the intervention, such as a successful delivery at a facility following an ANC promotional visit conducted by a CHW. This is also a feasible indicator to measure for certain services; however, due to limited data and time, it was not possible to measure this bottleneck in the two districts.

### ***Geographical Access***

According to the 2012 National CHW Policy, one CHW should serve a population of between 100-500 people in hard-to-reach areas. Based on 2015 data provided by implementing partner NGOs in Bombali and Kono Districts, both CHW programs appear to adhere to this policy.<sup>xxiii</sup> In Bombali District, the average ratio of CHW per total coverage population was one CHW to 259 persons. In Kono District, the average ratio of CHW per total coverage population was one CHW to 269 persons. However, based on interviews conducted with CHWs, many reported that they cover more than the recommended 500 persons.

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<sup>xxii</sup> This bottleneck analysis aligns with UNICEF's approach of using an adapted Tanahashi model for the bottleneck analysis.

<sup>xxiii</sup> Based on 2015 data, in Bombali there were 650 CHWs (738 including Peer Supervisors) serving a catchment population of 168,092 persons: one CHW per 259 persons. In Kono District there were 743 CHWs (828 including Peer Supervisors) for 200,127 persons: one CHW per 269 persons

Based on the 2015-16 Georeferenced Census of CHWs conducted by UNICEF, more than 80 percent of CHWs nationally cover between 0-500 people and less than 10 percent of CHWs cover more than 1,000 people.<sup>13</sup> However, 70 percent of CHWs interviewed did not know the number of people living in their coverage area.<sup>14</sup> Reliable data was unavailable for Bombali and Kono Districts. Based on this study, more than 90 percent of CHWs live in the community where they work.<sup>15</sup> Among the 10 percent who did not live in the community where they worked, some reported having to travel as much between two and five km to get to the community they work in most days.<sup>16</sup> In Bombali and Kono Districts, more than 90 percent of CHWs in Bombali and Kono districts lived in the communities where they work.<sup>17</sup>

According to the 2016 National CHW Policy, CHWs will serve the entire population including persons living adjacent to the PHU. One hard-to-reach CHW (i.e. those beyond three km from the PHU) should serve 250 persons and a CHW within three km of the PHU should serve 1,000 persons. To meet this requirement, an estimated 1,249 CHWs will be required in Bombali District which comprises 974 hard-to-reach CHWs and 275 CHWs living within three km of the PHU.<sup>xxiv</sup> In Kono District in 2016, an estimated 1,346 CHWs will be required, comprised of 1,068 hard-to-reach CHWs and 278 CHWs living within three km of the PHU.<sup>xxv</sup> These estimates, which may be revised by the DHMT in each of the districts, represent a significant increase in the number of CHWs in place in 2015.

### ***Human Resources***

According to the 2012 National CHW Policy, all CHWs should complete the recommended 10-day standardized CHW training program and complete refresher trainings twice per year. It was reported that in 2015, CHWs in Bombali District completed a refresher training on maternal, newborn, and child health as well as a second training on Ebola messaging, social mobilization, contact tracing, and surveillance. The majority of CHWs in Kono District completed a training on the *no-touch policy* and another on Community Events Based Surveillance (CEBS). Although CHWs reported participating in monthly meetings and receiving regular supervision visits, it is possible that CHWs did not receive adequate training to update and/or acquire relevant skills and knowledge.

However, with the introduction of the revised National CHW Policy in 2016, all CHWs will complete three eight-day training modules in the first year (24 days total) followed by an annual refresher training lasting five days. The peer supervisors will receive the same training as the CHWs in addition to a five-day standard supervisor training followed by an annual four-day refresher training.

Increased programmatic investments in the supportive supervision of CHWs will also help to ensure the provision of high-quality services.

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<sup>xxiv</sup> This estimate was calculated based on the Sierra Leone census data for Bombali District which indicated that 53 percent of the population lives within 3 km from a PHU and 47 percent live outside of 3 km of the PHU.

<sup>xxv</sup> This estimate was calculated based on the Sierra Leone census data for Kono District which indicated that 51 percent of the population lives within 3 km from a PHU and 49 percent live outside of 3 km of the PHU.

## Commodities

To deliver an intervention at adequate coverage levels, stock-outs of medicines and commodities should be minimal. In both Bombali and Kono Districts, it was reported that stock-outs at the community level were a significant challenge in 2015.

In Bombali District in 2015, CHWs did not receive any medicines or commodities for curative services (e.g. iCCM treatments); it was reported that this was due to the unavailability of medicines and commodities for CHWs as well as based on a directive from the MOHS to refer all suspected iCCM cases to the health facility, following the outbreak of the EVD epidemic. In Kono District in 2015, the IRC reported considerable levels of stock-outs among CHWs (see Table 6).

**Table 6. Stock-Outs of Medicines and Commodities Among CHWs in Kono District (2015)<sup>xxvi</sup>**

Indicator	Value (2015)
% of CHWs with ACT 25 stock-out	55.80%
% of CHWs with ACT 50 stock-out	40.20%
% of CHWs with Zinc stock-out	62%
% of CHWs with ORS stock-out	61.90%
% of CHWs with Antibiotics stock-out	46.20%

According to interviews conducted, CHWs should be regularly supplied with medicines and supplies to facilitate the provision of preventive and curative services. CHWs are expected to receive 30 percent of the drugs and supplies allocated to each PHU, with 70 percent remaining for use by the PHU staff.

However, in reality, stock-outs of essential medicines are a challenge at all levels of the health system. According to a 2016 report by the USAID Systems for Improved Access to Pharmaceuticals and Services (SIAPS), only four (28 percent) of 14 essential medicines are available at facilities and only one percent of facilities have the full list in stock.<sup>18</sup> Of the five national priority medicines, only 17 percent of health facilities had all five in stock, with an average availability of 71 percent.<sup>19</sup> According to a 2015 Sierra Leone Health Facility Assessment report by the MOHS and UNICEF, 67 percent of PHUs had two out of the three essential child health drugs (artemisinin-based combination therapy and either amoxicillin or Co-trimoxazole).<sup>20</sup>

## Economic Access

A patient's financial situation and both actual and perceived economic costs can also affect access to CHS. For this analysis, no economic access bottlenecks were identified as interviews were not conducted with patients or beneficiaries of CHWs.

The bottleneck analysis was only intended to identify the bottlenecks and, if possible, to quantify them (the latter was not possible for all indicators due to time and data constraints). An analysis of causality, the identification and costing of possible solutions and the selection of a solution are a

<sup>xxvi</sup> Source: International Rescue Committee CHW Program Data - Kono District (2015).

separate process conducted outside the planning and costing analysis. However, when a solution is determined, the cost of that solution should be included in the cost analysis.

## Discussion

The results of this pilot provide estimates of the costs and required financing to expand the coverage and utilization of CHS in Bombali and Kono Districts in Sierra Leone. In the models developed for the two districts, it was assumed that the revised National CHW Policy would be introduced in 2016. As a result, the CHW programs in these districts would experience increased geographic coverage of CHS, an expanded package of CHS, significant investments in CHW training and supervision, and increased financial incentives for CHWs, supervisors, and program support personnel. Based on modelled increases in expected service coverage in years 2016-2025, the estimated costs of medicines, supplies and commodities would also increase.

The “true” incremental costs in the models relate to the medicines, supplies and commodities; however, these may not, in fact, be incremental costs. If the expanded package of CHS will replace services provided at health facilities then there should be no additional cost of medicines, supplies and commodities, since they are currently being used at the health facilities. Therefore, the only true incremental costs would be those related to services not currently obtained at the health facilities and these should have a significant positive impact on morbidity and mortality. As it assumed that CHS are provided free-of-charge and are provided in close proximity to the coverage populations, this should result in a reduction of the economic burden of households in terms of out-of-pocket costs, productivity losses due to illness, and productivity losses due to premature mortality.

If the medicines, supplies, and commodities corresponding to the services included in the package of CHS in these two districts are offset by reductions of the same quantity at the health facility, then the only change is the shifting of the cost and budget from the health facility to the CHW program. A reduction in the number of services at the health facility will allow staff and equipment to be used to expand other necessary services that cannot be provided at the community level. Moreover, it is possible that the provision of CHS could be more cost-effective compared to those delivered at the health facility.

Also, if the medicines, supplies, and commodities are replacing those used at a health facility, the only additional costs relate to the cost of transporting them to the community, which are likely to be minimal and offset by the savings to the households.

