CASE STUDY

SIERRA LEONE

Enhancing access and use of community level health data for children and women through an improved community health information system in Sierra Leone

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ACRONYMS

ANC	Antenatal Care
CBS	Community-Based Surveillance
CDC	Center for Disease Control
CFC	Child-Friendly Communities
CHIS	Community Health Information System
CHW	Community Health Worker
DHIS	District Health Information System
DHMT	District Health Management Team
DPHC	Direction of Primary Health Care
DPPI	Directorate of Policy Planning and Information
HMIS	Health Management Information System
iCCM	integrated Community Case Management
IPs	Implementing Partners
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NGOs	Non-Governmental Organizations
PHU	Peripheral Health Units
PNC	Postnatal Care
PS	Peer Supervisors
RMNCHN	Reproductive, Maternal, Newborn and Child Health and Nutrition
RTM	Real-Time Monitoring
SOPs	Standard Operating Procedures
TB	Tuberculosis
TWG	Technical Working Group
SC	Steering Committee
WHO	World Health Organization

ABSTRACT

Despite having one of the highest global under five population of 1.2 million children (up to 15.4% of its total population), Sierra Leone also has a disproportionately high newborn and under five mortality at 33 and 78 per 1,000 live births.

The main causes of these preventable deaths are malaria, pneumonia and diarrhoea, which result from poor access to and low demand for lifesaving interventions for children.

To address these gaps, the Ministry of Health and Sanitation launched the Community Health Worker programme (CHW) which between 2017 and 2018 identified, trained and deployed 14,500 CHWs in all communities across the country, each attached to one of the 1,300 Peripheral Health Units (PHUs).

A Community Health Worker with his register visits a household (mother, her newborn and husband) in Bmban village, Bombali district. ©UNICEF Sierra Leone/2019/Hailemariam Legesse

However, whereas these CHW supported the provision of accessible health services to children and families at the community level, countrywide data reporting on these services to the health facility, county and national levels was weak and fragmented. In the 5/14 districts where UNICEF provided paper registers to CHW and supported reporting, community level data quality remained poor; under-utilized at decision levels; unlinked to the national HMIS/DHIS2 and therefore didn't reach the national level to support planning and resource allocation

- To standardize and integrate community health indicators into HMIS/DHIS2, UNICEF coordinated advocacy sessions with the Directorate of Policy Planning and Information (DPPI) at MoHS. In 2018, UNICEF partnered with Oslo University and trained monitoring officers from the MoHS' national CHW hub, which training informed the MoHS' Steering Committee's final decision to integrate these indicators into DHIS2.
- For coordination, a national CHIS sub-group which included members from community health partner organizations was established to support the preparation of Community Health Information System (CHIS) indicators and tools for integration into the national HMIS/DHS2 TWG.
- Two workshops which engaged M&E experts from MoHS programs, UNICEF, WHO, and other partners harmonized and finalized the CHIS integration into the national HMIS/DHIS2.
- DPPI (Directorate of Policy, Planning and Information), UNICEF and CDC, MoHS further organized the training of District M&E officers and PHU in-charges on how to populate data in HF6 (one of the DHIS2 forms for community health).

Resulting from these initiatives, over ten new community-level indicators were added in the DHIS2/HMIS. The CHIS/DHIS2 was scaled up nationwide changing the community information landscape from project-based parallel data collection to a multisectoral approach. Likewise, average timely HMIS reporting rate for Community indicators increased from 74.1% in 2018 to 83.2% in 2019. All CHWs have been trained on how to use their registers and report to their peer supervisor who are also trained on recording and reporting tools to the peripheral health units.

With these achievements and as next steps, the MoHS and its partners plan to improve the quality of CHIS implementation, including data used for decision making through development and roll-out of Standard Operating Procedures (SOPs); and the introduction of digital health options to minimize the workload in data compilation and reporting to CHWs, peer Supervisors, PHU In-charges, and the DHMT M&E.

