Institute of Tropical Medicine, Antwerp (Belgium)

Studies in Health Services Organisation & Policy
WORKING PAPER SERIES

How can Disease Control Programs Contribute to Health Systems Strengthening?

Country Report: Liberia

Raoul Bermejo III, Luke Bawo, Eisa Hamouda, David Logan, Moses Massaquoi,
Luc Van Leemput and Wim Van Damme

February - June 2011

Liberia Ministry of Health and Social Welfare and
Department of Public Health, Institute of Tropical Medicine -Antwerp

Working paper N° 5

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Nr. 5, 2012

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Raoul Bermejo III
Luke Bawo,
Eisa Hamouda,
David Logan,
Moses Massaquoi,
Luc Van Leemput, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium), (lvanleemput@itg.be)

Wim Van Damme, Department of Public Health, Institute of Tropical Medicine, Antwerp (Belgium), (wvdamme@itg.be)

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Acronyms

ACT	Artemisinin-based Combination Therapy
ANC	Antenatal Care
BEmOC	Basic Emergency Obstetric Care
CEmOC	Comprehensive Emergency Obstetric Care
CHSWT	County Health and Social Welfare Team
CM	Certified Midwife
DCP	Disease Control Program
EPI	Expanded Program of Immunization
FP	Family Planning
HRH	Human Resources for Health
HSS	Health System Strengthening
IMCI	Integrated Management of Childhood Illnesses -
ITN	Insecticide-Treated Nets
gCHV	General Community Health Volunteers
GAVI	Global Alliance for Vaccines and Immunizations
GHI	Global Health Initiative
MD	Medical Doctor
MOHSW	Ministry of Health and Social Welfare
MCH	Maternal and Child Health
NMCP	National Malaria Control Program
PA	Physician Assistant
PMTCT	Prevention of Mother-to-Child Transmission of HIV
RBM	Roll Back Malaria Partnership
TB DOTS	Tuberculosis Directly-Observed Treatment Short course
TT	Tetanus Toxoid
TTM	Trained Traditional Midwife
TWG	Technical Working Group

Acknowledgements

The Ministry of Health and Social Welfare expresses its appreciation to the many organizations and individuals that provided assistance and support in the planning, development, and finalization of this work on Disease Control Programmes and Health Systems Strengthening. We owe special thanks to Anne Maryse Pierre-Louis (Team Leader, Disease Control Program within AFTHE, the World Bank) and Prof. Awa Marie Coll-Seck (Executive Director, Roll Back Malaria Partnership). Prof. Wim Van Damme & Dr Raoul Bermejo, Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium led the field mission in Liberia and wrote the report.

Executive Summary

Introduction

Strong and effective health systems are increasingly considered *prerequisites* to further reducing the disease burden and to achieving the health MDGs, rather than the *outcomes* of increased investments in disease control programs (DCPs). In 2010, the World Bank, on behalf of the Roll Back Malaria Partnership (RBM), prepared a concept note 'How can Disease Control Programs contribute to Health Systems Strengthening (HSS) in sub-Saharan Africa?' The intention was to clarify HSS to DCP managers at country level and to provide options for action.

Processes in Liberia and methodology

Following initial discussions with RBM and the WB, the Ministry of Health and Social Welfare of Liberia (MOHSW) endorsed the DCPs & HSS country work based on two over-arching government endeavors: (i) the overall effort of the government to shift from a humanitarian mode to one of reconstruction and development; and (ii) the preparation and finalization of the National Health Policy and Plan for 2011-2021. Subsequently, the MOHSW established a technical working group (TWG) composed of technical experts from the ministry and key development partners (i.e. Clinton Health Access Initiative) to oversee and lead the implementation of the work. This included: (1) a desk review of DCPs and HSS in Liberia; (2) the mapping of DCP service delivery in targeted counties; & (3) a perception survey to explore stakeholders' views on DCP's contributions to HSS.

Findings

A total of 47 health staff from 3 counties were interviewed for the mapping exercise. Current service delivery realities and challenges are presented. There is a wide offer of health service providers in Montserrado but coverage remains sparse in Gran Kru. The wider decision-making and budget space for the Bomi County Health and Social Welfare Team has led to some encouraging improvements in overall service delivery.

Fifty-one (51) respondents from 6 counties completed the perception survey form. The most common way DCPs contribute to HSS appears to be by unburdening the health system of case-loads by focusing on their disease-specific targets. This is consistent with a very nascent HSS venture in the country and the limited interactions among DCPs in Liberia. Respondents also identify rather unique experiences specific to a DCP that may prove useful to other DCPs. No major differences in perception were found between the DCP and general health managers in the six counties surveyed.

Blending of research findings with country priorities

Maternal health and community management of fever for children under-five were highlighted as important themes. Three system-wide and crosscutting issues were also identified: comprehensive development of HRH, governance and regulation, and logistics and supply chain. An imbalance among the three complementary approaches to service delivery (DCPs, general health services and community extensions) was

recognized in Liberia. DCPs are strong because of consistent external funding and technical support while general services and community extensions remain weak.

Recommendation for approach to tackle system-wide and crosscutting issues

We presented HRH as an example of a system-wide and crosscutting issue that DCPs can take on to engage in an overall HSS venture. We elaborate on how such a key system-wide and crosscutting issue can be approached. If such issue is left to disease-specific programs alone, no satisfactory overall approach will ever emerge; this requires necessarily the overarching leadership of the MOHSW exercised for the entire health system (public and private sub-sectors), and the capacity to collaborate and negotiate with other sectors (e.g. education sector, Ministry of Finance & civil service commission).

The major way for DCPs to contribute to strengthening the overall health system is to address system-wide bottlenecks and constraints. They can do this by participating in inclusive policy dialogues to address these issues and by funding comprehensive strategies aimed at tackling these problems. This may entail substantial reprogramming of DCP funds towards more system-wide investments.

Ways forward; next steps

Several ways forward are identified to address the key thematic, crosscutting and system-wide issues. Primarily, this entails the MOHSW exercising leadership over the entire health system and initiating an inclusive process to address these issues. The necessary planning effort towards exercising this leadership role already started with the completion of the long-term 10 year Health and Social Welfare Policy and Plan: 2011-2021.

Introduction

General introduction

Over the last decades, there has been an unprecedented investment by the donor community into disease-specific global health initiatives such as the Global Fund to Fight AIDS, TB and Malaria (the Global Fund, or GFATM), the President's Malaria Initiative (PMI), the U.S.-President's Emergency Plan for AIDS Relief (PEPFAR), and GAVI. While the investments in specific disease control programs (DCPs) have undoubtedly led to improved specific health outcomes for the targeted diseases, they also resulted, in some cases, in a parallel system of well-funded DCPs and underfunded general health services. Such imbalance in some national health systems led to disparity and unequal access to different services (those targeted by the Global Health Initiatives vs. non-targeted services), attrition of health workers from general health services to DCPs, and the set-up of parallel supply and information system.

Recent reviews on the progress towards the MDGs have led to an increased focus on Health System Strengthening (HSS). Strong and effective health systems are increasingly considered *prerequisites* to further reducing the disease burden and to achieving the health MDGs, rather than the *outcomes* of increased investments in disease control (Atun 2010a; Atun 2010b; Waage 2010; WHO 2010a; Reich & Takemi 2009; Singh 2006; Travis 2004). This requires an explicit strategy as positive spillovers from well-funded DCPs do not happen spontaneously (Claeson 2003; Singh 2006; World Health Organization 2007a; Reich 2008; World Health Organization 2007b; Shaw 2009).

Concerns about imbalances between DCPs and general health services in national health systems, and their relative merits in moving towards better health for all, are not new and in fact have existed for decades. The public health arena indeed has long been divided between proponents of comprehensive primary health care, adhering to a horizontal approach, and advocates of more targeted approaches; who opt for a selective set of disease control interventions implemented through vertical programs (WHO 1978; Walsh 1979; Mills 1983; Unger 1986; Mills 2005; Uplekar 2007). Currently some actors still seem divided along the lines of these "old dichotomies" although the debate is now shifting towards combining the strengths of both approaches in health systems (Reich 2008; Frenk 2009; Lawn 2008) or a diagonal approach (Ooms 2008).

A growing body of evidence shows globally that ambitious health goals such as the health-related Millennium Development Goals (MDGs) cannot be achieved without greater attention for and more effective investment in general health systems. It is therefore imperative to gain a better insight in national health systems focusing on the current place of DCPs in the national health systems, the relationship between DCPs and HSS, and ways in which DCPs may or may not be contributing to HSS. In 2010, the World Bank, on behalf of the Roll Back Malaria Partnership (RBM), prepared a concept note 'How can Disease Control Programs contribute to Health Systems Strengthening in sub-Saharan Africa?' The intention was to clarify HSS to DCP managers at country level and to provide options for action. (An overview of the concept note is presented further in this chapter).

Given the importance of this work not only for RBM, but also for other DCP partnerships (GAVI, UNAIDS, STOP TB, the Global Fund, WHO, UNICEF), a follow-up meeting was held in September 2010 to discuss the second phase of this work at country level. In a subsequent meeting in November 2010, RBM, the Bank and other key partners discussed the operationalisation of this work in a group of pilot countries including Liberia. The Liberia Ministry of Health and Social Welfare (MOHSW) welcomed the opportunity to be one of the pilot countries for the country implementation work. Researchers from the ITM supported the development of the methodology and implementation of the work in the pilot countries (Annex A).

The objectives of this work on DCPs and HSS in Liberia are:

- To identify good practices in terms of DCP contribution to HSS;
- To analyze the HSS contribution to country priority programs;
- To understand how such insights can be scaled up to contribute to overall HSS; and
- To outline ways forward.

It covers the period of February to June, 2011.

Background: an overview of the concept note[1]

This chapter aims to provide a summary of the concept note and highlight key concepts that are crucial in understanding the context of this report: (1) a balanced national health system view, and (2) the increasingly pluralistic (diverse) nature of service delivery in many countries in Sub-Saharan Africa. This section also describes the ways in which DCPs can contribute to HSS and present a range of options for DCP managers.

Balanced national health system view

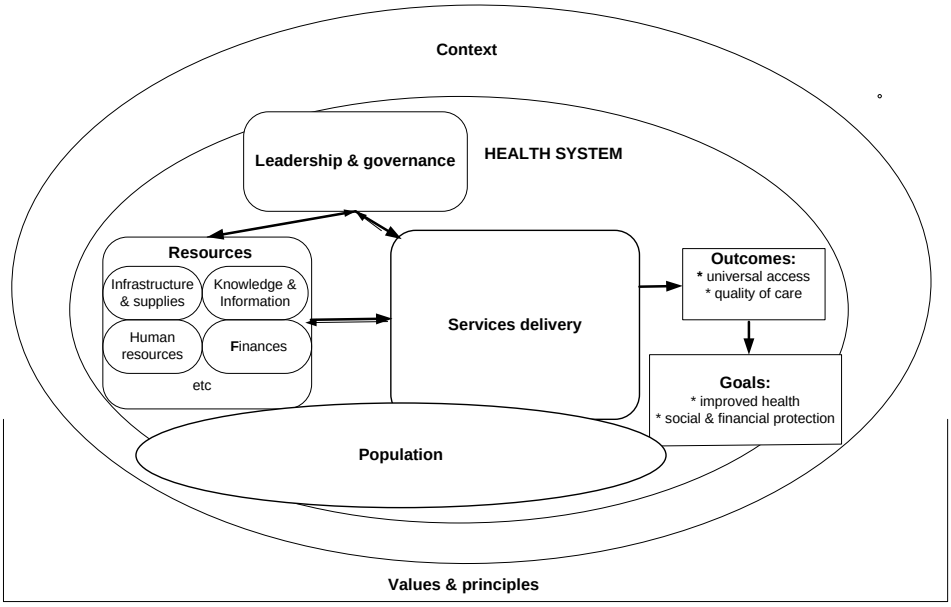
HSS efforts, including those by DCPs, should strive towards a balanced health system. This requires a broader health system view, and a sound country specific health systems assessment, with particular focus on service delivery.
DCPs and general health services are both necessary and complementary in countries with a high disease burden, such as those in sub-Saharan Africa. They are interdependent and often share common service delivery platforms. Weaknesses in general health services will ultimately undermine outcomes for DCPs.

Recent work at the Institute of Tropical Medicine, Antwerp, "Analyzing Health Systems to Make Them Stronger" (van Olmen 2010), aims at facilitating a balanced perspective of a national health system, proposing an overall inclusive view to analyze health systems (Figure 1). It improves on the six basic building blocks framework of the WHO by stressing four issues: (1) a focus on outcomes and goals; (2) the importance of underlying values and principles; (3) service delivery as the core building block; and (4)

[1] Concept Note: How can Disease Control Program Contribute to Health Systems Strengthening?" available at http://www.itg.be/itg/Uploads/Volksgezondheid/wpshsop/SHSOP WP 1 Van Damme DCP HSS.pdf

health systems interactions with the population and with the specific contexts in which they are embedded.

Figure 1 - A framework with 10 elements to describe and analyze health systems



The proposed health systems framework can be read as a simple input – process – output/outcome/ impact sequence, guided by principles and embedded in a certain environment. The framework consists of 10 elements which mutually interact, with consequent positive and negative chain reactions. Applying such framework to any country quickly reveals particular strengths and weaknesses, which can be summarized as: "Each national health system is more or less dysfunctional in its own particular way" (Anna Karenina principle).

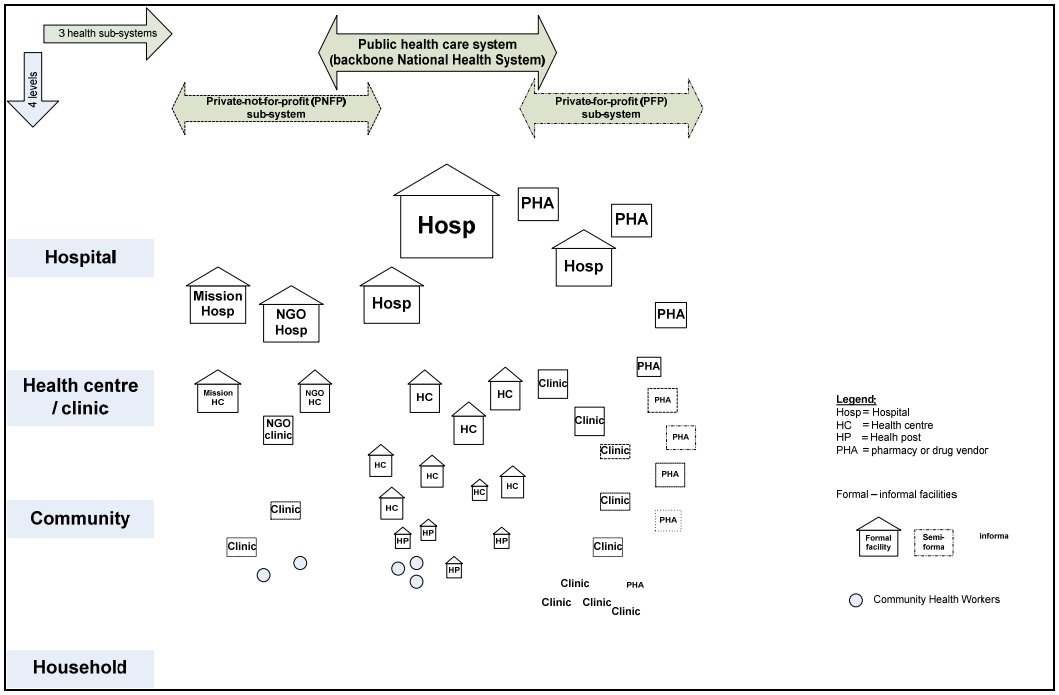
Pluralistic health system

Service delivery is nowadays mostly pluralistic with blurred boundaries between public and private entities. The implications of this pluralistic reality for both the health workforce and for the health seeking behavior of patients are often still underestimated, although they are essential for a context specific and path dependent understanding of a country's health system. This has also important implications for overall leadership and governance in the health sector. Ministries of Health need to have strong capacities to oversee programs, to steer the entire health sector, including private subsystems, towards broad sector goals.

The health facilities in a pluralistic health system can be presented graphically (Figure 2). The hypothetical health district depicted in this figure has a "backbone" public health care system with hospitals, health centers, health posts, and community health workers. The private not-for-profit subsystem is composed of a mission and a NGO hospital, health centers and clinics, as well as some semi-formal community clinics and

community health workers. The private for-profit subsystem is mainly composed of pharmacies and clinics.

Figure 2 - Visualization of the pluralistic nature of supply of general health care services and goods in a hypothetical health district (meso-level)



Some priority interventions are often highly concentrated within a subsystem. For example, childhood vaccination and treatment of TB cases are mostly concentrated in the public subsystem, possibly also in the private not-for-profit subsystem; one could speak about “monopolistic or oligopolistic delivery” and not necessarily with a negative connotation. Other priority interventions naturally take place in a certain type of facility (e.g., comprehensive emergency obstetric care is performed in hospitals exclusively). Other interventions are less concentrated; management of diarrhoea and management of malaria occur in all types of facilities in all subsystems, including at household level.

