SUSTAINABILITY OF THE NATIONAL COMMUNITY HEALTH ASSISTANTS PROGRAM IN LIBERIA

Erika Edina Richards-George
Liberia

57th Master of Public Health/International Course in Health Development

KIT (Royal Tropical Institute)
Vrije Universiteit Amsterdam (VU)

A thesis submitted in partial fulfilment of the requirement for the degree of

Master of Science in Public Health

by

Erika E. Richards-George

Liberia

Declaration:
Where other people's work has been used (from either a printed or virtual source, or any other source), this has been carefully acknowledged and referenced in accordance with academic requirements.
The thesis Sustainability of the National Community Health Assistants program in Liberia is my own work.

Signature: 

57th Master of Public Health/International Course in Health Development (MPH/ICHD)
14 September 2020 – 3 September 2021
KIT (Royal Tropical Institute)/Vrije Universiteit Amsterdam
Amsterdam, The Netherlands

September 2021

Organised by:

KIT (Royal Tropical Institute)
Amsterdam, The Netherlands

In co-operation with:

Vrije Universiteit Amsterdam (VU)
Amsterdam, The Netherlands

TABLE OF CONTENTS

List of Figures

LIST OF TABLES

ACKNOWLEDGEMENT

My sincere and profound appreciation goes to the Almighty God for his guidance and strength throughout my studies. I extend my thanks and appreciation to the Orange Knowledge Program for the opportunity afforded me for this master's program. Sincere gratitude to the KIT Royal Tropical Institute faculty, thank you for your dedication and commitment to impacting contemporary knowledge. To my Academic and Thesis Advisors, your wisdom, knowledge and patience are appreciated.

I appreciate the Ministry of Health of Liberia for granting me a study leave to pursue my master's. Many thanks to the Dynamic team of the Community Health Services Division for your support.

Genuine appreciation to my family (my support system) for their unwavering support and love throughout my studies. Gratitude and love to my husband for standing in the gap in my absence. Thanks to my friends and everyone that contributed to my study in every positive way.

The journey was worth it indeed!

LIST OF ABBREVIATIONS

CHA	Community Health Assistant
CHCP	Community Health Care Provider
CHTs	County Health Teams
CHSD	Community Health Services Division
CHSS	Community Health Services Supervisor
CHW	Community Health Worker
FWA	Family Welfare Assistant
HA	Health Assistant
HEP	Health Extension Program
HEW	Health Extension Worker
MoH	Ministry of Health
NCHAP	National Community Health Assistants Program
NGO	Non-Governmental Organization
PHC	Primary Health Care
SARA	Services Availability Readiness Assessment
UHC	Universal Health Coverage
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

GLOSSARY

Community Health Workers: Are a diverse category of Health Workers who commonly work in communities outside of health facilities and have some type of formal, but limited training for the task they expected to perform.

Community Health Assistants: These are Community Health Workers who deliver an integrated and standardized basic package of health services to the rural population beyond five kilometers in Liberia.

Sustainability: Is the small set of organizational and contextual factors that build the capacity of maintaining a public health program over time.

Funding Stability: This is defined as making long-term plans based on a stable funding environment.

Political Support Is the internal and external political environment that influences program funding, initiatives and acceptance.

Partnership: Is defined as the connection between program and community.

Organizational Capacity: Is defined as the resources needed to manage the program and its activities effectively.

Program Adaptation: Is the ability of the program to adapt and improve to ensure effectiveness.

Program Evaluation: Is defined as the monitoring and evaluation of process and outcome data associated with the program.

Communications: The strategic dissemination of program outcomes and activities with stakeholders, decision-makers, and the public.

Public Health Impacts: Is defined as the program's effect on the health attitudes, perception, and behaviors in the area it serves.

Strategic Planning: Is defined as the process that defines program directions, goals, and strategies.

ABSTRACT

The National Community Assistants Program provides a basic package of health services to the rural population of Liberia. However, the program is faced with financial and other challenges which threaten its sustainability. The research aims to discuss how the Government of Liberia can successfully sustain the NCHA Program with less dependence on donor support. In addition, the study reviewed the literature on best practices of Community Health Worker Programs in Liberia and considered successful experiences from Ethiopia and Bangladesh applicable to the Liberia context. Finally, the research applied the conceptual framework of Capacity for Sustainability, considering peer-reviews and grey literature of exemplar countries.

Moreover, the study identified four factors needed to sustain the NCHA Program: funding stability, organizational capacity, public health impact and program evaluation. Funding stability plays a vital role in the sustainability of the NCHA Program, which significantly influences political support. Furthermore, program evaluation assesses organizational capacity critical for program implementation; it determines how the program is adapted to meet the population's health needs. In addition, strategic planning is the core of programming; ensuring all elements are functional is crucial to the success and sustainability of the NCHA program.

This study's recommendations mainly target incorporating the NCHA program budget within the overall health government budget. Moreover, negotiation with donors and partners to support the NCHA program through a pool fund mechanism could address policies for sustainability.

Keywords:

Community Health Workers, sustainability, Community Health Programs, Health Extension Program, Family Welfare Assistants

Words count: 9,911

1.0 CHAPTER I BACKGROUND

1.1 Geographical Context of Liberia

Liberia is the oldest African Republic, bordering Sierra Leone to the Northwest, Guinea to the north, Cote D'Ivoire to the east, and the Atlantic Ocean to the south and west (1). The country is divided into five regions, consisting of 15 counties with 93 districts and more subdivided into clans (2).

Figure 1: The map of Liberia (3)

Source: World Atlas

1.2 Demographic and Socioeconomic Status

According to the 2019 Human Development Report Index (HDI), Liberia ranked 175th out of 189 countries, and the average life expectancy is 64.1 years which placed the country in a low human development grouping (4). Also, Liberia's per-capita Gross Domestic Products (GDP) is 621.9 (5). In terms of ethnic affiliations, the country has 17, and most Liberians are Christians (86%), Muslims (12%), and others (2%), as well as 15 administrative counties (6). The country has a population of 4,937,374 people at a growth rate of 2.1 (7).

1.3 Health Needs

The top five diseases that caused the most deaths in Liberia according to the Global burden of diseases report of 2019 were malaria, diarrheal diseases, neonatal disorders, lower respiratory infections and Ischemic heart disease (8). Liberia's maternal mortality rate is among the highest globally at 1,072 deaths per 100,000 live births. The fertility rate is 4.2 per woman. The contraceptive rate of married and unmarried women is 24 and 45 percent (7). Neonatal deaths

account for 35% of under-five deaths; malaria, acute respiratory infections, diarrheal diseases, and malnutrition remain the leading causes of under-five mortality (9).

1.4 The Health System

The Ministry of Health in Liberia controls the health sector in Liberia who functions in a "decentralized" way. Its mission is to successfully manage the health sector and provide quality, inclusive and available services equitable for the Liberian population (6). The Ministry has three sections; Health Services, Planning and Administration. In addition, the subnational level oversees the health activities through the County and District Health Teams. The health teams provide supervision and technical and programmatic support to hospitals, clinics, and community services (1).

1.5 Overview of the National Community Health Assistants Program

In the Sustainable Development Goals (SDGs) era, the importance of goal 3 is to make improvements in access to health and the quality of care to achieve Universal Health Coverage (UHC). This goal has been delicate for most countries in sub-Saharan Africa due to the extensive weakness in their health system and inadequate human resources for health (10). According to studies and assessments, Community Health Workers (CHWs) for the past twenty years are essential in achieving health systems potentials irrespective of a country's growth. They contribute tremendously to the well-being of the society in areas related to, but not limited to, maternal and child health, family planning services, control of HIV, malaria, and tuberculosis (11).

CHWs have expanded healthcare services beyond the health facilities, providing preventive and curative services to communities with inadequate or no access to health care. For example, CHAs have been giving health promotion messages on preventing malaria, TB and HIV etc. In cases for children under five, they manage cases of uncomplicated malaria, pneumonia and diarrhea. Similarly, they are trained to counsel on family planning, initiate contraceptives, identify danger signs for children under five and pregnant women and make referrals to the health facilities (12).

In Liberia, the National Community Health Services Policy was revised in 2016 to reflect the community component of the country's National Health and Investment Plans. Whose aims are to improve the Liberian people's health conditions in an equitable manner and reestablish the health system and services that were affected by the Ebola Virus Disease, especially the vulnerable population (6)(13).

The Community Health Assistants (CHAs) came into existence in 2016, are community health workers selected from their communities, and serve communities more than an hour walk from the nearest health facility. They are recruited and trained for four months in phases to deliver a standardized basic package of health services within the communities they served. These services include curative, preventive, promotive, rehabilitative, and surveillance services. Moreover, they are supervised by trained Community Health Services Supervisors (CHSS). The latter are health

practitioners (Nurse, Midwife, Physician Assistants, Public Health technicians, or Environmental Health technicians) and are assigned at the nearest clinic.

