Ebola in Liberia: the transformative impact of the 2014 epidemic on the health system of a post-conflict state

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1. Introduction

1.1 Background

"This is for sure the worst situation I've ever seen" (Friedman, 2014, August 20).

This quote comes from Daniel Bausch, who is a World Health Organization-sponsored doctor who worked in West-Africa during the Ebola virus disease (from now on: Ebola) epidemic in 2014. It illustrates the severity of this epidemic, raised my interest in this major West-African crisis and led to the topic of this research: the transformative impact of the 2014 Ebola epidemic on the health system of post-conflict Liberia.

The Ebola epidemic started in December 2013 in a little village in Guinea and spread to other countries within five months. It took until August 2014 for the World Health Organization (from now on: WHO) to declare the Ebola epidemic a Public Health Emergency of International Concern. The first time this virus has been detected was in 1976 in the Democratic Republic of Congo, near the Ebola river; which gave the virus its current name. Although since then 25 outbreaks occurred, the recent outbreak caused a larger number of deaths than all previous Ebola outbreaks combined (Shoman, Karafillakis & Rawaf, 2017). By September 2014, Ebola-infected cases and deaths had been reported in five West-African countries: Guinea, Nigeria, Senegal, Liberia and Sierra Leone (WHO Ebola Response Team, 2014). The virus led to more than 11,000 deaths throughout these countries (CDC, 2016, June 22). The real number of deaths is expected to be even higher than reported, as many infections stay undiagnosed and deaths unrecorded (WHO Response Team, 2014).

According to the WHO Ebola Response Team (2014), the Ebola outbreak in Western Africa has shown how rapidly a virus can spread and how many problems it can pose when a strong health care system is absent. An ill-equipped health system makes populations very vulnerable to such a disaster. This was convincingly the case in many of the West-African countries, among which Guinea, Liberia and Sierra Leone (ibid.).

1.2 Problem statement and research questions

Liberia is one of the top three highly affected countries of the outbreak described above (Shoman *et al*., 2017). The country had a troubled past in which it suffered from two civil wars within a timespan of fourteen years which severely affected the country's health system (Badger, 2008). This intriguing past and recent crisis raised my interest and for this reason I decided that Liberia will be the focus of my research.

Kieny, Evans, Schmets and Kadandale (2014) state that: ''if this Ebola outbreak does not trigger substantial investments in health systems and adequate reforms in the worst-affected countries, pre-existing deficiencies in health systems will be exacerbated''. Besides, the same authors advocate for collaboration between national governments and external partners to strengthen health systems and make them more resilient in order to be prepared for future emergencies (ibid.).

At this moment, three years after the Ebola outbreak, it is interesting to study what the impact of the outbreak has been on Liberia's health system. The Ebola outbreak has revealed particular flaws of the Liberian health system and identification of these flaws may have led to a transformation of the health system afterwards. In this research, I will study this transformative impact. Besides, I will also study which responses have emerged within the health system during the outbreak and responses afterwards to rebuild the health system. Mistrust of local people in the Liberian health system and in medical response seems to have been widespread during the outbreak and influenced the course of the epidemic (Streifel, 2015; Omidian *et al.,* 2014). Trust in a health system is essential for good health outcomes (Calnan & Rowe, 2005) and for this reason, trust issues in the health system prior to, during and after the Ebola epidemic will be studied as well.

The aim of this research is to study the impact of the 2014 Ebola epidemic on the health system of Liberia, to identify the flaws of the health system revealed by the epidemic and to study whether the outbreak has led to a transformation of the health system afterwards. Another aim is to study the role trust plays within the Liberian health system.

To make populations less vulnerable in case another epidemic occurs in the future, the performance and resilience of health systems need to be enhanced. Therefore, the performance of, in this case, the Liberian health system firstly needs to be analyzed. The outcomes of this study can possibly help guide policymakers on health

system strengthening and resilience-building, so countries such as Liberia can develop resilience to cope with future crisis similar to the Ebola epidemic.

The aim of the study leads to the following central research question:

What is the transformative impact of the 2014 Ebola epidemic on the health system of post-conflict Liberia?

To answer the main question of this research, six sub-questions are constructed and will be answered throughout the chapters:

1. Which effects did the Ebola outbreak have in Liberia?
2. Which interventions have taken place during the outbreak?
3. Which flaws of the health system are revealed due to the Ebola outbreak?
4.Which efforts to rebuild the health system have taken place thus far after the Ebola outbreak?
5. What is the way forward for a strong health system in Liberia?
6. How does trust play a role in the Liberian health system?

1.3 Methodology

The research question will be answered by doing a literature review. The most frequently used search engine is JSTOR. Others are: WUR Library and Google Scholar. Much used search terms are: Ebola, Liberia, health system, impact, civil war, local practices, international and trust. Most useful articles are found within the fields of sociology and anthropology. Some articles used were found within the field of public health. Publications of the World Health Organization have also proven very informative and helpful in answering the questions of this research.

While most information is based on literature, my knowledge gained during the three-year bachelor's in International Development Studies and minors in Global Health, Care and Society served as a solid basis for this thesis.

1.4 Structure of the thesis

Chapter two will describe the theoretical framework of this research. The first two sub-questions will be answered in chapter three. The third sub-question will be answered in chapter four. Then, the fourth and fifth sub-question will be answered in chapter five. The last sub-question will be an underlying question throughout the whole research. In chapter six this research will end with a conclusion and discussion.

2. Theoretical framework

2.1 WHO Health System Building Blocks

To better understand and evaluate the Liberian health system, a clearly defined framework is necessary. Within this study, I will make use of the WHO Health System Building Blocks framework. I have chosen to use this particular framework, because the WHO is a major player in the field of global health and the building blocks of the framework are internationally agreed upon as being priorities for a well-functioning health system (WHO, 2007).

A health system consists of ''all the organizations, institutions, resources and people whose primary purpose is to improve health'' (WHO, 2010). According to the WHO (2017), a well-functioning health system working in harmony ''is built on having trained and motivated health workers, a well-maintained infrastructure and a reliable supply of medicines and technologies, backed by adequate funding, strong health plans and evidence-based policies''. To be able to work with this definition, the WHO (2010) constructed the Health System Building Blocks framework. This framework contains several components or 'building blocks' that are necessary for health system strengthening. The six components will be elaborated below:

1. Health workforce

A health workforce can be defined as ''all people engaged in actions whose primary intent is to enhance health'' (WHO, 2010, p.24). A health workforce is well-performing if a sufficient number and mix of staff is present. They must be distributed in a fair way, be competent, productive and responsive to achieve the best health outcomes possible. Knowledge, skills and motivation play a major role in determining health outcomes. In many countries, a well-performing health workforce is lacking as a result of migration of health workers, lack of skills, demographic differences and a limited production capacity. An estimation has been made about the number of physicians, nurses and midwives needed per 10.000 population for achieving primary health-care interventions. This number needs to surpass 23 health workers (WHO, 2010).

2. Health financing system

A health financing system is an essential part of a well-functioning health system in general as it ensures people to be able to use the services they need and be

protected from impoverishment related to paying for these services. To achieve this, adequate funds need to be raised and mobilized effectively. Most low-income countries derive revenues from both domestic and external sources. Although international financing for health has increased since 2000, many countries still suffer from an insufficient level of funding (ibid.).

3. Health information system

A health information system is responsible for the collection of data in both health sectors and other sectors, analyzing this, ensuring its quality and communicating the gathered data to multiple users. This is of particular relevance for health-related decision-making. It influences the other building blocks and the overall health system. A strong and effective health information system is said to be lacking in many developing countries (ibid.).

4. Access to medical products, vaccines and technologies

In a well-functioning health system, access to medical products, vaccines and technologies of ensured safety, quality, efficacy and cost-effectiveness is guaranteed. The ability to achieve access to these resources highly depends on national policies and regulations, prices, quality assessment and the procurement, distribution and supply and storage (ibid.).

5. Service delivery

Good service delivery is defined as the delivery of effective, safe, quality personal and non-personal health interventions to the people who need them at any moment, at any place, while minimal resources are wasted. Clearly, service delivery is very much dependent on the other building blocks of a health system. Key characteristics of service delivery are: access, availability, utilization, coverage, comprehensiveness, continuity, coordination, person-centeredness, quality and accountability and efficiency (ibid.).