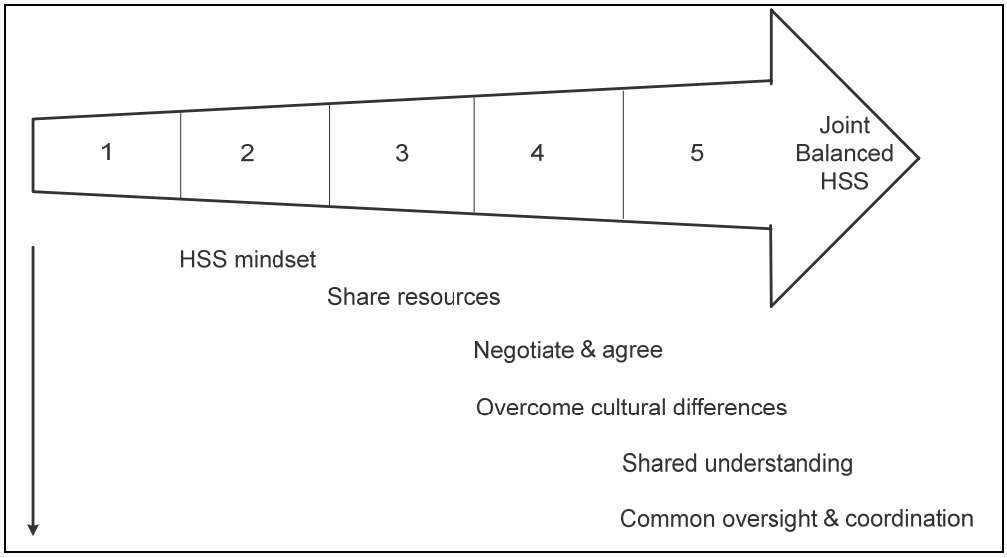
DCPs and HSS

DCPs and general health services are both necessary to deliver priority health interventions effectively and efficiently. DCPs focus on particular priority interventions. HSS does not happen as an automatic spill-over effect of the DCPs but it requires an understanding of the overall health system and how all the programs and service providers including the DCPs and general services interact.

The contribution of DCPs to HSS can be summarized in five types of contributions with a widening scope, ranging from (1) unburdening the health system; (2) avoiding unnecessarily burdening certain delivery platforms; (3) knowledge transfer from DCPs; (4) strengthening multipurpose platforms and support systems; to (5) contributing to

cross-cutting core functions in the health system (Figure 3). This progressively involves more collaboration and joint understanding with other actors in the health system.

Figure 3 - Types of contributions of DCPs to Health Systems Strengthening



In line with the five types of potential contributions of DCPs to HSS, one can also distinguish five possible strategic options for DCP managers regarding involvement in HSS.

These are:

- Option 1: DCP managers focus exclusively on DCP goals.
- Option 2: DCP managers focus on DCP goals with a health systems perspective.
- Option 3: DCP managers serve as an inspiration for others within the health system.
- Option 4: DCP managers participate in joint delivery platforms or joint support systems.
- Option 5: DCP managers seize the current global momentum for HSS and participate explicitly in an overall joint HSS venture to contribute to overall general health services in partnership with other health systems actors.

These options are elaborated in greater depth in the concept note.

Liberia country implementation work

Country context

Liberia is a small country (111,370 sq km) with a population of 3,476,608 in 2008. Almost half the population is concentrated in urban areas and approximately one third of the population lives in the capital city of Monrovia.

Since the end of the 14-year civil war in 2003, the country has made steady strides towards peace, stability, recovery and economic growth under a legitimate and accountable government. Though the country is currently shifting its focus from short-term and humanitarian activities to long-term reconstruction and development, the destructions left by the war are still visible throughout the country and a majority (63.8%) of the population continues to live in poverty. One of the legacies of the war was the devastation of basic infrastructure, including the health system, resulting in an abysmal health status (ranking 169th out of 182 countries on the Human Development Index) with one of the worst maternal mortality ratios in the world (994/100,000 live births).

The MOHSW is committed to restoring the country's health system and has been working tirelessly to improve access to quality care for all Liberians. However, the MOHSW has, in the face of mounting and overwhelming needs and challenges in reconstructing its health system, heavily relied on local and international Non-Governmental Organizations (NGOs) and Faith Based Organizations (FBOs). Though there is an earnest effort by the MOHSW to coordinate the donor activities in the health sector, with the establishment of a Pool Fund to coordinate donor inputs into health sector, there is a need to gain a better understanding of how targeted interventions (i.e., DCP and maternal health programs) funded by different donors interact with and affect each other and the overall health system.

The total health and social welfare expenditure was over 103 million USD, or over 29USD per person per year during the fiscal year 2007- 2008 (National Health Accounts 2009). Donors and out-of-pocket expenditure accounted for most of the spending at 47 and 35 percent respectively. Government spending for health has remained stable in the last four years at 15 percent of total government expenditures.

While some progress has been made with other health issues, the burden of malaria and maternal mortality remain unchanged or may be worsening. These issues constantly emerge as priority problems in many policy documents from Liberia.

Malaria remains the leading cause of morbidity and mortality. As much as 48.5 percent of children under five have had fever within the two weeks preceding the survey (LMIS 2009). Thirty-eight percent of out-patient consultations and 42 percent of in-patient deaths were attributable to malaria.

Maternal mortality remains an important problem. Maternal mortality ratio increased from 578 deaths per 100,000 live births in 2000 to 994 deaths per 100,000 live births in 2007 (DHS 2007). The total fertility rate is 5.9 and the contraceptive prevalence rate is

11 percent. Only 46 percent of women are assisted at birth by health professionals and only 37 percent of deliveries take place in a health facility.

Country implementation work in Liberia

Launch of the Liberia country work

Following initial discussions with RBM and the WB, the MOHSW endorsed the DCPs & HSS country implementation work based on two over-arching government endeavors: (i) the overall effort of the government to shift from a humanitarian mode to one of reconstruction and development; and (ii) the preparation and finalization of the National Health Policy and Plan for 2011-2021. Subsequently, the MOHSW established a technical working group (TWG)[2] composed of technical experts from the ministry and key development partners (i.e. Clinton Health Access Initiative) to oversee and lead the implementation of the work.

ITM-Antwerp and the TWG reviewed the overall logic of the approach proposed based on the concept note. The team agreed that the country implementation work would include three main elements: (1) a desk review of DCPs and HSS in Liberia; (2) the mapping of DCP service delivery in targeted counties; & (3) a perception survey to explore stakeholders' views on DCP's contributions to HSS.

The team then developed a work plan outlining the activities, timelines and responsibilities of each entity involved, respectively: (a) MOHSW: overall leadership and follow-up of the process; (b) ITM-Antwerp: technical assistance; & (c) the WB Liberia Team: technical and administrative support.

Desk review

Prior to the technical assistant mission by ITM in May 2011, a thorough desk review was conducted for the ITM team to become more familiar with the country context. The review included policy and program documents and related literature on DCPs, other targeted interventions (i.e., maternal health) and the general health system in Liberia. The results (Annex D) were also used to triangulate the findings from the mapping exercise and the perception survey.

A list of documents reviewed during the desk review is provided in Annex C, together with the other references used in this report. The review used the same tool developed for the mapping exercise described below.

Liberia: specific methodology and tools

Based on the findings of the desk review and the discussion with the TWG via audio conferences and email exchanges, the ITM team adapted the generic methodology and tools for the Liberia context.

[2] Liberian DCP-HSS technical working group (TWG) composed of: Luke Bawo (overall coordinator for this work from the MOHSW, Health Research, Planning, and Development Unit), Eisa Hammouda (M&E Specialist, MOHSW), David Logan (Global Fund Manager, MOHSW), Moses Massaquoi (CHAI), and Julius Togba (WB Local consultant).

The following were some key features of the adapted methodology agreed upon during the preparatory phase of the work:

- The unit of analysis would be counties, not districts as originally proposed in the generic methodology. The main reason was that Liberian districts are rather small in size and population when compared to districts in other African countries.
- A stakeholders meeting was to be organized during the ITM mission in Liberia in May. This was seen as a good opportunity to introduce the background and the purpose of the DCP HSS country work to a wider group of Liberian stakeholders and to share some initial feedback on the mapping exercise. Another aim of the meeting was to gather stakeholders' perceptions on DCP contributions to HSS through a survey.

The ITM mission in Liberia took place from May 9th to 25th, 2011 and was led by Prof. Dr. Wim Van Damme. The mission was launched with a meeting at the MOHSW where the TWG, assisted by ITM and a local WB consultant, finalized the Liberia specific methodology and tools as well as the detailed process of the implementation.

During the initial meeting, the team selected three counties (Bomi, Grand Kru & Montserrado), to conduct the mapping exercise. These three counties were selected to cover the diversity of contexts, even in a relatively small country, when challenges and opportunities for contributions of DCPs for health systems strengthening are considered. Montserrado, a relatively urbanized area, was chosen to look into an environment where service provision is rather pluralistic and fragmented, with a complex web of public, private-for-profit, private not-for-profit and informal service providers. Bomi was selected because it demonstrates some early positive effects of enabled local health management teams.[3] It is a pilot-county for performance-based contracting to the county health and social welfare teams using the health sector pool funds. Grand Kru was chosen as it faces the classic access problem of a remote rural area with the population sparsely scattered over a relatively wide area, where roads and communication are difficult. Selected indicators for the three counties are presented in Table 1.

[3] Bomi was selected as a pilot area for the performance-based contracting to some extent because of better capacities of the County Health and Social Welfare Team (CH&SWT) there compared to other counties.

Table 1 - Selected indicators for Montserrado, Bomi, Grand Kru and Liberia, MOHSW Annual Report 2010.

Indicators	Liberia	Montserrado	Bomi	Grand Kru
1. population	3,476,608	1,118,241	84,119	57,913
2. MD: 1000 population*	0.026	0.043	0.012	0.017
3. Physician Asst.: 1000 population*	0.082	0.113	0.083	0.069
4. Nurse: 1000 population*	0.401	0.457	0.630	0.207
5. Midwife:1000 population*	0.119	0.137	0.273	0.121
6. % of ANC1**	110.1	99.9	140.3	81.6
7. % of ANC4	40.9	28.0	53.3	29.4
8. % of deliveries in institutions	63.9	59.2	56	61.2
9. % of children fully immunized	68.3	59.8	104.1	58.8
10. proportion of curative consultations due to malaria***	40.4	41.8	37.2	32.5
11. HIV tests done	133,264	61,631	1,121	185

*Calculated from Human Resource Census 2009.

**Coverage greater than 100% attributed to double reporting (women having ANC visits for the first time in different facilities) and reporting of ANC consults of women from outside catchment population.

*** There were a total of 3,132,073 curative consultations reported in 2010.

Training of data collectors and field testing of the tools

Following the finalization of the methodology and the tools, the TWG recruited eight data collectors to conduct the mapping exercise. The data collectors were MOHSW research assistants with public health or social sciences backgrounds who have been involved in similar mapping exercises before for the ministry. A training workshop for the data collectors was conducted from May 10th to 12th, 2011 at the National AIDS Commission (NAC) in Monrovia. The training included introduction to the background on DCPs and HSS from the concept note, discussion on the methodology and the mapping tool, clarification of each set of questions in the mapping tool, practicing of interview skills, discussion on the sampling approach, and planning of the field work. The group conducted a field testing of the tools on the second day of the training where each of the three teams of data collectors had the opportunity to visit a health centre and interview the officer-in-charge. They also had brief opportunities to interact with at least one program coordinator in the health centre.

Observations and findings from the field-testing of the mapping tools were:

- Data collectors were not familiar with the background and the purpose of the mapping exercise and they struggled with making a brief introduction on what the interview was about.
- Health centre officers-in-charge (physician assistants) had broad knowledge of DCPs but often needed to verify with program coordinators for more specific details about the program. It is important to interview different people in the health centers to gain a comprehensive overview.
- The questions from the tools were generally well understood by the interviewees but there was a need to paraphrase the questions to make them more conversational.

- Some information gathered through the interviews proved conflicting later, which needed further follow-up and verification.
- Some of the data collectors jumped from one topic to another during the in-depth interviews without fully following up on key issues. They were thus reminded to ask follow-up questions to explore the different elements of the issue being discussed.
- Data collectors were able to make extensive and detailed notes of the interviews.
- Data collectors were familiar with the health systems and were thus able to frame the questions using appropriate elements from the context and using the right terminologies.

These issues were discussed and reviewed during the last day of the training and the tools were further revised based on the findings from the field testing.

Mapping exercise

Three teams of data collectors each responsible for a county mapped health service delivery of the four main DCPs (TB, EPI, HIV/AIDS, and Malaria), as well as the maternal health program focusing on their links, overlap and bridges. Field observations and in-depth interviews were conducted during the mapping exercise. The service delivery mapping focused on specific interventions (Table 2) selected for the different DCP and maternal health programs. For each intervention, the mapping focused on the following areas: (1) the mix of health service providers and the services provided in the county; (2) the availability and use of protocols and guidelines; (3) the retention in care; (4) the extent and type of community involvement; (5) the human resource profile and need; (6) the organization of supply systems; (7) the use of new technologies; (8) the adequate infrastructures and (9) the transport. A summary of the mapping tool is provided in Annex E.

Table 2 - Priority interventions selected as tracers in the mapping exercise

DCP/Service	Priority Interventions Observed
TB	Management of smear positive cases
EPI	DPT, polio, measles vaccines in young children
HIV/AIDS	Management of patients on HAART
Malaria	Management of children with fever
Maternal Health	Antenatal care, delivery

Sampling of key informants

The main rationale in the sampling of key informants for the in-depth interviews were (1) to gain a balanced view from the programmatic and implementation sides of different priority programs; (2) to include a variety of services and priority interventions in the county; & (3) to gain a balance of insights both from service providers from different levels, and also from those with management and support functions. Interviews were conducted during visits to the county health office, county hospital, and at least 2 to 3 health centers or clinics per county. Each interview lasted around 45 minutes to one hour.

The mapping exercise was done in the three counties between May 16 -20, 2011. It took a team of data collectors (3 persons) three days to complete the tools and the interviews in each county. The list of interviewees is provided in Annex F.

Stakeholders' workshop and perception survey

A Stakeholders' workshop was conducted in Monrovia on May 24th, 2011. Sixty-eight participants (Annex G) represented a good balance between national DCP and health system managers, county-level managers and frontline health service providers from five counties including Montserrado, Bomi, Bong, Grand Kru and Nimba counties, key ministry officials, and a number of development partners. The workshop agenda (Annex H) included an overview of the DCP HSS work and the method, a self-administered perception survey[4] to explore the participants' view on DCP contribution to HSS in their own regions, and a presentation of the preliminary findings from the mapping exercises and discussion on the findings, first in small groups and then shared in a plenary.

Findings

In this chapter, we describe the findings of the mapping exercise and the perceptions of the health staff and managers in the three counties, respectively.

Summary of findings from the mapping exercise

A total of 47 health staff from three counties were interviewed for the mapping exercise. A summary of the findings of the mapping exercise is presented in Table 3. Highlights of the mapping exercise done in the three counties are also described.

Table 3 - Summary of findings of the mapping exercise in three counties.

	Montserrado	Bomi	Grand Kru
Health facilities available	• There is a wide offer of health facilities: government facilities; PNFP & PfP (both formal & informal). This large "choice" for patients, also leads to fragmentation and shopping (e.g. frequent disconnect between ANC; safe delivery & PMTCT). • Facilities operate on government funds • Work with Merlin, which is supporting 10 facilities, Oxfam, Red Cross, etc.)	• Of the 24 health facilities, 4 are private and 20 are public -20 of the facilities are free -3 are private for profit -1 for private not for profit • Actors involved are (AHA (6 HF), MTI (2HF), UNFPA (Family Planning) sponsor exclusively, Clinton Foundation, Red Cross	• There are 17 health facilities in the county -all are public; there are no private facilities -with support from MERLIN -all services are free
Health	• All the basic services; but up	• BEmOC and CEmOC	• BEmOC and CEmOC

[4] Perception Survey: participants were requested to share how they perceive the contributions of DCPs in HSS. The participants were organized into small groups to facilitate discussions and clarifications but were asked to fill-in individual survey forms.