Children under five are screened, diagnosed, and treated for uncomplicated malaria, diarrhea, Acute Respiratory Tract infections, and other home care and referrals (13). For the National Community Health Assistant service delivery package (See Annex II). The National Community Health Assistant Program is functional nationwide, with an estimated over 3,500 CHAs, along with 415 Community Health Services Supervisor (14).

This program is an efficient approach to the Government of Liberia in achieving Sustainable Development Goal 3, reducing the high maternal mortality ratio, under-five deaths, diseases such as tuberculosis, HIV/AIDS, and Mental illness. Also, the program contributes to disease surveillance and health promotion at the community level (13).

2.0 Chapter II: PROBLEM STATEMENT, JUSTIFICATION, GENERAL AND SPECIFIC OBJECTIVES

2.1 Problem Statement

Multiple geographical, structural, economic, social-cultural, and behavioral challenges have served as existing barriers to accessing health services across Liberia. These challenges range from poor health services and facilities coverage to inadequate resources, including human, financial, infrastructure, drugs and medical supplies (15).

The Service Availability Readiness Assessment (SARA) established 11 core health workers per 10,000 population, which was low compared with WHO recommendation of 23 health workers per 10,000 population. In the rural areas of Liberia, there is an unequal distribution of Human Resources for Health (HRH), and some are often not paid on time. The assessment also pointed out that only two out of 15 counties (Montserrado and Nimba) met the WHO standard for the health workforce. (16). More than 60% of Liberians living in rural communities live more than 5 kilometers (1-hour walk) away from the nearest health facility (13).

Ensuring that a health worker is available for everyone, utilizing the Community Health Program is vital for the Liberia government to achieve the Sustainable Development Goal-3 and accomplish Universal Health Coverage. The Community Health Services Division oversee the NCHA program, within the Department of Health Services (Prevention), at the Ministry of Health (13).

The NCHA program operates with limited financial support from the government; reports of regular stock out of drugs and commodities amidst other challenges. With the current program supported in collaboration with both partners and the government, this paper seeks to analyze how the Government of Liberia will sustain the National Community Health Assistant Program with less dependence on donor support.

2.2 Justification

Through the Community Health Services Division, the Ministry of Health did not conduct a formal mid-term review of the NCHAP due to the Coronavirus Disease pandemic. However, we can obtain information about the program from routine monitoring, evaluation exercises, program perception study, and supervision (15). These reports show that Liberia's CHA program is challenged with supply chain gaps, variation in implementation, fidelity, and effectiveness at the subnational level. Other challenges include knowledge gaps in specific thematic areas, management and governance gaps and concerns around the program's long-term sustainability. These challenges contribute to the demotivation, and high levels of variation in the quality of community-based care, ultimately impacting the achievement of the CHA program goal of increasing access to health care for remote populations (17).

Another critical gap of the community health program is limited documented evidence of implementation of the program based on the context and supporting systems that could inform sustainability (15). Inadequate information, incomprehensive costing of the NCHAP before its launch, and measurement mechanism to demonstrate the return on investment (ROI) make a case for future investments in the CHA program also hinder sustainability (17).

Different experiences from other countries could also help address these issues in Liberia. Therefore, besides literature and document reviews from Liberia, in this thesis, we also draw experiences from the Bangladesh and Ethiopia Community Health Programs, aiming similar goals, to learn new strategies possibly applicable to the Liberian case.

Ethiopia has a community health worker program that dates back to the Declaration of Alma-Ata. Even though the Community Health programs have undergone some modification, it is known for its success. However, like Liberia, Ethiopia has experienced a civil crisis and is challenged with health issues such as infectious and non-infectious diseases, maternal, neonatal, and nutritional illnesses. In addition, the country has a rural population, which makes up 83% of the Ethiopian people. For this reason, the Ethiopian government decided to shift the focus to those in the rural areas by introducing the Health Extension Program (18).

Bangladesh has an extensive and successful history of implementing Community Health Workers Programs for over 60 years, providing various health interventions at the community level. However, the country is faced with a poor and vulnerable population in terms of health status. In addition, they are challenged with infectious diseases, maternal and child health, and malnutrition. The country is also experiencing an epidemiological change due to chronic and non-communicable diseases; coupled with air and water pollution, injuries and harmful activities such as smoking (18). Although an Asian nation, Bangladesh shared similar health needs as Liberia and is considered an exemplar for community health programs.

2.3 Objectives

2.3.1 General Objective

- To discuss how the Government of Liberia can successfully sustain the National Community Health Assistant Program with less dependence on donor support in order to make recommendations to inform the National Community Health Policy.

2.3.2 Research Questions

i. What are (key) factors involved in the sustainability of the National Community Health Assistants Program?

ii. How can the program capacity be evaluated based on its current capacity for sustainability?

iii. What are some effective strategies from exemplar countries that could inform strategic planning for the NCHAP?

iv. What recommendations can be made to inform policies that will contribute to the sustainability of the NCHAP?

2.3.3 Specific Objectives

i. To analyze factors involved in the sustainability of the National Community Health Assistants (NCHA) Program.

ii. To review the current National Community Health program capacity based on requirements needed for sustaining an effective and efficient National Community Health Program.

iii. To explore strategies adopted by exemplar countries to inform strategic planning for the sustainability of the National Community Health Program in Liberia.

iv. To provide recommendations to the Ministry of Health that will inform policies for the sustainability of the National Community Health Assistants program.

3.0 CHAPTER III: METHODOLOGY

3.1 Research Design

This research explored literature around the implementation of community health programs to gather best practices on sustainability. Sustainability is the capability of a program to be maintained for a long time. Sustainability Capacity is having systems that enable a program to influence resources to efficiently operate and sustain activities based on evidence-based policies (19). Primarily, the research was conducted through a review of literature from community health exemplars countries. The study gathered literature through searches from Google Scholar, VuNet Library, ScienceDirect, Annual Reviews, PubMed, and other relevant academic search databases. In addition, grey literature from Liberia, such as reports from national and sub-national level supervisions, quarterly and annual monitoring and evaluation reports, including other pertinent WHO documents, were reviewed. Also reviewed were peer-reviewed publications and case studies of community health programs.

3.1.2 Search Strategy

The search considered studies published in the English language from January 1, 2011, to July 31, 2021, focusing on LMICs to ensure that the evidence provides the contemporary picture of Liberia's Community Health Assistants Program. Keywords used: Community Health Workers, Liberia, sustainability, community health programs, Health Extension Program. In addition, to widen the search, words from this research framework were used interchangeably, including the snowballing technique. (See Annex IV for search strategy).

3.1.3 Research Framework

The research used the Public Health Program Capacity for Sustainability framework to analyze the findings. It provides an in-depth understanding of sustainability for the National Community Health Assistant Program. Also, the framework reviewed and discussed related elements of the program's capacity that will sustain its activities and benefits over a period.

Figure 2: Capacity for Sustainability Framework (19)

Source: Public Health Program Capacity for Sustainability: A new framework

The framework is arranged in a format in which strategic planning is at the core of programming. This arrangement depicts the interrelations and connections between elements. For instance, program evaluation drives strategic planning and program adaptation. While funding stability, political support and partnership are closely influenced by each other. With organizational capacity, communication, and public health impact interconnected. These nine elements coming together are factors that shape the dimension of sustaining a public health program for a long time.

Meanwhile, elements of this framework are categorized into internal and external status. The inner components can be managed and controlled by the organization or program, while external factors predispose external elements. For example, strategic planning, program adaptation, program

evaluation, organizational capacity, and communication are internal elements, while the external factors include public health impact, political support, partnership, and funding stability.

The interrelationships between both internal and external aspects of this framework are a practical approach to ensure sustainability. If a health program does not have the sustainable capacity, resources and money will be misused, leading to mistrust between the program and the end-users (communities). Without funds could also lead to programs not realizing their health potentials (19). This research applied the framework to the context of the CHA program in Liberia to assess all components for the feasibility of program sustainability. This process was approached by reviewing records, reports (monthly, quarterly and annual), strategic plans and policies, peer-reviewing the literature on community health, indicators on outputs and outcomes, and systematic reviews.

3.1.4 Data collection and analysis

The results are presented following the components of the framework. In each segment, we present the critical factors to NCHA program in Liberia according to document and literature analysis, processes and outcomes

4.0 Chapter IV: Research Findings

This chapter analyzes the framework on Public Health Program Capacity for the sustainability of the NCHAP in Liberia, with highlights on Community Health Workers exemplar countries (Ethiopia and Bangladesh). For this section, this research will present the findings considering the three objectives: To analyze factors needed to sustain the National Community Health Assistants (NCHA) Program; To review the current National Community Health program capacity based on requirements needed for maintaining an effective and efficient National Community Health Program; To explore strategies adopted by exemplar countries to inform strategic planning for the sustainability of the National Community Health Program in Liberia.