1. CONTEXT

Sierra Leone is one of the least developed countries globally with an estimated total population of 7.8 million, a high under-five population of over 1.2 million and an annual birth rate of 263,750 newborns. It has the world's third-highest maternal mortality ratio at 1,120 per 100,000 live births, with similarly high and disproportionate neonatal, infant and child (below the age of five) mortality rates at 33,78, and 105 deaths per 1,000 live births, respectively. The main causes of under-five deaths in Sierra Leone are pneumonia (12%), diarrhoea (10%), malaria (20%) and neonatal conditions (29%). Whereas these conditions are preventable or treatable, access to and demand for these lifesaving interventions is a major challenge in Sierra Leone.

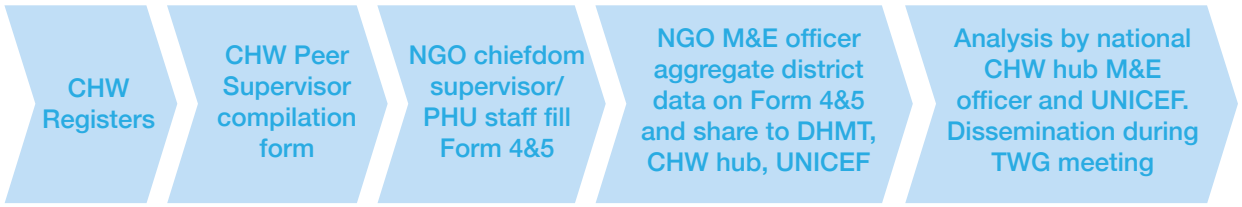
In a bid to improve access and demand for these services, the Government of Sierra Leone launched the national Community Health Worker (CHW) programme; a platform that seeks to empower communities to improve family care practices and to bring the most essential primary health care services to people's doorstep. In this approach, the government identified and currently has over 14,500 CHWs deployed in all communities across the country, with each attached to one of the 1,300 Peripheral Health Units (PHUs). Between 2017 and early 2018, the country conducted a 10-week pre-service training for these CHWs based on the national curriculum.

2. BOTTLENECKS INITIALLY IDENTIFIED

Beyond having CHWs identified, trained and deployed to support health units at the community level, it is essential for any country to gain accountability for their work through a functional Community Health Information System (CHIS). CHIS is essential in continuously monitoring the health and social needs and practices at the community level, including notifications of emergencies, and informing communities, health professionals, policymakers, and other stakeholders how best to deliver quality services to all people, when and where they need them. Despite the relatively well-designed, nationally-owned CHW programme, Sierra Leone lacked a harmonized and standardized national CHIS integrated into the Health Information Management System (HMIS) (DHIS2, in particular).

In Sierra Leone, the routine was for CHWs to conduct regular promotional home visits for Reproductive, Maternal, Newborn and Child Health and Nutrition (RMNCHN), where they offered treatment to children for pneumonia, diarrhoea, malaria and screened children for malnutrition referring those who needed further care to the health facility. During each visit and the treatment provided, they used paper registers to collect data on the promotional, treatment and referral services, however, this data was barely accessible, its quality was poor and often unreliable, and it was never analysed or utilized at the health facility or district level; neither was this community data integrated to the national HMIS/ DHIS2 to inform programmes.

Figure 1: CHW program information flow during January 2016/April 2018, from the 5 districts supported by UNICEF through IPs



While UNICEF, Local NGOs and implementing partners in 5/14 districts (Bombali, Kambia, Kono, Bonth and Tonkolili) supported the quarterly compilation and upstream sharing of community level data from CHW registers to national CHW Technical Working Group (TWG), data from the 9 districts didn't reach the community health worker hub. This limited access community health data from most of the country had a negative effect on informed planning, allocation of lifesaving commodities such as ORS, zinc and amoxicillin and other resources. It equally undermined the contribution made by CHWs in improving the health and nutrition of communities, and altogether affected the quality and coverage of essential community based services.

When the Ministry of Health and Sanitation (MoHS) with support from UNICEF conducted a CHIS rapid assessment in March 2018, information from only 5/14 districts on the work of CHWs was collected by NGO implementing partners. The assessment was based on two tools, the Form-4 which captures capacity and strength of the CHW programme (availability and functionality of CHWs, stock of commodities, supervision, and reporting); and

Highlights of the Community Health Worker's scope of work in Sierra Leone
(CHW policy 2016-2020)

- Quarterly promotional home visits to all households.
- Special visits for pregnant women (ANC), delivered mothers and newborn (early PNC) and for the young children up to age 15 months.
- Treatment of malaria, pneumonia, and diarrhoea.
- Screening of children under five for undernutrition (iCCM).
- Community-based surveillance on reportable disease and conditions.