6. Leadership and governance

Leadership and governance are important elements in improving health systems. It involves aspects such as ensuring strategic policy frameworks for health, effective oversight, coalition-building, appropriate regulation and incentives, attention to system-design and of great importance is accountability. Accountability concerns managing relationships between all kinds of stakeholders in the health sector with their own responsibilities. Governance in health is an increasingly important aspect

on the development agenda. Two types of indicators are used to determine the quality of governance and leadership in health: rule-based indicators and outcome-based indicators. Rule-based indicators measure if countries set up appropriate policies and strategies while outcome-based indicators measure whether procedures and rules are effectively implemented and enforced within the country. The latter is very much related to the other building blocks. Governance and leadership processes are susceptible to corruption and fraud, which needs to be precluded for achieving a well-functioning health system (ibid.).

The components *health care financing* and *health workforce* are key input elements, while the components *medical products and technologies* and *service delivery* reflect outputs of a health system. The components *leadership and governance* and *health information system* are considered a basis for the overall policy and regulations for the other components. Combining these building blocks contributes to the strengthening of a health system by striving for a few overall goals which are: improved health (level and equity), responsiveness, social and financial risk protection and an improved efficiency. The framework has a country-focus, but is at the same time a basis for global monitoring (WHO, 2010).

This framework is helpful for analyzing the performance of a health system; if it is well-functioning or not. Becoming more highlighted these days, as well within the global health debate, is the urge for 'resilience' (Chang, 2016). A well-functioning health system is not necessarily resilient as well. A well-functioning health system differs from a resilient health system, because a resilient health system ''is able to absorb the shock of an emergency and at the same time continue to provide regular health services, leaving other sectors of the country fully functioning'' (Kieny & Dovlo, 2015), while a well-functioning health system is performing good under normal circumstances but may be unable to recover from a shock or a crisis. Chang (2016) is not satisfied with this urge for resilience. She questions whether resilience is the primary objective of a health system, especially at the local level. According to her, countries lacking primary health services should first of all strengthen the basic foundations of their health system (improving population health and adequate health funding), instead of prioritizing resilience. When the basic foundations are in place, resilience will come next. Besides, she says the concept needs more clarity and concrete action points are required to work with it.

I understand this point of Chang and for this reason I will focus on analyzing the general performance of the Liberian health system by using the WHO building blocks, instead of focusing on the resilience of the health system. So, in this study, the WHO health system framework will serve as a comprehensive basis for the analysis of the Liberian health system.

2.2 The concept of trust

The WHO Health System Building Block framework elaborated above can be considered as the more technical side of health system analysis. Yet, this technical side is not the only relevant part. Multiple authors (Calnan & Rowe, 2005; Gilson, 2002; McFarland, n.d.) point at the importance of trust in a health system for good health outcomes. Trust in a health system plays a role in relationships in which key actors are the state, health care practitioners and patients (Calnan & Rowe, 2005). Because trust is also a central aspect to achieve good health care, this concept will be analyzed as the more social element within the Liberian health system.

Trust will always remain an elusive concept, as its meaning can differ for each individual and within each relationship (Hupcey & Miller, 2006). However, trust is broadly defined as: ''a multi-layered concept primarily consisting of a cognitive element (grounded on rational and instrumental judgments) and an affective dimension (grounded on relationships and affective bonds generated through interaction, empathy and identification with others)'' (Calnan & Rowe, 2005, p. 2). So, trust is something a person feels towards another person, group or towards an institution, which is based on an opinion or vision based on perception.

Trust appears to be vital in cases of uncertainty, reliance and risk. A level of risk evolves from an individual's uncertainty regarding another person's intentions, motives and actions on which the individual is dependent (Calnan & Rowe, 2005). Trust is a principal element in health care provisioning because uncertainty, a form of risk and reliance play a major role within this context between all key actors in a health system: the patient, the health worker and the state. Vulnerability of a patient is related to being unwell but also to an unequal relationship and information asymmetries which occur between patients and health practitioners who possess medical knowledge (Calnan & Rowe, 2005). Thus, interpersonal trust is the basis of a good relationship between health workers and patients. Trust can also be

distinguished at the institutional level, in which a relationship exists between for example the patient and a health facility or the broader health system (ibid.).

Examining trust in health care systems is relevant, because trust has an indirect effect on health outcomes. Public trust in institutions or the health system appears to influence overall healthcare attitudes and demand. Patients with trust show more satisfaction and better adherence to the treatment. Besides, patients are more encouraged to access health care. Next to patients, trust also appears to be important to health practitioners. To them, trust is related to commitment to the organization and enhances co-operation between clinicians. Employees seem to be better motivated and satisfied within their work (Calnan & Rowe, 2005). Yet, trust in health care practitioners has its dangerous sides as well. Due to patient's trust, power relations may be abused in the disadvantage of the patient. Trust leads to the legitimacy of a health practitioner to act upon the patient, but may lead to domination or exploitation, especially in the case of patients from deprived settings (ibid.). It seems so that most critical challenges appearing in health systems are those involving relationship issues, for example dissatisfaction with health services due to poor staff attitudes (Gilson, 2002).

Because of both benefits and costs, it is important to examine how trust can play a role in enhancing health outcomes. Within this research, the focus will be on trust of local people in the Liberian health system during multiple stages, because different trust issues appeared during the Ebola epidemic. Trust of health workers will not be regarded, because of the limited size of this study.

2.3 Traditional health practices and community-based response to health in relation to modern health care

Although modern health care, said to be based on 'Western' medicine, is considered the norm in most of the world, many countries in Western Africa still profoundly rely on traditional medicine and health practices. From 70 up to 80% of the population in these countries depend entirely on traditional health care (also called informal health care) (Alexander *et al*., 2015). Traditional medicine is defined by Alexander *et al*. (2015, p. 15) as: ''the total knowledge base, skills, and associated practices that arise from theories, beliefs, and experiences identified by different cultures and used in the maintenance of health''. The WHO (2003) adds to this that practitioners of traditional medicine ''incorporate plant, animal and mineral based

medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being''. Furthermore, all aspects of a person are taken into account; both body, soul and spirit. This means there is room for the supernatural within traditional medicine and its influence on well-being (Amegbor, 2014). Sofowora (1982) points at the multiple advantages of traditional medicine. For many people, it is often more accessible and cheaper than modern health care. Besides, it is acceptable in developing countries and can lead to the development of new drugs. He even claims that integrating traditional medicine into modern health systems can lead to an increase in health manpower and this can in turn help to achieve health care for all people in the world.

Modern health care (also called formal health care), on the other hand, is not based on beliefs and experiences, but rather on tests, trials and standardized methods (Shetty, 2010, June 30). In other words, modern medicine is derived from scientific, evidence-based knowledge (Amzat & Razum, 2014). Patients are treated making use of drugs, radiation and surgery instead of making use of medicines based on plants and animals. Within this system, multiple professions, such as clinicians, nurses, pharmacists and therapists, work together to treat people suffering from illness (NCI, n.d.).

Within modern health care systems certain issues emerge, such as a shortage of new treatments, the long time needed to research, develop and produce new medicines and the high costs that are involved. Besides, drug resistance is increasing, which makes the search for new drugs even more important (Shetty, 2010, June 30). Because of the multiple advantages of traditional health practices, among which are proven clinical successes, and the issues emerging within modern health care systems, debate has arisen around the incorporation of traditional medicine into modern health systems. A risk arising from having faith in traditional medicine, is that many people visit their traditional healers first, before searching for formal health care. When traditional healers are unable to treat patients in certain cases, this can lead to life threatening situations (Obiechefu, 2013, August 4). The difficulty in incorporating traditional medicine lies in regulation procedures, which is close to none in traditional medicine and extremely strict in modern health care. To solve this issue, the WHO is developing international guidelines and technical standards since

around 2000 to support countries in formulating the former non-existing regulations to control traditional medicines (Shetty, 2010, June 30).