Also, this section will describe and analyze each component of the framework taking into consideration Liberia, Ethiopia, and Bangladesh case studies of their community health programs. Lessons learnt and experiences are drawn from Ethiopia and Bangladesh. The findings for Bangladesh centered around the Community Health Workers that are employed by the government, which are Family Welfare Assistants (FWAs), Health Assistants (HAs), and Community Health Care Providers (CHCPs).

4.1 Funding Stability

Investing in CHWs is very important in attaining UHC, as well as achieving other essential health objectives. By accessing crucial interventions delivered by CHWs, about three million deaths could be prevented per year. In addition, by investing CHWs in sub-Saharan Africa, there could be financial returns in which outputs will be increased due to a healthy nation and job opportunities (20).

In Liberia, Community Health Workers have been an asset to address the shortage of health workers. The goal of the MoH is to implement the EPHS as an undivided set of services to be available at each level of health care delivery, especially in the rural and remote parts of the country. They have become the connection between the health facilities and their communities. External donors are currently financing the Community Health Assistants with minimal financial support from the government (21). The government contribution toward health is inadequate, at the rate of 6.73%, which is below the 15% Abuja commitment towards health made by African Nations (22)(23).

However, in terms of financially sustaining the National CHA program, the government is making all efforts by carefully studying the costing, ensuring program quality, and conducting rigorous evaluations to secure a long-term funding and sustainability plan (20). Costing for the NCHAP was done in 2018, covering all aspects of the program, including drugs, diagnostics, medical supplies; management; infrastructure; supervision; and health personnel. The total cost per month is USD 568,088 per county, considering fourteen counties at that time accumulated USD 8.0 million per year (21).

Figure 3 (below) represents the disaggregation of the total cost of the National Community Health Assistants Program. The program's fixed costs (personnel and operation) is $442,908, making up 78% of the total annual expenditure for the NCHA Program. The variable cost (drugs, supplies, and diagnostics) is $63,243, which makes up 11%, and the management cost is $61,936, which is also 11% of the total cost.

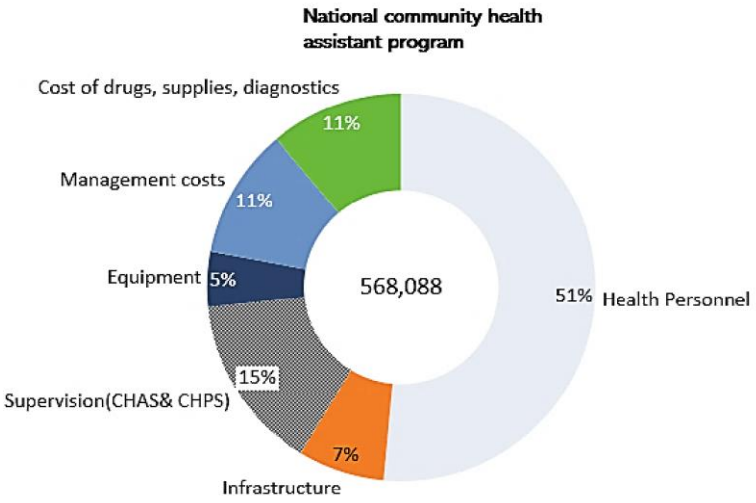
Figure 3: Annual Disaggregation of total NCHAP Cost per county

	National community health assistant program
FIXED COSTS	$442,908
VARIABLE COSTS	$63,243
MANAGEMENT COSTS	$61,936

(*Source: HSS Accelerator Liberia, community costing report 2018)*

Figure 4 represents the cost disaggregated by cost drivers of the Community Health Assistants Program. Payment for health personnel, including Community Health Assistants and their supervisors, makes up 51% of the total cost of USD 568,088 per county. At the same time, supervision costs take up 15% of the overall cost, management 11%, which is the same for drugs, supplies and commodities 11%. Also, the infrastructure cost is 7%, and equipment costs 5% of the total cost.

Figure 4: Annual Disaggregation by cost drivers NCHAP per county



(*Source: HSS Accelerator Liberia, community costing report 2018)*

As a means of boosting commitment and retention, CHAs are being paid USD 70 per month by implementing partners to make up for the 20 hours of work they put in per week, with a service package of 24 indicators (see Annex III). The government contracts these workers through their county health teams and are paid by the implementing partners. Also, their supervisors (CHSS) are paid USD 269 - 313 per month (24). With over 350 Community Health Services Supervisors in the program to date, 23 are enrolled on the government's payroll. However, there is still no straightforward approach to how the government will absorb the remaining ones and CHAs in the long term (15).

Options to explore domestic resources mobilization (legislature advocacy, earmarked sin taxes, and county development funds) were considered but with little results. Some external factors affected the government trend on the sustainability of the program in 2018 – 2019 which were: a new government was elected in 2018, followed by a substantial financial decline which made it very hard for the government to put health first, and this situation amplified the reliance on external aid. Generally, the program has been operating in an uncertain environment, thereby extending the government's timeline for transition in agreement with donors to increase payroll absorption and financial commitments gradually (15).

As in Ethiopia, the Health Extension Program is the base of the country's health care system, which is three-tiered. The country experienced a fast development in PHC because it could attract external funding and excellently manage donors, pooling together their funds and skills to support the program. From the budget standpoint, the HEP was utterly integrated into the country's health

plan, budget, and system of reporting. The country had a goal that donors support one plan, funding and one report, and the program was led by the government and supported by the donors. At the beginning of the program, the government did not support donors' vertical programs. Instead, they were interested in holistic programming. As the donors grew more interested in the program, their funding involvement improved. In the same light, the Ethiopian government initiated appropriate measures to manage spending and other program requirements (25). The Health Extension Workers program is funded through government and bilateral and multilateral donors, with donor support at 73%. The country's funding is devolved, and districts obtain grants to operate the Health Extension Program. HEWs are government employees and receives USD 84 per month (18).

Later, the government also established "the code of conduct" to coordinate donor efforts and cut down on costs attached to administration in the health sector. They included the African Development Bank (AFD), United Nations agencies, the World Bank, United States Agency for International Development (USAID), the Department for International Development (DFID), and the parties to the process. Most of the donor funding for projects went towards the country's one plan, of which the HEP was an important part. Additionally, the government pooled funds from donors to spend money more flexibly and lessen managerial burden and operation costs. Prominent donors to the country's health sector include United Kingdom AID; Global Alliance for Vaccines and Immunization (GAVI), the Global Fund (GF); Carter Center; WHO; UNICEF; and United Nations Population Fund (UNFPA) (18). Ethiopia is also one first developing countries to become part of the International Health Partnership Plus (IHP+) compact, which laid out the country's pathway that aligns donors' programs with those receiving aid (25).

However, in Bangladesh, development assistance is a crucial source of financing to the health sector budget. For several years, the CHW program that the MOH of Bangladesh leads was heavily reliant on donor funding. As of the present, the program is exclusively supported by the government. FWAs receives USD 132 – 318 per month, while HAs receives USD 135 – 327, and CHCPs earn USD 150 – 362 per month (18).

The Liberian government is not making much progress in terms of funding stability for the NCHA program. With the limited fiscal space provided for health, it is not likely that the government could financially sustain the program for quite a period. Presently, there is no budget support from the government, and the program is economically reliant on the support of donors and partners.

4.2 Political Support

Creating political determination and safeguarding political obligation need excellent judgment. For example, decision-makers tend towards being more open to new ideas and tactics in the case of significant political change or crises. In Liberia, the Ebola epidemic validated the worth of timing in politics for the CHW program; the government was keen on the extensive improvement

of the program. By taking advantage of this opportunity, the leadership of MOH made a roadmap after the Ebola crisis leading to a new community health system. In 2014, the president announced, pledging that CHWs were vital in defeating Ebola (24).

However, in the initial stage of the HEP in Ethiopia, the government allowed partners to run the program and advocated for highly by top political leaders. Also, the government decentralized the program with local authorities by providing both the finance and permission to implement the HEP program adequately. Political support is an essential component that made the HEP successful due to the top-level political support, for instance, (former ministers championed the program and were strong activists), structuring a partnership with the MOH, other ministries, and the levels of government easily collaborated. Also, due to political support, the program could get funds needed from the national budget, and the government could pool donors' funding. This support also enabled the program to speedily extend nationwide, making the HEP the focus of policies modification for the health system (25).

Likewise, in Bangladesh, the government demonstrated a high level of political support for their CHW program. Their top leaders supported the program through mass media campaigns and institution commitment (making health care a legal right and ensuring CHWs were known as a part of the health care delivery in policies related to health). Also, they further supported by making available funds for CHWs programs as part of the National budgets (26).