## Conclusions

This analysis and the piloting of both the methodology and tool proved useful for modelling the scale-up of Sierra Leone’s National CHW Program as well for future modelling of CHW programs in other countries.

As previously stated, the time and resources available for the study were limited and therefore results are not definitive and do not represent the country as a whole. However, there were many relevant findings:

- With the proposed introduction of the revised National CHW Strategy in 2016, there will be significant changes to the National CHW Program. These programmatic changes included increased geographic coverage of CHWs, expanded package of CHS, greater emphasis on CHW supervision and training, and increased financial incentives provided to CHWs, Peer Supervisors, and program support personnel. These changes will in turn impact the total costs of the program.
- Based on service utilization estimates, it appears that CHS were under-utilized in 2015. In Bombali District, CHWs spent an estimated five percent of their time (based on an estimated 20 working hours per week) providing nine of the 42 services included in the package of CHS in 2015. In Kono District, CHWs spent an estimated eight percent of their time providing 10 of the 42 services included in the package of CHS in 2015.
- There were significant variations in the package of services offered in both districts in 2015 as CHWs in Bombali District did not provide iCCM treatments and the majority of services provided were for MNCH (ANC and PNC promotional home visits) and iCCM referrals. In Kono District in 2015, the majority of services were for iCCM (including presumptive treatment of diarrhea, pneumonia, and malaria) and MNCH. By 2025, the majority of services would be for iCCM and adult malaria case management.
- Given the modelled increases in services for 2016-2025, it is estimated that CHWs would need to spend considerably more time (beyond the number of working hours) to provide the package of services at the modelled coverage rates by 2025.
- The issue of stock-outs of medicines and commodities at both the community and health facility level represent a significant bottleneck which, unless resolved, will limit the success and impact of the proposed expansion of the National CHW program. Solutions for addressing this bottleneck should be further explored and additional quantification should be conducted in all districts implementing the National CHW program.
- The average total cost per capita in 2015 for the two districts was USD 3.92 in Bombali District and USD 2.48 in Kono District. With the projected increases in coverage and utilization, in addition to the introduction of revised National CHW Policy, the cost per capita would decrease to USD 3.81 in Bombali District<sup>xxvii</sup> and increase to USD 4.07 in Kono District.
- In 2015, the main cost drivers of the CHW programs in Bombali and Kono Districts were program management and equipment. With the projected increases in coverage and utilization, as well as the programmatic changes resulting from the introduction of the revised National CHW Policy, the main cost drivers of the CHW programs in Bombali and Kono Districts would be for medicines, supplies, and commodities as well as management and CHW salaries (i.e. financial incentives).
- In 2015, the majority of programs costs were for iCCM services and disease prevention and control in Bombali and Kono Districts. In 2025, with the projected increases in coverage and

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<sup>xxvii</sup> The cost per capita in Bombali appears to fall because a significant amount of start-up costs were included in 2015.

utilization, the majority of program costs would be for iCCM, adult malaria case management, and other services (e.g. house-to-house visits and community mapping conducted by CHWs).

As noted in the discussion section, the costs of expanding CHS in the two districts relate mainly to increases in medicines, supplies and commodities. These costs may not all be incremental, since, to some, degree they may be replacing medicines, supplies and commodities that are currently provided at facilities. If that is the case, the expansion of services may reduce health system unit costs and household costs and contribute to the delivery of more cost-effective services at both the community and health facility levels.



# Annexes

## **Annex 1. CHW Scope of Work (June 2012)<sup>i</sup>**

The following scope of work was extracted from the 2012 National CHW Policy (June 2012)

### Conduct community sensitization and advocacy for:

- Mobilising communities for appropriate environmental sanitation and hygiene practices
- Mobilising communities to set up and support community owned emergency referral system including setting up a fund
- Adolescent Sexual and Reproductive Health
- Child protection issues
- Use of scheduled outreach services to the communities
- Linking up with Village Development Committees (VDCs)

### Conduct home visits to promote:

- Use of Insecticide Treated Mosquito Nets (ITNs)
- Household water treatment
- Hand washing with soap at the household.
- Appropriate hygiene and sanitation practices, including: food hygiene, disposal of excreta +for child, etc.)
- Birth preparedness for pregnant women
- Skilled postnatal care for both mother and new-borns
- Initiation of breastfeeding within first hour of delivery and appropriate temperature management for the newborn
- Exclusive breastfeeding for children 0-5 complete months
- Adequate nutrition 6-11 months
- Timely utilization of immunization services
- Build capacity of the family members to appropriately take care of newborns, U5 children, pregnant women and other vulnerable persons
- Build capacity of the family members to recognize and act on danger signs (especially for newborns, pregnant/postnatal women and U5 children)

### Provide:

- Oral Rehydration Therapy and Zinc for diarrhoea management
- Artemisin-based Combination Therapy for malaria
- Antibiotics for U5 pneumonia
- Screening services for acute malnutrition, including MUAC measurements
- Growth monitoring to identify early referrals
- Family planning methods including condoms and oral contraceptive pills
- Fefol, deworming tablets, Vitamin A, ORS, Ivermectin
- Defaulter tracing for Immunization, Vitamin A, Severe Acute Malnutrition treatment

### Report:

- Vital events such as births, deaths including possible maternal deaths, outbreak or epidemics,
- persistent cough, passing of frequent stools
- Their (CHWs) activities in the community



## **Annex 2. CHW Scope of Work (Draft – June 24, 2016)<sup>i</sup>**

The harmonized official Scope of Work of the National CHW Program is as follows:

### General

- Conduct community mapping to understand their communities and identify CHW's target population
- Actively participate and potentially lead community mobilisation and engagement for health. This includes participation in key community and national campaigns and the involvement in local health structures, such as Facility Management Committees and Village Development Committees.
- Identification and prompt referral of cases and conditions for management at health facilities
- Conduct biannual routine house visits to households in the catchment area to:
  - Update the community mapping including their demography
  - Apply interpersonal communication skills to reinforce key health behaviours for families and households including early care seeking when one is sick.
  - Assess the health situation of households including availability, use and/or practice of healthy behaviours and identify gaps.
  - Conduct dialogue with families and communities and help in identifying solutions for identified gaps and follow their implementation.

### Reproductive, Maternal, Neonatal, and Child Health:

- Pre-pregnancy counselling on the importance and availability of family planning methods and distribution of condoms and refill of oral contraceptive pills
- Identify pregnant women as early as possible through 1) self-reporting of mothers or their family members 2) Active surveillance through routine house visits and 3) notification by PHUs, TBAs and other stakeholders in the community
- Conduct three Antenatal home visits: first early in pregnancy, second mid-pregnancy and third late in pregnancy to:
  - Educate and counsel the pregnant women and her spouse/family on the following issues:
    - The importance of focused antenatal care at PHUs by skilled health workers; ensure that the pregnant women visits PHU for FANC
    - Maternal Nutrition
    - The importance of the use of LLITN
    - Encourage HIV testing and PMTCT as needed
    - Hand washing and use of toilets
    - Use of family planning methods and referral to closest facility for use
    - Essential new-born care (exclusive breast feeding, Hygienic cord care, thermal care, Immunization)
    - Danger signs during pregnancy
    - Preventive and promotive behaviors for maternal, neonatal, child health, including WASH, IYCF, FP, immunization
  - Educate and Screen for danger signs (oedema, fever, persistent headache etc.) during pregnancy and refer to PHUs if identify one
  - Birth preparedness and planning for delivery at health facility
  - Provide IPT to pregnant women, specifically distribution of SP for all pregnant women at 1<sup>st</sup> and 2<sup>nd</sup> visit<sup>xxviii</sup>
- Accompany labouring women to the PHU for delivery and facilitate birth registration

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<sup>xxviii</sup> According to the World Health Organization guidelines on IPTp (2014), pregnant women should receive IPTp during the second and third ANC visits. Source: <http://www.who.int/malaria/publications/atoz/iptp-sp-updated-policy-brief-24jan2014.pdf?ua=1>

