CASE STUDY

LIBERIA

Liberia's Community Based Information System (CBIS), a one stop shop for capturing community based data

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ACRONYMS

CBIS	Community Based Information System
CFC	Child-Friendly Communities
CHA	Community Health Assistant
CHCs	Community Health Committees
CHPS	Community Health Policy and Strategy
CHSD	Center for Health System Development
CHSSs	Community Health Services Supervisors
CHT	Community Health Team
CHV	General Community Health Volunteers
CVs	Community level Supervisors
DHIS	District Health Information System
DHO	District Health Officer
HFDCs	Health Facility Development Committees
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
iCCM	integrated Community Case Management
IRC	International Rescue Committee
KRCs	Key Results for Children
LCO	Liberia Country Office
LMIS	Logistic Management Information System
M&E	Monitoring and Evaluation
MUAC	Mid-Upper Arm Circumference
NTD	Neglected Tropical Diseases
OIC	Officer in Charge
PACS	Partnership for Advancing Community-based Services
RTM	Real-Time Monitoring
SOPs	Standard Operating Procedures
TB	Tuberculosis

ABSTRACT

Despite having a health system that was weakened by many years of civil war, years of investment from multiple partner's including UNICEF saw Liberia register marked achievements towards the Millennium Development Goal 4 between 2007 and 2013: infant mortality rate dropped from 71 to 54 per 1,000 live births, measles immunization coverage improved from 52% to 74,2%, and stunting among children under-five improved from 45% to 32%; likewise, life expectancy increased from 52 to 61 years at birth.

However, the Ebola disease outbreak of 2014 which resulted in 4,810 out of 10,678 confirmed cases resulted in further fragility of the country's weak health system with devastating impacts on the health workforces and supply chain.

A major gap that contributed to the fast spread of the disease was the weak and fragmented social and community information systems. Each programme at the national and community levels was vertical in supporting delivery of services and reporting for the same. As a result, there was no integrated community health data generated to inform the national level response and support to service continuity.

To mitigate this, the Ministry of Health partnered with UNICEF, the International Rescue Committee (IRC), Partners in Health, PLAN, and Last Mile Health, and developed a comprehensive community-based information system (CBIS) (with clear indicators for community health assistants) as a subsystem within the Health Information System (HIS). A Community Health Policy and Strategy (CHPS 2020-2023) was also launched which standardized and built the capacity of community health volunteers to deliver a comprehensive package of Child Survival and Development Interventions.

An onsite monitoring session between a health worker and a community health assistant. This programme strengthened the community-health facility data collaboration

UNICEF led partners to revise community level data collection tools, which were printed and distributed, as health workers and community health assistants/workers were trained on their use through monthly-site coaching and mentorship sessions.

Likewise, multiple donor and partner engagements led by the Ministry of Health and UNICEF, resulted in the development of a funding matrix which was used to advocate for and pool together funds for both the CBIS and CHPS from World Bank/GFF, Global Fund, GAVI, USAID and collaborations across UNICEF, Plan International, Last Mile Health, PACS, etc.

Established in 2016 and implemented across almost all counties, the CBIS is capturing monthly information across 413 health facilities in 39 indicators across 9 thematic areas including: Nutrition, Reproductive Health, iCCM, HIV/TB/NTD/Mental Health, Surveillance, Supervision, Human Resources, Data Quality and under five and Infant Mortality. By 30th September 2019, the CBIS reporting was at 89% for timeliness and 100% for completeness. The CBIS' success is attributed to the Ministry of Health, UNICEF and partner led trainings and incentivizing of community health assistants and health facility incharges efforts. Moving forward, the CBIS has been digitalized through a UNICEF Pilot in one country- Child Friendly Communities with Real Time Monitoring whose outcomes will inform country wide scale up of an electronic version of the community level registers as part of strengthening community information systems for enhanced health and social service decision making and service delivery.

1. CONTEXT

Liberia went through a fourteen-year civil crisis which lasted till 2003, this resulted into a significant infrastructure devastation of its health system. Every year 11,000 children under five die in Liberia, most of them because of preventable causes. This figure was 25,000 in 1990 and Liberia made substantial progress in reducing the under-five mortality rate by an annual reduction rate of 5.4% (nearly double the regional average of 2.8%) until 2013. By 2015, it was in the process of achieving Millennium Development Goal 4.