Political support for the NCHA program in Liberia compared to the exemplar countries (Ethiopia and Bangladesh). There was more advocacy from the top leaders at the program's inception compared to the present. Since the change of leadership in the country, the NCHA program is not experiencing high-level advocacy from the top leaders as it used to. With the strong relationship between funding and political support, more effort and advocacy will have to be made to sustain the program in Liberia.

4.3 Organizational Capacity

Organizational capacity is about the essential resources desired to manage a program and its activities (19) successfully. The Ministry of Health in Liberia mission is to successfully manage the health sector and provide quality, inclusive and available services on an equitable basis for the Liberian population(6). The Community Health Services Division's aim within the MOH is to ensure that communities and households are provided vital health care services that are life-saving in a uniform manner at the community level (13).

At the national level, the division of Community Health is responsible for coordinating the NCHA Program, thereby ensuring that community-based interventions conform with the policy and values. Also, the division collaborates with other programs at the MOH to integrate services and international and local partners. County Health Teams, who also worked closely with

implementation partners to implement the NCHA program. County quarterly meetings are held wherein community issues are discussed, and joint supportive supervision is conducted at the community levels. The District Health Teams at the district levels work closely with Officers in Charge (OIC) of health facilities to ensure community health activities are well coordinated. And at the community level, the Community Health Committees work closely with CHAs and ensure all health-related activities are well-coordinated in their communities and report to their Health Facility Development Committee (12).

Once they passed through the vetting process, they undergo pre-service training and practice in their communities for four months in divided phases. In-service training is conducted based on training needs, are generated through monitoring and supervision reports. In addition, career pathways are to be in place to address retention; however, this is still yet to be functional. CHSS conducts monthly supervision, and they are equipped with motorbikes to guarantee good service delivery, yet supervisions are not conducted regularly in all counties as indicated (24). Supervision findings prove that CHAs are not getting adequate supervision in some counties (15).

Besides, referral systems also support a bi-directional flow between the communities and health facilities at the PHC level. Ideally, CHAs are equipped with a suitable amount of essential medicines and supplies are delivered through the National Supply Chain system. However, it has been one of the main hindrances to the NCHAP, with many counties experiencing constant stock out of drugs and supplies (27). The health system also faces this challenge in general to drug supplies (22).

The Health Extension Workers in Ethiopia are usually females, and they receive 12 months of training inclusive of 17 packages under four thematic areas. After the training, two HEWs are assigned to one health post and serves a population of 3000 – 5000 in a village, also known as (kebele). These workers are supervised by the district health office and the village administration, and moral support is provided from the closest health center. The HEWs spends 75% of their work time conducting home visits and 25% at health post delivering essential curative, promotive, and preventive services (28).

In Bangladesh, the government relies heavily on resources and know-how from their partners, which was realized from the CHW program. For instance, if the government needs to try a new method, such as family planning, they will support Bangladesh's International Health Research Institute. The research organization thoroughly tried different approaches and made appropriate recommendations that are evidence-based for adoption (26).

It is mandatory that the Family Health Assistants (FWAs) in Bangladesh are females, while the Health Assistants could be either male or female. Both cadres receive 21 days of pre-service training. As for the FWAs, visit every couple and register them to encourage family planning, maternal and child health, and they are supervised by male supervisors called Family Planning Inspectors (FPIs). Health Assistants (HAs) provides treatment for diarrhea, acute respiratory infections, and malaria. Also, they provide vitamin A supplements and target women and children

who need immunization, and Assistants Health Inspectors supervise them. Whereas the CHCPs receives 12 weeks of pre-service training and provide primary health care services. It is required that every community clinic be put in place that allows 80% of the catchment population to have access within 30 minutes of walk. They are supervised by the field supervisory team and Family Planning officers (18).

The NCHA program in Liberia is making progress in terms of organizational capacity. There are systems and structures in place from the national to the community level. In addition, the program is equipped with Human Resources that are trained to implement the program. However, there are challenges with supervision and supply chain issues. Some supervisors are not conducting regular supervisions; drugs and commodities are usually stock out in many parts of the country. This situation has a significant hindrance for the program because counties will not meet their targets, and communities could also lose trust in the Community Health Assistants.

4.4 Program Adaptation

Program adaptation is the program's ability to adapt and improve to ensure effectiveness (19). For the MOH to realize how well the program is being adjusted, in collaboration with one of its health partners, Last Mile Health, quarterly and monthly supervisions are carried out called the program Implementation Fidelity Initiative. The data is combined at the national level and divided by counties and reviewed by MOH, County Health Teams, and donors and implementing partners at review meetings held every quarter at national and county levels.

These meetings are consistently held at the national level, but not all counties have them regularly. Action points are collectively generated during these review meetings, and counties can follow up with them through an action point tracker. There are few instances where the CHAs do not meet the community's needs, for example, family planning which stands at 17.3 percent in rural areas. Many women prefer injections to pills; because of that, the MOH has piloted an injectable called "sayana press", and the majority refused the uptake of female condoms. Results from the pilot of the sayana press seemed encouraging, as the government is reviewing to see how intervention could be rolled out nationwide. Female condoms were taken out of the list of CHAs supplies because it was disliked by the communities (24).

In Ethiopia, the government has made great efforts in developing pro-poor policies and strategies geared toward health promotion, disease prevention, and curative services, with the main focus on community ownership (29). Also, adjustments made to the program are accepted after a general assessment and discussion is done in partnership with their development partner. Changes are data-driven, and international and local evidence is taken into consideration. For example, treatment for pneumonia was introduced in 2009 because malaria and diarrhea treatment had been effectively introduced coupled with local and global findings that CHWs could treat pneumonia (25).

Bangladesh CHW program has been implemented, expanded, and modified due to an inclusive collection of data. For example, the initial program's demand for health services was feeble because people in the remote and poor villages were living without healthcare access. But the CHWs were able to engage with the locals and mobilized them in generating their support and interest for the program. Also, based on the data compiled from household visits, supervisors can plan, and the program can also make changes considering the local culture and monetary certainties (26).

The NCHA program in Liberia is making progress in adaptation due to the regular supervision carried out monthly and quarterly. As a result, interventions are adjusted to meet the community need and demands.

4.5 Partnership

In Liberia, the Community Health Assistants program has been developed and managed by various donors and partners who tried to structure the program to address their deliverables. However, the government could push its program agenda despite the multiple expectations from donors and partners and advocate for donor transparency. With their negotiation with partners, the government made available funding for the program for the first five years of its existence, considering the donor funding timeline. In addition to partners' potential, the government allowed partners to lead at the beginning of the program execution and is now gradually taking over the management to ensure more ownership as they improved their competencies (24). In addition, MoH coordinates with other line Ministries, local government, community structures, Civil Society Organizations (CSOs), and International partners who assist the MOH in implementing the NCHAP (12). These international partners include but are not limited to UNICEF, PACS supported by (USAID), Last Mile Health (LMH), World Bank, PLAN International support by (Global Fund).

The Ethiopian government succeeded in its Primary Health Care system because they collaborated with their donors to improve the HEP. In addition, donors and NGOs are part of yearly assessments, in which they review data together with the government and discuss means of strengthening the program performance (25).

The government of Bangladesh works in close accord with its stakeholders, which includes: the private sector local government, NGOs, and the that are involved with health, (i.e. family planning, nutrition, and WASH, for proper coordination). Non-Governmental Organizations play very critical roles in providing access and coverage of services (30). The health sector in Bangladesh has experienced speedy development due to the NGO sector because they have policies identifying the role and regulatory mechanism through the NGO Affairs Bureau within the Prime Minister Office to have an oversite of all NGO affairs in the country (26).

The Ministry of Health in Liberia is progressing with the aspect of partnership for the NCHA program. There is proper coordination at all levels of the program, involving community structures, local government, County Health Teams, stakeholders within the Ministry itself, and their local and international partners.

4.6 Program Evaluation

Program evaluation is defined in the study as the monitoring and evaluation of process and outcome data associated with program activities (19). This element is essential for the government and its implementing partners. Because of that, the government developed the Community Based Information System (CBIS), embedded with the District Health Information System-2 (DHIS-2) and stores the country's health data. Data is collected from various sources, i.e. routine (monthly) data, community and facilities surveys, evaluations, and research (24). It is part of the job responsibility of Community Health |Services Supervisors (CHSS) to conduct supervision and monitoring visits to CHAs to recognize their mistakes and make necessary corrections. Also, the CHSS collects monthly service reports from the Community Health Assistants, and they are entered in the Community-Based Information System (CBIS) (18).