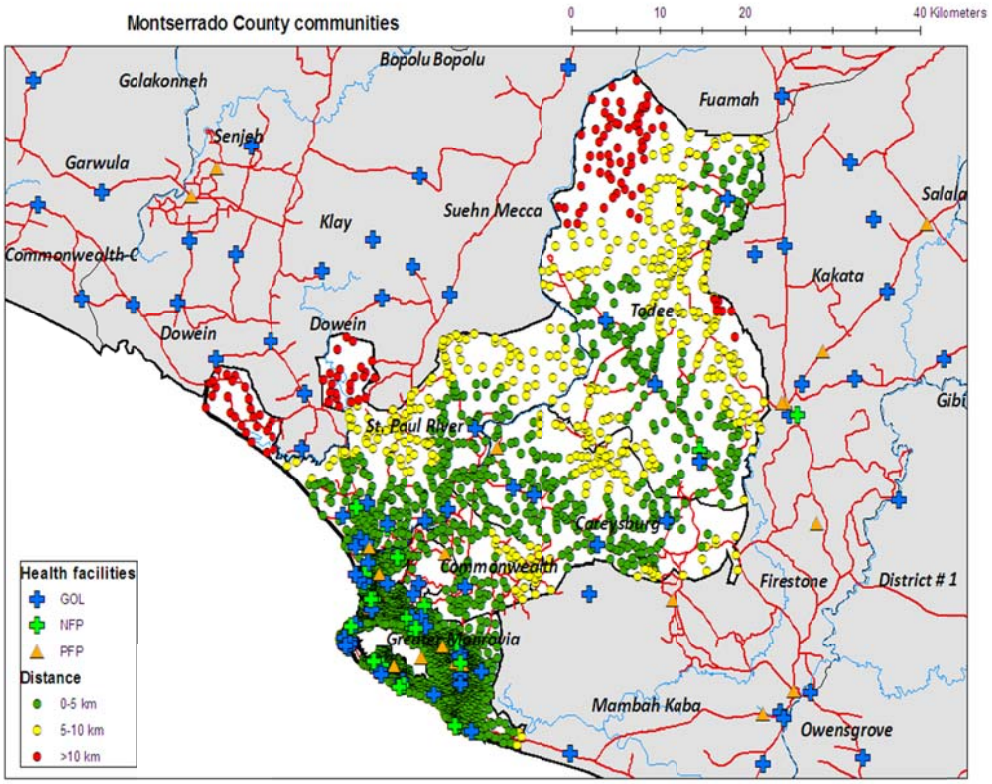
services offered at hospital level	to tertiary care in the hospitals; especially in JFK, the national teaching hospital.	• Some surgery	• HIV treatment
Health services offered at health center level	•MCH. •HIV/AIDS counselling, testing and treatment. •Despite staffing levels, many facilities are not 24/7. It is reported that many patients prefer to deliver in private facilities or with private midwives.	• MCH (ANC, FP), TB DOTS, EPI, Malaria • HIV/AIDS counselling, testing and treatment	• No HIV/AIDS testing and treatment services • ANC, deliveries (8am-4pm), EPI, TB, Malaria
Fees for health services	Free of charge: TB, HIV/ART, EPI, FP, Malaria and MCH (at HC and hospital level)		
Protocols and supervision	• In principle standard protocols are being used. But it seems that national hospitals and private providers often do not really follow them, but "personalise" them.	• There is no problem with the guidelines except for one clinic (Almadia-a Muslim clinic) that does not follow some procedure like normal staffing for health facilities • All actors /facilities used similar guidelines	• Standard protocols from the different DCPs are being used • Difficulties in supervision because of bad roads
	Montserrado	**Bomi**	**Grand Kru**
Retention in care and defaulter tracing	• Support groups/PLWAs are used for tracing of defaulters for HIV/AIDS. • Treatment supporters aid in retention for TB patients. • There is a "tracing team", going out by car from the County Health Office in the community. The potential of mobile phones is not yet fully used, despite their omnipresence.	• EPI: outreach programs are done for mothers and children to captured miss children • TB/HIV&AIDs and VCT: support group encourages women, pregnant mothers, and others to go through voluntary counseling.	• Generally, no defaulter tracing in place; rely on health education to bring back patients • Some facilities used mobile phones to follow-up on patients
Community involvement	• There is a limited number gCHVs in communities and community health committees (CHC): dormant due to lack of motivation • There are informal care providers in the communities that people visit: traditional midwives, drug peddlers (black beggers), herbalists	• Town Chiefs and the community health development committees(CHDC) • General Community Health Volunteers(GCHVs) -87 -recommended by the CHDC and must be from the same communities - trained during DCP campaigns: in diarrhoea, growth monitoring • TTMs (Train Traditional Midwifes)	• No, mainly because of lack of incentives • There are many TTMs that do home deliveries

	etc.		
Human resources for health	•High concentration of health workers in the urban areas; some facilities are over-staffed; while at the same time there are quite some vacancies in the more rural areas of Montserrado county. Recently a new clinic was opened in a relatively remote area, but the staffing could not be put together. •In some of the health facilities, the staff is organised in 2 shifts. •Many health staff get incentives provided from partners (e.g. SCF)	• Services are provided by MDs,(4) Nurses, PAs, CMs, TTMs, Pharmacist, Dispensers, Lab-Technicians, Certified Midwifes, Nurse Aids -recruited by county health teams -paid through pooled-funds • Housing counterpart of communities are not provided in many cases • Work overload in county hospitals, particularly in the maternity ward; only 2 shifts	• Recruitment is done based on recommendation from the human resource (HR) manager of the County • incentives are in place by the GOL through Merlin • severe shortage in some places: in Picnicess, there is only 1 health professional (registered nurse) assisted by 14 TTMs
	Montserrado	Bomi	Grand Kru
Supply system	• Supply of most facilities is relatively OK; thanks to proximity of National Drug Stores (in compound of JFK hospital). • There is a wide variety of private pharmacies and informal pharmacies, alongside many drug peddlers ("black baggers").	• Supply of drugs and other supplies are done on a monthly basis • Through depots • Stock level reporting from health center not consistent	• Supply is organized by the county health team through National Drugs Service (NDS) and Merlin • Frequent stock-outs • Sometimes, facilities resort to procuring drugs and supplies locally.
Use new technologies	• Virtually all health workers possess a personal mobile phone; but this is rarely used for professional reasons. • Most clinics do not have Internet.	• use of mobile phones to contact health workers for emergencies • each health center is provided 15USD per month for communication costs (mobile phone scratch cards)	• use mobile phones to follow-up patients
Transport	• Some facilities don't have vehicles for referral; have to ask families to support. • Even in the city, transport for emergency cases is perceived as a serious problem.	• Ambulance available 24 hours (free)	• No functional ambulance in the three facilities visited

Montserrado

There is wide offer of health facilities in Montserrado (Figure 4): government, private-for-profit (PfP) and private-not-for-profit (PNFP). All services are offered for free in public facilities visited in Montserrado. These facilities work with government funds but are also supported by NGOs and other development partners (e.g. MERLIN, Oxfam, Red Cross). While DCPs are offered in both public and private health facilities, the available DCP services are variable. For example, all clinics provide EPI services but not all have voluntary counseling and testing for HIV. There are a lot of other informal providers that people visit in the community; these include traditional midwives, drug peddlers and herbalists.

Figure 4 - Map of health facilities in Montserrado (MOHSW, 2011)



The majority of pregnant women consult at health centers for ANC but only a few deliver in health centers; they either deliver at home or in hospitals. One reason may be that many health centers are only open from 8AM to 4PM. Children of mothers attending the maternal health clinic also receive EPI services.

Provision of HIV/AIDS and TB services are also inconsistent. Some health facilities only offer HIV counseling and testing but no treatment, while others only provide treatment and no counseling and testing. Only a few facilities provide the full range of HIV/AIDS services (counseling, testing, treatment). Similarly, only a few facilities provide both

sputum examination and treatment for TB. Many facilities provide TB treatment but refer patients for sputum examination to others.

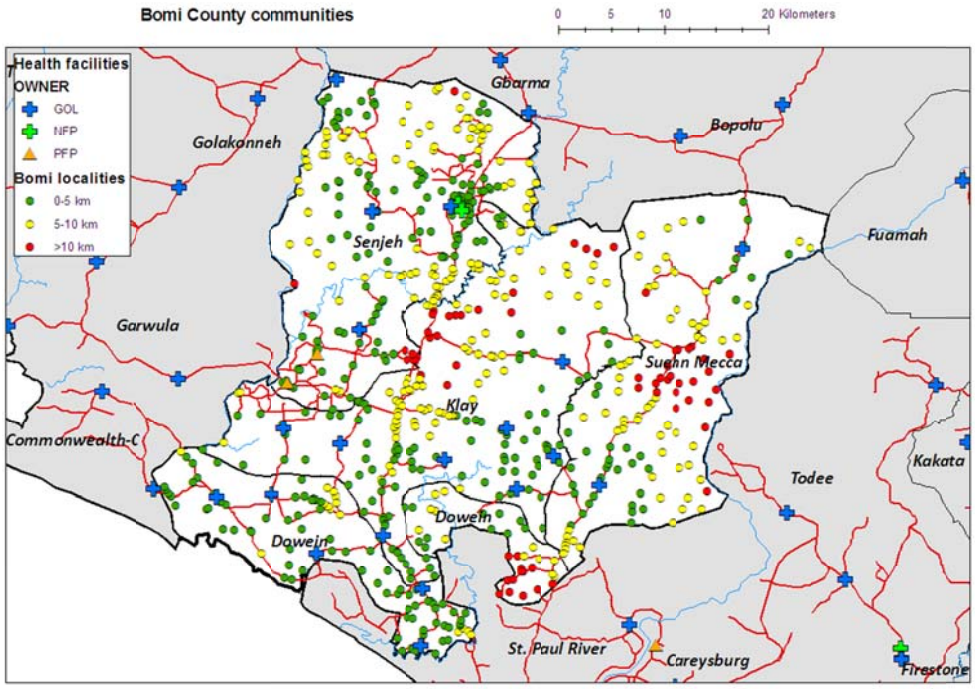
The policy is for all TB patients to be tested for HIV/AIDS and all HIV/AIDS patients should have sputum examination for TB. But this bidirectional testing only happens when these services are both available at the health facility.

Community support is seen as very weak in Montserrado. There are very few general community health volunteers and many of the community health committees are described by respondents as dormant.

Bomi

Bomi County is a pilot area for performance-based grants. The County Health and Social Welfare Team is given funds to contract services. Eight of the twenty health centers are contracted out to AHA and MIT; twelve are directly managed by the county (Figure 5). The additional resources has allowed for local innovations to improve service delivery. For example, all health facilities in the county provide mother-and-baby kits to pregnant women who deliver in health facilities. Another example is the provision of 15 USD per health facility every month to cover for their mobile communication costs. All health facilities are on-call 24/7 for deliveries and for emergencies. There are two ambulances available in Bomi for any health emergency that is identified.

Figure 5 - Map of health facilities in Bomi (MOHSW 2011)



There are only eight facilities that provide VCT and PMTCT services. Other facilities refer clients for VCT and PMTCT. HIV/AIDS support groups have been organized in the county. They help those who have recently tested positive to accept their status.

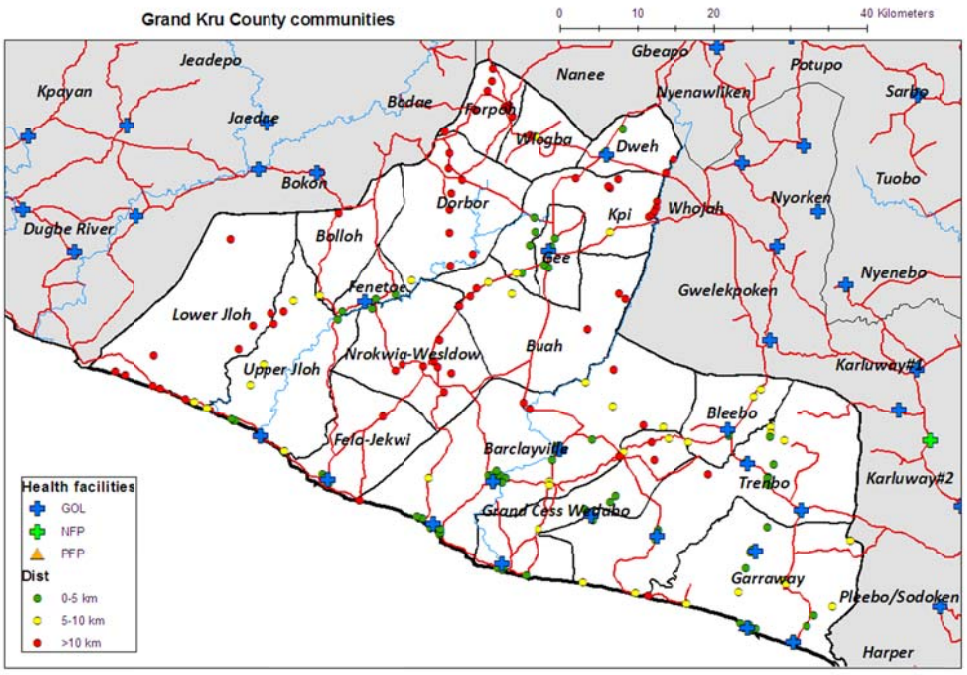
There is relatively strong community involvement in health service delivery through the general community volunteer health workers (gCHVs). There are relatively many gCHVs (87) in Bomi. Many of them are trained to do community integrated management of childhood illnesses (IMCI) and are responsible for referral of pregnant women and children with fever from the community. They are also involved in health education, bed net distribution, and EPI campaigns. The county has ways to motivate their GCHVs. These include participation in trainings, income-generating projects,

There were previous efforts (between 2007 to 2009) implemented in the county to increase the number of women who deliver in health facilities. Mother-and-baby kits were given to pregnant women who deliver in health facilities. Trained traditional midwives (TTMs) were also given 5USD for referring pregnant woman to the health center or the hospital for delivery. The county still continues giving the mother-and baby kits but has stopped giving referral incentives to TTMs.

Grand Kru

There are 17 health centers in Grand Kru (Figure 6). All are government-owned; there are no private facilities. Many of these government health centers receive support from NGOs and development partners (e.g. MERLIN). Health services are free. None of the three facilities visited offered HIV/AIDS treatment. One of the three health facilities visited (Picnicess Health Clinic) did not offer services for TB.

Figure 6 - Health facilities in Grand Kru (MOHSW 2011)



Difficult road conditions and poor communications infrastructure were identified by respondents as major challenges in providing services and referral of patients. There is

also no available functional ambulance in the county. Patients have to find their own transportation when they are referred to other facilities. The lack of consistent power supply also affects service delivery.

There is also an acute lack of professional health workers in Grand Kru. For example, in Picnicess health clinic, there is only one health professional (a registered nurse); the rest are trained traditional midwives (TTMs).

Delays and stock out of drugs and supplies happen often. At times, the county has to locally procure drugs to augment stocks.

Summary of findings from perception survey

Fifty-one (51) respondents from 6 counties completed the perception survey form. The main perceptions encountered during the interviews are reported in Table 4 below. No major differences in perception were found between the DCP and general health managers in the six counties surveyed.

Type 1 and 2 contributions of DCP to HSS appear common and are consistent with still very nascent interactions between DCPs in Liberia. Respondents also identify rather unique experiences specific to a DCP that may prove useful to other DCPs (Type 3 contributions). For example, the experience of the HIV program in increasing capacities for counseling is something that can be applied to other DCPs. Managers identify bundling of services (e.g. deworming activities conducted during EPI campaigns) and strengthening of service delivery support functions (e.g. logistics and M&E) as important ways for DCPs to strengthen general health services (Table 4). There are efforts to address cross-cutting issues among DCPs (Type 5 contributions). These are mostly directed towards developing the health workforce.

Table 4 - Perception of DCP managers and health managers by typology

Type (1): Unburden the health system, through

- **TB**: good TB control (early diagnosis and treatment, improvements in laboratories and supply chain management) lead to less consultations for TB and complications
- **EPI**: vaccinations through routine immunization in all health facilities and community outreach/campaigns has decreased measles cases
- **HIV/AIDS**: prevention activities in the community; increasing number of PMTCT sites decrease new cases of paediatric HIV; increasing availability of testing and treatment (more VCT, ART sites) lead to early treatment and less advanced cases that need hospitalization
- **Malaria**: good coverage of bed nets distribution reduces malaria transmission

Type (2): Avoid unnecessarily burdening of certain delivery platforms in the health system, by

- **TB:** community DOTS, gCHVs as treatment partners; integration of HIV and TB activities (around management of co-infections; "program has been merged")
- **EPI:** community volunteers during mass immunization campaigns
- **HIV/AIDS:** simplified PMTCT and ART protocols; task shifting**;** collaboration of TB and HIV/AIDS program
- **Malaria:** community case management of fever for under-5 children**;** availability of RDT and ACT (simple diagnostics and simplified treatment)**;** prevention activities (bed nets, IPT) during ANC

Type (3): Operate a knowledge transfer from DCPs to the rest of the health system

- **TB:** capacities for planning and implementation, logistics and supply chain management applied to other programs;
- **EPI:** "reaching every district" approach adapted as "reaching every pregnant woman"
- **HIV/AIDS:** promotion of universal precaution**;** counseling skills**;** experience on monitoring and evaluation
- **Malaria:** experiences on community approaches, learned during the pilot implementation of community management of fever, applied to other community health programs

Type (4): Strengthen or build multipurpose delivery platforms and support systems

- **TB:** integrated training for laboratory services; integrated Health Information Management System (HIMS); common logistics/supply chain system
- **EPI:** "child survival" focal persons; bundling of immunization with deworming, Vitamin A, bed nets distribution (during campaigns); incorporating EPI in other MCH services; common logistics/supply chain system
- **HIV/AIDS:** common logistics/supply chain system; integrated M&E with broader health system
- **Malaria:** integrated laboratory, logistics, M&E; malaria management integrated into IMNCI

Type (5): Strengthen cross-cutting core functions

- **TB:** capacity building of health workers (using the Basic Package of Health Services modules); TB program used existing gCHVs to implement DOTS.
- **HIV/AIDS:** grants for HIV program used for pre/in –service training, human resource development, incentives to the entire health workforce, strengthening lab and blood safety, infrastructure development and supply chain system strengthening
- **Malaria:** malaria program provided salaries for all health clinic staff and invested in Health Management Information System

Blending of research findings with country priorities

During the discussions on the findings at the MOHSW as well as the perception exercise with the managers of DCPs and general health programs focusing on the contribution of DCPs to country priorities, stakeholders repeatedly emphasized two service delivery challenges as most critical: (1) improving maternal health services, especially safe deliveries and (2) management of fever among children under-five.