The infant mortality rate decreased from 71 to 54 per 1,000 live births between 2007 and 2013 and the infant mortality rate from 110 to 94 per 1,000 live births. Indicators of health and service delivery improved during that period. The coverage of immunization of measles increased from 52% to 74,2%; the prevalence of stunting among children under five decreased from 45% to 32%; life expectancy increased from 52 to 61 years at birth.

During the Ebola outbreak, Liberia lost 10% of its doctors and 8% of its nurses and midwives due to Ebola which is just over 8% of the health-care workforce in the country.

The Ebola outbreak in Liberia reemphasized the need for communities to be fully involved in the solution of local health problems as it was only when the communities became fully engaged that Liberia was able to bring the outbreak to an end.

Following the Ebola crisis, strengthening the Monitoring and Evaluation (M&E) system, and the National Health Information System (HIS) was recognized by the Ministry of Health as one of the key interventions under the Investment Plan for Building a Resilient Health System. In line with the National, 2009 HIS Strategy and Implementation Plan, and the National Investment Plan for Building a Resilient Health System (2015), the Ministry of Health in 2016 conducted a comprehensive HIS strategic and operational planning workshop with a focus on leadership and coordination. With the support of the IRC, Partners in Health, UNICEF, PLAN, and Last Mile Health, the Ministry of Health developed a comprehensive CBIS as a subsystem within the HIS. One of the key discussions and the lessons learned emerging from the meeting, pointed to the limitation of HIS in collecting and reporting on community events and community health interventions during the Ebola crisis; factors which greatly hampered epidemic control efforts. At the end of the workshop, several sub-systems were agreed upon and evolved, such as the Community Based Information System, Health Management Information System (HMIS), the Logistic Management Information System (LMIS) among others.

Following this meeting, in July 2016, the country launched the national Community Health Assistant (CHA) Programme, a direction that preempted the need for a community-based information system as part of the Health Information System. With support from UNICEF and other partners, the Ministry of Health developed a comprehensive CBIS as a subsystem within the HIS. These partners formed an M&E sub-group, which informed the system and developed data capturing, collection and reporting tools. CBIS encompasses the tools, processes, and data systems that will capture information from the Community Health Assistant Programme.

UNDERLYING BOTTLENECKS WITH THE COMMUNITY HEALTH INFORMATION SYSTEM

The Community Health Programme, initially the General Community Health Volunteers (CHVs) programme was programme specific, that is, it focused on one health area called immunization, at a go and not the general health needs of a community as a whole. As such, individual programmes (Malaria, HIV, TB, NTDs amongst others) contacted communities quarterly to collect data generated through Community level Supervisors (CVs), yet CVs supported communities in all health programmes.

As a result of this vertical based programming and data collection, there was no aggregated health data generated from the communities available for use at the national level.

Similarly, many HIS subsystems, such as HMIS and District Surveillance Information System were not integrated.

This fragmentation of programmes and data became a big issue during the Ebola outbreak, where planning and implementation of inventions was greatly frustrated by the unavailability of critical integrated community-level data.

Further aggravating this situation were the various stakeholders who set up separate data collection and reporting systems to feed into their vertically funded interventions which affected information in the communities. Community information on Ebola was not unified as there were many sources of information.

2. BOTTLENECKS

BOTTLENECK 1
INADEQUATE POLICY ENVIRONMENT FOR COMMUNITY HEALTH PROGRAMMES

BOTTLENECK 2
NO SYSTEMS FOR CAPTURING COMMUNITY HEALTH ASSISTANT DATA

3. STRATEGIES IMPLEMENTED

Bottleneck 1: Inadequate Policy Environment for Community Health Programmes

STRATEGY 1.1
CREATING AN ENABLING ENVIRONMENT FOR IMPLEMENTATION OF A COMPREHENSIVE COMMUNITY HEALTH PROGRAMME

- Situational analysis of key CHAs performance indicators to be assessed
- Conduct of CHA data entry sheet to compare with data in CBIS thereby assessing programme impact.
- Develop and validate Community Health Policy and Strategy which standardized and built the capacity of community health volunteers to deliver a comprehensive package of Child Survival and Development Interventions for 2020-2023