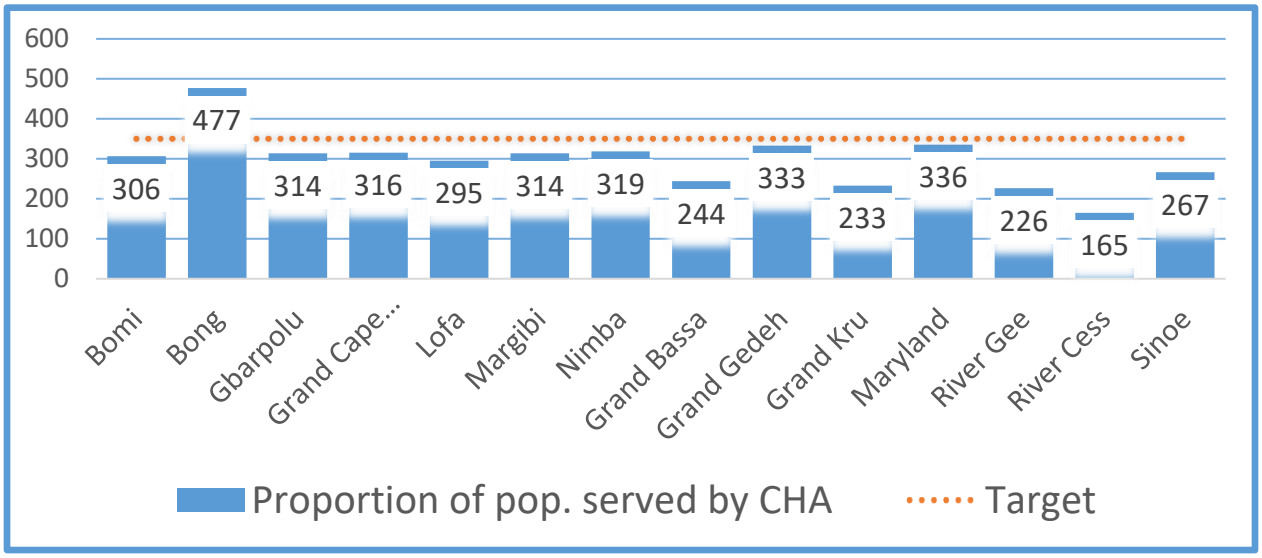
Table 1: Service delivery Indicators for the Community Health Assistants Program

Indicators	Jul 2016 – June 2017	Jul 2017 – Jun 2018	Jul 2018 – Jun 2019	Jul 2019 – Jun 2020	Target July 2020 - Jun 2021	Achievement
CHAs to target population ratio	2721	3011	3168	3448	1:350	3561
Ratio of CHAs to CHSS	7.8	8.23	8.9	9.24	10	9.29
% of under-five tested positive for malaria (Rapid Diagnostic Test, RDT) and treated with Artemisinin Combined Treatment (ACT)	----	49.10%	53.20%	58.30%	63.30%	64.00%
% of under-five treated for pneumonia with antibiotics by CHAs	53.90%	83.10%	72.20%	70.30%	86.10%	74.00%
% of under-five treated for diarrhea with Oral Rehydration Salt (ORS) by CHAs	64.30%	77.70%	68.70%	69.40%	85.50%	59.00%
Correct treatment rate	68.10%	37%	83.50%%	87.80%	90.40%	85.00%

(Source: Monitoring and Evaluation 1st Quarterly Review Meeting, 2021, MoH, Liberia)

Below, figure 4 shows the proportion of the population of Community Health Assistants per county in Liberia. Bong County has the highest number of people assigned to a CHA.

Figure 5: Proportion of population to CHAs in Liberia per county



(Source: Monitoring and Evaluation 1st Quarterly Review Meeting, 2021, MoH, Liberia)

As seen in **table 1** and **figure 5** above, the ratio of CHAs to the population is 1:350; as seen in Bong county, the proportion is above the target, while it is at its lowest in Rivercess because of the geographic location. Also, the ratio of CHAs to CHSS is 10:1. Overall, it is nine CHAs to one CHSS, which should allow supervisors to visit each CHA. Moreover, looking at the rate of testing and treatment for malaria in the under-fives, there has been progress, with the rate slightly above its target, despite the challenges with the supply chain.

There is progress for pneumonia treatment, but still not meeting target due to stock out of antibiotics. With diarrhea, the overall target has not been met because some counties are not doing well with community security, about seven counties namely: Bomi, Bong, Gbarpolu, Lofa, Grand Cape Mount, Nimba and Margibi. Nevertheless, CHAs correct treatment rates have improved over the period; although it has not reached its target, their supervisors conduct effective mentoring and coaching (31).

At the central level, metrics like these are used to evaluate the quality of the program operations, i.e. the appropriateness of CHAs payments, supply refill, quality of supervision by CHSS, which includes data verification, and the capability of CHAs in accomplishing their tasks (18). However, since the beginning of the CHA program, there has been no national evaluation. Still, an independent assessment was conducted in September 2019 for three counties implementing the CHA program with funding from USAID under the Partnership for Advancing Community-Based Services (PACS) in Bong, Lofa, and Nimba counties (32).

The key findings from the evaluation showed that the CHA program rolled out in the three counties aligned with the national policy and well-coordinated with County Health Teams. However, CSOs and CHTs capacity were strengthened to support program implementation after transition; less enthusiasm from the County Health Teams and the government left greater responsibilities with the partner because they had to meet targets (32).

In Ethiopia, Health Extension Workers keep track of family members by creating health profiles in which they are given health cards to form a family folder. These cards are held at the health post and used per each family member's visit. Routine visits are conducted every two months for those that do not come to the health post, and data is gathered using standardized reporting formats. HEWs are supervised by health officers at the Woreda (district) level once a month. Information collected from the HEWs is uploaded to the data system (health information system) MOH (18). Monitoring and evaluation are planned to follow the five-year Health Sector Transformation Plan (HSTP), in which indicators are monitored and evaluated based on the recognized targets. The HEP has undergone performance evaluations since the program started (2007 and 2010) (25).

In Bangladesh, the Family Welfare Assistants register and keep track of couples' demographics, family planning, child health, and immunization. On the other hand, HAs record pregnant women's information and follow up with the vaccination status of children under five within their catchment. The CHCPs primarily record data on patients' meetings, and they are equipped with a laptop and modern to facilitate data submission online. These three cadres of the government community health system conduct their monthly meeting distinctly and submit their reports to their supervisors (26).

The National Community Health Assistants Program in Liberia has systems in place for monitoring and evaluation. CHAs are supervised monthly by health professionals, and data collected is entered into the comprehensive Health Information System database. Other measures are also functional to monitor the program's operation, such as the implementation and fidelity carried monthly by the counties and quarterly by the national. In terms of evaluation, the program needs to be evaluated from a nationwide point of view in order to make appropriate changes.

4.7 Communication

Communication is the strategic dissemination of program outcomes and activities with stakeholders, decision-makers and the public (19). Through the Community Health Services Division (CHSD), the government of Liberia hosts monthly coordination meetings with stakeholders from MOH and partners to review the program's successes, challenges and generate ideas for new prospects. At a broader health system level, the CHSD discusses with County Health Teams and the national level through quarterly and annual review meetings and conferences to institutionalize a formal system (18). On the general level, a department with the MOH responsible for communications also covers activities on community health, which includes information on the MOH website and participating in talk shows that are not done at regular timing.

The Ethiopian Ministry of Health – Regional Health Bureaus (MoH-RHB) Joint Steering Committee convenes every two months to discuss significant issues related to the Health Sector Transformation Plan (HSTP). For example, the Health Extension Workers Program is top on the country agenda. Also, the committee assembles to strengthen the communication gaps, which improves internal coordination by carefully keeping track of improvement and difficulties of programs and developing systems and sharing knowledge (29).

The government of Bangladesh coordinates effectively with all the programs complementing the government effort in providing health services, and the government has introduced several levels to facilitate coordination with CHWs programs: The public officials and NGOs meet once a month for a sub-district health council (Upazila). For the nationwide approach, various technical groups meet at the "Sector-wide Approach Health Nutrition Population Sector Program, which appreciates the private sector and NGOs' role in delivering health care, while the government makes policy and monitors activities (26).

The Ministry of Health of Liberia communicates with its stakeholders through regular monthly coordination and quarterly and annual review meetings. In terms of communication, the program's success and challenges are regularly discussed in order to generate new programs ideas.

4.8 Public Health Impact

As defined in the framework for this research, public health impact is the program's effect on the health attitudes, perceptions and behaviors in the area it serves (19). Unfortunately, there has been no impact assessment on the CHA program in Liberia. Nevertheless, according to the program data from July 1, 2016, to October 31, 2019, CHAs have delivered more than 1 million vital services in managing childhood diseases, antenatal and postnatal care (18).

Notwithstanding, Ethiopia has made tremendous progress in terms of health in Africa with the support of the HEW program. There has been significant progress in health indicators, i.e.., the decline of maternal mortality ratio, from 950 per 10,000 live births in 1990 to 412 in 2016. In addition, children under five mortality decreased from 204 per 1,000 live births to 67 in 2016. Likewise, the country made outstanding progress in its contraceptive prevalence rate, from 8.2% in 2000 to 35% in 2016 (18).