- Conduct three Postnatal Home visits for both the mother and the baby on the 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> days after delivery to:
  - Educate and counsel the mother and her family/spouse on the following:
    - Essential newborn care practices (including feeding the colostrum, exclusive breast feeding for up to 6 months, thermal care—skin to skin contact and delayed bathing, and hygienic cord care.
    - The importance of the use of family planning methods, specifically post-partum family planning methods
    - Maternal nutrition
    - On danger signs for new mothers and newborns and need for immediate PHU treatment if one occurs
    - Hand washing and the use of toilet
    - Vaccination for the child
  - Educate and screen for danger signs on both the mother (Excessive or offensive lochia, fever etc.) and the newborn (fever, not able to breast feed etc.) and refer to PHUs if identify one
  - Follow up to ensure implementation of essential newborn care practices and that the baby is started on vaccination
- iCCM:
  - Identification and treatment of pneumonia, diarrhea, and malaria (with RDT) in children aged 2 to 59 months and referral of severely ill children and complications.
  - Identification and treatment of malaria (with RDT) in older children and adults (entire population)
  - Follow-up care for patients who are on treatment and who have finished treatment
- Assess breast feeding practices for younger infants (0 to 2 months) to help on appropriate breast feeding practices.
- Screen 6 to 59 months children for MAM and SAM (MUAC) and refer to health facility
  - Provide in-community support for adherence to MAM & SAM referrals to health facility
  - Provide in-community support for adherence to SFP and CMAM treatment
  - Assessing patients for in-home feeding practices including the RUTF doses
  - Provide in-community follow-up support after SFP and CMAM discharge
- Three infant home visits on 1<sup>st</sup> month, 5<sup>th</sup> month and 9<sup>th</sup> month to ensure vaccination and appropriate feeding
- Report birth, maternal and under five deaths in the community
- Social mobilization for specialized campaigns and PHU's outreach services in their communities (examples: Welbodi Weeks, MCH Week, National Immunization Day)

#### Disease Prevention and Control:

Community-IDS (CBS): Surveillance and reporting of any events related to the following diseases / conditions based on community-level case definitions for:

- Acute Flaccid Paralysis (Polio)
- Acute Watery Diarrhoea (Cholera)
- Clustered deaths
- Guinea Worm
- Maternal Death
- Measles
- Neonatal Tetanus
- Neonatal Death
- Suspected Ebola
- Yellow Fever

- Additionally, the CHW will be required to report any unusual events or rumours affecting the health of community member(s)

CHWs will be expected to report immediately if any of the above occurs to their Peer Supervisor, by phone. They will also be required to document all events in a paper register, to be kept at home. When CHWs can provide treatment (such as in the case of acute watery diarrhea), they will be expected to. Where they are not able to, they will refer the patient immediately to the closest facility. Additionally, CHWs will be expected to support community engagement activities in response to outbreaks.

Sensitization of communities about:

- TB risk factors, signs and symptoms, referral for testing (to PHUs and TB- CHWs)
- HIV risk factors, signs and symptoms, referral for testing (to PHUs and HIV- CHWs)

### Annex 3. National Package of Community Health Services

The following table details the national package of CHS, related programs, target population, and normative numbers of episodes/interventions (i.e. utilization rates) per year

No.	Service / Intervention	Program	Target population	Incidence Rate	Incidence Rate Source/Explanation
1	ANC promotional visit 1 (1st trimester)	MNCH	Pregnant Women	1.0	1 visit per pregnancy
2	ANC promotional visit 2 (2nd trimester) **this will be phased out in 2016 and replaced with service number 40	MNCH	Pregnant Women	1.0	1 visit per pregnancy
3	ANC promotional visit 3 (3rd trimester) **this will be phased out in 2016 and replaced with service number 41	MNCH	Pregnant Women	1.0	1 visit per pregnancy
4	Referral of pregnant women with danger signs	MNCH	Pregnant Women	0.15	15% of pregnancies experience complications (Source: UNICEF Sierra Leone)
5	Accompany pregnant women for delivery	MNCH	Pregnant Women	1.0	1 visit per pregnancy
6	PNC promotional visit (within 24 hours of birth)	MNCH	Postpartum Women	1.0	1 postnatal visit
7	PNC promotional visit (within 3 days of birth)	MNCH	Postpartum Women	1.0	1 postnatal visit
8	PNC promotional visit (within 7 days of birth)	MNCH	Postpartum Women	1.0	1 postnatal visit
9	Neonatal referrals	MNCH	Neonate (<1 month)	0.10	<i>Estimate</i>
10	Reporting of maternal deaths	MNCH	Postpartum Women	0.012	According to DHS 2013, the maternal mortality ratio (MMR) during the seven-year period before the survey (2006-2012) is estimated as 1,165 maternal deaths per 100,000 live births.

11	Reporting of births	MNCH	Children <1	1.0	1 report per birth
12	Reporting of under-five deaths	MNCH	Children <5	0.156	Expressed in terms of 156 deaths per 1,000 live births (Source: DHS 2013)
13	Assessment (iCCM)	iCCM	Children 2-59 months	6.0	<i>Estimate</i>
14	Malaria/fever diagnosis (RDT)	iCCM	Children 2-59 months	4.2	(Source: World Malaria Report 2008)
15	Fever - presumptive treatment (no-touch policy / no RDT) **this will be phased out in 2016	iCCM	Children 2-59 months	4.2	(Source: World Malaria Report 2008)
16	Malaria treatment (confirmed RDT)	iCCM	Children 2-59 months	3.255	77.52% of fever cases (see above: 4.2) tested in the community were positive. (Source: 2015 Sierra Leone HMIS)
17	Pneumonia diagnosis + treatment	iCCM	Children 2-59 months	0.46	(Source: Rudan IL, Boschi-Pinto C, Biloglav Z, Mulholland K, Campbell H. 2008. Epidemiology and etiology of childhood pneumonia. Bull World Health Organ 86:408-416.)
18	Diarrhea treatment	iCCM	Children 2-59 months	3.70	(Source: Fisher Walker, C, Perin, J, Aryee, M, Boschi-Pinto, C and Black, R. Diarrhea incidence in low- and middle-income countries in 1990 and 2010: a systematic review. BMC Public Health 2012, 12:220)
19	Referral after iCCM assessment (no touch policy)	iCCM	Children 2-59 months	6.0	<i>Estimate</i>
20	Follow-up visit to patient's house (after 2 days)	iCCM	Children 2-59 months	6.0	<i>Estimate</i> (see above)
21	Community Integrated Disease Surveillance Reporting (routine)	DPC	Community	12.0	Estimated 12 monthly paper-based reports submitted per year
22	Suspected Ebola reporting (7 event triggers)	DPC	Community	0.033	This is an extrapolation from the 2015 CEBS evaluation: 50 CHMs (assumed to cover 5,000 people each) have reported 3,432 alerts/triggers in five months in

					<p>2014. This figure is annualized and divided in to the number of people the 50 CHMs have covered.</p> <p>(Source: MOHS 2015 Community Events Based Surveillance Report)</p>
23	Male condom distribution	RH/FP	Males 15-49	12.0	<p>1 visit per month (12 condoms per month). According to UNFPA (2016), 20% of adult males 15-49 will are expected to need 12 condoms/month.</p> <p>(Source: UNFPA 2016)</p>
24	Refills of oral contraceptives	RH/FP	Female Rep Age	4.0	<p>Three month cycles of oral contraceptives (once every three months).</p> <p>(Source: UNFPA 2016)</p>
25	Malaria/fever diagnosis (RDT) - Adults	Malaria (5 years+)	Adults >5	1.2	<p>According to national consumption data, adults consume 1.2 RDTs per year.</p> <p>(Source: Sierra Leone National Malaria Control Program)</p>
26	Malaria treatment (confirmed RDT) - Adults	Malaria (5 years+)	Adults >5	1.0	<p>According to the NMCP, adults will experience one case of malaria per year.</p> <p>(Source: Sierra Leone National Malaria Control Program)</p>
27	Follow-up visit - management of children with Severe Acute Malnutrition	Nutrition	Children 6-59 months	0.014	<p>At the national level, 1.4% of children 6-59 months had MUAC of &lt;11.5.</p> <p>(Source: UNICEF. Report –The Nutritional Situation in Sierra Leone. October 2010.)</p>
28	Severe Malnutrition (SAM) referral	Nutrition	Children 6-59 months	0.014	See above
29	Follow-up visit - management of children with Moderate Acute Malnutrition (MAM)	Nutrition	Children 6-59 months	0.058	<p>At the national level, 5.8% (5.3- 6.4% 95% C.I.) of children aged 6-59 months had a MUAC &lt; 12.5cm.</p> <p>(Source: UNICEF. Report –The Nutritional Situation in Sierra Leone. October 2010.)</p>