So, many Western African countries are characterized by a duality of health care systems, as both traditional health care as well as modern health care is utilized. The co-existence of complementary health care systems within a society is referred to as 'medical pluralism' (Amzat & Razum, 2014). Patients in these countries choose different medical systems for different illnesses within their pluralistic health environment (Amegbor, 2014).

When dissatisfaction with and distrust in modern health care services exist and people are in desperate need of help, local people can draw on their own resources and start a community-based response to health (Abramowitz *et al.*, 2015). In contexts where the health system is weak and inadequate to deliver primary health care services, trained community health workers (from now on: CHWs) can help out. As a health worker to be located in the community is of particular importance, because many people in countries with a weak health system are unable to cover long distances. When accessing formal health care is impossible, CHWs can provide health information, basic treatment services and essential medicines. CHWs are often a trusted source of advice, because they are known and part of the community. When trust in formal health care is low, CHWs can work as advocates and explain the importance of searching help at a health facility anyway when utterly required. During health crisis, CHWs can disseminate prevention messages throughout the community, encourage attendance at health facilities, provide medication, but also play a role in the process of recovery afterwards (Siekmans *et al*., 2017; Fletcher *et al.*, 2016).

2.4 Conclusion

In this research, the WHO health systems framework will serve as a basis to analyze the Liberian health system prior to and after the Ebola outbreak. This reflects the more technical side of the study. The underlying concept throughout the research will be trust. This concept will be analyzed during the outbreak in relation to interventions, as well as the difference in people's trust before and afterwards. This framework reflects the sociological side of the study. At last, the relation between traditional health practices, a community-based response to health and modern

health care is considered relevant to analyze the character of the Liberian health system and the response during the Ebola outbreak.

3. The 2014 Ebola outbreak in Liberia

In 2014, countries in West-Africa were surprised by the outbreak of the Ebola virus disease, which has been the largest in history and caused many infections and deaths (Streifel, 2015). In this chapter, the course of the Ebola outbreak in Liberia and its direct and indirect effects within the country will be described. Furthermore, the response to the outbreak and the role of trust during the outbreak will be analyzed.

3.1 The course of the Ebola outbreak

Ebola causes a very severe, deathly fever. The type of virus causing the 2014 Ebola outbreak was found to be transmitted from a reservoir in bats. (The spillover of the virus from bats to human populations is a complex process, which will no further be discussed here.) When a person is infected, the virus can spread from human to human via all bodily fluids, such as blood, saliva, semen, feces and tears. First signs of infection are fever, headache, pain in joints, muscles and abdominal pain, which can go together with diarrhea and vomiting. These signs are not exceptional, which causes confusion with other fevers, such as dengue and malaria. In a later stage, the virus will cause internal and subcutaneous bleeding, vomiting of blood and reddening of the eyes and is more distinguishable. If an infected person loses a lot of blood, it can face difficulties breathing, kidneys can stop functioning and body temperature can lower. Eventually this can lead to a shock and death (Gatherer, 2014). The death rate of the virus is high, often surpassing 50 percent (Grady, 2017, May 18). The control of the disease is difficult, partly due to the highly variable incubation period, which can last from 1 up to 25 days (Gatherer, 2014). Eventually, transmission of the virus can be halted by combining early diagnosis, contact tracing, isolating and caring for people, infection control and safe burials (WHO Response Team, 2014). The development of a vaccine is on the way, but current treatment is still purely curing symptoms (Gatherer, 2014).

At the end of March 2014, the first two cases of Ebola in Liberia were confirmed in Lofa County. By September the same year, cases were reported in all fifteen counties of Liberia. When the outbreak emerged, none of Liberia's hospitals contained an isolation ward. Furthermore, personal protective equipment and training in prevention and control of infections was lacking in most health facilities. Citizens reacted with mistrust and resistance to government messages about the outbreak; to most of the population, Ebola was an unknown disease and most

people were unfamiliar with the measures taken (Streifel, 2015). In August 2014, the WHO declared the Ebola epidemic a Public Health Emergency of International Concern and international response emerged (Shoman *et al.,* 2017), just before the virus had spread all over the country. In October, still 300 new cases per week were reported by Monrovia, Liberia's capital, while in November new cases suddenly declined. In December, Sierra Leone outweighed Liberia with the highest total number of Ebola cases and became the most affected country of this outbreak. More than a year from the start, on May 9, 2015, Liberia was declared Ebola free. Less than two months later new cases suddenly emerged and September 3, 2015, Liberia was declared Ebola free for the second and (so far) final time (Streifel, 2015).

The Ebola virus spread rapidly throughout the country due to several factors. First, as already mentioned above, the poor situation of the health system and mistrust and resistance of local people played a role (Streifel, 2015). Misconceptions about Ebola were also very common. For example, people believed that transmission could take place by a mosquito bite and prevented by bathing with salt and water (Liberia Ministry of Health, 2015). Second, several local practices led to an increase in transmission. One of these practices is the consumption of bush meat, which is the primary cause of spillover of the virus from wildlife to human beings. In Liberia, bush meat is the most important source of proteins for the population. Another local practice related to the transmission of the virus is human mobility. In Liberia, 54% of the inhabitants over 14 years old identify themselves as being internally displaced. In West-Africa in general, 11% of the people live outside their country of origin. The movement of human people enhances the possibility of spreading the virus to different places. A practice causing transmission of the virus as well is traditional burying. This practice involves washing and touching the body of the deceased person, causing possible contact with bodily fluids containing the Ebola virus and infection (Alexander *et al.,* 2015). Kirsch *et al.* (2016) even argue that traditional burial practices may have been the major driver of early infections. Visiting traditional healers has also been connected to the length and harshness of the outbreak, as some of them disseminated false information and made use of failing cures. As many of them did not use protective sources, lots of traditional healers got infected too (Alexander *et al.,* 2015).

3.2 Direct and indirect effects

The Ebola outbreak had severe direct and indirect effects throughout Liberia. First of all, Ebola caused more than 10.000 infections and almost 5000 deaths (CDC, 2016, April 13). Liberia already suffered from a shortage in health workers prior to the outbreak. During the outbreak, 7.6% of them lost their lives due to infection, leaving the shortage even bigger (Streifel, 2015). These are clear direct effects of the outbreak, but Streifel (2015) points to the assumption that the indirect effects of the outbreak even surpass the direct consequences of Ebola, due to different factors. Many health workers abandoned their health posts, probably resulting from fear, while others were reassigned to work in specialized Ebola clinics. Fear of citizens led to a decrease in confidence in the health system and an overall decline in health service utilization on a national level. Moreover, the outbreak seemed to have impacted many health aspects. Vaccine coverage throughout the country decreased immensely, leading to many children lacking immunization to preventable infectious diseases and child deaths. This issue was presumably caused by disruptions to the national drug supply chain and the loss of many health workers (ibid.). A rise in child deaths was also the result of a decline in antenatal, postnatal and child care (Brolin Ribacke, Saulnier, Eriksson & von Schreeb, 2016). The outbreak also affected maternal care. The loss of health workers was estimated to increase maternal mortality immensely, up to 111 percent (Evans, Goldstein & Popova, 2015), due to a lack of opportunity for a cesarean section or facility-based child delivery (Brolin Ribacke *et al.*, 2016). The increase in maternal mortality is also the result of a general usage decline of maternal health services during the outbreak. A decline in health service utilization was also seen regarding HIV/AIDS, malaria and tuberculosis, leading to even more deaths resulting from these diseases (ibid.).

3.3 Responses during the outbreak

During the outbreak, multiple interventions took place at several levels to treat infected people and halt the epidemic. National and international health actors responded, while at the same time traditional healers tried to treat people in their specific way. Out of dissatisfaction with and distrust in medical responses, regarded insufficient to the outbreak, community-based responses emerged as well for controlling the Ebola virus (Abramowitz *et al.*, 2015). The responses at these different levels will be discussed in this section.