Form-5 that captures data on service delivery (ANC, PNC, treatment or referral and screening for undernutrition). The sources of the information were CHW registers and interviews of PHU in charges. The filled forms were sent to the national CHW hub/Directorate of Primary Health Care (DPHC) of MoHS and UNICEF for analysis and dissemination.

The bottlenecks identified during the assessment were: (a) weak coordination and partnership; (b) lack of nationally harmonized and standardized indicators and tools; (c) parallel data flow not linked to the national HMIS/DHIS2; (d) data reporting limited to only 5 districts directly supported by UNICEF through NGO implementing partners, while the remaining 9 districts failed to report; (e) lack of access to community health information by stockholders as the data was shared only in the form of presentation in an ad hoc fashion at TWG meetings.

3. STRATEGIES IMPLEMENTED

STRATEGY 1
ADVOCACY

Advocacy and consensus building for the institutionalization of the CHW programme was the main strategy used to establish a strong CHIS. The CHW hub/DPHC, UNICEF and other community health stakeholders including UN agencies, donors and NGOs, particularly directed advocacy efforts to the Directorate of Policy, Planning and Information (DPPI) of MoHS to standardize, harmonize and integrate community health indicators and tools to the national HMIS/DHIS2.

The CHW Hub in Sierra Leone is the structure under the Directorate of PHC, that coordinates plans and operationalizes the CHW programme at national level and supports districts. It is staffed by a national coordinator, 4 regional coordinators, M&E officer, operation officer and finance office.

Together with providing technical and financial support to the CHIS assessment, UNICEF partnered with Oslo University in 2018 to provide a regional training in Dakar, on the CHIS full cycle which included capacity building on tool designing, data collection, analysis, dissemination (feedback loops) and action taking for improved and equitable community-based health services. An in-depth review of key questions that should be considered when addressing issues relevant for governance, design, development and use of large-scale CHIS was also conducted. Participants of this training included a delegation from the country comprising of M&E officers from CHW Hub, Directorate of Policy, planning and Information officials, and officers from both the UNICEF and CDC Country Offices.

Following the training, the country delegate debriefed the Steering Committee (SC) of the MoHS. During which the SC reached a consensus to institutionalize the community health information through harmonization and integration of the indicators and data capturing and reporting tools to the national HMIS/DHIS2. The debriefing was chaired by the Chief Medical Officer in the presence of all the Directors, Programme Managers of the MoHS- who are key contributors to policy guidance and strategic direction for the national CHW programme. The decisions made during this debriefing meeting were therefore adapted and easily trickled down to all Directorates/Programs using the CHW platform.

STRATEGY 2
STRENGTHENING COORDINATION AND PARTNERSHIP

The guidance through the SC, as the leadership and governance structure for the CHW programme, facilitated coordination and partnership across the Directorates/Programmes. To take action agreed at the SC, the MoHS and its partners revitalized the Directorate of Policy Planning and Information led national M&E technical working group with representation of the CHW hub and more partners. A national CHIS sub-group including members from community health partners was established under the leadership of the CHW hub to support the preparation of CHIS indicators and tools, feeding into the national HMIS/DHS2 TWG.

The national CHIS subgroup reviewed CHW programme indicators. As the indicators were too many to be integrated into HMIS and also scattered across different vertical programs, the group prioritized core and non-core indicators. The indicators were also standardized across the programs with a clear definition of consistency and coherence. Based on the agreed indicators, the group further worked on the improvement of the HMIS reporting tool for community data (Form-6) which links CHIS to DHIS2. For validation, DPPI in collaboration with its partners organized two workshops with wide participation of M&E experts from different MoHS programs, UNICEF, WHO, and other partners. Through these workshops, the national HMIS/DHIS2 which integrates and harmonizes the CHIS was finalized.