30	Infant and young child feeding (IYCF) - includes referral for multi-micronutrients (6-59 months)	Nutrition	Children 6-59 months	0.504	It is estimated that children with SAM and MAM (see above incidence rates) will receive 7 visits per year. (Source: MOHS)
31	Mobilization for measles campaign (once per year for 5 days)	Campaign mobilization	Community	1.0	1 campaign per year (Source: MOHS)
32	National Immunization Days (4 times per year for 4 days)	Campaign mobilization	Community	4.0	4 campaigns per year (Source: MOHS)
33	Welbodi Week (twice per year for 5 days each)	Campaign mobilization	Community	2.0	2 campaigns per year (Source: MOHS)
34	Polio campaigns (3 times per year for 4 days)	Campaign mobilization	Community	4.0	4 campaigns per year (Source: MOHS)
35	LLIN distribution (3 nets per household)	Campaign mobilization	Community	0.333	1 campaign every three years (Source: MOHS)
36	LF / Onchocerciasis campaign (1 time per year for 5 days)	Campaign mobilization	Community	1.0	1 campaign per year (Source: MOHS)
37	House-to-house visits (quarterly)	Other	Community	4.0	4 visits per year (once per quarter) Source: MOHS CHW Strategy (2016)
38	Community mapping	Other	Household	1.0	1 community mapping per community served by the CHW. (Source: MOHS CHW Strategy [2016])
39	Malnutrition screening	MNCH	Children 6-59 months	1.0	Each child 6-59 months should be screened for malnutrition at least once per year. (Source: MOHS)
40	ANC promotional visit 2 (2nd trimester) w/ IPTp **this will be phased into the CHS package in 2016	MNCH	Pregnant Women	1.0	1 visit per pregnancy
41	ANC promotional visit 3 (3rd trimester) w/ IPTp **this will be phased into the CHS package in 2016	MNCH	Pregnant Women	1.0	1 visit per pregnancy

42	Referral after iCCM assessment (w/out no touch policy) **this will be phased into the CHS package in 2016	iCCM	Children 2-59 months	0.06	An estimated 10% of iCCM cases assessed (see above) are referred to the health facility. (Source: Collins, D et al. "The costs of integrated community case management (iCCM) programs: a multi-country analysis." Journal of Global Health (2014): 4(2). doi: 10.7189/jogh.04.020407.)
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#### Annex 4. Bombali District Population and Health Service Structure (2015-2025)

Indicator	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Sub-national population, if applicable	506,838	518,080	529,571	541,317	553,323	565,596	578,141	590,964	604,071	617,470	631,165
Annual population growth rate	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
% population targeted by community services	33%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total population covered by community services	168,092	518,080	529,571	541,317	553,323	565,596	578,141	590,964	604,071	617,470	631,165
Average household size (persons per household)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Indicator	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
All	168,092	518,080	529,571	541,317	553,323	565,596	578,141	590,964	604,071	617,470	631,165
Community	750	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249
Household	28,490	87,810	89,758	91,749	93,784	95,864	97,990	100,163	102,385	104,656	106,977
All Male	83,177	256,362	262,048	267,861	273,802	279,875	286,082	292,428	298,913	305,544	312,320
All Female	84,915	261,718	267,523	273,456	279,521	285,721	292,059	298,536	305,158	311,926	318,845
Neonate (<1 month)	887	2,733	2,793	2,855	2,918	2,983	3,049	3,117	3,186	3,257	3,329
Children <1	10,639	32,790	33,517	34,261	35,021	35,798	36,592	37,403	38,233	39,081	39,948
Children 2-59 months	25,287	77,937	79,665	81,432	83,238	85,084	86,972	88,900	90,872	92,888	94,948
Children >1 to <5	15,520	47,834	48,895	49,979	51,088	52,221	53,379	54,563	55,773	57,010	58,275
Children 6-59 months	23,543	72,562	74,171	75,816	77,497	79,216	80,974	82,769	84,605	86,482	88,400

<b>Children &lt;5</b>	26,159	80,624	82,412	84,240	86,108	88,018	89,971	91,966	94,006	96,091	98,222
<b>Children &lt;15</b>	53,906	166,144	169,829	173,596	177,446	181,382	185,405	189,517	193,721	198,017	202,409
<b>Adolescents 10-19</b>	39,356	121,301	123,991	126,741	129,553	132,426	135,363	138,366	141,434	144,572	147,778
<b>Youth 15-24</b>	33,662	103,752	106,053	108,405	110,810	113,267	115,780	118,348	120,973	123,656	126,398
<b>Adults &gt;5</b>	141,933	437,456	447,159	457,077	467,215	477,577	488,170	498,998	510,065	521,379	532,943
<b>Adults &gt;15</b>	96,883	298,606	305,229	311,999	318,919	325,993	333,223	340,614	348,169	355,891	363,785
<b>Male Adult</b>	47,616	146,759	150,014	153,341	156,742	160,219	163,773	167,405	171,118	174,913	178,793
<b>Males 15-49</b>	39,977	39,977	39,977	39,977	39,977	39,977	39,977	39,977	39,977	39,977	39,977
<b>Female Adult</b>	49,267	151,847	155,215	158,658	162,177	165,774	169,451	173,209	177,051	180,978	184,992
<b>Female Rep Age</b>	41,068	126,578	129,385	132,255	135,188	138,187	141,252	144,385	147,587	150,861	154,207
<b>Fem + Male Rep Age</b>	88,684	273,337	279,399	285,596	291,930	298,406	305,025	311,790	318,705	325,774	333,000
<b>Pregnant Women</b>	6,259	19,291	19,719	20,156	20,603	21,060	21,527	22,005	22,493	22,992	23,502
<b>Postpartum Women</b>	6,174	19,029	19,451	19,882	20,323	20,774	21,235	21,706	22,187	22,679	23,182
<b>Newborns</b>	6,236	19,221	19,647	20,083	20,528	20,984	21,449	21,925	22,411	22,908	23,416

**Annex 5. Bombali District - Numbers and Percentages of Services by Program and Number of CHW Hours Required (2015-2025)**

	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<b>Services by Category</b>											
Promotional	26,231	379,495	506,810	639,596	778,033	922,313	940,194	958,464	977,142	996,235	1,015,749
Preventive	22,123	231,540	350,706	473,903	603,293	735,954	751,945	768,291	784,997	802,076	819,532
Curative	61,963	439,614	819,455	1,215,931	1,629,585	1,976,333	2,020,181	2,064,980	2,110,784	2,157,601	2,205,451
<b>Total</b>	110,317	1,050,649	1,676,970	2,329,430	3,010,911	3,634,599	3,712,320	3,791,734	3,872,923	3,955,911	4,040,732
<b>Services by Program</b>	<b>Baseline 2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
Maternal, newborn, and child health	46,989	181,304	205,042	228,735	254,410	279,006	285,196	291,522	297,987	304,597	311,353
iCCM	61,963	446,582	833,699	1,237,772	1,659,350	2,014,365	2,059,061	2,104,719	2,151,406	2,199,123	2,247,892
Disease prevention and control	-	3,006	6,012	9,018	12,023	15,029	15,029	15,029	15,029	15,029	15,029
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	111,134	111,471	111,815	112,167	112,527	112,895	113,271	113,655	114,048	114,450
Malaria (5 years+)	-	192,481	393,500	603,342	822,298	1,050,669	1,073,974	1,097,796	1,122,143	1,147,034	1,172,475
Nutrition	1,365	11,929	20,085	28,598	37,478	46,738	47,775	48,834	49,917	51,024	52,156

Campaign mobilization	-	15,404	15,404	15,404	15,404	15,404	15,404	15,404	15,404	15,404	15,404
Other	-	88,809	91,756	94,746	97,780	100,860	102,986	105,159	107,381	109,652	111,973
Total	110,317	1,050,649	1,676,970	2,329,430	3,010,911	3,634,599	3,712,320	3,791,734	3,872,923	3,955,911	4,040,732
Services by Program (%)	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Maternal, newborn, and child health	43%	17%	12%	10%	8%	8%	8%	8%	8%	8%	8%
iCCM	56%	43%	50%	53%	55%	55%	55%	56%	56%	56%	56%
Disease prevention and control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TB/HIV	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Reproductive health and family planning	0%	11%	7%	5%	4%	3%	3%	3%	3%	3%	3%
Malaria (5 years+)	0%	18%	23%	26%	27%	29%	29%	29%	29%	29%	29%
Nutrition	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Campaign mobilization	0%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Other	0%	8%	5%	4%	3%	3%	3%	3%	3%	3%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Time on Services by Program (hours)											
Maternal, newborn, and child health	19,398	80,933	94,570	108,014	122,783	136,574	139,603	142,702	145,866	149,101	152,408
iCCM	12,496	122,920	231,474	344,784	463,004	565,135	577,675	590,484	603,582	616,970	630,652
Disease prevention and control	-	1,502	3,003	4,505	6,006	7,508	7,508	7,508	7,508	7,508	7,508
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	18,522	18,579	18,636	18,695	18,755	18,816	18,879	18,943	19,008	19,075
Malaria (5 years+)											