There were also system-wide and cross-cutting issues identified throughout the mapping exercise, survey and discussions during the stakeholders' workshop. These include the need: (1) for a comprehensive approach to human resource development, (2) to build capacities for governance and regulation both at the central MOHSW and at the level of CHSWT, and (3) for a more robust logistic and supply chain.

A discussion on a balanced health system provides an overarching frame on how the service delivery and upstream issues identified may be approached.

Challenges in maternal health services

Stakeholders identified many challenges in implementing an institutional-delivery policy. The main challenge identified was how to make operational 24/7 facilities that will handle deliveries given the relatively poorly developed general health services. Many health clinics are only open between 8am to 4pm, with many of the health workers already feeling over-burdened. For example, in many of the rural health clinics visited, there were no certified midwives. This reflects the wider problem of acute shortage of human resources for health, particularly of certified midwives, and retention of health workers in rural areas. Many of the staff interviewed also pointed out the lack of staff housing and poor working conditions as additional factors that contribute to low morale among the health staff.

The bad road condition was a major concern for staff in rural areas. Among the 3 counties visited, this problem was most acute in Grand Kru. The situation is further complicated by a weak referral system and limited availability of emergency transportation.

Coverage of Basic Emergency Obstetric Care (BEmOC) services was low. In Bomi and Grand Kru, only the county hospitals visited were able to provide the full range of BEmOC services. Some health personnel have recently been trained in BEmOC or Life-Saving Skills but often emergency obstetric drugs (e.g. Magnesium Sulfate, Oxytocin, intravenous fluids) were not available in health facilities.

Another important aspect of the issue is that pregnant women access maternal services (ANC and delivery) from a variety of providers (including private and informal). Creating a seamless referral network especially for cases of complication among a variety of providers is a crucial bottleneck.

The discussions also highlighted that deliveries are currently disjointed from antenatal care services (ANC) which have good coverage in many areas. Recent routine data showed that almost all pregnant women have at least one ANC visit at the health

facility.[5] Interviews and observations show that current ANC is primarily aimed at identifying pregnant women at risk for complications and less focused on providing a package of high impact interventions[6] (including PMTCT, IPT, provision of ITN, and TT immunization), organizing support for pregnant women around delivery (birth and emergency planning, transportation), and promoting facility-based deliveries.

Challenges in management of fever among children under-5

Stakeholders also identified issues around fever management among children under-five. One of the key questions was whether priority should be given to improve facility-based strategies or to empower communities and households for village-based strategies. An important consideration in the discussion was the huge burden of malaria in the country.[7] There was a rather openly-acknowledged fact that a large proportion of the population access malaria treatment from the informal sector (e.g., small drug shops, "black-baggers", etc), which provides often still chloroquine and Fansidar^{R}. There were also bold plans to expand private-sector involvement in the provision of rapid diagnostic testing (RDT) and treatment of malaria with Artemisinin-based Combination Therapies (ACTs).

The discussions during the mapping exercise and stakeholders' meeting focused on whether there is a need for RDT prior to treatment with ACT. Current relevant guidelines (one by IMCI and another by the National Malaria Control Program [NMCP]) take different options. For children under-five, the IMCI protocol relies on clinical diagnosis, without the need for RDT prior to treatment with ACT. The NMCP requires a positive RDT prior to treatment. However, given the current general practice in the country, the RDT result does not seem to affect the clinicians' decision to treat. Many clinicians in the country initiate treatment with ACT if malaria is highly suspected even if the RDT result is negative.

System-wide and cross-cutting issues

In Liberia, three main upstream issues were highlighted in the mapping exercise, perception survey and stakeholder discussions. These system-wide issues refer to bottlenecks and gaps in health system inputs to service delivery. They were often cross-cutting among the different programs and also included support system issues. These issues inevitably affect service delivery performance, including DCPs.

Comprehensive development of human resources for health

Human resources for health (HRH) should be rationalized given current priorities and considering the disease burden. This means getting the right number, mix of cadres (MD, physician assistants, nurses, midwives), and distribution. There is an overall lack of

[5] The DHS 2007 reported a high percentage (79%) of women attend first ANC visit; MOHSW Annual Report 2010 shows that 110 % of pregnant women have ANC1 but only 47% complete ANC4 before delivery.

[6] Family Health sSerivces outlined the package of intervention that should be provided during the ANC: TT, Hb level, HIV testing, and provision of ITNs.

[7] LMIC 2009: up to 48.5 percent of children under-5 that have experienced fever in the last two weeks of the survey. This implies that a mother, on average, deals with well over 250 episodes of fever among her under-fives (5-6 children) in her lifetime.

health workers but with a high concentration of health staff in urban areas, in particular in health centers and clinics in Monrovia (Table 1).

Meeting HRH needs may mean large scale training to meet operational demands of expanding health services. In particular, the current policy of promoting institutional deliveries requires a lot of health professionals to operate 24/7 health clinics and the wider network of EmOC facilities. This would entail investments in and support for training institutions and require a medium to long-term perspective.

Finding innovative ways to motivate health staff, particularly those in rural and remote areas is imperative. As often documented in other countries, many of the health staff in remote health facilities do not find their postings motivating. Suggestions given to improve the situation include better working and living conditions and higher salaries for more remote posts.

Community health volunteers

There were also discussions on broadening the role of general community health volunteers (gCHVs) with many disease control programs foreseeing an increasing role for them to further reduce the barriers to access to priority interventions and bringing services close to households[8]. For example, gCHVs have a crucial role in community management of fever. This may include: (1) ensuring availability of ACTs at the village and household-level; (2) promoting correct use of ACTs along-side prevention messages; (3) referring unresolved or complicated cases to health facilities. But approaches to gCHVs were far from linked between the different DCPs. Many volunteers were being trained for specific DCPs.

A new role for TTMs was also being conceived in the light of the policy of skilled attendance at birth in health facilities. TTMs are now seen as the link of health clinics and maternity clinics to the community. They are important partners in promoting the policy of skilled attendance at birth in health facilities. They can primarily assist by facilitating that a birth and emergency plan is prepared by the pregnant woman and her family. They may also be involved in organizing community support for pregnant women and facilitate access to a health facility when labor begins. But efforts to switch their role from attending deliveries to community facilitators for pregnant women remained sparse and weak.

Many raise the need for further building capacities but also to consider more regular incentives for them (gCHVs and TTMs) given these “new” expanded roles.
There were also suggestions from some stakeholders to have a new health cadre based in villages and communities (similar to Health Extension Workers in Ethiopia[9]). Unlike gCHVs, these staff are proposed to be civil servants and thus much more formal members of the health system. With adequate training and incentives, this new community-based health cadre is expected to provide opportunities to increase

[8] Although DCPs benefit from community health volunteers but policy issue related to gCHVs and TTM is initiated and crafted by the central ministry office usually the community health department. DCPs were part of these discussions on policy issues. However, there are strong request from DCPs to central office to revisit the policy and allow then to ‘pay’ or incentivize the gCHVs.

[9] Health Extension Workers in Ethiopia are paid civil servants who are based in the community; they provide of a range of primary health care services and serve as the link of the community to clinics and health centers.

coverage of DCPs and improve links between the community and general health services. This option should be approached together by stakeholders including all the DCPs and general health services.

Governance and regulation

MOHSW should continue to develop strong capacities to steer the entire health system, including the private sector, towards broad system goals. To address complex issues (such as comprehensive development of human resources for health, quality pharmaceutical drugs, and overall health promotion), the MOHSW should exercise stronger leadership but also relate to other sectors, ministries, and the private health sector (not-for-profit, and for-profit)[10].

In particular, there is a need to strengthen the capacity of the MOHSW to synthesize and analyze information. Evidence-based policies and decision-making processes relate to its overall leadership and governance role. There are ongoing efforts in strengthening the Health Management Information System within the MOHSW. This should open up to include data from the private sector. This can also evolve as an M&E of the entire health system with information coming from all stakeholders.

Efforts can be geared towards building one unified information system for all programs and activities of the health sector.[11] An alternative would be to focus instead on the capacity within the MoH to synthesize information from many different origins, including DCPs, from the different levels of service delivery, from a variety of sources (routine, surveillance, survey, special studies, etc.) including the private health sub-systems.[12] Whichever option is taken, what is crucial is that information is properly analyzed and disseminated so that it feeds into policy processes and decision-making throughout the health sector and its multiple stakeholders.

The increasing role of County Health and Social Welfare Teams in the context of plans for the decentralization of the health system is an important consideration in the overall governance of the health system. Ensuring management capacities at the county level should be part of the decentralization plans. For example, in Bomi County, performance-based contracting contributed to increased decision-making and budget space and improved the enabling environment (locally-managed budget). This has led to innovations addressing locally some of the health system bottlenecks.

Logistics and supply chain

Another area highlighted during the mapping exercise, perception survey and discussions with stakeholders was the logistics and supply chain. There were efforts to create linkages and joint logistics and supply chains, including strengthening of the

[10] The recent WB report "Health Partnerships" (2011) underscores the need for governments to be able to leverage resources and engage the private health sector towards better quality and access to health.
[11] As proposed in the Country Health Systems Surveillance Platform (CHeSS) of the WHO (2010)
[12] Some people prefer to call such comprehensive information system a "Health observatory" rather than a health information system; although the term "Observatory" covers a wide variety of entities at global, regional, national and sub-national level. See, for example:

- Global Health Observatory, WHO, Geneva (http://gamapserver.who.int/mapLibrary/);
- European Observatory on Health Systems and Policies (http://www.euro.who.int/en/home/projects/observatory);
- Association of Public Health Observatories (http://www.apho.org.uk/).

Central Medical Store (CMS), but stock-outs of medicines and supplies remain an important bottleneck for the general health services and for DCPs. There is also inconsistent reporting of stock levels from facilities. Stakeholders point out the need to strengthen the capacities of health facility managers to project medicine and supply needs according to case-loads and place orders given procurement and logistic timeframes. Opportunities for rapid reporting of stock levels and tracking of supplies provided by mobile and smart phones could be explored.

Towards a balanced and comprehensive health system

Addressing the above service delivery and upstream issues would entail adopting a balanced view of the health system[13]. This implies an often complex balancing of the three complementary approaches to service delivery: general health services, DCPs, and community extensions. It also means that there is no one over-dominant program and that funding does not flow disproportionately to some aspects of the health system.[14] Such a balancing act highly depends on country and local contexts.

Liberia may be characterized as having an imbalance in these complementary approaches to service delivery (Figure 4). Furthermore, these complementary service delivery approaches are not optimally linked. There is a strong opinion among policy makers and, county-level managers, and frontline service providers that much could be gained from creating synergies among DCPs.

DCPs (TB, EPI, AIDS and Malaria) are strong primarily due to support from global health initiatives (GHIs), especially Global Fund, GAVI, and PMI, targeting these diseases including relatively consistent funding and technical assistance. General health services (hospitals, health centers, clinics) remain weak due to underfunding and neglect. As mentioned above, many clinics operate only during office hours and are poorly linked to other facilities. This has implications on services that require 24/7 operational facilities with strong referral links (e.g. deliveries)[15].

Similarly, community health extensions (mostly gCHVs) remain weak. Support for these important links to the community is inconsistent and often done in parallel by the different DCPs. There is no clear agreement among stakeholders on their roles, and on how to train and support them, including provision of necessary supplies and remuneration. These gaps jeopardize important community strategies such as management of fever.

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[13] From the Concept Note:*"Although evolving towards a "balanced and comprehensive HSS" is no small challenge, we venture to propose some criteria for an overall approach: Develop a comprehensive view towards a balanced national health system, including the 10 elements of the framework, including all disease control programs, general health services, community-based extensions and their support systems, the different levels, all different actors, and with a view towards universal coverage for an appropriate choice of priority interventions using a variety of overlapping delivery platforms;*

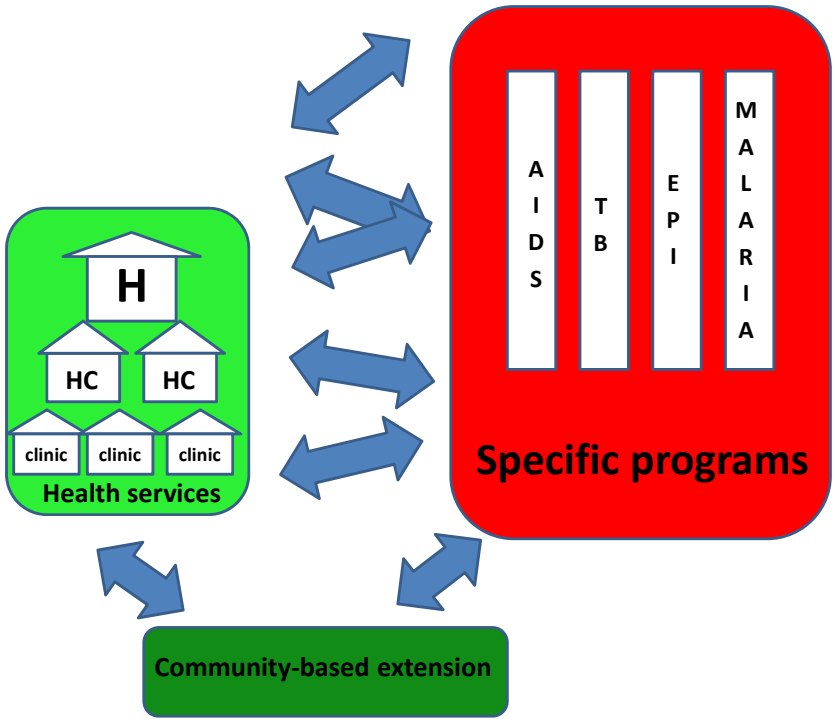
(1) Develop a three-pronged time perspective (short, mid and long term); &

(2) *Use a pragmatic and incremental approach that starts from the existing pluralistic situation and fully acknowledges the real weaknesses and strengths of the system at all levels (the "real reality").*"

[14] We have proposed elsewhere to overcome the 'horizontal – vertical dichotomy" by developing a "diagonal approach" (Ooms 2008).

[15] As per MOH policy and guidelines, clinics should offer round-the-clock services; health workers are on call in rural areas. Health centres (catchment of 25000- 40000 population) offer 24/7 services.

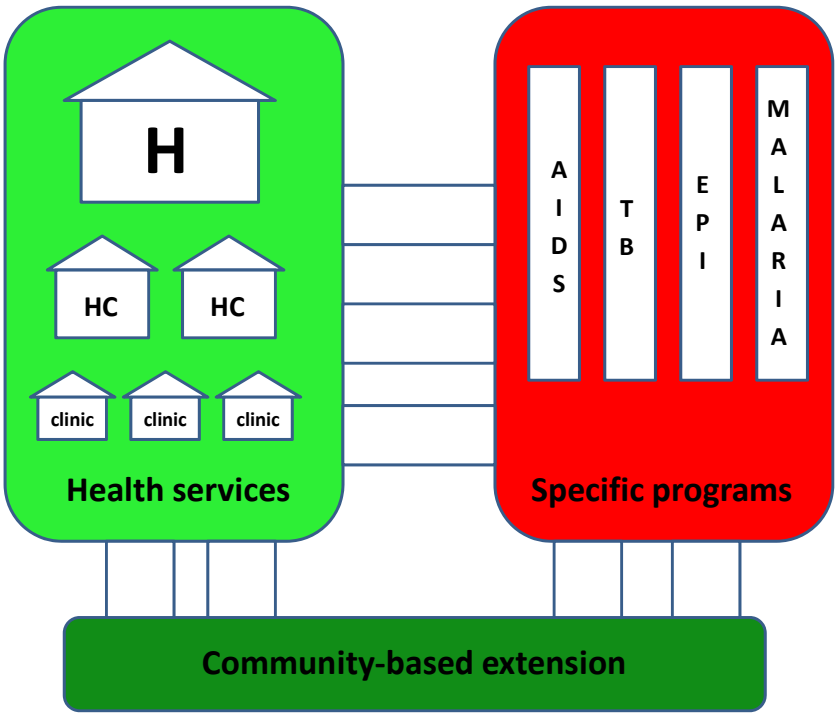
Figure 7 - Imbalance in three complementary approaches to service delivery



All the three complementary approaches to service delivery are important and should be robust (Figure 8). In Liberia where the disease burden from infectious diseases such as malaria, TB and measles remains high, there is a need to maintain the strong performance of DCPs for disease-specific objectives. It is also imperative to expand and strengthen general health services. In particular, 24/7 delivery services[16] should be in place to support the priority of maternal mortality reduction. A more vigorous community-based extension is also necessary for many DCPs but also for management of diarrhea and pneumonia.