STRATEGY 1.2
RESOURCE MOBILIZATION AND PARTNERSHIP FOR THE IMPLEMENTATION OF THE CHA PROGRAMME

- The Community Health Services Division did a Gap Analysis and developed a Funding Matrix for the 14 counties in which the Community Health Assistant Programme is being implemented. This provided for a clear picture of funding gaps for 2020-2023.
- A meeting was held at MoH with Donors (World Bank/GFF, Global Fund, GAVI, USAID, etc.) and implementing partners (UNICEF, Plan International, Last Mile Health, PACS, etc.) using the funding matrix to advocate for funding since most of the implementations were coming to an end.

Bottleneck 2: No Systems for capturing Community Health Assistant data

STRATEGY 2.1
ADVOCACY FOR THE ESTABLISHMENT OF COMMUNITY BASED INFORMATION SYSTEM (CBIS)

- UNICEF, and other Non-Governmental Partners (NGOs) worked along with the Health Management Information System and Monitoring and Evaluation Units to create another level for individual CHAs data capturing
- Consensus was reached with all community health partners such as Last Mile Health and others to identify and agree upon indicators from various programmes to be captured in the CBIS

STRATEGY 2.2
CAPACITY BUILDING FOR COMMUNITY, HEALTH FACILITY, DISTRICT AND COUNTY STAFF TO IMPROVE DATA ACCURACY AND QUALITY IN THE CBIS

- Revision of CBIS SOPs and Training Curriculum is expected in 2020 based on the outcome of the mid-term policy and strategy review and to capture emerging epidemic
- Print and disseminate data collection tools, summary forms, etc.
- Train health workers and CHAs on the use of these forms for reporting
- Conduct on-site coaching and mentoring on the use of the forms

Bottleneck 3: Fragmentation of Data Collection and Reporting Systems

STRATEGY 3.1
ENGAGE VARIOUS PROGRAMMES WHO IMPLEMENT COMMUNITY HEALTH PROGRAMMES TO USE THE CBIS FOR REPORTING

- The Director of Community Health Division and Data Manager and MoH provide presentations during senior management meetings where all the Programme managers and directors are present.
- At regular and different programmes review meetings, CHSD and UNICEF popularize the importance of CBIS among various stakeholders.
- MoH with support from UNICEF organize workshops to standardized reporting tools and guidelines.

4. RESULTS AND PROGRESS

STRATEGY 1.1 RESULTS
CREATING AN ENABLING ENVIRONMENT FOR IMPLEMENTATION OF A COMPREHENSIVE COMMUNITY HEALTH PROGRAMME

The CHA Policy and Strategy was developed in 2015, validated and finally launched in 2016 by the Ministry of Health with the support of partners. These Policy and Strategy create the enabling environment and give clear directives on the selection, roles, and responsibilities of CHAs, their capacity building, and supplies, incentives for service provision and the monitoring and reporting of CHAs. It sets the precedent for the roll-out of the Community Based Information System. As of date, the CBIS captures 39 indicators from various programmes including Child Health, Nutrition, Maternal Health, Mental Health, TB, Surveillance, etc. UNICEF supported the development of policy and strategy both technically and financially and served as lead on the development and finalization of both documents. The policy is a principal document in the support of all community health project in Liberia. The revision began the necessary steps of the shift from volunteerism to recognized provision of services by community health workers to the remote communities. Reducing maternal and child mortalities are key in the community health policy.

STRATEGY 1.2 RESULTS
RESOURCE MOBILIZATION FOR THE IMPLEMENTATION OF THE CHA PROGRAMME

Funding was mobilized from various donors for the implementation of the CHA Programme. Currently, the CHA Programme is implemented in 14 out of 15 counties with funding secured from various donors for different timelines as shown below.