3.3.1 National and international response

At the start of the outbreak, in March 2014, the Liberian government released a three-month plan to deal with Ebola. The three pillars involved in the plan were: communication and social mobilization, case management/treatment and surveillance and water sanitation and hygiene. To manage the response activities, the Ministry of Health and Social Welfare established the Ebola Response Taskforce, of which the members met daily. The first international assistance, from April on, included the WHO, Doctors Without Borders, the Red Cross, the United Nations Population Fund, UNICEF, Clinton Health Access Initiative, Global Communities, PLAN Liberia, Samaritan's Purse and Pentecostal Mission Unlimited Liberia. Their activities mainly focused on coordination and management, surveillance, infection prevention, epidemiologic investigation, opening a laboratory and social mobilization, therefore starting a national hotline for the local people.

At the beginning of May, the first wave was ended, leading to less frequent meetings of the Ebola Taskforce and a reduction of staff from international organizations. However, at the end of the month, the second wave started and activities increased again. When in June first cases were reported in the capital of Liberia, the rural outbreak transformed into an urban epidemic. Doctors Without Borders urgently called for an extensive international response when they called the outbreak 'out of control'. The number of cases rose and in July and Liberian President Sirleaf declared a State of Emergency, initiating the closure of schools, furlough of non-essential government employers and the closure of the borders of Liberia. At the same time, a meeting was organized by the global community, including the United Nations, world governments and health officials from West Africa to better coordinate the international response. When in August 13 of the 15 counties in Liberia had reported cases, affected areas became quarantined by military roadblocks and also neighborhoods were strictly controlled. This led to riots and food shortages in these areas and eventually to abolishment of the quarantine.

That same month, the WHO declared the Ebola epidemic a Public Health Emergency of International concern and the global community increased their attention massively. Though, it took until September for the announcement of large-scale international commitments. The government of the United States announced the plan to position 3.000 soldiers to construct 17 Ebola Treatment Units containing 1700 beds and made the Ebola epidemic a National Security Priority. The World Bank

and UN responded as well, allocating a lot of money and creating UNMEER, which is a special UN mission for an emergency health response. At the point of these growing efforts, the report of weekly cases was at its highest, but soon a decline started. By November, the State of Emergency was lifted and in December, the focus of the government began to shift to the re-installation of the health system and the recovery of economic and governmental activities. The following months, activities were mainly focused on rapid isolation and improved contact tracing to make an end to the epidemic. By May 2015, Liberia was declared Ebola-free (Kirsch *et al.*, 2017). A few new cases emerged in the months after that, but in September, the country was again declared Ebola-free (Streifel, 2015).

3.3.2 Traditional health practices

Many Liberians fully depend on the medical practices of traditional healers. It is the first place they go to when they need medical help; they are known and trusted by communities and their services are accessible and affordable (Alexander *et al.*, 2015). When Ebola broke out, national and international actors did not at all involve traditional healers in controlling the outbreak. Rather, local traditional practices were criticized, because traditional burials and greetings would increase spreading the virus. The government and international partners insisted on a halt of these practices (Quinn, 2016) causing a decrease of local people's trust in the government and biomedical centers. As a result, faith among local people in the competence of traditional healers actually increased (Alexander *et al.*, 2015).

Although traditional practitioners can be successful players in the health system, they can have a negative influence on health outcomes as well, especially in relation to the transmission of a pathogen. During the outbreak, several traditional healers have pretended to be able to cure Ebola, leading to many people pursuing help from these traditional healers. This in turn led to many ineffective treatments and eventually many traditional leaders contracted Ebola themselves and passed it to other people, because they lacked protective sources (Manguvo & Mafuvadze, 2015).

Yet, faith among local people in traditional healers was not totally unjustified as traditional healers also played a positive role during the outbreak. Through training and community engagement, organized by the Red Cross, some traditional healers became educators. They spread information about how to avoid the disease and

about the importance of visiting medical centers. Because of high trust in traditional healers, this way of disseminating information proved efficient (IFRC, 2016, March 22). The acknowledgement by traditional healers of the importance of visiting health centers in the case of Ebola shows that they are not totally excluded from modern health care.

3.3.3 Community-based response to Ebola

The first subsection of this chapter showed the significant national and international response during the outbreak. Although the international response was quite extensive, Brolin Ribacke *et al.* (2016) argue that it came late and had a main focus on the isolation of Ebola cases, while treatment and provision of services for other health issues and routine health care was mostly left unattended. Many Liberian communities were in desperate need of help during the crisis and felt abandoned. As a result, communities have drawn upon their own resources to compensate for the failure of national and international institutions and started a community-based response to Ebola (Abramowitz *et al.*, 2015).

In many Liberian communities, certain members are held in high regard by other members and are appointed community leaders (IFRC, 2016). During the Ebola outbreak, community leaders of many regions were well aware of the steps needed to tackle the epidemic, which included: prevention, response and treatment and sequelae. The willingness of community leaders to engage in these multiple coping strategies was high. For prevention purposes, these leaders provided training and awareness within the community, hygiene measures, surveillance and local infrastructure. Fear for and denial of Ebola was often present in communities, so creating awareness in a local language was seen as the way to change people's minds and stimulate prevention of the disease. Treatment and response included predominantly isolation and quarantine. Community leaders agreed that obtaining care in special treatment units or hospitals was best for the treatment of community members. Though, many people were unable to access these facilities and received aid within the household. At these moments, the community provided locally available medication, herbal remedies and other treatments to these patients, who sometimes could access an Ebola treatment unit in a later stage. At last, the sequalae of the Ebola epidemic (i.e. the alter effects) were expected to become dire and community leaders raised three main issues, which are the reintegration of

Ebola survivors into the community, the care for orphans and the memorialization of people that had died (Abramowitz *et al.*, 2015).

Eventually, this community-centered response seems to have been an important factor in controlling and ending the Ebola crisis. Kirsch *et al.* (2017) argue that no single intervention had the force to stop the epidemic, but rather all interventions reinforced each other. While looking at the epidemic curve, it seems that with the emergence of a community-based response and changing beliefs and practices of local people, the epidemic came to a turning point; the number of cases started to decline. This decline even occurred before the rise in international attention to the crisis (ibid.; Li *et al.* (2016). Multiple authors (Perry *et al.,* 2016; Li *et al.*, 2016; Abramowitz *et al.*, 2015) agree on the importance of the community-based response during the outbreak as they state that recognition is increasing on the fact that rapid containment of the virus and the Ebola-free goal was observed at an earlier point in those communities where community mobilization efforts occurred.

3.4 Trust in the health system during the Ebola epidemic

As discussed in chapter 2, trust is a principal element in health care provisioning because uncertainty, a form of risk and reliance play a major role within this context and trust is very important for achieving good health outcomes. This was certainly the case in Liberia during the Ebola epidemic. According to McFarland (n.d.), trust totally broke down during the outbreak. The trust issues that appeared during the outbreak will be discussed here.

As already mentioned in section 3.1, Liberian citizens reacted with mistrust and resistance to government messages about the outbreak and disease. To most of the population, Ebola was an unknown disease and most people were unfamiliar with the measures taken by the government (Streifel, 2015; Omidian *et al.,* 2014). People found it hard to understand some of the messages, as they were often written in English and in technical language. Others were unsatisfied with the content of the messages and resisted them as it negatively affected their way of living. For example, the government told people not to eat fruits eaten by bats. But to most people, fruit was a high source of nutrients and people felt bad about letting it rot in the trees. The government also obliged people to wash hands with soap and clean water. In a country facing water scarcity, such a message results in astonishment and defense (Omidian *et al.,* 2014). Contrary to these trust issues, a study implemented by

a Liberian institute shows that a significant number of 86% of the respondents had trust in the health information provided by the government and Ministry of Health and Social welfare (Liberia Ministry of Health, 2015). This outcome may be regarded as disputable as many articles affirm the presence of public mistrust and denial (Kirsch *et al.*, 2017; WHO, 2014, July; Onishi, 2014, August 29; Brolin Ribacke *et al.*, 2016). When the government put on military roadblocks to quarantine affected areas, mistrust grew even more and even led to the looting of an Ebola holding center in the capital of Liberia and bribing of soldiers and police officers to let people sneak out (Kirsch *et al.*, 2017; Onishi, 2014).