Also, in Bangladesh, the government CHWs program has generally professed to have significantly influenced maternal and under-five mortality. For example, from 1990 – 2016, deaths related to those under five have reduced by 75 %, infant mortality by 72% and maternal mortality by 71%(20).

For public health impact, the Ministry of Health has not applied much effort regarding the NCHA program. Therefore, an assessment of the program will have to be conducted to give a deeper

understanding of how the program has impacted the rural population in order to make more adaption to the program.

4.9 Strategic Planning

Achieving a successful nationwide CHW program requires careful planning of strategies and implementation that are context-specific and appropriately train and manage community health workers while improving service delivery at the community level (33). In creating an informed strategic plan for CHW programs, the process should coordinate with stakeholders from governmental, community levels, non-governmental organizations, and pertinent implementing actors in order to contribute to a sustainable and successful program (34).

The Ministry of Health in Liberia's vision for the National Community Health program is a coordinated system in which households access life-saving services to alleviate possible health risks. The CHA program launched successfully because of proper coordination with divisions and units within the MoH and their partners at all system levels. Moreover, recruited CHAs goes through a recruitment process led by the County Health Teams (CHTs) and observed by the community leadership (18). Every month, information collected from the community level is integrated into the Community Based Information System (CBIS). The program is regularly monitored to know if the program is making progress, and recommendations are made for counteractive actions if required (12). Additionally, the CHA program considers important features that guarantee quality and standardization, including setting recruitment, training, remuneration, supervision, supply chain, and active monitoring and evaluation systems (24).

In Ethiopia, the Health Extension Program (HEP) was a strategy launched by the Federal Ministry of Health in 2003 to attain UHC at the primary health care level amongst the rural population in a setting of scarce resources. The goal of the HEP is to improve health outcomes directed to households and communities, thereby creating a healthy society, with the following objectives: 1) to reduce sickness and deaths of mothers and children; 2) to reduce sickness and death as a result of HIV/AIDS, TB, and malaria by developing community skills and knowledge 3) to prevent diseases due to malnutrition, poor personal hygiene and contaminated food; 4) prevent accidents and emergency illnesses, and manage first aid for those injured and sick; 5) develop community awareness, knowledge, and skills in rural Ethiopia to avert sickness spreading from the waste of humans and animals (18). Also, the HEP was established in settings where health outcomes and access to essential services were poor, which included low coverage to maternal and child health services. There was also a significant level of inequality concerning the rural and urban population and demographic and socioeconomic groups (22).

However, Bangladesh has a Community Health workforce that delivers community-based services that promote educative and vital care. The program's vision is capable community health workers deployed for the health and welfare of the people of Bangladesh. The country's goal for the CHW program is to enhanced health promotion and essential service delivery through effectively trained

and motivated CHWs for achieving SDGs in Bangladesh, with the following objectives: provide policy leadership and context for selection, education, certification, Recruitment and deployment of CHWs; support administration and supervision structure and ensure structures are functional for the supervision of CHWs; develop systems for integration and support by health systems and society (30).

Liberia's NCHA program strategic plan covers five years, and it incorporates all crucial components, which include: standards for recruitment and training, remuneration, supervision, supply chain, and active monitoring and evaluation systems, and linkage to the formal health system (12). These similar features are seen in the case studies of Ethiopia and Bangladesh. Peculiar to Ethiopia and Bangladesh are the educational levels for recruitment, which is ten years of education, and the encouragement of females within the workforce. Also, these countries have health posts, where the CHWs provide services to their communities. Moreover, they have instituted their programs in their government budgets, ensuring that financial resources are made available for continuous program operation.

5.0 CHAPTER V: DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

Community Health Workers (CHWs), over the past twenty years, globally have contributed to health systems achieving their potentials. They provide promotive, preventive, curatives, and, in some cases, rehabilitative services (11). This study aimed to analyze the government of Liberia's strategies to sustain the National Community Health Assistant in place of donor support. With the help of the New Public Health framework for program sustainability, the study analyzed factors that are needed to sustain the National Community Health Assistants Program in Liberia over a long period.

In Liberia, Community Health Assistants (CHAs) provide services to the Liberian population that lives more than five kilometers away from the health facility. They serve 60 percent of the rural population that has little or no access to healthcare, as there is a shortage of professional health workers in these areas. Also, as seen in Ethiopia and Bangladesh, CHWs are being utilized to extend essential primary health services to the needed population, predominantly rural areas.

Considering the sustainability of the CHW programs in Ethiopia, Bangladesh and Liberia, they have institutionalized structures and systems to support their programs. There are governance structures from local to national levels providing support to these workers. Moreover, Liberia, Ethiopia and Bangladesh have trained Health Workers to supervise these Community Health Workers in delivering essential health services. Similarly, across the three countries, all the Community Health Workers have a specific time allotted for pre-service training and subsequently receive in-service training (18).

Nonetheless, Liberia's selection criteria in terms of education are far below the other two countries. For example, the CHAs in Liberia are selected based on the skills of reading and writing. On the other hand, in Ethiopia and Bangladesh, these workers must have at least ten years of formal education. Another feature that stands out in the exemplar countries is the criteria selection of female workers, which has facilitated Ethiopia and Bangladesh in achieving progress in maternal and child health (18).

However, Ethiopia and Bangladesh have put mechanisms to support long-term financial support to their community health programs considering the funding stability. Although Ethiopia's Health Extension Workers program is 73% donor-funded, financial resources for the HEP were included in the country's budget from the program's inception. They have worked with their international donors and partners over the years. They have signed binding documents, like the International Partnership Plus compact, wherein donors have signed and promised to support the program because of its deliverables in helping the country achieved its Sustainable Development Goals. Ethiopia ensured that their supporting partners work together with their government in attaining the goal for their one country's plan, budget and report for community health systems (25).

On the other hand, Bangladesh is a country whose community health programs are supported mainly by donors and NGOs. However, the Community Health Worker program sponsored by the government in Bangladesh initially was funded by donors, notwithstanding the government has taken over the funding source from their partners (26). The Family Welfare Assistant (FWAs), Health Assistants (HAs), and Community Health Care Providers (CHCPs) are cadres of community health workers supported by the Bangladesh government.

Liberia is challenged in terms of financial commitment and support to the program from the government side. The country has a limited fiscal space towards health, and even with the budget support to the Ministry of Health, there is no line of funding for the National Community Health Assistants Program (NCHAP). All finances over the five years of its existence have been at the expense of donors and partners. The program will need donor support regarding health financing to meet up the community's needs.

There is a political will to the NCHA program in Liberia, as few leaders have advocated for the program. Still, it is not yet at the extent to which Ethiopia and Bangladesh leaders took theirs. In Ethiopia, leaders were very passionate about the program; as an LMIC coming out of a crisis, they advocated strongly for the HEP program, both internally and externally. With the effort of top political support, it was a motivation for other stakeholders to collaborate and make the HEP a success (25). More steps and strategies for advocacy will have to be made for Liberia's National Community Health Program.

Liberia has a decentralized system of health care that is present at all levels. The national level ensures that policies and standard operating procedures are developed and conform to community health activities. At the same time, the County Health Teams implements the CHA program according to standard. The District Health Teams facilities activities at the district level in collaboration with the Officers in Charge (OICs) of health facilities. At the community levels, community structures such as the Communities Health Committees work closely with CHAs in coordinating health activities. In addition, they extend their collaboration to the health facilities through Health Facility Development committees to represent their communities.

Community Health Assistants are supplied with drugs and commodities to provide essential preventive and curative treatments, but this has been a challenge due to the regular stockout of essential medicines. Also, the inadequate supervision conducted by CHSS is another issue for the program. Furthermore, career pathways is also a challenge that the Ministry of Health has not addressed. With the Health Extension Program in Ethiopia, more emphasis has been on improving existing Health Extension Workers rather than training new ones (29).

Communities generally accept these Community Health Workers; like in Liberia and Ethiopia, they are selected by their communities and monitored by local structures. Over the period, results from the exemplar countries showed that the programs had made changes to adapt to the needs of their local communities.

Over the few years of the Community Health Assistant Program implementation, the Liberian government has collaborated well with its implementing partners and donors, which has helped secure funds for its first five years of existence. The program has also involved Civil Society Organizations and other local actors. In the case of Ethiopia, the element of partnership has played a vital role in the country achieving success in Primary Health Care. The government of Ethiopia strategically engaged with their stakeholders. A significant feature of Bangladesh's success of its health system is the involvement of the NGOs. There are many NGOs in the country, but they are registered and monitored through their prime minister's office. They have policies and regulatory mechanisms to deal with the affairs of the NGOs.