	2019				2020				2021			
County	Jan	April	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
Bomi	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF
Bong	USAID	USAID	USAID	USAID	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
Gbarpolu	WB	WB	WB	WB	WB	WB	WB	WB	WB			
Grand Bassa	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL
Grand Cape Mount	WB	WB	WB	WB	WB	WB	WB	WB	WB			
Grand Gedeh	WB+PHIL	WB+PHIL	WB+PHIL	WB+PHIL								
Grand Kru	WB	WB	WB	WB								
Lofa	USAID+GF	USAID+GF	USAID+GF	GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
Margibi	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF	GF
Maryland	WB	WB	WB	WB								
Montserrado												
Nimba	USAID+GF	USAID+GF	USAID+GF	GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
River Gee	WB	WB	WB	WB								
Rivercess	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL
Sinoe	WB	WB	WB	WB								

2022				2023			
Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct
GF	GF	GF	GF	GF	GF	GF	GF
USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL
USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
GF	GF	GF	GF	GF	GF	GF	GF
USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF	USAID+GF
PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL	PHIL

Funding Secured

Funding Likely

Funding Not Secured

STRATEGY 2.1 RESULTS
ADVOCACY FOR THE ESTABLISHMENT OF COMMUNITY BASED INFORMATION SYSTEM (CBIS)

The Liberia CBIS was established in 2016 and is currently used by all counties (except one) who are implementing the CHA Programme. As of 30th September 2019, CBIS reporting is 89% for timeliness and 100% for completeness. It captures information from 9 thematic areas including Nutrition, Reproductive Health, iCCM, HIV/TB/NTD/Mental Health, Surveillance, Supervision, Human Resource, Data Quality and under five and Infant Mortality. A total of 39 indicators are captured monthly from 413 CHSS based in 413 health facilities. The Community Health Assistant Programme supports the KRCs through awareness and default tracking for immunization, providing awareness on the importance of exclusive breastfeeding, provision of micronutrient powder and screening of all children under five using MUAC.

STRATEGY 2.2 RESULTS
CAPACITY BUILDING FOR CBIS

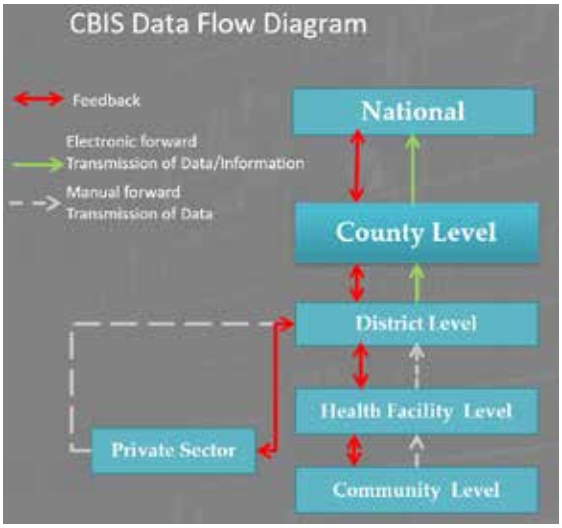
SOPs, training curricula and reporting forms were developed for the roll-out of CBIS. A total of 3,364 CHAs, 413 CHSSs, 14 County Health Teams members and 35 National level staff have been trained on the CBIS. The CBIS is currently hosted on the Liberia District Health Information System (DHIS) version 2, a web-based monthly administrative reporting platform that captures community data aggregated at the facility level.

STRATEGY 3.1 RESULTS
ENGAGE THE VARIOUS PROGRAMMES WHO IMPLEMENT COMMUNITY HEALTH PROGRAMMES TO USE THE CBIS FOR REPORTING

That Community Health Service Division has engaged multisectoral stakeholders (Child protection, nutrition, Ministry of health various units, divisions) and Non-Governmental Organization implementing CHA programmes through meetings to ensure that all Community Health Assistant Programme data are entered only by the counties through the CBIS. An integrated recording and reporting tool was developed and it is mandatory that all partners/ counties implementing the CHA programme has to collect their data using this form. Programmes that were initially collecting vertical data have demonstrated interest and are now requesting that their indicators are fully captured within the CBIS. With the upcoming midterm review, all programmes that are not currently implementing the CHA programme will have an opportunity to take part.