	-	48,120	98,375	150,835	205,575	262,667	268,494	274,449	280,536	286,758	293,119
<b>Nutrition</b>	341	2,373	3,775	5,239	6,766	8,357	8,543	8,732	8,926	9,124	9,326
<b>Campaign mobilization</b>	-	303,923	303,923	303,923	303,923	303,923	303,923	303,923	303,923	303,923	303,923
<b>Other</b>	-	2,108,443	2,156,186	2,204,965	2,254,802	2,305,725	2,356,756	2,408,917	2,462,234	2,516,738	2,572,447
<b>Total</b>	32,236	2,686,737	2,909,885	3,140,902	3,381,553	3,608,645	3,681,318	3,755,594	3,831,517	3,909,130	3,988,458
	<b>Baseline 2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>CHW's time spent as a % of time available</b>	5%	207%	224%	242%	260%	278%	283%	289%	295%	301%	307%
<b>Number of CHWs</b>	650	1249	1249	1249	1249	1249	1249	1249	1249	1249	1249
<b>Number of CHWs direct supervisors</b>	100	125	125	125	125	125	125	125	125	125	125



**Annex 6. Bombali District - Summary of Costs by Input and by Program (2015-2025), USD**

Cost by Input (USD)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CHW Salaries	20,077	486,096	486,096	486,096	486,096	486,096	486,096	486,096	486,096	486,096	486,096
Equipment	107,627	329,332	292,722	304,577	310,840	331,563	317,476	293,236	304,063	311,355	319,707
Medicines, supplies, commodities	3	211,927	384,423	564,344	752,219	947,874	968,047	988,658	1,009,731	1,031,271	1,053,285
Supervision	20,592	64,349	64,349	64,349	64,349	64,349	64,349	64,349	64,349	64,349	64,349
Training	108,617	749,698	161,535	161,535	161,535	161,535	161,535	161,535	161,535	161,535	161,535
Management	271,015	292,990	292,990	292,990	292,990	292,990	292,990	292,990	292,990	292,990	292,990
Start-up Costs	108,617	741,480	-	-	-	-	-	-	-	-	-
Other Program Costs	22,716	27,985	27,985	27,985	27,985	27,985	27,985	27,985	27,985	27,985	27,985
Total	659,263	2,903,857	1,710,100	1,901,876	2,096,014	2,312,392	2,318,479	2,314,850	2,346,750	2,375,580	2,405,948
Recurrent Cost by Program (USD)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
All Community Health Programs											
Maternal, newborn, and child health	132,596	57,787	40,084	39,003	38,987	38,492	38,464	38,127	38,281	38,582	38,813



iCCM	191,415	465,054	552,998	767,972	956,974	1,152,231	1,157,814	1,162,956	1,188,688	1,206,758	1,228,473
Disease prevention and control	181,357	16,894	11,298	10,754	10,445	10,142	10,034	9,846	9,788	9,798	9,726
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	136,391	87,344	80,240	75,435	71,685	71,220	70,189	70,068	70,216	70,232
Malaria (5 years+)	-	170,179	220,979	308,902	392,975	474,131	479,846	481,709	489,828	499,980	509,370
Nutrition	45,278	16,227	10,814	10,281	9,957	9,719	9,649	9,502	9,477	9,488	9,480
Campaign mobilization	-	163,762	97,175	82,947	72,603	64,752	62,991	60,779	59,399	58,266	57,042
Other	-	1,136,084	689,409	601,778	538,638	491,240	488,461	481,742	481,221	482,492	482,812
Total	550,646	2,162,377	1,710,100	1,901,876	2,096,014	2,312,392	2,318,479	2,314,850	2,346,750	2,375,580	2,405,948
Cost by Input (USD)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CHW Salaries	3.0%	16.7%	28.4%	25.6%	23.2%	21.0%	21.0%	21.0%	20.7%	20.5%	20.2%
Equipment	16.3%	11.3%	17.1%	16.0%	14.8%	14.3%	13.7%	12.7%	13.0%	13.1%	13.3%
Medicines, supplies, commodities	0.0%	7.3%	22.5%	29.7%	35.9%	41.0%	41.8%	42.7%	43.0%	43.4%	43.8%
Supervision	3.1%	2.2%	3.8%	3.4%	3.1%	2.8%	2.8%	2.8%	2.7%	2.7%	2.7%
Training	16.5%	25.8%	9.4%	8.5%	7.7%	7.0%	7.0%	7.0%	6.9%	6.8%	6.7%
Management	41.1%	10.1%	17.1%	15.4%	14.0%	12.7%	12.6%	12.7%	12.5%	12.3%	12.2%
Other Program Costs	3.4%	1.0%	1.6%	1.5%	1.3%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%

<b>Total</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>All Community Health Programs</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Maternal, newborn, and child health</b>	24.1%	2.7%	2.3%	2.1%	1.9%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%
<b>iCCM</b>	34.8%	21.5%	32.3%	40.4%	45.7%	49.8%	49.9%	50.2%	50.7%	50.8%	51.1%
<b>Disease prevention and control</b>	32.9%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
<b>TB/HIV</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Reproductive health and family planning</b>	0.0%	6.3%	5.1%	4.2%	3.6%	3.1%	3.1%	3.0%	3.0%	3.0%	2.9%
<b>Malaria (5 years+)</b>	0.0%	7.9%	12.9%	16.2%	18.7%	20.5%	20.7%	20.8%	20.9%	21.0%	21.2%
<b>Nutrition</b>	8.2%	0.8%	0.6%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
<b>Campaign mobilization</b>	0.0%	7.6%	5.7%	4.4%	3.5%	2.8%	2.7%	2.6%	2.5%	2.5%	2.4%
<b>Other</b>	0.0%	52.5%	40.3%	31.6%	25.7%	21.2%	21.1%	20.8%	20.5%	20.3%	20.1%
<b>Total</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



### Annex 7. Bombali District – Actual and Projected Numbers of Services (2015-2015)

Indicator	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<b>Total Services</b>	110,317	1,050,649	1,676,970	2,329,430	3,010,911	3,634,599	3,712,320	3,791,734	3,872,923	3,955,911	4,040,732
<b>ANC promotional visit 1 (1st trimester)</b>	6,259	19,291	19,719	20,156	20,603	21,060	21,527	22,005	22,493	22,992	23,502
<b>ANC promotional visit 2 (2nd trimester)</b>	6,259	-	-	-	-	-	-	-	-	-	-
<b>ANC promotional visit 3 (3rd trimester)</b>	-	-	-	-	-	-	-	-	-	-	-
<b>Referral of pregnant women with danger signs</b>	-	579	1,183	1,814	2,472	3,159	3,229	3,301	3,374	3,449	3,525
<b>Accompany pregnant women for delivery</b>	-	3,858	7,888	12,094	16,482	21,060	21,527	22,005	22,493	22,992	23,502
<b>PNC promotional visit (within 24 hours of birth)</b>	-	3,806	7,780	11,929	16,258	20,774	21,235	21,706	22,187	22,679	23,182
<b>PNC promotional visit (within 3 days of birth)</b>	6,174	19,029	19,451	19,882	20,323	20,774	21,235	21,706	22,187	22,679	23,182
<b>PNC promotional visit (within 7 days of birth)</b>	6,174	19,029	19,451	19,882	20,323	20,774	21,235	21,706	22,187	22,679	23,182
<b>Neonatal referrals</b>	85	273	279	286	292	298	305	312	319	326	333
<b>Reporting of maternal deaths</b>	-	44	91	139	189	242	247	253	258	264	270
<b>Reporting of births</b>	-	6,558	13,407	20,557	28,017	35,798	36,592	37,403	38,233	39,081	39,948
<b>Reporting of under-five deaths</b>	-	2,515	5,143	7,885	10,746	13,731	14,035	14,347	14,665	14,990	15,323