STRATEGY 3
CAPACITY BUILDING

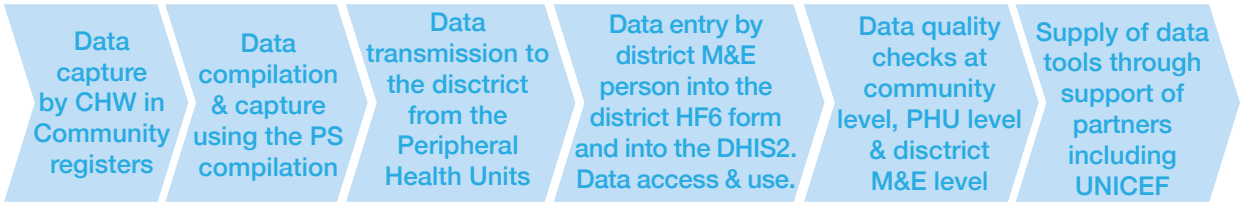
A key strategy to operationalize the concept of standardized, harmonized, and integrated CHIS. Apart from the initial CHIS/DHIS2 Regional Training attended by M&E officers from CHW Hub, DPPI, UNICEF and CDC, MoHS organized the training of District M&E officers and PHU in-charges on how to populate data in HF6 (one of the DHIS2 forms for community health).

4. RESULTS AND PROGRESS

Sierra Leone has achieved the following results to establish a strong CHIS fully integrated into DHIS2, which supports the institutionalisation of the CHW program:

1. Political commitment and leadership to institutionalise the CHW programme - CHIS has been secured: The MoHS CHW SC, the body which gives policy guidance and strategic direction, took up the integration of CHIS to the national DHIS2/HMIS through the leadership of the DPPI.
2. Enhanced, stronger, and better-coordinated collaborative efforts within the Ministry of Health that support the national CHIS/DHIS2 implementation, the continuous use of data, the learning processes, and service improvement. The DPPI led national HMIS/DHS2 TWG has been expanded to ensure an inclusive consultation process with strong representation from the CHW hub and M&E officers from key community health partners. The CHIS sub-working group was also established under the leadership of the CHW hub to feed into the national HMIS/DHS2 TWG.
3. The finalization of nationally standardized and harmonized registers and reporting tools, and sets of indicators for community health, all of which are now integrated into the national HMIS/DHS2
4. The CHIS/DHIS2 is being implemented at national scale changing the community information landscape from project-based parallel data collection from 5 districts to all districts and CHWs. All CHWs have been trained on how to use their registers and report to their peer supervisor who are also trained on recording and reporting tools to the peripheral health units.
5. Over ten new community-level indicators were added in the DHIS2/HMIS platform. Average reporting rate on time for Community Services indicators in the HMIS increased from 74.1% in 2018 to 83.2% in 2019. Establishment of an improved data flow for CHIS/DHIS2 (from collection, compilation, reporting, to transmission and feedback mechanism).

Figure 2: CHW program information flow following CHIS implementation and its roll out in the 5 supported UNICEF districts



5. LESSONS LEARNED

- Strong advocacy support and commitment of technical and financial resources from health development partners (donors, UN agencies, and NGOs) which has included technical and financial support for the CHIS assessment, training of the M&E personnel from MoHS, the Steering Committee Meeting to present existing strengths, gaps and needed action is critical and incentivizes political will, leadership and alignment from the government for community-level health interventions like CHIS.
- Nationally agreed, standardized, harmonized and government-owned CHW programme is a requirement for an integrated information system, which is sustainable. This will prevent fragmented and inefficient approaches that create duplication and wastage of resources.
- Although the institutionalization of harmonized and standardized CHIS was a major achievement, it was found that the paper-based, multiple registers, and forms for compilation and reporting potentially overload the PSs, PHU in-charge and DHMT M&E. This needs to be addressed as a next step.

6. REPLICABILITY

The institutionalizing of a community health system can be achieved within a relatively short period in countries with a similar context if political will is created through strong advocacy. The ongoing in-country efforts to strengthen the HMIS and DHIS2 platform will further accelerate the process. The government ownership of the CHW programme at the national scale is an important requirement for institutionalizing strong CHIS.