ROLLOUT OF THE COMMUNITY BASED INFORMATION SYSTEM

The newly introduced CBIS encompasses the tools, processes, and data systems that capture information from the Community Health Assistant Programme. To ensure effective upstream data generation, demand and use, the CBIS proposed an implementation system focused on multi-level leadership, accountability, governance and specific roles and responsibilities for different stakeholders in the health system as described below:



COMMUNITY LEVEL

Community Health Assistants are responsible for recording information on individuals in each household during routine visits. The frequency of data collection differs depending on the type of service that is being provided. CHAs conduct quality assurance on his or her work daily when on routine visits and recording data. The CHA is responsible for immediate reporting of priority disease triggers and for monthly routine reporting. Routine reporting for all other data elements collected monthly from the CHA between the 1st and the 7th of the following month to enable the facility to compile the facility reports on the 7th for onward submission to the District Health Team (DHT)

The roles and responsibilities of Community Health Services Supervisors (CHSSs) are:

- Work with facility management to set supervisory goals for the team on a weekly basis
- Assist in the selection of new or additional Community Health Assistants (CHAs).
- Provide guidance as communities select membership for Community Health Committees (CHCs)
- Help organize Health Facility Development Committees (HFDCs) monthly coordination meetings at health facility.
- Support bi-directional process of CHA's follow-up at community level.
- Support CHAs to engage community in action planning and identification of key health needs and challenges on a quarterly basis.
- Develop and manage weekly supervision schedules to ensure all CHAs receive adequate field supervision and that catchment populations are offered CHA services according to intervention protocols.
- Liaise with Officer in Charge (OIC), Registered/Certified Midwife and other health facility staff regarding monthly clinical outreach programme to ensure community mobilization and coordination with CHAs in the catchment area.
- Coach CHAs to support on -the job problem solving and critical decision- making skills.
- Assess CHAs' knowledge and skills – with particular emphasis on clinical care delivery - by utilizing skills check and supervision tools as well as observation and patient interview/audit.

DISTRICT LEVEL

The District Health Officer (DHO) is directly responsible for the supervision of all facilities in the district. Their primary responsibility in the CBIS is to collect reports from the district's facilities monthly and transmit those data to the county M&E team. The DHO is responsible to collect reports between the 7th and 10th of the month at all facilities. If the DHO cannot collect all reports, he or she is responsible to communicate it to the facility and work with the facility and county health team to collect and deliver the reports.

COUNTY LEVEL

At the CHT-level, the M&E Officer under the supervision of the County Health Officer (CHO) is responsible for timely processing and transmission of data and generating reports in predefined format. The M&E Officer is ultimately responsible for optimizing data quality and meeting deadlines for data transmission.

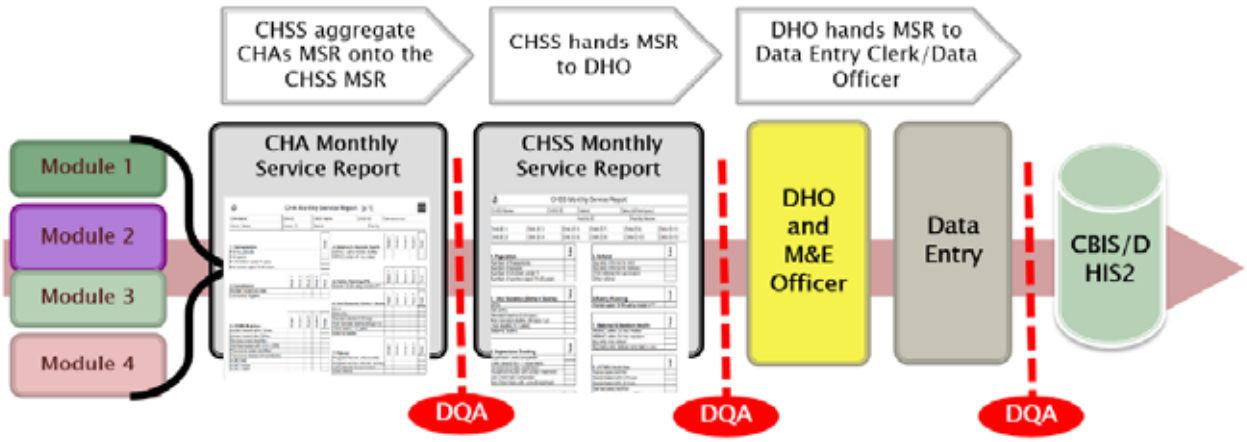
Country M&E staff also provide feedback to the facilities and conduct monthly data verification.