The NCHA program is monitored on a monthly and quarterly basis. Routine data is collected and compiled by the supervisors, and they are entered into the Community-Based Information System at the county level for analysis. As seen in Table 1, information on service delivery indicates that the ratio of CHAs to population is much higher than in other counties and is at its lowest in Rivercess, which has many hard-to-reach communities. Diagnosis and treatment for malaria met its target of 63.0%, with an achievement of 64.0%. Unlike the treatment for diarrhea and pneumonia, targets were not because of drugs stock out; achievements were 59.0% and 74.0%, with marks at 85.50% and 86.10%, respectively. Community Health Assistants correct treatment rates are below its target of 90.40% but have an achievement of 85.00% (31).

Comparing with the exemplar countries (Ethiopia and Bangladesh), both have systems functional for monthly data collection and Liberia. They are entered collected data into the overall Health Information Systems. For Ethiopia, indicators are monitored and supervised in line with their Health Sector Transformation Plan, and the program has undergone two evaluations. In Bangladesh, the CHWs are supervised at least twice a month by supervisors according to their categories. Thus, Liberia, Ethiopia, and Bangladesh have systems and structures for effective communication of their Community Health Programs.

Impact assessment has not been conducted for the CHA Program in Liberia since its inception. However, it is noted that the program has delivered excellent services in managing childhood diseases, antenatal as postnatal care. In addition, Ethiopia has made significant progress in its health indicators because of the Health Extension Program. For example, indicators such as maternal mortality ratio and under-five mortality have declined; also, contraceptive prevalence has increased meaningfully.

The research came across some limitations in accessing information related to some elements within the framework. For example, an aspect like funding stability, data could not be accessed on the actual financial contributions provided by donors and partners in Liberia. Also limited to the study findings were adequate literature on public health impacts and program evaluation.

The framework elements used for this research were appropriate to its questions and objectives. However, there were few limitations to the framework observed. For instance, the framework's definition of a partnership is limited to only the program and the community. Whereas in program implementation from the literature review, a partnership is more extensive; it incorporates bilateral, multilateral, as well as multisectoral and Non-Governmental Organizations partners. Also, the definition of Organizational Capacity was not explicit in defining resources needed for the program.

The National Community Health Assistants Program's capacity for sustainability was analyzed, covering both the processes and outcomes in achieving sustainability. Considering the NCHA program's sustainability through the nine elements of the framework, Liberia is making positive strides in line with Ethiopia and Bangladesh in program adaptation, partnership, communication, and strategic planning. However, the program faces some challenges regarding funding stability, political support, organizational capacity, program evaluation, and public health impact.

The study aimed to discuss how the Government of Liberia can successfully maintain the NCHA Program without the full financial support of donors and partners. The research used the Conceptual framework for Capacity Sustainability to analyze the study results. Funding stability plays a vital role in the sustainability of the NCHA Program, which significantly influences political support. Therefore, the more political will and advocacy are made for the program by influential leaders, the better the program will be in terms of funding. Also, program evaluation is critical for program implementation; it evaluates the organizational capacity and determines how well the program is adapted to meet the population's health needs. In addition, strategic planning is the core of programming; ensuring all elements are functional in the NCHA Program in Liberia is crucial to the success and sustainability of the program.

5.2 Conclusion

In conclusion, the issue of sustainability for the National Community Health Assistant Program is very critical in ensuring the program becomes and remains successful. This study identified four factors needed to sustain the NCHA Program in Liberia: funding stability, organizational capacity, public health impact and program evaluation. In addition, the program is heavily reliant on donors financially and technically. With these factors strengthened, the NCHA program will yield sustainability.

The current NCHA Program's capacity is progressive in program adaptation; it can adapt and improve the Community Health Assistants Program. There is also a robust connection between the program, its partners, and the community. Moreover, the Government of Liberia can effectively communicate about the program with its stakeholders both internally and externally with a well-planned approach. In addition, the program has political support, policies and plans in place to direct program implementation.

Some strategies from exemplar countries that could inspire Liberia include: having donors and partners to support the health sector, with funds directed to the NCHA Program and ensuring that donors and partners signed and are committed to supporting the program financially. Moreover, absorbing Community Health Workers into the government's budget will hold the government more accountable and improve commitment and ownership of the program.

Additionally, more advocacy from political leaders has effectively contributed to sustaining community health programs. In addition, the educational level for Community Health Workers in Ethiopia and Bangladesh is at least ten years of education. This enables the CHWs to learn faster, handle the task more independently, and prepare them for career pathways. Also, the selection criteria of females, which is mandatory for some cadre of CHWs in Bangladesh and highly encourage in Ethiopia, is an essential strategy that has assisted these countries in reducing maternal mortality, which is very high in Liberia. This strategy indirectly contributes to gender balance and promotes women and girls' education. Lastly, regularly conducting evaluations and health impact assessments also informs a community health program in achieving sustainability.

5.3 Recommendations

The study, therefore, proposes the following recommendations in order to obtain sustainability;

The government of Liberia, through the Ministry of Health, should:

- Incorporate the NCHA program budget within the overall health budget; this could motivate commitment and ownership from the government in sustaining the program financially.
- Ensure that donors and implementing partners of the National Community Health Assistants program sign the costed National Community Health Strategic Plan supporting the program.

- Negotiate with donors and partners to support the NCHA program through a pool fund mechanism; this is allowed funding to flow directly to the program, and administrative costs will reduce.
- Ensure program evaluation and health impact assessments are conducted regularly to improve the program's implementation.
- Adjust the educational level within the selection criteria of Community Health Assistants to ten years of education, emphasizing the selection of females.
- Ensure that the NCHA Strategic Plan address all components relative to the sustainability of the program.

References

1. Malaria National Strategic Plan 2021-2025. National Malaria Control Program, Ministry of Health, Liberia; p. 54.
2. Ministry of Internal Affairs [Internet]. [cited 2021 Aug 7]. Available from: https://www.mia.gov.lr/2content.php?sub=210&related=40&third=210&pg=sp
3. Liberia Maps & Facts - World Atlas [Internet]. [cited 2021 Aug 7]. Available from: https://www.worldatlas.com/maps/liberia
4. UNDP. Human Development Report 2020: The Next Frontier Human Development and the Anthropocene. UNDP New York, NY, USA. 2020;1–7.
5. GDP per capita (current US$) - Liberia | Data [Internet]. [cited 2021 Jun 11]. Available from: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=LR
6. National Health and Social Welfare Policy and Plan Republic of Liberia Ministry of Health and Social Welfare. 2011.
7. Liberia Institute of Statistics and Geo-Information Services (LISGIS), Liberia Ministry of Health, The DHS Program ICF. Liberia Demographic and Health Survey 2019-20. 2021;1–663.
8. Abbafati C, Abbas KM, Abbasi-Kangevari M, Abd-Allah F, Abdelalim A, Abdollahi M, et al. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet [Internet]. 2020 Oct 17 [cited 2021 Jun 15];396(10258):1204–22. Available from: http://ghdx.healthdata.org/gbd-
9. Republic of Liberia Investment Case for Reproductive , Maternal , New-born , Child, and Adolescent Health.
10. Health C, Programmes W. COMMUNITY HEALTH WORKER PROGRAMMES IN THE WHO AFRICAN REGION : EVIDENCE AND OPTIONS POLICY BRIEF COMMUNITY HEALTH WORKER PROGRAMMES IN THE WHO AFRICAN REGION : EVIDENCE. 2017;
11. Perry HB, Zulliger R, Rogers MM. in Low-, Middle-, and High-Income Countries : An Overview of Their History, Recent Evolution, and Current Effectiveness. 2014;
12. Liberia National Community Health Services Strategic Plan.pdf.
13. Revised National Community Health Services Policy, Community Health Services Division. Ministry of Health, Liberia; 2016.
14. CHA and CHSS Scale DashBoard - Google Sheets [Internet]. [cited 2021 Jun 15]. Available from: https://docs.google.com/spreadsheets/d/1zpixhwCpmY6J6SDkElt6Pdq5UEAZPcZGRF0y7QN6LSg/edit#gid=0
15. Integrating Community Health Program, Liberia country Snapshot, Ministry of Health. 2020. p. 1–54.
16. Liberia Service Availability and Readiness Assessment Report, Ministry of Health. 2016.
17. WHO Monitoring and Accountability Framework Application Liberia Case Study The Problem and Opportunity Unfinished Business : Liberia Community Health Assistant Program Window of Opportunity : Policy Revision; Ministry of Health. 2021. p. 1–11.

18. Shelley K, Frumence G, Amalberga K. Health for the People: National Community Health Worker Programs from Afghanistan to Zimbabwe. 2020;(May):381–94. Available from: https://pdf.usaid.gov/pdf_docs/PA00WKKN.pdf

19. Schell SF, Luke DA, Schooley MW, Elliott MB, Herbers SH, Mueller NB, et al. Public health program capacity for sustainability: A new framework. Implement Sci. 2013;8(1):1–9.