IMPLICATIONS FOR GLOBAL FUND PROGRAMMING INCLUDE

- CHIS integrated to the national HMIS will help capture the iCCM+ data regularly which includes the case management, supervision, and supply availability (including RDT and ACT) among others. The use of data will help service providers, programme staff and planners to make informed decision to improve the coverage and quality of iCCM+ services.
- Strong CHIS/DHIS2 will help to track performance of CHWs, PHU in-charges, DHMTs and the MoHS and improve accountability among them. For example, this will provide a basis for performance-based management – including incentive payment based on performance.
- Strong CHIS/DHIS2 is a key for the institutionalization and ownership of iCCM/CHW programme to the national health system. The iCCM/CHW programme is a very critical component of the primary health care system and achieving UHC in Sierra Leone.

ANNEXES

ANNEX 1

The revised Data Flow system following the institutionalization of the CHIS in Sierra Leone

1. **Data Capture/Collection:** Paper-based registers (Registers comprising - iCCM and medicine register, RMNCH register, Community Based Surveillance (CBS) register). CHWs are responsible to capture the primary data and report to the Peer Supervisors (PSs) on the 25th of each month. This is a mandatory activity for CHWs to be included for the following month's incentive payment.
2. **Data Compilation/Reporting**: Paper-based PS Compilation Register (A comprehensive register that makes summaries for all CHW registers- iCCM medicine, RMNCH, and CBS). PSs are responsible to compile the primary data and report to the PHU in-charge on the 25th – 31st of each month. This is a mandatory activity for PS to be included for the following month's incentive payment
3. **Data Transmission from the Peripheral Health Unit (PHU)**: The PHU in-charge compiles the data on a paper-based form (HF6) and reports to the District Health Management Team (DHMT) Office.
4. **Data transmission from the DHMT**: DHMT M&E focal point aggregates the PHU data and fills a district-level HF6 form and enters data into the national DHIS2 electronic database which is managed by the DPPI. The national DHIS2 dashboard is accessible to stakeholders.
5. **Data Quality check**: Data quality check is done at every level. CHWs are trained on the registers which are in carbon copy and check records for accuracy before they send the report to the PS. The PS and PHU in-charge complete the HF6 form based on the PS summary compilation register. Together with the PS and PHU in-charge need to check for consistency of data between the PS compilation register and the CHW data collection registers. Also, the PHU in-charge needs to check for accuracy of data recorded in the HF6 form and for consistency between the PS compilation register and the HF6. The monthly meeting of CHWs and PS convened by the PHU in-charge at the PHU serves as a forum for verifying the data accuracy and consistency. At the DHMT level, M&E focal point checks for accuracy and consistency of the data on the HF6 before it is entered into the national DHIS2 electronic database. Besides, DHMTs conduct monthly PHU in-charge meetings to review all data reports for accuracy, consistency, and timeliness.
6. **Access to documentation and reporting tools**: DDPPI and DPHC request various agencies including UNICEF and Global Fund to finance the printing of HMIS reporting forms that include registers and HF6 form. The tools/forms and registers are then provided to the DHMT stores. PHUs make requests to the DHMT M&E Office based on need. So far, the CHW and PS registers are printed and distributed through UNICEF.

ANNEX 2

Table showing the reporting requirements and tools and flow of information upstream

LEVEL	CADRE	REPORTING TOOL*	SUBMITTED TO	FREQUENCY
Community	CHW	Register sheets (iCCM, CBS, Medicine, RMNCH, referral tickets) - a carbon copy	Peer Supervisor	Monthly
Community	Peer Supervisor	Summary Registers sheets: - iCCM, Medicine, CBS and RMNCH - Quarterly performance	PHU in-charge	Monthly Quarterly (performance)
Facility	PHU in-charge	HMIS-HF6 – Monthly summary of community interventions	M&E officer - DHMT	Monthly
District	M&E Officer	DHIS2 (online)	MoHS - DPPI	Monthly

*data compilation, reporting from CHW to the DHMT is paper-based; but the DHMT enters the data into DHIS2 online.

CHW M'balu carries her medicine box and walks briskly to treat a sick baby in Masiaka village, Kambia district, © UNICEF Sierra Leone/2018/Davies

CHW M'balu Turay tests nine months old Yealie for malaria in Masiaka village, Kambia district. © UNICEF Sierra Leone/2018/Davies

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