<b>Assessment (iCCM)</b>	26,030	171,076	270,468	374,186	482,368	510,504	521,832	533,403	545,235	557,328	569,688
<b>Malaria/fever diagnosis (RDT)</b>	-	65,467	133,837	205,209	279,679	357,353	365,282	373,382	381,664	390,129	398,781
<b>Fever - presumptive treatment (no-touch policy / no RDT)</b>	-	-	-	-	-	-	-	-	-	-	-
<b>Malaria treatment (confirmed RDT)</b>	-	50,737	103,724	159,037	216,751	276,949	283,094	289,371	295,790	302,350	309,056
<b>Pneumonia diagnosis + treatment</b>	-	7,170	14,658	22,475	30,631	39,139	40,007	40,894	41,801	42,728	43,676
<b>Diarrhea treatment</b>	-	57,673	117,904	180,779	246,384	314,811	321,796	328,932	336,228	343,685	351,307
<b>Referral after iCCM assessment (no touch policy)</b>	35,933	-	-	-	-	-	-	-	-	-	-
<b>Follow-up visit to patient's house (after 2 days)</b>	-	93,524	191,196	293,155	399,541	510,504	521,832	533,403	545,235	557,328	569,688
<b>Weekly Community Integrated Disease Surveillance Reporting (routine)</b>	-	2,998	5,995	8,993	11,990	14,988	14,988	14,988	14,988	14,988	14,988
<b>Suspected Ebola reporting (7 event triggers)</b>	-	8	16	25	33	41	41	41	41	41	41
<b>Male condom distribution</b>	-	95,945	95,945	95,945	95,945	95,945	95,945	95,945	95,945	95,945	95,945
<b>Refills of oral contraceptives</b>	-	15,189	15,526	15,871	16,223	16,582	16,950	17,326	17,710	18,103	18,505
<b>Malaria/fever diagnosis (RDT) - Adults</b>	-	104,989	214,636	329,095	448,526	573,092	585,804	598,798	612,078	625,655	639,532
<b>Malaria treatment (confirmed RDT) -</b>	-	87,491	178,864	274,246	373,772	477,577	488,170	498,998	510,065	521,379	532,943

<b>Adults</b>											
<b>Follow-up visit - management of children with Severe Acute Malnutrition</b>	-	203	415	637	868	1,109	1,134	1,159	1,184	1,211	1,238
<b>Severe Malnutrition (SAM) referral</b>	-	203	415	637	868	1,109	1,134	1,159	1,184	1,211	1,238
<b>Follow-up visit - management of children with Moderate Acute Malnutrition</b>	1,365	4,209	4,302	4,397	4,495	4,595	4,696	4,801	4,907	5,016	5,127
<b>Infant and young child feeding (IYCF) - includes referral for multi-micronutrients (6-59 months)</b>	-	7,314	14,953	22,927	31,247	39,925	40,811	41,716	42,641	43,587	44,553
<b>Mobilization for measles campaign (once per year for 5 days)</b>	-	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249
<b>National Immunization Days (4 times per year for 4 days)</b>	-	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996
<b>Welbodi Week (twice per year for 5 days each)</b>	-	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498	2,498
<b>Polio campaigns (3 times per year for 4 days)</b>	-	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996	4,996
<b>LLIN distribution (3 nets per household)</b>	-	416	416	416	416	416	416	416	416	416	416
<b>LF / Onchocerciasis</b>	-	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249	1,249

<b>campaign (1 time per year for 5 days)</b>											
<b>House-to-house visits (quarterly)</b>	-	999	1,998	2,998	3,997	4,996	4,996	4,996	4,996	4,996	4,996
<b>Community mapping</b>	-	87,810	89,758	91,749	93,784	95,864	97,990	100,163	102,385	104,656	106,977
<b>Malnutrition screening</b>	22,038	72,562	74,171	75,816	77,497	79,216	80,974	82,769	84,605	86,482	88,400
<b>ANC promotional visit 2 (2nd trimester) w/ IPTp</b>	-	19,291	19,719	20,156	20,603	21,060	21,527	22,005	22,493	22,992	23,502
<b>ANC promotional visit 3 (3rd trimester) w/ IPTp</b>	-	14,468	16,761	18,140	20,603	21,060	21,527	22,005	22,493	22,992	23,502
<b>Referral after iCCM assessment (w/out no touch policy)</b>	-	935	1,912	2,932	3,995	5,105	5,218	5,334	5,452	5,573	5,697





### Annex 8. Kono District Population and Health Service Structure (2015-2025)

	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Sub-national population, if applicable	533,104	544,928	557,015	569,369	581,998	594,907	608,102	621,589	635,376	649,469	663,874
Annual population growth rate	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
% population targeted by community services	38%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total population covered by community services	200,127	544,928	557,015	569,369	581,998	594,907	608,102	621,589	635,376	649,469	663,874
Average household size (persons per household)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
All	200,127	544,928	557,015	569,369	581,998	594,907	608,102	621,589	635,376	649,469	663,874
Community	824	1,349	1,349	1,349	1,349	1,349	1,349	1,349	1,349	1,349	1,349
Household	33,920	92,361	94,409	96,503	98,644	100,832	103,068	105,354	107,691	110,079	112,521
All Male	99,029	269,648	275,629	281,742	287,991	294,379	300,908	307,582	314,404	321,378	328,506
All Female	101,098	275,280	281,386	287,627	294,007	300,528	307,194	314,007	320,972	328,091	335,368
Neonate (<1 month)	1,056	2,874	2,938	3,003	3,070	3,138	3,207	3,278	3,351	3,426	3,502
Children <1	12,666	34,489	35,254	36,036	36,836	37,653	38,488	39,341	40,214	41,106	42,018
Children 2-59 months	30,106	81,975	83,794	85,652	87,552	89,494	91,479	93,508	95,582	97,702	99,868
Children >1 to <5	18,478	50,313	51,429	52,569	53,735	54,927	56,145	57,391	58,664	59,965	61,295
Children 6-59 months	28,030	76,322	78,015	79,745	81,514	83,322	85,170	87,059	88,990	90,964	92,981

<b>Children &lt;5</b>	31,144	84,802	86,683	88,606	90,571	92,580	94,633	96,732	98,878	101,071	103,312
<b>Children &lt;15</b>	64,179	174,754	178,630	182,592	186,642	190,781	195,013	199,338	203,760	208,279	212,899
<b>Adolescents 10-19</b>	46,857	127,587	130,417	133,310	136,266	139,289	142,378	145,536	148,764	152,064	155,436
<b>Youth 15-24</b>	40,078	109,128	111,549	114,023	116,552	119,137	121,780	124,481	127,242	130,064	132,949
<b>Adults &gt;5</b>	168,983	460,126	470,332	480,764	491,427	502,327	513,469	524,857	536,499	548,398	560,562
<b>Adults &gt;15</b>	115,347	314,081	321,047	328,168	335,447	342,887	350,492	358,266	366,212	374,335	382,638
<b>Male Adult</b>	56,691	154,364	157,788	161,288	164,865	168,522	172,260	176,080	179,986	183,978	188,059
<b>Males 15-49</b>	47,596	47,596	47,596	47,596	47,596	47,596	47,596	47,596	47,596	47,596	47,596
<b>Female Adult</b>	58,657	159,716	163,259	166,880	170,581	174,365	178,232	182,185	186,226	190,357	194,579
<b>Female Rep Age</b>	48,895	133,137	136,090	139,109	142,194	145,348	148,572	151,867	155,236	158,679	162,198
<b>Fem + Male Rep Age</b>	105,586	287,501	293,878	300,397	307,059	313,870	320,832	327,947	335,222	342,657	350,257
<b>Pregnant Women</b>	7,452	20,291	20,741	21,201	21,671	22,152	22,643	23,145	23,658	24,183	24,720
<b>Postpartum Women</b>	7,350	20,015	20,459	20,912	21,376	21,850	22,335	22,830	23,337	23,854	24,383
<b>Newborns</b>	7,425	20,217	20,665	21,124	21,592	22,071	22,561	23,061	23,572	24,095	24,630