[16] Delivery services should be strongly linked to facilities which can provide Emergency Obstetric Care (EmOC) services.

Figure 8 - Linking and balancing three complementary approaches to service delivery



Synergies between DCPs and general services are not automatically gained from spill-over effects of parallel efforts but require deliberate and careful choices to make links between DCPs and general services. This would involve situating national DCPs strategies within a broader health sector strategy, indicating how DCP specific outputs and outcomes feed into broader health systems goals. This, however, should not lead to DCPs being engulfed by general health services.

There are many opportunities at service delivery level to create links between DCPs and general health services. Improved performance in the two priority themes discussed above (maternal health and management of fever among children) may provide a focus.

Opportunities to enhance synergies between DCPs and the general health services can be elaborated on two levels. The first is focusing on links or service delivery intersections that naturally make sense in optimizing health outcomes (Table 5). The different DCPs (with exception of TB) have an interest to improve the coverage and the content of ANC because these would also improve particular DCP goals. For example, good Prevention of Mother To Child Transmission (PMTCT) coverage relies on a strong maternal health program beginning with ANC. Similarly, good IPT coverage relies on good ANC coverage. The second level of opportunities is about addressing upstream and cross-cutting issues. Dealing with the problems of HRH, weak governance and

regulation, and poor logistics and supply chain management will necessarily have a positive impact on both DCPs and general health services.

Table 5 - Links of DCPs with antenatal care

Disease control programs (DCPs)	Antenatal care (ANC)
1. TB	(Laboratory services)
2. EPI	Tetanus-toxoid immunization (TT)
3. AIDS	PMTCT
4. Malaria	IPT, ITN distribution

Addressing the above service delivery and upstream issues provides options for DCPs to contribute to HSS. The approach should rather be pragmatic and 'smart', certainly going for easy, quick wins in a relatively short time frame, but at the same time, laying down the foundations for more enduring solutions (medium and long term). As elaborated, some lend easily to quick solutions but many require program managers to go beyond their normal scope and adopt a broader health system view, participate in joint platforms and share resources and reprogram budgets. All these are needed in embracing an overall health system strengthening venture (Figure 3, page 13).

Recommendation for an approach to tackle system-wide and cross-cutting issues

In this chapter, we elaborate HRH as an example of how such a key system-wide and cross-cutting issue can be tackled. If such issue is left to disease-specific programs alone, no satisfactory overall approach will ever emerge; this requires necessarily leadership exercised for the entire health system (overseeing and involving both public and private sub-sectors), and the capacity to collaborate and negotiate with other sectors (e.g. education sector, Ministry of Finance & civil service commission). Such perspective necessarily involves the overarching MOHSW leadership, and can thus not be developed by individual DCPs, but should include all of them.

A policy dialogue on HRH is strongly suggested and we elaborate below on some key elements of how the dialogue should be approached.

This policy dialogue can be initiated by the HRH Planning Group[17] within the MOHSW but the dialogue needs to be more inclusive and should include DCPs (particularly the

[17] The deputy and assistant ministers of the planning and research and information bureau of the MOHSW were responsible for the Emergency HRH Plan (2007-2011). The plan was written by a HRH Planning group composed of: Directors of Nursing, Pharmacy Services, and Physician Assistants; Dean of School of Nursing, Cuttington University; and, Assistant National Coordinator, Primary Health Care.

major ones –TB, EPI, AIDS, Malaria) and Maternal Health, as well as actors beyond the health sector. We present in Figure 9 the potential actors that may be considered but this is far from complete. Complex and cross-cutting issues such as HRH are inevitably linked to wider public sector and public financing priorities and policies, or to wider economic and trade policies, in which health perspectives may have to compete with other perspectives, logics, and priorities.[18]

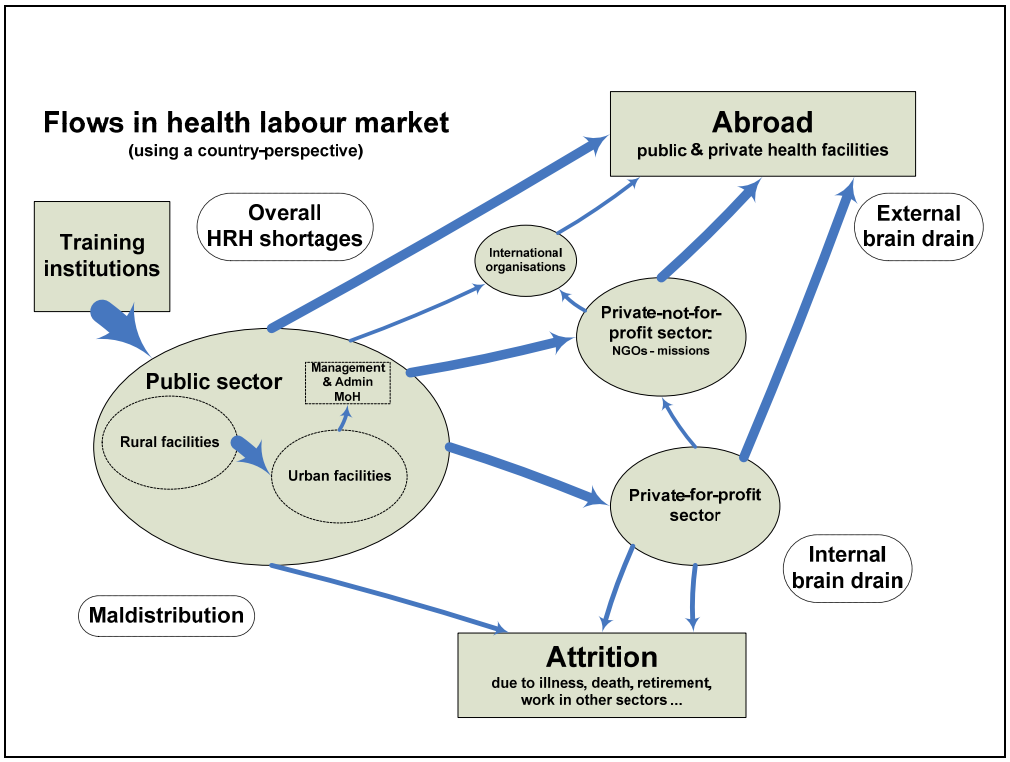
Figure 9 - Actors in an HRH policy dialogue

	Finance – Planning – "other sectors"	**Health**
Aid	"Budget support donors": EC AfDB, WB, &c Foreign Universities …	WHO and health sector donors SWAp for health Global Fund; GAVI; PMi; …
National	Ministry of Finance/Planning Higher Education (public/private) Civil Service Commission Trade Unions …	MOHSW and other health sector employers Professional Associations (medical, nursing, &c) Health civil society …

The policy dialogue should articulate a long term vision for HRH in Liberia. Revisiting the Emergency Human Resource Plan (2007-2011) is an important starting point. The recent HRH Census conducted in 2010 provides additional insights into current HRH stock including the private sector but the policy dialogue will benefit from understanding the HRH labor market in Liberia. This can be mapped using a framework (Figure 10) reflecting the flow of health workers being employed in different entities and subsystems throughout their career. An appropriate set of policy instruments can then be designed to address bottlenecks and leakage in HRH to ensure an appropriate balance to meet health sector goals.

[18] An example of this complex multi-sectoral dynamic is the ban on hiring of additional civil servants, including health workers, which has led to hiring of health workers on a contractual basis.

Figure 10 - Flows in the health labour market using a country perspective



We present several options below for national actors (MOHSW, HRH managers, DCP managers, development partners and other government agencies) and county actors to consider in a venture towards a comprehensive HRH development strategy. One can view these options as different ingredients of a comprehensive strategy, which requires a mix of approaches and embraces a 3-pronged time perspective (short-, medium-, and long-term).

Recommendations for national actors:

Option 1: Invest in training of health workforce based on current deficits and future needs of the different counties. [long-term]

A review of HRH needs (given new priorities and policies: e.g. facility-based deliveries) may have to be undertaken. HRH ratios per population (as provided in the HRH Emergency Plan 2007-2011) may provide general insight into HRH needs, but an HRH needs analysis based on service delivery may provide the necessary details.

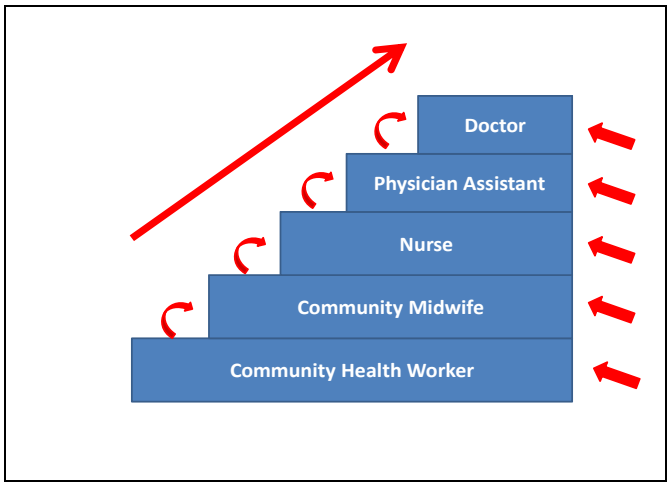
Investments should include upgrading the physical and functional capacities of health worker training institutions. Expatriate teachers and professors may in the short and medium term be considered to augment health worker educators in the country.

A stepped approach (Figure 11) in the training of the different cadres of health workers can provide the additional frame of continuing professional development. While there

can be intake for training at each professional level, one can embark on a ladderized program starting as a community health worker and progressing to higher qualifications. Throughout the process, health workers can pause and work/practice the profession before proceeding to the next. This assumes, to some extent, formalizing community health workers as a professional cadre. This also implies a shift in the kind of community health workers that will be recruited –from more commonly older women in communities to younger individuals who foresee a career as a health worker.

Intake in health training institutions has to take into account that the private sector is likely to employ a large share of the health workers.

Figure 11 - Stepped approach to health worker training



Option 2: Formalize the community health workers (but not necessarily foreseeing them to step up to other categories as in option 1) [medium- to long-term].

This will involve massive training of community workers on specific roles per DCP. The DCPs are looking at increasing the roles of gCHVs in their programs. The current practice is a rather patchy training of selected community health workers on particular campaigns (e.g. bed-net distribution, immunizations). The different DCPs will have to identify the specific role gCHVs play in their program. These identified roles will feed into an overall training curriculum for gCHVs. The training should also include cross-cutting skills such as counseling and behavior change communication.

The formalization implies that they shift to become regular salaried members of the health workforce rather than volunteers who receive some incentives occasionally. It

will also imply that potential gCHVs will have to have some minimum level of education[19].

Option 3: Rationalize existing HRH and redeploy some of the health workers in Monrovia to more rural areas. [short- to medium-term]

This may entail providing additional incentives that may be "calibrated" based on distance and hardship. The rationalization should take in particular account HRH needed to operate 24/7 frontline birthing facilities, as well as referral hospitals that can provide basic and comprehensive emergency obstetric care (BEmOC and CEmOC) services. It should also take into account DCPs and HRH needed to have adequate DCP coverage.

The experience with decentralization and performance-contracting in Bomi to operate certain facilities 24/7 is very inspiring. Other experiences of innovative HRH practices could be rapidly evaluated and the results shared with other county teams.

Option 4: Field expatriate health workers to frontline services while training of local health workers is being undertaken. [medium-term]

There is really a massive need for health workers if the health services are to be expanded ambitiously enough to meet the health-related MDGs by 2015. Liberia can "import" expatriate health workers[20] to augment current workforce and meet requirements for increased coverage of health service, in particular, facility-based deliveries.[21] This can be done in the frame of bilateral agreements (South-South cooperation) which can be supported broadly by developing partners (triangular cooperation). Potential partners to consider are some countries with huge surpluses of unemployed health workers (e.g. Philippines; Algeria, Egypt and Kenya, to some extent).

Recommendation for County Health and Social Welfare Teams :

Option 5: Select strategic health centers to operate 24/7 facilities and concentrate HRH there [short term]

The key government priority that has a tremendous HRH challenge is operating 24/7 birthing facilities in all health centers. Without available HRH to do this in all health facilities, a feasible option in the short term (while medium and long-term solutions are established) is for CHSWTs to identify strategic facilities in their counties to offer 24/7 delivery services and concentrate HRH there. The implication is that there will be fewer health facilities that are providing 24/7 delivery services but that they will be doing so with more reliability.

[19] The approach can be similar to health extension workers in Ethiopia: two female secondary school graduates from every Kebele (population approximately 5000 people) are trained for 1 year and then employed as civil servants.

[20] Fielding expatriates to temporary posts seems to be a model that is widely accepted with security forces – expatriate soldiers and police are providing security all over the country while the Liberian army and police are being trained and strengthened.

[21] Similar strategies have been implemented in Malawi, through the UN Volunteers Organization with health workers from different countries, and in Lesotho, with nurses from Kenya.

Such a mix of short-, medium- and long-term options, should be articulated in an overall HRH plan, resulting from an inclusive policy dialogue on HRH. For certain options there may be consensus, for others not. This could be approached by allowing for innovations to be tested out and evaluated, before nation-wide decisions are proposed.

After considering the different options, one key question that should also be worked out in the policy dialogue on HRH is how to finance the options considered. The right mix of financing instruments will have to be sought to meet the immense task. Given that the long-term solutions proposed require multi-sectoral actions involving many government agencies and institutions (well beyond the health sector), it seems logical and more efficient that the main additional resources should be made available to the government by development partners through budget support. But this approach should be complemented with contributions from partners or DCPs (with funding from various GHIs) who may choose to fund as projects specific options or parts of the overall HRH development plan. We recognize that DCPs in Liberia have more resources than other elements of the health system. The government will also have to consider how to financially sustain HRH development in the long term. This should be articulated in the overall long-term financial planning for the country.

In summary, the outcomes of the proposed inclusive policy dialogue on HRH should include:

- a long-term vision for HRH in Liberia;
- the mix of options considered; and,
- an articulation of the financing mechanisms for the overall HRH development plan.

We presented HRH as an example of a system-wide and cross-cutting issue that DCPs can take on to engage in an overall health systems strengthening venture. There are other such issues that can be elaborated, with their own specificities (e.g. maternal mortality reduction; financing of the health sector; supply systems for the entire health system). These issues limit the extent to which DCPs can reach their disease-specific objectives but, given the immensity and complex nature of these issues, DCPs cannot on their own solve it in a satisfactory way.

We come back to the main question of this whole exercise: **"How can disease control programs contribute to health system strengthening?"** DCPs can contribute to addressing cross-cutting and system-wide issues by participating in inclusive policy dialogues to address these issues and by funding comprehensive strategies aimed at tackling these problems. This may entail substantial reprogramming of DCP funds towards more system-wide investments. DCPs in Liberia will have to progress beyond token contributions to HSS, and go for systemic constraints and bottlenecks. We see this as the major way that the time, energy and resources of DCPs can help to strengthen the overall health system.

Possible ways forward; next steps

- Share the findings of this report to health sector stakeholders using appropriate fora (e.g. Annual Review Meetings, MOHSW Partners' Meetings).
- Establish a working group within the MOHSW (from DCPs and HSS) and key partners to drive and guide the process forward. An existing committee can also take on this role. The key themes and cross-cutting and system-wide issues identified in this report are starting points for DCPs to engage in strengthening of the overall health system. We articulate an approach for HRH but a similar approach is possible for other cross-cutting and system-wide issues.
- Initiate and facilitate an inclusive policy dialogue on HRH that should include health system managers, DCPs, development partners and actors outside the health sector (e.g. Ministry of Finance, Ministry of Education). The Emergency Human Resources for Health Plan (2007-2011), should be revisited and updated according to the current priorities (in particular, implementing a policy on promoting institutional deliveries, which will require large numbers of qualified birth attendants deployed and incentivized across the country, especially in rural areas).
- Facilitate a forum or process that would provide DCPs opportunities to be engaged in the new Maternal Mortality reduction strategy (led by the Family Health Division), including contribution of resources to strengthen ANC and BEmOC sites as common service delivery platforms for DCPs and Maternal Health.
- Facilitate a forum to harmonize conflicting guidelines and options for management of fever among under-five children. This may involve explicitly acknowledging the different possible options, evaluating the ongoing practices in different counties and recognizing that the variety of contexts within Liberia may require divergent solutions (as illustrated by the comparison between Montserrado and Grand Kru).
- Formulate strategies for national policy makers to negotiate with GHIs on reprogramming disease-specific grants to support crosscutting issues and health system bottlenecks.
- Explore cross country comparison with Ethiopia to facilitate an exchange of lessons learned, maybe involving a study tour by policy makers from Liberia to Ethiopia to learn from the Ethiopian Health Extension Program and the wider Ethiopian HRH policy, including the "flooding strategy".
- Investigate further the challenges of a complex pluralistic-mixed system (particularly in Montserrado), including the role of John F. Kennedy Hospital.
- Operationalise key findings and suggestions in a few counties (e.g. Bomi, Grand Kru, Nimba, and Lofa), and agreeing on some indicators to track progress; for instance:
    - Proportion of pregnant women who receive the package of selected high impact interventions at ANC
    - Proportion of pregnant women with a birth and emergency plan
    - Proportion of facility-based deliveries
    - Number of cases of community-managed fever

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Annexes

Annex A: Terms of Reference for ITM

The work will be carried out in accordance with the Terms of Reference.