The M&E Officer is responsible for providing information from the data to various line managers, programme supervisors and other stakeholders in the county.

The Central Level CBIS Focal Point is responsible for the overall management of the system, trouble-shooting the system, and providing reports to the stakeholders as needed. It is the responsibility of the Central Level CBIS Focal Point to build the capacity of the County Teams to run reports on the programme. The M&E Central Level CBIS Focal Point will analyse the data to see what troubleshooting and strategizing is needed for the programme. The data and reports should be accessible to the Ministry of Health and partners to use for decision-making at all levels of the health system.

FEEDBACK

Three primary mechanisms are in place for providing feedback: Telephone calls in areas where cellular connectivity is available and a designated staff from the CHT M&E may travel to the facility using available transportation to seek clarification, report missing data or incorrect header information. During the monthly data counter verification, details on data transcription/ recording and reporting should be discussed and appropriate feedback given to facilities and corrections made.



5. LESSONS LEARNED

- Prior to the CBIS introduction, all MoH programmes and partners kept record individually not following any national standard. It was predicated on this that the CBIS was developed to capture all community health related data and MoH is the sole owner of all data. A decentralized web-based CBIS system ensures that data for action is readily available for use, however, to facilitate the use of this data, it is essential that simplified dashboards are available and popularized for use not only at the national level but also at the community level where the data is generated.
- With the increased demand by various units, divisions, and programmes to get their indicators captured by the CBIS, the Community Health Services Division must take a lead in developing criteria for a standardized list of indicators to be captured in the CBIS to prevent the CHAs and CHSSs from being overwhelmed.
- Expanding the CBIS to capture lower-level data (i.e., Community Specific data) will promote the use of data by the communities during their meetings, but this requires direction especially in terms of who funds and hosts processes of the expanded system for ownership and sustainability.

6. REPLICABILITY

- The CBIS which allows data to flow from the community level up to the national level provides a great opportunity for the bottom-up approach for decision making. With the integration into the overall Health Management Information System, it is less costly to maintain the server as compared to maintaining a separate system.

FOR THE COMMUNITY

- To replicate the CBIS, the below should be considered:
  - A high national level commitment and ownership of the platform
  - Direct linkages of the host with the server
  - Clearly defined standard indicators covering other units of MoH (HIV, TB & Non-Communicable Diseases)
  - Data entry point well defined and consistent with national data policy
  - An Administrator at the national level
  - Restricted data entry rights
  - Give programmes and partners viewing rights to the system

7. NEXT STEPS

- As part of the piloting of UNICEF's Child-Friendly Communities/Real-Time Monitoring (CFC/RTM), an additional unit/layer for individual CHAs will be created in the CBIS. This is key to facilitate community dialogue on health and to foster ownership, use of data and local mobilization of resources for community health activities by August 2020.
- Review and revise indicators to incorporate standardized indicators per programme. This is essential in ensuring that core activities at the community level are captured and that these indicators can be linked with the facility to measure contributions of the CHA programme to key maternal and child health indicators by June 2020.
- Expand the storage space for data to avoid the deleting of data to old data by December 2020.

IMPACT OF COMMUNITY BASED INFORMATION SYSTEM ON GLOBAL FUND PROGRAMMING

- Enhanced documentation of community health activities to inform decision-making at national/county/community levels
- The availability of clear and well defined community health indicators that guides program implementation
- Improved monitoring of counties performance and their reporting.
- The creation of a channel of enquiring data for decision-making, CBIS help to improve the quality of the programme (supervision, HR…)
- With an effective CBIS, it improves the quality of the treatment rate of the CHAs at community level. Particularly helping supervisors to know if CHAs are following the protocol as per the guideline, and are improving mentorship/supervision
- Availing data for disease surveillance and informing outbreak control actions: community-based data is facilitating the monitoring of progress and trends of disease (facility based or community level) to determine which community needs more attention.

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