### Annex 9. Kono District - Numbers and Percentages of Services by Program and Number of CHW Hours Required (2015-2025)

Services by Category	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Promotional	16,506	409,357	542,049	680,441	824,724	972,878	991,433	1,010,399	1,029,794	1,049,611	1,069,866
Preventive	28,105	243,671	369,036	498,696	634,868	774,484	791,302	808,492	826,066	844,029	862,391
Curative	146,775	492,562	885,050	1,294,709	1,722,099	2,078,764	2,124,864	2,171,993	2,220,177	2,269,418	2,319,742
Total	191,386	1,145,590	1,796,134	2,473,847	3,181,692	3,826,125	3,907,599	3,990,885	4,076,037	4,163,058	4,251,999
Services by Program	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Maternal, newborn, and child health	44,536	190,700	213,595	236,350	261,094	282,391	288,653	295,053	301,599	308,287	315,127
iCCM	146,775	499,891	900,032	1,317,683	1,753,409	2,118,770	2,165,755	2,213,792	2,262,905	2,313,094	2,364,381
Disease prevention and control	-	3,239	6,479	9,718	12,957	16,196	16,196	16,196	16,196	16,196	16,196
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	130,207	130,561	130,923	131,294	131,672	132,059	132,454	132,859	133,272	133,694
Malaria (5 years+)	-	202,455	413,892	634,608	864,912	1,105,119	1,129,632	1,154,685	1,180,298	1,206,476	1,233,236
Nutrition	75	9,059	18,411	28,230	38,475	49,160	50,250	51,365	52,504	53,669	54,859

Campaign mobilization	-	16,601	16,601	16,601	16,601	16,601	16,601	16,601	16,601	16,601	16,601
Other	-	93,437	96,563	99,734	102,951	106,216	108,452	110,738	113,075	115,463	117,905
Total	191,386	1,145,590	1,796,134	2,473,847	3,181,692	3,826,125	3,907,599	3,990,885	4,076,037	4,163,058	4,251,999
Services by Program (%)	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Maternal, newborn, and child health	23%	17%	12%	10%	8%	7%	7%	7%	7%	7%	7%
iCCM	77%	44%	50%	53%	55%	55%	55%	55%	56%	56%	56%
Disease prevention and control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TB/HIV	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Reproductive health and family planning	0%	11%	7%	5%	4%	3%	3%	3%	3%	3%	3%
Malaria (5 years+)	0%	18%	23%	26%	27%	29%	29%	29%	29%	29%	29%
Nutrition	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Campaign mobilization	0%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Other	0%	8%	5%	4%	3%	3%	3%	3%	3%	3%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Time on Services by Program (hours)											
Maternal, newborn, and child health	13,314	85,128	96,360	107,252	119,394	127,039	129,856	132,735	135,679	138,688	141,766
iCCM	44,802	146,887	256,961	371,847	491,701	594,427	607,608	621,085	634,864	648,945	663,333

Disease prevention and control	-	1,618	3,236	4,854	6,473	8,091	8,091	8,091	8,091	8,091	8,091
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	21,701	21,760	21,821	21,882	21,945	22,010	22,076	22,143	22,212	22,282
Malaria (5 years+)	-	50,614	103,473	158,652	216,228	276,280	282,408	288,671	295,074	301,619	308,309
Nutrition	19	1,624	3,292	5,048	6,880	8,790	8,985	9,185	9,388	9,597	9,809
Campaign mobilization	-	327,527	327,527	327,527	327,527	327,527	327,527	327,527	327,527	327,527	327,527
Other	-	2,217,733	2,267,977	2,319,308	2,371,757	2,425,345	2,479,019	2,533,882	2,589,964	2,647,292	2,705,888
Total	58,134	2,852,832	3,080,587	3,316,309	3,561,841	3,789,443	3,865,504	3,943,251	4,022,731	4,103,970	4,187,006
	<b>Baseline 2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
CHW's time spent as a % of time available	8%	204%	220%	237%	254%	271%	276%	282%	287%	293%	299%
Number of CHWs	743	1346	1346	1346	1346	1346	1346	1346	1346	1346	1346
Number of CHWs direct supervisors	85	135	135	135	135	135	135	135	135	135	135
CHWs per supervisor	8.7	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0



**Annex 10. Kono District - Summary of Costs by Input and by Program (2015-2025), USD**

Cost by Input (USD)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CHW Salaries	22,949	525,710	525,710	525,710	525,710	525,710	525,710	525,710	525,710	525,710	525,710
Equipment	65,076	346,910	308,011	320,233	308,011	349,294	334,688	308,011	320,233	308,011	337,072
Medicines, supplies, commodities	44,570	233,978	414,081	601,934	798,088	1,002,360	1,023,569	1,045,252	1,067,420	1,090,074	1,113,227
Supervision	17,503	69,496	69,496	69,496	69,496	69,496	69,496	69,496	69,496	69,496	69,496
Training	23,536	807,471	173,469	173,469	173,469	173,469	173,469	173,469	173,469	173,469	173,469
Management	275,574	455,046	455,046	455,046	455,046	455,046	455,046	455,046	455,046	455,046	455,046
Start-up Costs	23,536	799,253	-	-	-	-	-	-	-	-	-
Other Program Costs	22,588	27,856	27,856	27,856	27,856	27,856	27,856	27,856	27,856	27,856	27,856
<b>Total</b>	<b>495,332</b>	<b>3,265,721</b>	<b>1,973,671</b>	<b>2,173,745</b>	<b>2,357,677</b>	<b>2,603,232</b>	<b>2,609,835</b>	<b>2,604,841</b>	<b>2,639,231</b>	<b>2,649,664</b>	<b>2,701,878</b>
Recurrent Cost by Program (USD)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
All Community Health Programs											
Maternal, newborn, and child health	24,268	64,833	44,818	42,680	41,559	39,947	39,924	39,595	39,740	39,761	40,281
iCCM	338,108	539,360	636,539	870,059	1,065,942	1,283,796	1,290,387	1,295,410	1,324,079	1,332,783	1,366,646
Disease prevention and control	89,440	19,169	13,068	12,400	11,865	11,618	11,490	11,277	11,200	11,089	11,116
TB/HIV	-	-	-	-	-	-	-	-	-	-	-
Reproductive health and family planning	-	169,184	110,340	100,937	93,693	89,388	88,765	87,470	87,228	86,716	87,288

<b>Malaria (5 years+)</b>	-	188,826	249,793	347,806	436,987	529,492	535,715	537,847	546,451	553,456	567,569
<b>Nutrition</b>	19,981	15,682	10,803	10,361	10,019	9,916	9,843	9,694	9,662	9,599	9,656
<b>Campaign mobilization</b>	-	189,086	114,620	97,695	84,647	76,035	73,955	71,373	69,701	67,850	66,870
<b>Other</b>	-	1,280,329	793,689	691,807	612,965	563,041	559,757	552,174	551,171	548,409	552,452
<b>Total</b>	471,796	2,466,468	1,973,671	2,173,745	2,357,677	2,603,232	2,609,835	2,604,841	2,639,231	2,649,664	2,701,878
<b>Cost by Input (USD)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>CHW Salaries</b>	4.6%	16.1%	26.6%	24.2%	22.3%	20.2%	20.1%	20.2%	19.9%	19.8%	19.5%
<b>Equipment</b>	13.1%	10.6%	15.6%	14.7%	13.1%	13.4%	12.8%	11.8%	12.1%	11.6%	12.5%
<b>Medicines, supplies, commodities</b>	9.0%	7.2%	21.0%	27.7%	33.9%	38.5%	39.2%	40.1%	40.4%	41.1%	41.2%
<b>Supervision</b>	3.5%	2.1%	3.5%	3.2%	2.9%	2.7%	2.7%	2.7%	2.6%	2.6%	2.6%
<b>Training</b>	4.8%	24.7%	8.8%	8.0%	7.4%	6.7%	6.6%	6.7%	6.6%	6.5%	6.4%
<b>Management</b>	55.6%	13.9%	23.1%	20.9%	19.3%	17.5%	17.4%	17.5%	17.2%	17.2%	16.8%
<b>Other Program Costs</b>	4.6%	0.9%	1.4%	1.3%	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>All Community Health Programs</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Maternal, newborn, and child health</b>	5.1%	2.6%	2.3%	2.0%	1.8%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
<b>iCCM</b>	71.7%	21.9%	32.3%	40.0%	45.2%	49.3%	49.4%	49.7%	50.2%	50.3%	50.6%
<b>Disease prevention and control</b>	19.0%	0.8%	0.7%	0.6%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
<b>TB/HIV</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%