The objective of the present proposal is to apply the approach elaborated in the Concept Note (Phase 1 of the study) in 4 countries of sub-Saharan Africa; as a concrete way to make practical progress in the HSS agenda, and to guide country-led implementation processes to accelerate the progress towards the MDGs by 2015.

The objective of the country implementation work is to identify good practices and provide guidance in terms of DCP / HSS interfaces; to analyze the drivers of such good practices in order to understand in which circumstances which actors can drive such desirable changes; and how such insights can be transferred to others, in order to scale up and to expand them, and thus contribute to overall HSS.

Since this work is very country-focused (i.e. taking into account country context, no blue print- and focusing on the HOW, it will involve – in the four countries selected- developing mapping frameworks and implementation strategies, providing enough structure to allow for cross-program, cross-setting and cross-country learning, but leaving enough flexibility to allow for adaptation to context-specific elements. It will certainly involve mapping of the main DCPs in every country (AIDS, TB, malaria, vaccination, &c), their funding and main actors, their implementation strategies & the synergies to be developed among them, and the results obtained. This could be centered on a number of significant service delivery platforms, identified as tracers for this review (e.g. antenatal care, community outreach strategies, and others). The inherent variability in pluralistic health systems could be used as an opportunity to explore how different approaches lead to different results, and why; possibly by using the "positive deviance" approach (at programmatic and implementation level) and elements of realistic evaluation . The ultimate objective of this work is to contribute to the elaboration of a DCP strategy for Africa, tailored to country needs and embedded into the health systems context. Work will start in 3 countries and will be expanded to the 4th country if additional resources materialize.

Following is a description of the main tasks for this consultancy:

Preparation:

(1) Elaborate a protocol for country implementation work, starting from the Concept Note: 'How can Disease Control Programs contribute to Health Systems Strengthening in sub-Saharan Africa? This will involve further literature review on implementation science, implementation research, as well as taking stock of and capitalizing on actions taking place on the ground in the four countries and in particular the involvement of disease control programs (DCPs) in HSS.

(2) Elaborate a comparative analysis of health systems and background issues in 3 of the 4 selected countries, appropriate for the country studies and their

comparison (work in the fourth country will proceed depending on budget availability).

Country level work:

(Note, as mentioned below, most of the in country travel to accomplish this work will be supported by RBM**)**

1. Country-specific document review on the health situation, the health system, including DCPs, and main actors in the health system for each of the selected countries.

2. Assist in the organization and implementation of Workshops: (a) with key partners involved in disease control: UNAIDS, Stop TB, GF, WHO, UNICEF and others, as well as (b) with key stakeholders at national and district level from the 4 countries, on protocol design and study methodology; including research instruments and procedures.

3. Supervise the country work and support key missions to the four countries, : (a) to provide guidance and oversight to national staff and consultants who will be involved in the implementation of the work at country level: (b) to provide support at specific moments of the in-country work (Identification the critical areas of interfaces between disease control programs (DCPs), especially malaria and HIV/AIDS, and health systems in sub-Saharan Africa, and early experience on the role of DCPs in HSS; identification of promising practices in this field, as well as areas where further progress seems feasible and where concrete changes are needed , leading to a practical country-specific action plan for intensifying the contribution of DCPs to overall HSS); (c) to participate in synthesis workshop with stakeholders from the 4 countries and with global stakeholders to review lessons learnt, including proposals for further practical progress on the ground. RBM will support the in country work, including the financing of 2 ITM consultants (1 senior, 1 junior staff).

4. Write-up of draft country experience for each of the three countries, report, powerpoint.

5. Participate, as needed, in relevant Community of Practice (related to Harmonizing Health in Africa, HHA).

6. Finalize report defining concrete elements of a DCP strategy for Africa, and assist in the presentation of results stakeholders and partners in Washington at World Bank Headquarters and /or other global for a and venues.

Supervision of work

This work will be led by the Disease Control Program within AFTHE, of the World Bank and supervised by Anne Maryse Pierre-Louis. In that context:

- Regular audio conferences will take place with the World Bank, in Washington;
- Some audio conferences with key partners involved in this work will take place during key phases of this work to assess progress of work at country level and adjust accordingly;
- The dissemination of the work will be discussed as well as planning for the next phase.
- The publication of scientific articles: it will be explored to compose a supplement or a special issue of an established peer-reviewed public health journal.

Technical approach and methodology:

We will constitute a task team at ITM to conduct this work. This task team will be lead by Wim Van Damme, who will orient all the work, conduct all meetings and discussions, participate in country missions, coordinate the write up the findings, and present them and assure regular contacts with the Bank's supervisors: Maryse Pierre-Louis, Program Leader Disease Control & Agnes Soucat, former Program Leader Health Systems Strengthening.

The team will be composed of ITM colleagues with health systems expertise and of people with disease control experience, especially malaria and HIV/AIDS.

Most work will be conducted by a core team composed of Wim Van Damme, Luc Van Leemput, Yibeltal Assefa & Marjan Pirard, David Hercot, Josefien Van Olmen & Freya Rasschaert, Raoul III Bermejo.

Work plan:

In accordance with Terms of Reference:

Preparation: Week 1 – 8: Literature review & preparation of field missions

- Define scope and methodology for literature review.
- Search in peer-reviewed journals (PubMed) and reports from agencies, partnerships and networks.
- Elaborate methodology for field work and prepare background info on countries.

Week 5 – 20: Country level work:

To be specified, in dialogue with countries and WB team. Including write-up of draft country experience for each of the three countries, report, powerpoint,

Synthesis: Week 14 – 24: Synthesis, consultation and dissemination

Finalize report defining concrete elements of a DCP strategy for Africa, and assist in the presentation of results stakeholders and partners in Washington at World Bank Headquarters and /or other global for a and venues.

Regular audio conferences will take place with supervisors at World Bank during the first month of the work and as needed thereafter.

Organization and staffing:

The contract will be implemented by the Health Policy and Financing Unit of the Department of Public Health of the Institute of Tropical Medicine (ITM), Antwerp, Belgium.

The Institute of Tropical Medicine in Antwerp, Belgium (ITM), is one of the world's leading institutes for training, research and services delivery in tropical medicine and health care in developing countries. It houses five scientific departments, a travel clinic, a specialized library and various support services, and employs some 340 staff.

The Department of Public Health contributes to the worldwide development of sustainable effective health care systems that assure equity, quality, efficiency and participation. We have adopted an integrated strategy in which teaching, research and technical assistance mutually interact.

The Department is divided into five units, covering the areas of Epidemiology and Disease Control, Nutrition and Child Health, Health Policy and Financing, Human Resources and Quality, Public Sector Management. It has a multi-disciplinary teaching staff with solid field experience in health services and research in Low- and Middle-Income Countries (LMIC). Our know-how is composed of various view points, with expertise in medicine, management, sociology, economics and political science.

Since 1968, our department offers a one-year Master in Public Health (MPH) course, targeted to mid-career health professionals, mainly from LMIC, the majority from Africa. The MPH is divided in two groups with a different orientation: (1) 'Disease Control' and (2) 'Health Systems Management and Policy'. The MPH trains around 40 participants every year, in face-to-face learning programs, alternatively in English and in French. Our teaching style is evidence-based, leans on learners' and teachers' field experience, and is oriented towards acquisition of appropriate working practices in a public health environment. It defends a set of common public-oriented values. More particularly, the ITM and the MPH consistently endorse integrated health systems approaches where both disease control programs and personal health care services play complementary and interconnected roles. This was clearly expressed in 2001 in the ministerial declaration adopted at the "Health Care for All" meeting in Antwerp (www.itg.be/hca).

We constantly monitor the evolutions in public health practices around the world. Our alumni constitute a large network to that respect, through their implications at various levels (field, government, international and UN agencies) in various countries (mainly in Africa, Asia and Latin America). In many cases, it initiates long-term collaborations, through either research, teaching or technical assistance. As such, IMT is recognized as an important contributor to the development of health sector reforms and health sector policies in a number of countries, especially in sub-Saharan Africa. Most of our team members are regular partners of foreign governments, international and multilateral agencies (including the World Bank and key UN agencies) for the provision of guidance and support to health system reforms. We also collaborate with other Schools of Public Health through our involvement in their training, collaborative research programs and peer-review of our training programs.

In line with the introduction above, we identify the following strengths and weaknesses in regard with the requirements of the World Bank's request for proposal:

- Internationally recognized expertise in health services organization and disease control. Analytical framework for understanding key challenges and possible solutions. Wide range of interventions through research, training, technical assistance and policy recommendations. Among others, ITM has been very influential on the development of health care delivery systems, and an important advocate for primary health care. Recent orientations integrate new challenges (e.g., catastrophic health care expenditure, unsatisfactory performance of public sector; overwhelming workload to deal with scale-up of HIV/AIDS related services in countries with high HIV prevalence) and build on new opportunities (e.g., private non-profit sector, Millennium Development Goals, global health initiatives).
- Excellent knowledge of a variety of contexts, especially sub-Saharan Africa, in a variety of domains, such as health systems, socio-cultural context, population, and political environment. Care for tailoring and efficiency through design, implementation, follow-up and documentation of operational projects in different countries.
- Fully bilingual English-French teaching environment. All teaching staff are active multilingual. English and French are equally spoken within the department.

The core team for this proposal will be composed by Wim Van Damme, Luc Van Leemput, Yibeltal Assefa & Marjan Pirard, David Hercot, Josefien Van Olmen, Raoul III Bermejo & Freya Rasschaert.

Wim Van Damme, MD, MPH, PhD, is professor in public health and health policy at ITM, Antwerp. He has extensive experience in sub-Saharan Africa with health systems development and disease control programs. His recent work focuses on health systems aspects of ART scale-up, especially human resources aspects; on impact of global health initiatives on national health systems and on malaria control.

Yibeltal Assefa, MD, MPH, is head of medical services at the Federal Ministry of Health (MoH), Ethiopia, and has been head of the AIDS program of MoH, Ethiopia. He is a research fellow at ITM in view of obtaining a PhD.

Marjan Pirard, MD, MPH, is ITM's course coordinator of MPH orientation disease control. She has extensive experience as a district doctor in sub-Saharan Africa and with disease control programs. Her academic work focuses on the interface between health systems and disease control programs.

Luc Van Leemput has a university degree in health policy and management of health institutions. He has worked for 12 years with Médecins Sans Frontières (MSF) in different African and Asian countries and in MSF headquarters. Expert in post-conflict reconstruction. At ITM since 2 years.

Freya Rasschaert, MD, MPH, has worked for several years in Africa. Extensive experience with HIV/AIDS; including programmatic aspects.

Raoul III Bermejo, MD, MPH, has extensive experience in health service delivery and disease control programmes, including M&E.

David Hercot, MD, has worked for several years in Africa, at programme level and with UNICEF.

Josefien Van Olmen, MD, MPH, has extensive field experience in health service delivery in Africa.

Annex B: Literature Reviewed for the Desk Review

Document code	Title
LIB01	National Health and Social Welfare Policy, revised draft, May 2011. MOHSW-Liberia.
LIB02a	Country Situational Analysis Report, 3rd draft, Jan 2011. MOHSW-Liberia.
LIB02b	Annual Report, 2009. MOHSW-Liberia.
LIB03	National Health Policy and National Health Plan, 2007. MOHSW-Liberia.
LIB04	National HIV/AIDS Strategic Framework II: 2010-2014. MOHSW-Liberia.
LIB05	Integrated Guidelines for Prevention, Testing, Care and Treatment of HIV/AIDS in Liberia, 2nd edition, December 2007. MOHSW-Liberia.
LIB06	National TB Strategic Plan, 2007-2012. MOHSW-Liberia.
LIB07	National Malaria Strategic Plan, 2010-2015. MOHSW-Liberia.
LIB08	Liberia Malaria Indicator Survey, 2009.
LIB09	National Strategy for Child Survival in Liberia, 2008-2011. MOHSW-Liberia.
LIB10	Roadmap for Accelerating the Reduction of Maternal Newborn Morbidity and Mortality in Liberia, November 2007. MOHSW-Liberia.
LIB11	National Sexual and Reproductive Health Policy, February 2010. MOHSW-Liberia
LIB12	Basic Package of Health and Social Welfare Services for Liberia. June 2008. MOHSW-Liberia.
LIB13	Sherman 2011. Implementing Liberia's Poverty Reduction Strategy. An Assessment of Emergency and Essential Surgical Care. Archives of Surgery 2011;146:35-9.
LIB14	National Decentralized Management Support Systems Implementation Strategy and Plan. November 2008. MOHSW-Liberia.
LIB15	Organizational Structure, Ministry of Health and Social Welfare, internal draft, undated.
LIB16	The National Census of Health Workers in Liberia, 2010. MOHSW-Liberia
LIB17	Emergency Human Resource for Health Plan, 2007-2011. MOHSW-Liberi
LIB18	National Management Information Systems Policy, June 2009. MOHSW-Liberia
LIB19	National Health Information Management Strategy and Plan. June 2008. MOHSW-Liberia.
LIB20	National Monitoring and Evaluation Policy and Strategy, for the Health Sector, draft. January 2009. MOHSW-Liberia.
LIB21	Roadmap for the Implementation of the Basic Package of Health Services. July 2007. MOHSW-Liberia.
LIB22	Basic Package for Mental Health Care Service. January 2010. MOHSW-Liberia.
LIB23	National Policy and Strategy on Community Health Services. October 2008. MOHSW-Liberia.
LIB24	National Mental Health Policy. Undated. MOHSW-Liberia.
LIB25	National Nutrition Policy. October 2008. MOHSW-Liberia.

LIB26	National Drug Policy. 2001. MOHSW-Liberia.
LIB27	National Health Promotion Policy. 2009. MOHSW-Liberia.
LIB28	Supply Chain Strategy 2015. MOHSW-Liberia.
LIB29	National Health Policy on Contracting, 2008-2011. MOHSW-Liberia.
LIB30	Environment and Social Management Framework, final draft report. November 2009. MOHSW-Liberia.
LIB31	Policy options to retain nurses in rural Liberia: evidence from a discrete choice experiment. June 24, 2010. MOHSW-Liberia and the World Bank.
LIB32	Pool Funding for Health. Support to implementation of Liberian National Health Plan 2008-2011. MOHSW-Liberia.
LIB33	Country report, Liberia. March 2011. The Economist Intelligence Unit.