Mistrust did not only exist towards the government. It also grew towards Ebola response teams and international agencies, what predominantly originated from misunderstandings. A widespread misunderstanding was that being hospitalized means that a person is going to die. Many people were not able to reunite with their relatives. The death rate was very high and bodies were to be removed immediately because of possible infection and led to high fear of hospitals. Many people would rather keep their relatives at home than bring them to a facility and being sure not to see them ever again (Omidian *et al.*, 2014; WHO, 2014, July). More rumors appeared around treatment units. Health practitioners were said to spray patients until they died or give them pills which accelerated death. These rumors were highly related to the belief that body parts of patients were taken to be sold or that wards were overcrowded (Omidian *et al.*, 2014; Abramowitz *et al.*, 2015). The belief that humanitarian agencies had brought the disease to West Africa also existed (WHO, 2014, July).

This negative health-seeking behavior can be seen as a barrier to outbreak management as well as potentially increasing transmission of the virus (Alexander *et al.,* 2015) Mistrust led in several places to attacks of Ebola health teams and escapes of patients from quarantine (Onishi, 2014; Kirsch *et al.*, 2017; The Washington Post, 2014, September 14). It can be seen as a product of misinformation. Local people gained false knowledge about the role of health workers in spreading the virus and had despair about the non-existence of a cure (Kruk, 2014, September 15). But, as Kruk (2014, September 15) says, it also reflects a deeper lack of trust in the health system that already existed in the years before the Ebola outbreak. However, positive attitudes towards health facilities and practitioners existed as well. People expressed gratitude that treatment units were built and health workers available (Modarres &

Berg, 2016). The mistrust in and fear towards the modern health care interventions caused many people to search for help from traditional healers as they are often regarded trustworthy by communities (Alexander *et al.*, 2015) and to a community-based response to Ebola (Abramowitz *et al.*, 2015).

These illustrations of trust issues show how essential the element of trust is for the well-functioning of a health system. Whereas fear and mistrust was high at the beginning of the epidemic, community-based response seems to have brought change to people's beliefs, practices and their attitudes and was important in ending the epidemic.

3.5 Conclusion

From March 2014 until September 2015, Liberia suffered from a severe Ebola epidemic in which almost 5.000 people died, among which many health workers. However, the impact of the Ebola outbreak on the overall health system might have negatively affected more people than the virus did itself. The epidemic caused an overall decline in health service utilization regarding other diseases, such as HIV/AIDS, malaria and tuberculosis, leading to even more deaths resulting from these diseases. Due to a decline in vaccine coverage and maternal health services, child and maternal mortality increased.

During the outbreak, national and international response was significant. Though, has been argued, it came late. As a result, communities started a community-based response, drawing upon their own resources. Eventually, this community-centered response seems to have caused a decline in the epidemic curve as Ebola cases declined. The Ebola epidemic has also shown that traditional healers can be successful players in the health system, but can have a negative influence on health outcomes as well.

Trust issues during the epidemic have shown how crucial the element of trust is for the well-functioning of a health system. Local people reacted with mistrust and resistance towards government messages and Ebola Response Teams, making effective interventions more difficult. Traditional healers and community leaders played a significant role during the Ebola outbreak, as these people are more trusted. Because of high attendance at and trust in traditional healers, training them to effectively participate in tackling an epidemic can be of significant meaning for the future. Besides, giving more attention to community building can be of

importance for a quick response to a future crisis as well and may enhance trust in the overall health system.

4. Long-standing problems of the Liberian health system revealed by Ebola

The civil war Liberia suffered from for fourteen years almost completely destroyed the country's health system (Kruk, Rockers, Varpilah & Macauley, 2011a). Afterwards, the national health system was in serious need of reconstruction and still recovering when Ebola broke out. In this chapter, I will shortly describe the impact of the civil war in Liberia. Then, the state of the Liberian health system and the problems revealed when Ebola hit the country will be analyzed by using the WHO Health System Building Blocks. At last, I will analyze the concept of trust in the health system in the years after the civil war.

4.1 Post-war Liberia

Liberia is Africa's oldest republic, founded in 1847 by ex-slaves who returned from the United States. Now, slaves' descendants only comprise 5% of the Liberian population, while the country is predominantly inhabited by indigenous Africans. In 2003, Liberia witnessed the end of a civil war that had lasted for fourteen years and led to mutilation, rapes and more than 200.000 deaths (BBC, 2017, April 11; Left, 2003, August 4).

The war caused almost total destruction of the health system (Kruk *et al.*, 2011a). During the conflict, formal health care was only accessible to those in internally displaced person camps, while people outside these camps had little or no access and were highly dependent on traditional healers, medicine sellers and midwives. Preventable mortality and morbidity was high after the civil war, resulting from undernutrition, the destruction of basic infrastructure, disappearance of livelihoods and the breakdown of the health system. To children under the age of 5 years, the mortality rate was reported to be 110 per 1.000 live births in Liberia, while for example in the United States the numbers were 8 per 1.000. Maternal mortality was reported to be 994 per 100.000 live births and 11 per 100.000 in the United States (Kruk *et al.*, 2011a).

In 2005, the first democratic elections took place and Ellen Johnson-Sirleaf became the first female president of Liberia (Nobelprize.org, 2017). Kruk *et al.* (2011a) say that the election of President Johnson-Sirleaf marked a turning point in the reconstruction of the health system in Liberia. In 2007, the Ministry of Health and Social Welfare

launched the National Health Plan, outlining a basic package of health services to achieve the provision of primary health care for all Liberians, free of charge. The interventions in the package based on prevention and treatment aimed at targeting the burden of disease in the country, especially infectious diseases, maternal and child morbidity and mortality. To implement this basic package of health services and rebuild the health system after fourteen years of conflict, the ministry cooperated with multiple international and national NGOs (Kruk *et al.*, 2010).

4.2 State of the Liberian health system after the war

As described above, the civil war almost completely destroyed the Liberian health system. In the years afterwards, reconstruction of the health system was on its way when Ebola stroke the country. In this section, the state of the Liberian health system in the years after the civil war and the problems witnessed at the moment of the Ebola outbreak will be analyzed making use of the WHO Health System Building Blocks framework. Some elements of the health system have been more extensively described and seem to have played a bigger role in after-war reconstruction. For this reason, I will start describing these elements and follow up with a shorter description of the other elements.

4.2.1 The 2007 National Health Plan

An important moment for the Liberian health system after fourteen years of civil war was the election of current president Ellen Johnson Sirleaf in 2005 (Kruk *et al.*, 2011a). Leadership and governance within the Liberian health system was the responsibility of the government, predominantly that of the Ministry of Health and Social Welfare. In 2007, the ministry published the 2007 National Health Plan, ensuring a strategic policy framework for health. The National Health Plan was integrated within the government's Poverty Reduction Strategy for postwar recovery. A central element in the National Health Plan was the provision of a basic package of health services to Liberian citizens, free of charge (Downie, 2012). To ensure the success of the National Health Plan, the Liberian government cooperated with multiple international donors (Kruk *et al.*, 2011a).

After a few years of health system improvement, the Ministry of Health and Social Welfare built on the basic policy foundation by launching an essential package of health services in 2011. With this package, the government committed to provide even more services to its citizens. This essential package of health services served as

the basis for a new health plan for Liberia. Domestic and international partners of the ministry were extensively consulted and this resulted in the Liberia National Health and Social Welfare Policy and Plan. This framework presented the ministry's health priorities for the next ten years and its aim was to efficiently and effectively deliver comprehensive, quality health and social welfare services in an equitable, accessible and sustainable way to all citizens of Liberia (Downie, 2012; WHO-AFRO, n.d.). By 2012, the government's national budget had grown and a greater share was allocated to health. Though, the overall contribution to health by the government remained limited. International donors offered the largest share to the health budget, while households took a large burden as well (Downie, 2012).

Overall, in the post-war years, the Liberian health system showed improvement resulting from a well-formulated health policy (Downie, 2012). The target set in the National Health Plan on the number of functioning health facilities was met and access to primary health care had increased (Lee *et al.*, 2011). Furthermore, legitimacy of the government in the eyes of citizens had grown as it had taken over a larger share of health service delivery from non-governmental organizations of which many ran health facilities throughout the country. Nevertheless, the health system still faced challenges. The overall standard of services was low, leading to poor health outcomes. Patients were still confronted with health costs and high waiting times, while resources, such as medicines, were lacking (Downie, 2012).