20. Dahn B, Tamire Woldemariam A, Perry H, Akiko M, Al E. Health Workers : Health through Community Health Workers : Investment Case and Financing. 2015;(July):4–14.

21. Community Costing of the Essential Package of Health Services in Liberia, 2018 Final Report. 2018;

22. Healey J, Wiah OS, Horace JM, Makekodunmi DB, Duokie D. Liberia's Community Health Assistant Program : Scale, Quality, and Resilience. 2021;18–24.

23. Global Health Expenditure Database [Internet]. [cited 2021 Aug 11]. Available from: https://apps.who.int/nha/database/country_profile/Index/en

24. Chen N, Dahn B, Castanda CL, Muther K, Panjabi R, Matt P. COMMUNITY HEALTH WORKERS IN LIBERIA, Exemplar Narrative. 2020.

25. Admassu M, Chen N, Hailu L, Jones T, Muther K, Panjabi R, et al. COMMUNITY HEALTH WORKERS IN ETHIOPIA, Exemplar Narrative. 2020 [cited 2021 Jul 21]; Available from: http://www.exemplars.health

26. Afsana K, Alam MA, Chen N, Chowdhury M, Muther K, Panjabi R, et al. COMMUNITY HEALTH WORKERS IN BANGLADESH. 2020;

27. Annual Report 2019, Community Health Services Division, Ministry of Health. Vol. 20. 2019. p. 1–355.

28. Assefa Y, Gelaw YA, Hill PS, Taye BW, Damme W Van. Community health extension program of Ethiopia, 2003 – 2018 : successes and challenges toward universal coverage for primary healthcare services. 2019;1–11.

29. Health Sector Transformation Plan, Ethiopia [Internet]. [cited 2021 Jun 28]. Available from: https://www.globalfinancingfacility.org/sites/gff_new/files/Ethiopia-health-system-transformation-plan.pdf

30. Bangladesh National Strategy for Community Health Workers (2019-2030).

31. Korvah J. Community Health Program Quarterly Review Meeting: Monitoring & Evaluation Report, February. 2021.

32. EVALUATION USAID / LIBERIA PARTNERSHIP FOR ADVANCING COMMUNITY-BASED. 2019.

33. Gergen J, Crigler L, Perry H. National Planning for Community Health Worker Programs. Matern child Heal Integr programs [Internet]. 2013;(August). Available from: https://www.mchip.net/sites/default/files/mchipfiles/03_CHW_Planning_0.pdf

34. WHO. Community Health Worker Programmes in the WHO African Region : Evidence and Options-Policy Brief [Internet]. 2017. 1–26 p. Available from: http://apps.who.int/iris

Annex I Community Health Assistant (CHA) Service Package

PART ONE: CORE SERVICES (CORE PACKAGE)

1. General Activities for Service Delivery

i. Routine household visits, ensuring each household in the catchment area is visited at least once a month
ii. Health promotion including Infection Prevention and Control (IPC); Information, Education and Communication (IEC) and Behavior Change and Communication (BCC)
iii. Community engagement, coordination, and mobilization for all areas listed in the service package

2. Integrated Disease Surveillance and Response (IDSR) and disease prevention and control (DPC)

i. Build relationships, communicate and coordinate with other community key informants, resource persons, and existing formal and informal networks for information dissemination and reporting
ii. Community mapping and population registration including birth recording
iii. Community death recording with special emphasis on maternal and neonatal death
iv. Identify priority diseases and event triggers as they occur in the community (CEBS), including early case detection through active case finding
v. Adherence to IPC standard practices and community awareness of general IPC principles.

3. Reproductive, Maternal, Newborn and Child Health

A. Reproductive Health
i. Family planning promotion, counseling, and service provision; referral for additional family planning counseling and services where needed

B. Maternal and Neonatal Health
i. Antenatal Care (ANC)
a. ANC education and promotion and referral to health facilities for ANC visits
b. Identification of danger signs in pregnancy and referral to health facilities
c. Referral to facilities for deworming tabs, pre-natal vitamins and Insecticide-Treated Nets (ITNs)
d. Birth planning and preparedness, including education on items needed for delivery and birth spacing
e. Awareness on elimination of Maternal-to-Child Health Transmission of HIV (eMTCT) and referral to facilities for identified HIV positive mothers (collaborate with HIV/eMTCT officers where available)
f. Treatment of malaria

ii. Home-based Maternal and Newborn Care
a. Postpartum home visits

b. Well-being check for mother and newborn
c. Identification and referral for maternal danger signs.
d. Identification and referral for neonatal danger signs.
e. Counsel about danger signs for mother and newborn, the need for prompt recognition and care-seeking, and advise on where to seek early care when needed
f. Promotion of essential care of the newborn and essential nutrition actions, including exclusive breastfeeding, supportive counseling, and troubleshooting of breastfeeding problems, referral when needed
g. Promote hygienic umbilical cord care, including chlorhexidine application, and skin care
h. Support for Kangaroo Mother Care (KMC) application
i. Identify and support newborns who need additional care (e.g. Low birth weight, sick, HIV-positive mother)
j. Provide birth spacing and family planning counseling
k. Promote birth registration and timely vaccination

C. Child Health
i. Integrated Community Case Management (iCCM) of:
a. Diarrhea including the provision of Oral Rehydration Salts (ORS) and zinc
b. pneumonia, including the provision of Amoxicillin and pediatric paracetamol
c. malaria: referral of suspected cases if Rapid Diagnostic Tests (RDTs) are not available; confirmed case management with Artemisinin-Based Combination Therapy (ACT) for children under-five when RDTs are available and pre-referral treatment for severe cases; provision of pediatric paracetamol

ii. Community-based bi-directional referrals, particularly for newborns, for danger signs and other emergency cases
iii. Integrated outreach services including:
a. Vaccination drop-out tracing for all under-fives;
b. Under-five Vitamin A administration and de-worming during campaigns

D. Nutrition
i. Mid-upper arm circumference (MUAC) screening and referrals for malnourished children
ii. Nutrition education for caregivers and households, including optimal nutrition for women.

PART TWO: ADDITIONAL SERVICES (FULL PACKAGE)
1. First aid
i. Principles of First Aid, including prevention and basic response

2. Communicable Diseases
i. HIV/AIDS education and prevention messaging and counselling for treatment adherence
ii. Tuberculosis (TB) education and prevention messaging, and counselling for treatment adherence
iii. Leprosy education, counselling, and referral
iv. Awareness of stigma and discrimination

3. Mental Health

i. Identification, referral, and monitoring of patients in the community with signs and symptoms of mental health disorders

ii. Awareness of stigma and discrimination

Annex II: CHAs criteria for recruitment

- The general selection criteria for CHAs include the following:
- Must be a permanent resident in the community in which she/he serves;
- Must be between 18 and 50 years of age;
- Should be trustworthy and respected;
- Should be interested in health and development matters;
- Should be a good mobilizer and communicator;
- Should be available to perform CHA tasks;
- Should be physically, medically, mentally and socially fit to provide the required services, including walking long distances up to one hour or more to provide health services to people in their designated catchment area;
- Should have been involved in community project/s in the past;
- Should be able to demonstrate the ability to read and write, add, subtract and multiply in English and to successfully complete a test of literacy as part of their recruitment process;

ANNEX III: Service Package Indicators

List of Community Health Services under the National Community Health Assistant Program:

1	Clients currently using modern family planning services (condoms).
2	Clients currently using modern family planning services (Emergency oral contraceptives).
3	Clients currently using modern family planning services (injectables).
4	Pregnant woman visits
5	Recognition of danger signs in mother during pregnancy + referral for delivery
6	Birth Planning
7	HBMNC within 48hrs: Mother
8	HBMNC within 48hrs: Infant
9	Diarrhea cases identified
10	Diarrhea cases treated (Zinc + ORS)
11	Pneumonia cases identified
12	Pneumonia treated (antibiotics)
13	Malaria (RDT)
14	Malaria treated (2 – 11 months)
15	Malaria treated (1-5 years)
16	Referred to a health facility

17	Children <5 assessed with Mid Upper Arm Circumference (MUAC)
18	Children <5 years assessed with MUAC (Yellow)
19	Vit. A supplementation for children 6-59 months
20	Deworming
21	First aid services
22	HIV Client visits
23	TB clients visits
24	Mental health clients visit

Annex IV: Keywords and combinations used in the Literature search

	AND		
Community Health Workers	Liberia		
Community Health Programs	Frameworks		
Program sustainability	Ethiopia	Health Extension Workers	
Sustainability	Bangladesh	Family Welfare Assistants	**OR**
Strategic Planning		Health Assistants	
Funding Stability			
Political Support			
Partnership			
Organizational Capacity			
Program Adaptation			
Program Evaluation			
Communication			
Public Health Impact			