Annex C: Results of the Document review

DCP: TB-programme
Priority interventions to observe: TB case management:

1. **Smear + cases**
2. **Smear – cases**

General info (source: LIB-07)

- TB incidence rate: 301/100.000; smear positive 132/100.000 (WHO estimate, 2005). Productive age group 15-54 accounts for 87% of TB cases!
- Liberia endorsed and adopted the Global STOP TB strategy (70% case detection rate and 85% treatment success rate by end 2009).
- Some statistics (case detection, failure, etc): p. 14 & 15
- No information on TB drug (and multi-drug) resistance.
- Overall goal National TB Control Program (TCP): reduce the national burden of TB in Liberia by 2015 in line with MDGs and STOP TB Partnership targets.
- Specific challenges against DOTS expansion: p. 26

Generic question	Answer	Source
GQ 1: Which variety of delivery platforms is used: • Are services (prevention, promotion, education, curative care) provided in all subsystems (Public/Private for Profit/PNFP)? • How are services organized in urban and rural areas? What are fundamental differences in service provision between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage?	Vertical Program: National Leprosy and Tuberculosis Control Program (NLTCP) in charge, established in 1989 Strategic plan 2007-2012: • Expansion quality DOTS to additional health facilities (public, private, corporate sector) • Community DOTS • Integrate TB/HIV services • HSS (via capacity building HRH) • Improvement lab services • Improve drug distribution and drug storage • IEC, behaviour change, advocacy, community participation. • Supervision, M&E skills at all levels National TB program (TCP) is part of NLTCP. Organogram: p.16 There are 2 specialised TB hospitals in Liberia (TB Annex Hospital Monrovia and Ganta Hospital). Goals & strategies TCP: p. 17 Summary TB services available: p. 18 (91% of total health facilities offering TB services	LIB-06

	are NGO assisted). A Public-Private Partnership on DOTS has been build up, implemented in 7 of 15 counties & 11 of 90 district: P. 19 DOTS is part of Basic Package of Health Services (supposedly free of charge) Have at least 80% of private health care providers participating in DOTS by 2012 (p. 35)	
GQ 2: What protocol is used for diagnosis and treatment of cases? • Is the protocol standardized? Is it effectively used? Nation-wide? Are there problems with the protocol? • Are there variations (subsectors, urban-rural)? What are they? • Has the protocol changed the past year? Who defines/changes the protocol?	DOTS (Directly Observed Treatment Short Course) service coverage by county is 100%. But: microscopy & drug distribution services available only at 98 of 389 functioning health facilities (covering 72% of districts, catering less than 40% of population). Smear + case detection rate was 60.6% in 2006 Treatment success rate cohort 2004: 72.3 % (all cases) and 73.6 % (smear positive cases). Protocol used: based on WHO protocol Establishment diagnostic facilities MDR-TB + TT from 2011 onwards (p. 33)	LIB-06 LIB-06, p. 19-23
GQ 3: How is retention in care promoted? How is defaulter tracing organized? Do you have a system to re-launch patients on treatment?	Food support is provided as an incentive for adherence	LIB-06, p.31
GQ 4: Is there community involvement in diagnosis/treatment? Are lay providers involved? How are they recruited, what is the profile? Are they trained? How are they motivated?	Create an environment of enticement for the community to get engaged in Stop TB Campaign = key strategy strategic plan. 280 community health workers were trained with GFATM R2 support. But, after completion of R2, 50 % of those CMVs stopped again because financial monthly incentives (10-20 US$/mth) dried up (p. 19) Establish community TB care to 80% of total districts by 2012 (p. 34)	LIB-06
GQ 5: Human Resources for	HRH: supplementing technical staff,	LIB-06

Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision space at different levels & between different profiles? How is the system financed? Do patients pay?	capacity building existing staff in technical and management areas related to TB = key strategy (with focus on HSS also). Involvement of ALL willing existing health care providers (all subsystems) in promoting DOTS and other roles. Financial resources: GFATM Round 2 (PI: UNDP). Other partners: Global TB Drug Facility (GDF), German Leprosy and TB Relief Association (GLRA), WHO & others (see p. 23). 2007-2012 strategic plan Liberia requires approx. 20 million US$ for its execution.	
GQ6: How is the supply system organized (drugs, lab supplies, etc)?	Drug delivery is carried out by MoHSW through the National Drug Service (NDS, semi-autonomous) after procurement through the Global Drug Facility. Support to NDS is through the EU, USAID & GFATM.	LIB-06
GQ 7: Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)?	Yes, Pigman Point of Care Machines	LIB-06
Specific question	**Answer**	**Source**
SQ 1: Are TB patients systematically tested & treated for HIV? Since when?	Facilities offering TB and any HIV services: 22 (22 offering VCT, 3 offering PMTCT, 9 ARV) (6% of 389 public health facilities)	LIB-06, p. 18
SQ 2: Is treatment of TB/HIV co-infection integrated?	2 Specialized TB hospitals (TB Annex Monrovia & Ganta hosp) offer integrated TB/HIV treatment: routine VCT for TB pat and ARV + TB drugs offered for co-infected. Plan: increase access to integrated TB/HIV services to cover 65% of the population by 2012 (p. 37)	LIB-06, p. 19 LIB-06, p. 37
SQ 3: How many patients are treated for both TB and ART?		

DCP: EPI programme

Priority interventions to observe: DPT, polio, measles vaccines in young children

General Information (source Lib09)

- Under-five mortality = 110/1000LB
- 29% of under-five deaths occur during first month of life; 35% between one to 11 months
- National Child Survival Strategy 2008-2011, goal=reduce childhood mortality by 15%
- Immunization is identified as a strategic area; related specific objective (of 10)
    - To increase pentavalent-3 coverage from 88% to 90%
    - To maintain measles vaccine coverage at a minimum of 90%
- EPI clearly within a wider Child survival package.
- EPI coverage 2007 (EPI Administrative Records, MOHSW)
- BCG = 86%, measles = 95%, DPT3 = 88%
- DHS 2007: only 39% of children 12-23 months are fully immunized
- Technical Committee on Child Survival: MOHSW +key partners (WHO, UNICEF, USAID).

Generic question	**Answer**	**Source**
GQ 1: Which variety of delivery platforms is used: • Are services (prevention, promotion, education, curative care) provided in all subsystems (Public/Private for Profit/PNFP)? • How are services organized in urban and rural areas? What are fundamental differences in service provision between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage?	-Important framework for service delivery: Basic Package of Health Services (BPHS) = primary health care; decentralized -Strategy calls for combination of service delivery modes • Individual-oriented clinical services • Family-oriented community services • Population-oriented scheduled services (Dominant mode in EPI: population-oriented scheduled service)	Lib09, page 1-2. Lib09, page 17 Lib 09, page 8, table 4 vs table on page 9.
GQ 2: What protocol is used for diagnosis and treatment of cases? • Is the protocol standardized? Is it effectively used? Nation-wide? Are there problems with the protocol? • Are there variations (subsectors, urban-rural)?		

What are they? • Has the protocol changed in the past year? Who defines/changes the protocol? •		
GQ 3: How is retention in care promoted? How is defaulter tracing organized? Do you have a system to re-launch patients on treatment?		
GQ 4: Is there community involvement in diagnosis/treatment? Are lay providers involved? How are they recruited, what is the profile? Are they trained? How are they motivated?	MOHSW in the process of outlining the role of community health workers (CHWs) and traditional birth attendants.	
GQ 5: Human Resources for Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision space at different levels & between different profiles? How is the system financed? Do patients pay?	HRH development a key assumption in the implementation of the Child Survival Strategy Financing: mixed? Extent? Health budget Donors	Lib09, page 28
GQ6: How is the supply system organized (drugs, lab supplies, etc)?	Strengthening of supply chain management system identified as a specific activity to strengthen outreach interventions	Lib09, page 21
GQ 7: Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)		
Specific question	**Answer**	**Source**
SQ 1: Are some babies exempted from BCG immunization and why?		
SQ 2: How are vaccinations organized (special vaccination campaigns, vaccination days?)?	Vaccination campaigns Outreach Services in fixed facilities	Lib 09, page 27
SQ 3: Are vaccinations bundled	With Vit. A and Deworming (during	Lib 09, page

with other interventions (e.g. bednet distribution)?	campaigns?)	17

DCP: HIV/AIDS programme

Priority interventions to observe:

1. **Management of patients on HAART**
2. **PMTCT**

General information HIV/AIDS (source: LIB 04)

- The 2007 figures show a prevalence of 1.5% HIV+ in the population of 15-49 years of age (1.3% HIV-1; 0.2 HIV-2).
- Young woman and girls are particularly vulnerable. Urban areas are more affected than rural areas. Eastern and western border areas have higher prevalences.
- No prevalence data available among the most-at-risk groups.
- TB/HIV co-infection seems a major problem: 20% of TB patients who were tested for HIV are positive.
- The National AIDS Commission (NAC) was re-established in 2007.
- HIV included in other national and policy development frameworks.
- Liberia has endorsed key international declarations and frameworks (eg MDG, Abuja, Paris, etc).
- AIDS response: so far health-sector driven, other sectors increasingly involved (Min of Education; Min of Gender & Development; Min of Labour).

Generic question	**Answer**	**Source**
GQ 1: Which variety of delivery platforms is used: • Are services (prevention, promotion, education, curative care) provided in all subsystems (Public/Private for Profit/PNFP)? • How are services organized in urban and rural areas? What are fundamental differences in service provision between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage?	One of the key priorities in the National Strategic Framework II (NSF) (2010-2014) = strengthening involvement of non-health government sectors, civil society and the private sector NSF: focus on specific high risk groups (young woman and children; sex workers and clients; MSM; orphans & other vulnerable children; prisoners; mobile populations; uniformed personnel. So far, CSOs (NGOs and FBOs) played an important role in the provision of care and support and treatment through private hospitals. So far: heavy reliance on vertical programmes, but increasing attention for HSS (via GFATM round 6 & 8) Delivery: national response dominated by	LIB-04

	vertical health sector programme. Scale-up of services = hampered by weak capacity of the health system, especially lack of skilled HRH, weak infrastructure and weak logistics. Services: • Prevention: 11 foci, including VCT during ANC, PMTCT (Prevention Parent To Child Transmission (PPPTCT) in Liberia) • Treatment & care: ARV introduced in 1999, currently 19 sites providing ARVs. Regular stock outs, severe shortage HRH. OI drugs provided through NACP. Self support groups in hospitals. Community support mainly via CSO (but limited access so far).	
GQ 2: What protocol is used for diagnosis and treatment of cases? • Is the protocol standardized? Is it effectively used? Nation-wide? Are there problems with the protocol? • Are there variations (subsectors, urban-rural)? What are they? • Has the changed the past year? Who defines/changes the protocol?	National Integrated Treatment Guidelines, recently revised to take into account WHO new recommendations to initiate treatment earlier. Treatment is standardized, and yes treatment guideline recently changed in 2010 due to WHO recommendations.	
GQ 3: How is retention in care promoted? How is defaulter tracing organized? Do you have a system to re-launch patients on treatment?	Developed a patient Retention Strategy, based on Findings from recent National Cohort study. Formation of National Support Groups at 22 treatment sites; now also being expanded Roll of Treatment Accompaniers Program by Thyitien Health, and the introduction of mothers to mothers peer support program to support the cascade of PMTCT interventions.	
GQ 4: Is there community involvement in diagnosis/treatment? Are lay providers involved? How are	Involvement of CSOs (NGO, FBO) mainly in home based care, non-medical support at home and TT in private hospitals	LIB-04

they recruited, what is the profile? Are they trained? How are they motivated?		
GQ 5: Human Resources for Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision space at different levels & between different profiles? How is the system financed? Do patients pay?	Financial resources: Mainly GFATM contribution: • GF R 2: 7.7 million USD • GF R 6: 31.5 million USD • GF R 8: 77.7 million USD UN joint programme: 5.5 million USD 2008 NSF II: budget need 99.3 million USD over 5 years (36% prevention; 50.5% treatment, care & support). Funding shortfall of 50%. GF R 6&8: HSS component Focus HSS component: HRH skills building (via health sector pool fund); infrastructure and logistics; laboratory support	LIB 04
GQ6: How is the supply system organized (drugs, lab supplies, etc)?	NDS (National Drug Service) using the push system. LMIS currently being roll out with Monsterrado County completed. Additionally, central Supply Chain Management Unit established within Central MOHSW to monitor supply situation, track consumption data and generate data to support national quantification of commodities need.	
GQ 7: Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)	Point of care (Pigman) machines being rolled out to rural sites to support diagnosis	
Specific question	**Answer**	**Source**
SQ1: Are HIV patients tested and treated for TB (BK + and BK -)?	Yes	
SQ 2: Are there links with the ANC programme? Where does ANC take place	ANC takes place within health facilities	
SQ 3: Where do pregnant woman infected with HIV deliver?	Within health facilities. They are encouraged to do so, in order to ensure that the provider gives needed intervention (Navarapine or AZT)	

DCP: MCH programme

Priority interventions to observe:

1. Antenatal care
2. Delivery

General Information:

- Maternal mortality= 994/100,000 LB (LDHS 2007); 580/100,000 LB (LDHS 2000); check against trends in Hogan et al. and IAWG 2010 estimates.
- Existing roadmap for accelerating the reduction of Maternal and Newborn Morbidity and Mortality (Nov 2007)
- Goals=to reduce by 2015:
- MMR from 580/100,000LB in 2000 to 290/100,000LB
- Newborn mortality rate from 66/1000LB in 2000 to 33/1000
- Increasing teenage pregnancy=extent?
- Increasing number of illegal and unsafe abortions=extent?
- 15% of deliveries in health facilities with qualified personnel; 85% in communities or in facilities without skilled personnel
- Malaria a key concern among pregnant women and newborns; current interventions: IPT, ITN distribution, new protocols for malaria case management. Integrated with ANC?
- Number of maternity clinics? BEmONC? CEmONC?

Generic question	**Answer**	**Source**
GQ 1: Which variety of delivery platforms is used: • Are services (prevention, promotion, education, curative care) provided in all subsystems (Public/Private for Profit/PNFP)? • How are services organized in urban and rural areas? What are fundamental differences in service provision between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage?	-no community based service provider -ANC access problems=only 10% of pop live less than 5km from health facility (NHP, 2000) -Fostering partnerships and collaborations among NGO, private sector, CBOs, etc identified as a strategy -plans to expand number of MNH facilities	Lib 10, page 10 Lib 10, page 19 Lib 10, page 20
GQ 2: What protocol is used for diagnosis and treatment of cases? • Is the protocol standardized? Is it	-Use of partograph is low; some partners use individually designed partographs; inconsistencies in use.	

effectively used? Nation-wide? Are there problems with the protocol? • Are there variations (subsectors, urban-rural)? What are they? • Has the protocol changed the past year? Who defines/changes the protocol?		
GQ 3: How is retention in care promoted? How is defaulter tracing organized? Do you have a system to re-launch patients on treatment?		
GQ 4: Is there community involvement in diagnosis/treatment? Are lay providers involved? How are they recruited, what is the profile? Are they trained? How are they motivated?	• No community-based service provider; exploring community based services program (Ghana model)	Lib 10, page 10
GQ 5: Human Resources for Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision space at different levels & between different profiles? How is the system financed? Do patients pay?	• Life Saving Skills (LSS) for nurses, midwives, physician assistants and doctors; • plans to institutionalize LSS among mid-level service providers=integration into curricula • 5 (of 7) training institutions operational; only 2 offer midwifery training • Formal in-service training suspended since 1998	Lib 10, page 9 Lib10, page 10
GQ6: How is the supply system organized (drugs, lab supplies, etc)?		
GQ 7: Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)		
Specific question	**Answer**	**Source**
SQ 1: Are there links with the PMTCT program?	-Yes, within the concept of "focused ANC" along with family planning and prevention of Malaria in pregnancy; -plans to upgrade some facilities to BEmONC and CEmONC, including	Lib 10, page 24

	PMTCT	
SQ 2: Are pregnant women systematically tested for HIV? What happens if the result is positive?		

DCP: Malaria programme

Priority intervention to observe: Management of children with malaria (fever)

General info (source: LIB-07)

Health Facility Survey 2009: malaria accounts for 34.6% of outpatient department attendance and 33% of in-patient deaths. This is a small improvement with survey results of 2005, major achievements include:

- 17% of children < 5Y (only!!!) receive prompt and effective treatment within 24 hrs. Target = 80% by end 2010.
- 45% of woman are receiving two or more IPTp during most recent pregnancy. Target = 80% by end 2010.
- 47% HH have at least one ITN. Target is 85 % by end 2010
- 27% of children < 5 Y slept under ITN previous night. Target = 80% by end 2010.
- 33 % of pregnant woman slept under ITN previous night. Target = 80% by end 2010.
- 5% HH received indoor residual spraying. Target = 40% end 2010 and full coverage 2015.
-

3rd Liberia Nat Malaria Strategic Plan 2010-2015:

1) scale up ACT TT throughout the country
2) integrated vector management
3) advocacy, health education and behaviour change communication at all levels of society.

Malaria control program: follow principles of three ones: one coordinating authority, one comprehensive plan, one M&E framework.

Political commitment at highest level: Liberia = signatory to Abuja Declaration on RBM & represents Anglophone West Africa on the Board of RBM.