Three years after the launch of the Liberia National Health and Social Welfare Policy and Plan, Ebola stroke the country. Although significant improvement in the health system was made in ten years after the civil war, this crisis revealed some severe shortcomings in policies, strategies and leadership of the Liberian government. Shoman *et al.* (2017) say that the main reason leading to the poor coordination and delay in response was the lack of leadership at the national governmental level. Adequate policies and infection and prevention control strategies to tackle the Ebola outbreak were lacking. Investment in infrastructure, training of health workers and medical supplies and drugs fell short. These circumstances made it challenging for health officials to quickly respond to the outbreak (ibid.).

The National Health Plans, launched in the post-war years, reflected appropriate policies and strategies to health. Therefore, the rule-based indicator states at least partly good quality of governance and leadership. However, many priorities set up in

the National Health Plan had not been achieved before the Ebola outbreak. The implementation and enforcement of the government's policies and strategies to health fell short, leading to a negative outcome on the outcome-based indicator. Altogether, the quality of governance and leadership in Liberia prior to the Ebola outbreak was limited.

4.2.2 Public investment and foreign support

Even though the government made promising health plans, investment in the health system and adequate funding was insufficient in Liberia in the years after the civil war (Shoman *et al.*, 2017). The war had devastated Liberia's economy. The average income in Liberia in 2005 was only one-fourth of the average income in the years before the civil war broke out. The economy collapsed after the war and so did government expenditures. As a result, investment in the health system became less; public spending in Liberia was at one of the lowest levels in the world (Lee *et al.*, 2011).

Although Liberia had made efforts to rebuild the health system when launching the National Health Plan in 2007, real improvement was still limited by a low health budget. To make the National Health Plan work, foreign donors committed significant resources to reestablish basic health services and rebuild the health system (Kruk *et al.*, 2011a). The United States was the largest bilateral donor, providing even more to the Liberian health budget than Liberia did itself (Downie, 2012). This commitment made Liberia's health sector highly dependent on assistance of donors. Foreign donors financed around 80% of the country's health care spending in the years 2007 and 2008. This high dependence on foreign donors can pose challenges when competing priorities arise (Kruk *et al.*, 2010). That is why Liberia and foreign partners came to a Joint Financing Agreement for health, which means that support from foreign donors was channeled via a Health Sector Pool Fund. This way, the Ministry of Health and Social Welfare could finance certain programs that addressed domestic priorities (Streifel, 2015). However, the health budget per capita remained modest compared to international standards (Kruk *et al.*, 2010; Kruk *et al.*, 2011a). In 2012, the government spent $20 per person per year on health, while estimated that $86 is the minimum amount necessary to provide essential services for all citizens (Wright & Hanna, 2015).

At the moment of the Ebola outbreak, the biggest problems of the health financing system arose from lacking investment in infrastructure, in training of health workers and in supplies and medicines. During the epidemic, the Liberian government and international donors allocated extra financial support to provide for medicines, beds, human resources, contact tracing, laboratory capacity, safe burials and more transportation services (Shoman *et al.*, 2017).

4.2.3 Development of the health workforce

The civil war left Liberia with an immense shortage in health workforce. Many health workers fled from the violence in the country during the years of conflict, leaving only 30 physicians present in 2003 to serve a population of 3 million people (Kruk *et al.*, 2011a; Streifel, 2015).

Many education facilities had been devastated during the war, leaving only one school with the appropriate resources to educate health workers. As an element of the National Health Plan, the Ministry of Health and Social Welfare launched a human resources unit, the aim of which was to revitalize nurse and mid-level provider training. Multiple schools and medical institutions were renovated and reopened (Lee *et al.*, 2011).

Despite the increase in educational opportunity in the years after the war, Liberia still faced a shortage in health workers when the Ebola virus broke out. While the WHO (2010) estimated that the number of health workers necessary for achieving primary health care needs to surpass 23 per 10.000 inhabitants, the density of the health workforce in Liberia in 2010 was still less than 4 per 10.000 inhabitants (Streifel, 2015). Health workers available lacked the basic knowledge on infection prevention and control measures needed. During the outbreak, the shortage increased even more as many health workers fled to other countries because of the risk of containing Ebola themselves and the poor working conditions and salaries they received (Shoman *et al.*, 2017).

At the start of the Ebola epidemic, there were too few physicians and physician assistants. Adding to the fact that a shortage existed in skilled health workers, the workface did not match the needs of the country either. Most health workers were concentrated in Monrovia, Liberia's capital city, while they were demanded in rural areas as well (Lee *et al.*, 2011). Because of the lack of health workers and cultural traditions, many Liberians visited traditional healers for help. Though they have

always been dominant in the Liberian health system, many of them did not have the knowledge to give sufficient advice about Ebola and were not able to protect themselves from contracting the virus (Shoman *et al.*, 2017).

4.2.4 Improving the health information system

When the Ebola outbreak occurred, it became clear that the country lacked a notable health information system. The detection of Ebola came late because of lacking appropriate surveillance methods. Besides, a shortage existed in epidemiological data collection, statistical analysis, health surveys, health system resource tracking and the capacity for analyzing, synthesizing and validating data (Shoman *et al.*, 2017). Improving the health information system may not have been top priority of the government and could for this reason have been limited after the civil war.

As said before, during the war, almost all education facilities had been destroyed and only one school was left with the appropriate resources to educate health workers (Lee *et al.*, 2011). Consequently, health workers had limited opportunities to education and training. At the point of the Ebola outbreak, knowledge to control and respond to the virus was absent (Shoman *et al.*, 2017).

4.2.5 Improving access to medical products, vaccines and technologies

After the civil war, investment in the health system was low due to the collapse of the economy and government expenditures (Lee *et al.*, 2011). This led to a significant shortage in the purchase of medical products, vaccines and technologies. Many basic resources fell short after the war and so did hospital beds. Per 10.000 inhabitants, approximately eight hospital beds were available (Shoman *et al.*, 2017).

The 2007 National Health Plan led to some improvement in the health system as more and more health facilities were able to provide some health services (Lee *et al.*, 2011). However, health facilities still witnessed a shortage in many resources to provide all basic services. Basic infrastructure, including electricity and water, and basic equipment, including a refrigerator and stethoscopes, was still lacking in many health facilities a few years before the Ebola outbreak (Kruk *et al.*, 2010).

At the point Ebola broke out in Liberia, a rapid increase in infections and poor control was partially caused by the lack of resources, medical supplies, personal protective equipment, electricity and infection prevention and control activities that was still

present in many of the health facilities (Shoman *et al.*, 2017). A vaccine or other drug to control Ebola was non-existent when the Ebola outbreak emerged in West-Africa (Gatherer, 2014). Shoman *et al.* (2017) explain this as the result of little incentive to invest in developing this vaccine or other drugs, as Ebola has always affected developing countries. At the point where the Ebola outbreak became an international concern, pharmaceutical companies found the incentive to develop a vaccine for Ebola, as the chance occurred the virus would spread across African borders.

The absence of transportation resources, specimen transfer and communication methods between health officials and villages and urban areas led to a delay in testing and diagnosing Ebola. Access and availability to the resources that were lacking at the moment of the Ebola outbreak are regarded necessary to successfully control the virus and estimate disease projections. Thus, the shortage in access to medical resources posed extra difficulties during the Ebola epidemic in Liberia (ibid.).

4.2.6 Improving health service and delivery

An important element of service and delivery of health systems is access. At the end of the civil war, only 58 of the nearly 300 public health facilities were still operating due to demolition and plunder (Kruk *et al.,* 2011a). Of these health facilities, 80 percent was managed by NGOs or faith-based organizations (Lee *et al.,* 2011). Good health service delivery consists of effective, safe, qualitative interventions to people in need at any moment, at any place (WHO, 2010). Not only were few health facilities available in the years after the war, the locations posed difficulties for patients as well as many had to travel long distances to reach at least any form of health care. For example, villages in Nimba county were on average 7 kilometers away from any health facility (Kruk *et al.*, 2010). Road networks and transport services were insufficient, making it even harder for patients to reach a health facility (Shoman *et al.*, 2017).