<b>Reproductive health and family planning</b>	0.0%	6.9%	5.6%	4.6%	4.0%	3.4%	3.4%	3.4%	3.3%	3.3%	3.2%
<b>Malaria (5 years+)</b>	0.0%	7.7%	12.7%	16.0%	18.5%	20.3%	20.5%	20.6%	20.7%	20.9%	21.0%
<b>Nutrition</b>	4.2%	0.6%	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
<b>Campaign mobilization</b>	0.0%	7.7%	5.8%	4.5%	3.6%	2.9%	2.8%	2.7%	2.6%	2.6%	2.5%
<b>Other</b>	0.0%	51.9%	40.2%	31.8%	26.0%	21.6%	21.4%	21.2%	20.9%	20.7%	20.4%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



### Annex 11. Kono District – Actual and Projected Numbers of Services (2015-2015)

	Baseline 2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<b>Total Services</b>	<b>191,386</b>	<b>1,145,590</b>	<b>1,796,134</b>	<b>2,473,847</b>	<b>3,181,692</b>	<b>3,826,125</b>	<b>3,907,599</b>	<b>3,990,885</b>	<b>4,076,037</b>	<b>4,163,058</b>	<b>4,251,999</b>
ANC promotional visit 1 (1st trimester)	6,664	20,291	20,741	21,201	21,671	22,152	22,643	23,145	23,658	24,183	24,720
ANC promotional visit 2 (2nd trimester)	2,671	-	-	-	-	-	-	-	-	-	-
ANC promotional visit 3 (3rd trimester)	-	-	-	-	-	-	-	-	-	-	-
Referral of pregnant women with danger signs	-	609	1,244	1,908	2,601	3,323	3,396	3,472	3,549	3,627	3,708
Accompany pregnant women for delivery	-	4,058	6,222	8,480	10,836	11,076	11,322	11,573	11,829	12,092	12,360
PNC promotional visit (within 24 hours of birth)	-	4,003	8,184	12,547	17,101	21,850	22,335	22,830	23,337	23,854	24,383
PNC promotional visit (within 3 days of birth)	4,182	20,015	20,459	20,912	21,376	21,850	22,335	22,830	23,337	23,854	24,383
PNC promotional visit (within 7 days of birth)	2,989	20,015	20,459	20,912	21,376	21,850	22,335	22,830	23,337	23,854	24,383
Neonatal referrals	-	287	294	300	307	314	321	328	335	343	350
Reporting of maternal deaths	-	47	95	146	199	255	260	266	272	278	284
Reporting of births	-	6,898	14,102	21,622	29,469	37,653	38,488	39,341	40,214	41,106	42,018
Reporting of under-five deaths	-	2,646	5,409	8,294	11,303	14,442	14,763	15,090	15,425	15,767	16,117
Assessment (iCCM)	73,791	179,941	284,485	393,579	507,370	536,964	548,871	561,046	573,492	586,212	599,210
Malaria/fever diagnosis (RDT)	-	68,859	140,773	215,844	294,175	375,875	384,210	392,732	401,445	410,348	419,447
Fever - presumptive	45,169	-	-	-	-	-	-	-	-	-	-

treatment (no-touch policy / no RDT)											
Malaria treatment (confirmed RDT)	-	53,366	109,099	167,279	227,985	291,303	297,763	304,367	311,120	318,020	325,071
Pneumonia diagnosis + treatment	13,849	37,709	38,545	39,400	40,274	41,167	42,080	43,013	43,968	44,943	45,939
Diarrhea treatment	13,966	60,662	124,014	190,148	259,154	331,128	338,471	345,978	353,654	361,497	369,513
Referral after iCCM assessment (no touch policy)	-	-	-	-	-	-	-	-	-	-	-
Follow-up visit to patient's house (after 2 days)	-	98,370	201,105	308,349	420,249	536,964	548,871	561,046	573,492	586,212	599,210
Weekly Community Integrated Disease Surveillance Reporting (routine)	-	3,230	6,461	9,691	12,922	16,152	16,152	16,152	16,152	16,152	16,152
Suspected Ebola reporting (7 event triggers)	-	9	18	27	36	44	44	44	44	44	44
Male condom distribution	-	114,230	114,230	114,230	114,230	114,230	114,230	114,230	114,230	114,230	114,230
Refills of oral contraceptives	-	15,976	16,331	16,693	17,063	17,442	17,829	18,224	18,628	19,041	19,464
Malaria/fever diagnosis (RDT) - Adults	-	110,430	225,759	346,150	471,770	602,792	616,163	629,828	643,799	658,078	672,674
Malaria treatment (confirmed RDT) - Adults	-	92,025	188,133	288,458	393,142	502,327	513,469	524,857	536,499	548,398	560,562
Follow-up visit - management of children with Severe Acute Malnutrition	-	214	437	670	913	1,167	1,192	1,219	1,246	1,273	1,302
Severe Malnutrition (SAM) referral	75	267	437	670	913	1,167	1,192	1,219	1,246	1,273	1,302

<b>Follow-up visit - management of children with Moderate Acute Malnutrition</b>	-	885	1,810	2,775	3,782	4,833	4,940	5,049	5,161	5,276	5,393
<b>Infant and young child feeding (IYCF) - includes referral for multi-micronutrients (6-59 months)</b>	-	7,693	15,728	24,115	32,866	41,994	42,926	43,878	44,851	45,846	46,862
<b>Mobilization for measles campaign (once per year for 5 days)</b>	-	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346
<b>National Immunization Days (4 times per year for 4 days)</b>	-	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384
<b>Welbodi Week (twice per year for 5 days each)</b>	-	2,692	2,692	2,692	2,692	2,692	2,692	2,692	2,692	2,692	2,692
<b>Polio campaigns (3 times per year for 4 days)</b>	-	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384	5,384
<b>LLIN distribution (3 nets per household)</b>	-	449	449	449	449	449	449	449	449	449	449
<b>LF / Onchocerciasis campaign (1 time per year for 5 days)</b>	-	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346	1,346
<b>House-to-house visits (quarterly)</b>	-	1,077	2,154	3,230	4,307	5,384	5,384	5,384	5,384	5,384	5,384
<b>Community mapping</b>	-	92,361	94,409	96,503	98,644	100,832	103,068	105,354	107,691	110,079	112,521
<b>Malnutrition screening</b>	28,030	76,322	78,015	79,745	81,514	83,322	85,170	87,059	88,990	90,964	92,981
<b>ANC promotional visit 2(2nd trimester) w/</b>	-	20,291	20,741	21,201	21,671	22,152	22,643	23,145	23,658	24,183	24,720

<b>IPTp</b>											
<b>ANC promotional visit 3 (3rd trimester) w/ IPTp</b>	-	15,218	17,630	19,081	21,671	22,152	22,643	23,145	23,658	24,183	24,720
<b>Referral after iCCM assessment (w/out no touch policy)</b>	-	984	2,011	3,083	4,202	5,370	5,489	5,610	5,735	5,862	5,992

## Annex 12. Key Informants

MOHS
Joseph Kandeh, Director of the CHW Hub, Directorate of Primary Health Care
Elizabeth Musa, Primary Care Health Officer
Mara Kardas-Nelson, Policy Advisor (seconded from Partners in Health)
Richard J. Musa, CHW Regional Coordinator - East
Albert Vandy, CHW Regional Coordinator - South
Mohamed Marah, Monitoring and Evaluation Officer
Brima Osaio Kamara, District Medical Officer – Bombali District
Bundu Conteh, CHW Focal Person – Bombali District
Manso S. Dumbuya, District Medical Officer – Kono District
Alieu Banguro, Monitoring and Evaluation Officer – Kono District
Moses P. Kortu, CHW Focal Person – Kono District
MOHS Partners
<b>UNICEF:</b> Nuzhat Rafqique, Country Health Officer Kebir Hassan, Health Specialist Ngozi Kennedy, Health Specialist
<b>World Hope International:</b> Brima Bangura, CHW Coordinator Momoh Koyanday, Health Officer
<b>International Rescue Committee:</b> John Kpaleyea, Health Program Manager Sahr Fillie, CHW Coordinator - Kono District
<b>John Snow International:</b> Marc Cunningham, Monitoring and Evaluation Advisor Laurentiu Stan, Chief of Party Luigi Ciccio, Technical Director

## Annex 13. References

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