Generic question	**Answer**	**Source**
GQ 1: Which variety of delivery platforms is used: • Are services (prevention, promotion, education, curative care) provided in all	New strat plan 2010-2015 aims to scale up availability and use of Artesmisinin-based Combination Therapy as 1st line TT via all subsystems (+ training health staff how to use them).	LI B-07

subsystems (Public/Private for Profit/PNFP)? • How are services organized in urban and rural areas? What are fundamental differences in service provision between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage?	A malaria steering committee (MSC) was formed in 2003 to strengthen partnerships and collaboration (vertical programme). First malaria strategic plan implemented since 2005; currently the third malaria strategic plan is ongoing (6 years, 2010-2015). Nat malaria program: four technical pillars, 3 managerial functions (see figure LIB-07 p 20). Organogram of the NMCP: LIB-07 p. 33.	
GQ 2: What protocol is used for diagnosis and treatment of cases? • Is the protocol standardized? Is it effectively used? Nation-wide? Are there problems with the protocol? • Are there variations (subsectors, urban-rural)? What are they? • Has the protocol changed the past year? Who defines/changes the protocol?	Standardized use of ACT (artesunate and amodiaquine) as 1st line TT introduced since 2003 Fansidar (S/P) as IPT for pregnant woman Integrated vector management (ITNs and LLINs; residual spraying and spraying of health facilities). But: use chloroquine still very widespread, esp in the private. ACT so far ltd to health facilities only (no TT in community). Blister packs instead of fixed dose combination still used (LIB-07, p 21) Intended protocol for 1st and 2nd line TT including pregnant woman (policy statement): LIB-07 p. 22 Protocol pregnant woman: (1) at least two doses of intermittent TT (IPT), (2) use of LLINs (LIB-07 p. 24-25)	LIB-07 (p 13)
GQ 3: Is there community involvement in diagnosis/treatment? Are lay providers involved? How are they recruited, what is the profile? Are they trained? How are they motivated?	A Community Health Services Division of the MoHSW was established, a policy and strategy for community services which encourages community case management of malaria introduced In the pipeline (implemented?): Community Health Volunteers will be diagnosing and	LIB-07 (p7) LIB-07 (p

	treating malaria	23)
GQ 4: Human Resources for Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision space at different levels & between different profiles? How is the system financed? Do patients pay?	Financial resources: • GFATM round 3 and 7 • UNICEF • President's Malaria Initiative (USAID funded) • INGOs • Patients (not clear to what extent)	
GQ5: How is the supply system organized (drugs, lab supplies, etc)?	Drug supply: the National Drug Service (NDS) is a semi-autonomous body whose role for malaria control is to store and distribute drugs and consumable supplies to the counties, as directed by the National Malaria Control Program. For the Integrated Supply Chain Management System (ISCMS) there is 1 supply chain manager in MoHSW (overall responsibility) and a supply chain manager in each vertical program, including malaria, who are responsible for forecasting supply requirements, procurement of malaria commodities and monitoring and supervising the use of the products at health facility and community level. ISCMS has 1 central depot & 1depot/county (not all yet).	LIB-07 (p 9-10)
GQ 6: Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)	Intention to use RDT in the community & in public and private health institutions	LIB-07 p. 22
Specific question	**Answer**	**Source**
SQ 1: Are rapid diagnostic tests used? Who is allowed to use those?	Intention to use RDT in the community & in public and private health institutions	LIB-07 p. 22
SQ 2: What happens with children who test negative for malaria?		

Annex D: Mapping Tool, summary

DCP	Priority interventions	Generic questions	Specific questions
TB	TB case management: Smear + cases	1. Who provides the service? Where? How (fixed, outreach, etc.)? • Are there other actors involved? (For example in prevention, promotion, education, curative care)? Public/Private for Profit/PNFP? • Is there a difference in how service provision is organized between urban & rural areas? • Any idea of proportions (Public/Private for Profit/PNFP) and consultation coverage? 2. What guideline is used for diagnosis and treatment of cases? • Is the guideline standardized? Is it used by everyone? Are there problems with the guideline? • Do different people/actors/facilities use different guidelines? • Has the guideline changed the past year? Who defines/changes the guideline? 3. How is retention in care promoted? How is defaulter tracing organized? Do you have a system to restart patients on treatment? 4. Is there community involvement in diagnosis/treatment? Are community health workers (or similar cadres) involved? How are they recruited, what is the profile? Are they trained? How are they motivated? Are there other informal/traditional providers of services in the community? 5. Human Resources for Health: who provides which services? Profiles? How are HRH recruited? Are incentive systems in place? What is the decision	1. Are TB patients systematically tested & treated for HIV? Since when? 2. Is treatment of TB/HIV co-infection integrated? 3. How many patients are treated for both TB and ART? 4. What happens to smear (-) cases?
EPI	DPT, polio, measles vaccines young children		1. Are some babies exempted from BCG immunization and why? 2. How are vaccinations organized (special vaccination campaigns, vaccination days?)? Are vaccinations bundled with other interventions (e.g. bednet distribution)?
HIV/**A**IDS	1. Management of patients on HAART 2. PMTCT		1. Are HIV patients tested and treated for TB (BK + and BK -)? 2. Are there links with the ANC programme? Where does ANC take place 3. Where do pregnant woman infected with HIV deliver?
MCH	1. Antenatal care 2. Delivery		1. Are there links with the PMTCT program? 2. Are pregnant women systematically tested for HIV? What happens if the result is positive?

		space at different levels & between different profiles? How is the system financed? Do patients pay? 6. How is the supply system organized (drugs, lab supplies, etc)? 7. Are any new technologies being used ((point of care) diagnostics, ICT, computer, etc)	
Malaria	Management of children with malaria (fever)	Generic question except 3	1. Are rapid diagnostic tests used? Who is allowed to use those? 2. What happens with children who test negative for malaria?

Annex E: List of Interviewees for the Mapping Exercise

Name	Position	Organization/Health Facility
1. Dr. Ansumana Camara MD	County Health Officer	Montserrado County Health Office
2. Mrs. Magrette Togbah	MCH Supervisor	Montserrado County Health Office
3. Ms. Regina Collins	HR Officer	Montserrado County Health Office
4. Mr. Jusu Watson	Clinical Supervisor	Montserrado County Health Office
5. Adolphus Kenta	CHDD	Montserrado County Health Office
6. Gweenue Ngangawulor	TB&HIV Focus Point	Montserrado County Health Office
7. Charles Richards	Administrator/Logistician	Montserrado County Health Office
8. Mary Daboi	ART Focal Point TB Control	Montserrado County Health Office
9. Thomas Wolapaye	Pharmacist	Montserrado County Health Office
10. Siafiatu Soe	OIC	Clara Town Community Clinic
11. Comfort Yulorgboh	EPI Focal Point	Clara Town Community Clinic
12. Melvenna Konie	MCH Supervisor	Clara Town Community Clinic
13. Jerridin Dongbo	HIV Focal Point	Clara Town Community Clinic
14. Korpo Ballah	TB Focal Point	Clara Town Community Clinic
15. Musa Kullie	Administrator	Slipway Community Clinic
16. Josephine Tunning	MCH Supervisor	Slipway Community Clinic
17. Genevive Nywreh	HIV/AIDS Focus Point	Slipway Community Clinic
18. Ms. Mary Keita	Screener PEDs	Redemption Hospital
19. Ms. Vickey Youqui	Screener/Acting MCH Supervisor	Redemption Hospital
20. Mrs. Victoria Harris	Screener ANC Clinic	Redemption Hospital
21. Ms.Chinnie Sieh	NACP Mentor	Redemption Hospital
22. Mrs. Janice Urey	HIV & TB Unit Coordinator	Redemption Hospital
23. G. Tarkor Tuah	TB Focus Point	Redemption Hospital
24. Dr. Rhoda Peters	County Medical Director	Bomi County Health Office
25. Theresa Martin	RHS Supervisor	Bomi County Health Office
26. John Kollie	Community Health Department Director	Bomi County Health Office
27. Elizabeth Doe	Child Survival Focal Person	Bomi County Health Office
28. Mohammed M. Duckly	Clinical Services Director	Bomi County Health Office
29. Hawa Quaye	HIV/AIDS & TB Coordinator	Bomi County Health Office
30. Mrs. Fatu Sheriff	HIV/AIDS & TB Care Focal Person	Bomi County Health Office
31.Weidi Ayodele	HIV/AIDS Counselor	Bomi County Health Office
32. Korto Morris	OIC	Bomi County
33. Yei Magbinne	DHO	Bomi County Health Office
34. Elizabeth Joe	OIC	Bomi County
35. Janathan Paywala	Cold-Chain Manager	Bomi County Health Office
36. Thomas Jallah	County Pharmacist	Bomi County Health Office
37. Damawah Saye	MCH supervisor	Bomi County Health Office
38. Mr. Kay Smith	Human Resource Manager	Grand Kru County Health Office
39. Mr. Andrew Pupoh	Lab Assistant/ OIC	Grand Kru County Health Office
40. Mr. T. Fannoh Brooks	TB& HIV& Aids Focal Person	Grand Kru County Health Office
41. Mr. Benjamin H. Jarbeh	Logistician	Grand Kru County Health Office
42. Mr. Robertson Oddarbeh	Acting Surveillance Officer	Grand Kru County Health Office
43. Mr. Sieh Doe-Registrar	Registrar	Barclayville Health center
44. Mr. Patrick C. Numeneh	Vaccinator	Barclayville Health center
45. Mr. Henry Daniels	Screener	Barclayville Health center
46. Mrs. Tetee sieh Jah	Certified Midwife	Barclayville Health center
47. Martin Toe	Dispenser	Barclayville Health center

Annex F: Participants of the Stakeholders Workshop

DCP/HSS Assessment
Stakeholders Perception Workshop Participant List

No	Name	Position	Agency	Phone No.	Email
1.	Emery David	Research Assistant	MoH/SW	06910643	Emerydavid2011@yahoo.com
2.	Julius Suku	Data Collector	MoH/SW	0880412847	juliussuku@yahoo.com
3.	Nelson K. Dunbar	Research Fellow	MoH/SW	064329975	dunbarnelson@yahoo.com
4.	Luke Bawo	Coordinator, ME&R	MoH/SW	06909945	lukebawo@yahoo.com
5.	James S. Poindo	Co. EHTs Supervisor	MoH/SW	077025953	
6.	Wilma L. Fassah	Clinical Mentor	MoH/SW	06644743	fassahwilma@yahoo.com
7.	Momodu Kromah	Clinical Supervisor	MCH	0772809981	Kromah.momodu@yahoo.com
8.	J. Yoko Roggers	Co. Social Welfare	MoH/SW	077871172	Jyordgers18@yahoo.com
9.	Gafee Williams	CHO, Bong	MoH/SW	06588369	garfeew@yahoo.com
10.	Harun Or Rashid	Technical Manager	BRAC- Liberia	0880813214	Drharun8802@gmail
11.	Clarence Massaquoi	Program Manager	PMU-Liberia	06550053	Vikingprojet1@yahoo.com
12.	Noe Rakotondrajaond	Malaria Advisor	USAID	077292558	mrakotondrajoana@usaid.gov.
13.	Ibrahim B. Dukuly	Program Officer/HSS	MoH/SW	06551009	idukuly@moh.gov.lr
14.	Dr. Filberto Hadiz	Representative	CDC	077529733	etro@cdc.gov
15.	Paye K. Nyansaiye	Asst. Program Officer	NMCP/MoH/SW	06552286	pknyansaiye@yahoo.com
16.	Hibarki Nakajina	Proj. Technical Adv.	JICA	0880909545	nakajinahibark@jica.j.jp
17.	J. Tiwheh Nyeswah	CHSA	MoH/GCHT	077825242	
18.	Augustine Jimmy	CHO/Grand Kru	MoH/SW	077574480	Asjimmy1971@yahoo.com
19.	Rhoda Peters	Act. CHO, Bomi	BCHT	06551239	rhodapeters@yahoo.com
20.	Elizabeth Doe	CSFP	BCHT	06621863	Elizabethdoe75@yahoo.com
21.	Mohammad M. Dukuly	CHSD	BCHT	06475244	
22.	Shiferaw Demissia	H. Coordinator	CRS	06270590	Sheferaw.demissie@crs.org
23.	Nancy T. Moses	Program Manager	LPMM	06561571	Nancytaylor_moses@yahoo.com
24.	Maneesh Phillip	Project Officer	MERLIN	06729578	po@merlin-liberia.org
25.	Dr. Boakai Paasue	Coordinator	BCHT	0880066101	gbpaasue@yahoo.com
26.	Gabriel E. Moore	Registered Nurse	BCHT	06402719	Bmooreg01@yahoo.com
27.	Kezelee F. Fobay	Field Coordinator	AHA – Bomi	06932978	kezeleefoday@yahoo.com
28.	Eisa Hamouda	M&E Specialist	MoH/SW	06916382	Eisa.hamouda@gmail.com
29.	Dr. Joel Jones	Program Manager	NMCP/MoHSW	06528010	jjonesdr@yahoo.com
30.	Tokpa S. Wakplolo	TB/HIV Focal	BCHT	06408977	twakpolo@yahoo.com
31.	Dr. Moses Pewu	Act. CMO	MoH/SW	06550215	Pewu.moses@yahoo.com
32.	Axel M. Addy	Country Rep.	PSI	06817176	aady@psiliberia.org.
33.	Meleparlay Sumo	Malaria Focal Person	BOCHT	06430229	melepalay@yahoo.com
34.	Alggrey Agarlerdreze	TB Specialist	UNDP	06214007	abadegeraza@yahoo.com
35.	James Sumowoood	DIO	MoH/SW	06439794	
36.	Mawudna Vordzonase	Pool Fund	MoH/SW		
37.	Moses Massaquoi	Country Director	CHAI	06383487	mmassaquoi@clintonhealthaccess.org
38.	Teferi Beyeme	PD	MTI	06612352	tfissehatsion@medicalteams.org
39.	Moses K. Jeuronlon	NPO/ATM	WHO	06670651	jeuronlonm@lr.afro.who.int
40.	Momolu Sirleaf	Director/External Aid	MoH/SW	06676666	sirleafmomolu@gmail.com

41	Alphonso W. Kofa	CHDD	Bong CHT	O6416354	alphonsokofa@yahoo.com
42.	Yah Zolia	Asst. Min. Planning	MoH/SW	06516382	yzolia@yahoo.com
43.	Janice Cooper	Carter Center	Project Lead	0880644482	Janice.cooper@cartercenterliberia.org
44.	David Logan	Program Manager	Global Fund/MoH	06923614	Logan_david@yahoo.com
45.	Oliver Prett	PA	MoH/SW	06961227	Oprett70@gmail.com
46.	Vivian J. Cherue	Director of Adm.	MoH/SW	06518306	viviancherue@yahoo.com
47.	Jessie C. Duncan	DCMO	MoH/SW		
48.	Balan Fatoma	Director-LIBR	LIBR	06513040	balanf@lr.afor.who.int
49.	Catherine Cooper	Program Manager	NLTCP	06557066	cthomascooper@yahoo.com
50.	David B. Saizar	Trainer	LHS/MoH	06574673	dsaizar@yahoo.com
51.	Nestor Ndayiniroe	Country Rep.	WHO	06530047	ndyiniroegen@lr.afro.who.int
52.	Levi O. Yarnay	DHO/DSO	MCHT	06548707	Levi.yarnay@yahoo.com
53.	William Tate	DHO/DSO	MCHT	06565508	
54.	John Sumo	Director	NHPD/MoHSW	06374733	Jsumo001@luthersem.edu
55.	Arabella R. Greaves	Coordinator	HSRPL/MoH/SW	077821981	Arkramona1@yahoo.com
56.	Walter Gwenigale	Minister	MoH/SW		
57.	Augustine Newron	Asst. Manager	EPI-MoH/SW	06565961	Gusray71@yahoo.com
58.	Julia T. Garbo	DPM	NACP	06400737	hnadetoomey@yahoo.com
60.	Sam Adorowa	Program Director	Child Fund	06522378	sadorowa@liberiachildfund.com
61.	Marnijina Moore	Data Collector	MoH/SW	065869124	Georgia2m@yahoo.com
62.	Jusu A. Watson	Clinical Supervisor	MCHT	06530329	
63.	Thomas Wolopaye	County Pharmacist	MCHT	06562087	tomwola@yahoo.com
64.	Isaac I Johnson	Head Economist	WHO	077513516	Johnsone@lr.afro.who.int
65.	Michael Roberts	MoH	WHO	0880698192	
66.	Joseph W. Geebro	DMSW	MoH/SW	06587821	geebrojoseph@yahoo.com
67.	Saye Brown	Director	PWD	06512989	selbaawo@hotmail.com
68.	Marion Subah	Edu. & Training Adv.	RBHS	077870090	msubah@hpiego.net

Annex G: Stakeholders Workshop Program

Disease Control Programmes and Health Systems Strengthening

(DCPs & HSS)

Stakeholders Meeting

24 May 2011
Monrovia, Liberia

Programme

Overall Chairman: Mr. Luke Bawo

Planning and Research Unit, MOH&SW

Session 1 - 9:00 – 10:30 AM	**Speaker/Facilitator**
Opening Remarks	**Mrs. Yah Zolia** Assistant Minister for Planning MOH&SW
WB-ITM Concept Note: How can Disease Control Programs Contribute to Health Systems Strengthening in Sub-Saharan Africa?	**Prof. dr. Wim Van Damme** Institute of Tropical Medicine Antwerp, Belgium
Overview of Methodology for Country Studies	**Dr. Raoul Bermejo III** Institute of Tropical Medicine Antwerp, Belgium
Coffee Break - 10:30 – 11:00 AM	
Session 2- 11:00 AM – 1:00 PM	
DCP and HSS Questionnaire	in groups of 8, with facilitator
Feedback from Mapping Exercise	**Mr. Nelson Dunbar** Planning and Research Unit MOH&SW
Lunch - 1:00 – 2:00 PM	
Session 3- 2:00 – 4:00 PM	
Discussion of issues from the mapping exercise	In groups of 8, with facilitator
Highlights from each group (Plenary)	**Mr. Luke Bawo** Planning and Research Unit MOH&SW
Overall discussion and conclusions (Plenary)	**Dr. Moses Massaquoi** CHAI