In 2009, the capital of Liberia was still the only place within the country with an operating electrical grid. Besides, only few roads had been renovated at that point. Outside the capital, most people still had little or no access to health care. The health facilities available offered at least some of the services determined in the National Health Plan, but none of them was able to provide all (Kruk *et al.*, 2010).

The lack of a sufficient, skilled health workforce, a small number of functioning health facilities, lacking infrastructure and lacking resources made it hard for the Liberian health system to provide good health service delivery prior to the Ebola outbreak. Not surprisingly, the Liberian health system was unable to provide good health service delivery during the outbreak as well. Because of lacking resources, the focus of the health system lay predominantly at Ebola, while health services for other conditions were almost non-existing. Other programs, for example vaccination campaigns, were interrupted, leading to outbreaks of other infectious diseases (Shoman *et al.*, 2017) and increasing child deaths as many children lacked immunization (Streifel, 2015).

4.3 Trust in the health system prior to the Ebola outbreak

As said earlier, the war had destroyed an immense amount of public health facilities (Kruk *et al.,* 2011a). The facilities available in the years after the war were predominantly run by foreign non-governmental organizations (Lee *et al.,* 2011). Multiple authors (McFarland, n.d.; Shoman *et al.*, 2017; Kruk, 2014, September 15; Kruk *et al.*, 2011b) state that distrust in the health system was high after the civil war. A study in 2008, by Svoronos, Macauley and Kruk (2014), revealed that half of the rural inhabitants of Liberia had no trust that they could receive health care if needed. The distrust in the health system can potentially be explained as the result of a lack of knowledge, a lack of financial resources or dissatisfaction with former experiences with health facilities. It seems that higher educated inhabitants showed more trust in the health system. Lower trust in the health system was found under poorer people, people with past trauma exposure in the war and people who frequently searched for help at traditional healers. Satisfaction from previous visits also played a role in citizens' trust in the health system. An unpleasant former experience led to less confidence of citizens in the capacity of health facilities to treat serious illness a next time (Svoronos *et al.*, 2014). Dissatisfaction and therefore distrust can for example be the result of lacking medicines at facilities (Modarres & Berg, 2016). Due to a high lack of confidence in the formal health system, Liberians tended to visit traditional healers more often (Svoronos *et al.*, 2014).

Kruk (2014, September 15) states that the distrust in the health system prior to the Ebola outbreak, as a result of dissatisfaction and lack of confidence, can explain why people were reluctant to seek formal health care during the outbreak as well.

Many citizens of Liberia had been traumatized by the civil war and were unfamiliar with any form of formal health care as they were unable to get access. It seems reasonable that the local citizens did not express much trust towards foreign health workers in white space-like suits either (ibid.).

4.4 Conclusion

Liberia faced a devastating civil war from 1989 until 2003, which caused many deaths. The health system was broken down as many health facilities were destroyed and health workers had flown the country. In 2005, Ellen Johnson Sirleaf was elected president and that moment marked a turning point in the reconstruction of the health system. In 2007, the Ministry of Health and Social Welfare launched the National Health Plan with as central point the provision of a basic package of health services. Though the health system showed improvement, a lot of elements still fell short, posing extra difficulties when Ebola stroke the country. The health workforce was too limited and inequitably distributed. The health budget remained low compared to international standards, leading to a deficit in investments in health training, infrastructure and the purchase of medicines. The Ebola outbreak also revealed that the country lacked a notable health information system. The lack of a sufficient, skilled health workforce, a small number of functioning health facilities, lacking infrastructure and lacking resources made it hard for the Liberian health system to provide good health service delivery. Although the government launched strong policies and strategies, challenges in governance and leadership remained. According to the WHO Health System Building Blocks framework, the Liberian health system was not well-functioning prior to the Ebola outbreak. The Liberian health system would have been strong when all building blocks were adequate, well-functioning and strong themselves.

Distrust in the health system was high in the years after the civil war. People stated to have no trust in the fact that they could receive health care if needed. Besides, dissatisfaction with previous usage of formal health care and a lack of confidence played a role in creating distrust. Many people were traumatized and unfamiliar with formal health care, because they could not access or afford this form of care, leading them to search for help more often at traditional healers.

5. Health system transformation after the Ebola outbreak

The severity of the Ebola epidemic and its impact on the Liberian health system are described in chapter 3. In chapter 4, I described the state of the Liberian health system in the years after the civil war and which problems of the health system were revealed by the Ebola outbreak. In this chapter, I will discuss recommendations made for reconstruction of the Liberian health system and the efforts for improvement undertaken so far in the years after Ebola. Then, I will analyze the concept of trust in the health system after the Ebola epidemic and at last I will discuss the way forward for the Liberian health system.

5.1 Recommendations made for post-Ebola reconstruction

The health system of Liberia was among the weakest in the world prior to the Ebola outbreak, but became even weaker after the devastating epidemic (Streifel, 2015). When Liberia was declared Ebola-free, it was time for the health system to be rebuilt. In this section, I will discuss general recommendations for health system recovery made by several authors within the field of public health. I hereby make the distinction between more formal and informal reform for health system reconstruction.

Kieny *et al.* (2014) and Quinn (2016) focus on the need for substantial investment and adequate reform in the health system with strong leadership and governance. Otherwise, they say, the deficiencies of the pre-Ebola health system will only worsen. The Liberian government needs to implement strong strategies to improve and strengthen the health system and make it more resilient in case another crisis appears. According to these authors, achieving health system strengthening acquires support from external actors. In the short term this means that international partners, NGOs and civil society must mitigate the immediate effects of the Ebola outbreak and provide the delivery of all essential health services. To make this more efficient, these authors state that the national government needs to coordinate these interventions. In the long term, they hope for the economy and the government budget to grow again and state that at that point, the government needs to increase investment in the health sector to make it stronger and more resilient (ibid.).

Another focus point of multiple authors (Alexander *et al.*, 2015; IFRC, 2016; Quinn, 2016) is incorporating traditional healers into the national health system for health

system strengthening. According to them, the Ebola outbreak has proven even more how meaningful the role of traditional healers in the Liberian health system is for local people, even though it is a form of informal health care (Alexander *et al.*, 2015). Traditional healers are held in high regard by communities and serve for many people as the first and last option for health care (IFRC, 2016). Manguvo and Mafuvadze (2015) indicate the potential of training traditional healers and employing them again to train other healers as well. This way myths and false cures, as emerged about Ebola, can be eliminated and the spreading of a virus prevented in the future. Adding to that, Baldé *et al.* (2015) state that traditional health practitioners have been inadequately involved in the national response and prevention of Ebola. They agree on the fact that traditional practitioners are highly valued by communities and should therefore be trained and their capacities reinforced to enhance their potential in future outbreaks. Next to traditional healers, community health workers can play an important role in the future of the Liberian health system as well. Community engagement in the form of employing community health workers can rebuild trust in the health system and create awareness and a form of efficient health messaging within the community (Fletcher, Graves & Neczypor, 2016).

Altogether, health system strengthening, whether in formal or informal health care, means ''improving the six health system building blocks and managing their interactions in ways that achieve more equitable and sustained improvements across health services and health outcomes'' (WHO, 2007). But besides this more technical improvement of the health system, trust in the health system needs to be rebuilt as well to achieve better health outcomes (Calnan & Rowe, 2005). Trust in the Liberian health system has been low for many years, due to the civil war and Ebola outbreak, which led to high attendance at traditional healers. To increase formal health care utilization, the people of Liberia need to feel confident again in searching for care at medical facilities and professional doctors (Streifel, 2015).

5.2 Post-Ebola reconstruction efforts

The previous section discussed general recommendations made to reconstruct the Liberian health system. In this section, I will describe the efforts that have been undertaken thus far after the Ebola crisis to strengthen the Liberian health system. First, the health system element of leadership and governance will be discussed as it

serves as the basis for overall policy and regulations for other health system elements. Thereafter, efforts made so far for improving other health system elements will be elaborated. A summary of interventions can be found in figure 1 at the end of this section.

5.2.1 Health Systems Recovery and Resilience Plan

As a start for reconstruction of the country when only few Ebola cases were left, the Liberian government published an Economic Stabilization and Recovery Plan in April 2015, which was created in consultation with development partners. This plan's aim is to ''set out the actions that are needed to respond to the Ebola virus disease epidemic, to stabilize the economy and get Liberia on a path of inclusive growth'' (Republic of Liberia, 2015, p. 3). An important element in the plan is strengthening the health sector. According to President Sirleaf, the Ebola epidemic demonstrated the urgency for rebuilding the health system and making it able to withstand future shocks. So, regarding health, the objective of the plan is to enhance the capacity to deliver basic health care services with better coverage, especially in rural areas (Republic of Liberia, 2015).

To do so, in 2015, the government has implemented a revised 7-year Health Systems Recovery and Resilience Plan, which adds to the 2011 National Health Plan. With this plan, the government aims to address vulnerabilities of the health system and make it more resilient for future crisis, while reconstructing multiple sectors simultaneously. The plan's three main objectives for Liberia are: (1) the provision of safe and quality essential packages of health services for all citizens, (2) the formation of a Health Emergency and Risk Management System for disease outbreaks and other health threats and (3) rebuilding trust in health authorities through community engagement and improved accountability, governance and leadership at all levels (ibid.). These points highly reflect the recommendations discussed in section 5.1.

5.2.2 Investment Plan to Health

To make the revised Health Systems Recovery and Resilience Plan work, an adequate health financing system needs to be in place. Therefore, the government of Liberia implemented a 7-year Health Investment Plan. The Investment Plan concentrates on nine investment areas which together need to lead to a stronger and more resilient health system. Among these investment areas, all building blocks as described by the WHO (2007) are present. The plan focuses on workforce

development, improved health infrastructure and service delivery, management capacity of medical supplies, management of information and research, an efficient health financing system and leadership and governance capacity (Republic of Liberia, 2015).

Though this Investment Plan sounds promising, it does face challenges. The costs of containing Ebola have been very high, they far surpassed the Liberian health budget (Fletcher, Graves & Neczypor, 2016). Besides, the country still envisages consequences of the economic crisis. Therefore, the government expects a significant financing gap and is unsure whether it is able to meet the resources for the plan. For this reason, the government of Liberia is cooperating closely with development partners (Republic of Liberia, 2015).

5.2.3 Development of the health workforce

Prior to the Ebola outbreak, the number of qualified health workers was already limited in Liberia (Kruk *et al.,* 2011a). The Ebola outbreak even increased this shortage as many health workers fled the country or did not survive the outbreak themselves. One priority within the new Liberian health plan is developing the workforce. The government allocates considerable resources to training program strengthening as it recognizes the urgent necessity for qualified health personnel (Republic of Liberia, 2015).

The urgency for the development of the workforce led to the creation of the National Health Workforce Program. The establishment of this program was supported by different partners, among which USAID, Partners in Health and the Clinton Health Access Initiative. This workforce program is incorporated into the overall health plan by the government. The government identified a 'fit-for-purpose health workforce' as a top priority for rebuilding and strengthening the country's health system. The aim of the workforce program is to increase the health workforce by 7.000 health workers within the next seven years. Among them, 4.000 will be community health workers, who can provide primary, life-saving care in more rural parts of Liberia (Massaquoi, Kang'ethe & Nuthulaganti, 2016, April 7).

The government focuses on employing community health workers to create an important linkage between locals and the health system. Community health workers can provide health messages (which aim ranges from increasing health knowledge to demonstrating health practices) and awareness within their communities and

connect local people to health providers when they need care. It is seen as an opportunity to rebuild local people's trust in the health system (Fletcher *et al.*, 2016). This strategy can also help overcome disparities in access to health services between rural and urban areas (Kraemer and Siedner, 2016).

A clear plan to increase the national health workforce is in place. Improvement of the situation is occurring as an increase of 37% in principal health professionals has been recorded within five years. This means a shift from 6.3 per 10.000 population in 2010 to 8.6 in 2015 (Zolia *et al.*, 2017). Yet, research shows that a shortage in health workforce still exists today. Besides, the distribution of health workers remains unequal, meaning that most professionals are still concentrated in urban areas (ibid.). According to the results so far, Liberia still has a long way to go for the health workforce to be sufficient.

5.2.4 Improving the health information system

The Ebola epidemic has indicated the importance of a well-functioning health information system (HIS). At the time Ebola broke out, the health information system of Liberia was fragmented. Health information subsystems that did exist were not interconnected and did not cooperate. As a result, the system was unable to provide the right information at the right place at the right time (Bawo & Lippeveld, 2016).

Next to workforce development, the government of Liberia regards reinforcing the health information system a key intervention in building a strong health system as well. Therefore, in 2015, the Ministry of Health designed a HIS Strategic and Operational Planning Process. It has been implemented in four stages with assistance from USAID (Bawo & Lippeveld, 2016). Aims of the process are improving data collection by reinforcing and harmonizing data collection systems, improving analysis and use of information for program and policy-making by building capacity for data management and establishing an adequate system for information dissemination (Zolia *et al.*, 2017). The expectation of this planning progress is that it will create a more integrated and better functioning health information system (Bawo & Lippeveld, 2016).

5.2.5 Improving access to medical products, vaccines and technologies

When Ebola broke out in Liberia, a lot of resources were still lacking in health facilities, among which were medical supplies, personal protective equipment, electricity and

infection prevention and control activities (Shoman *et al.*, 2017). While the National Health Plan of 2007 had led to some improvement in providing basic health services, many health facilities still suffered from shortages of many basic resources at the time of the Ebola outbreak (Lee *et al.*, 2011; Kruk *et al.*, 2010). Directly after the epidemic, resources in health facilities were still scarce. This was partially the result of a trade restriction during the crisis, making the purchase and transport of resources near to impossible (Fletcher *et al.*, 2016).

Thus far, research on the current state of access to medical products, vaccines and technologies in Liberia is lacking. For this reason, I make a cautious assumption that chances are present that Liberia still faces difficulties in providing access to important health resources as it is still recovering from the Ebola crisis.

5.2.6 Improving health service and delivery

Prior to the Ebola outbreak, the Liberian health system could not deliver good health services resulting from a shortage in sufficient, trained health workers, the small number of functioning health facilities, lacking infrastructure and lacking health resources (Shoman *et al.*, 2017). Many people were unable to access any form of health care as facilities were scarce, but also often too far away (Kruk *et al.*, 2010). This situation did not suddenly improve when Ebola broke out. Actually, the situation worsened. Health facilities and aid posts got abandoned, many health workers fled the country or died and medical schools got closed (Fletcher, Graves & Neczypor, 2016).

When the Ebola crisis came to an end, the government of Liberia has put effort in improving health service and delivery to its citizens. As stated before, to strengthen the health workforce of Liberia, the government has established the National Health Workforce Program (Massaquoi *et al.*, 2016, April 7) and is focusing on creating a community health workers network (Fletcher, Graves & Neczypor, 2016). Furthermore, the Economic Stabilization and Recovery Plan prioritizes the rehabilitation of infrastructure as well, because it can strengthen the delivery of health services and also spur economic growth (Republic of Liberia, 2015). The focus herein lies predominantly on improving road networks and energy supply. The aim of the government is to provide access to electricity to 30% of the rural population and 70% of the urban population by 2030. Between 2006 and 2015, access to electricity raised

from near zero to almost 15% and approximately 1000 km of roads have been constructed (IMF, 2016).

To improve the accessibility and quality of health services after the Ebola outbreak, the Liberian government set up Liberia's Health Equity Fund. The government was able to do so with support from the Universal Health Coverage Partnership. The intention of the fund is to guarantee equal access to quality health care and financial protection to the Liberian citizens within a sustainable financing system (UHCP, 2016, August 29). Prior to the Ebola outbreak, great disparities existed in access to health care services between urban and rural areas. To overcome these disparities and as a strategy to improve health outcomes of people in rural areas, the government aims to create a community health workers network (Kraemer and Siedner, 2016).

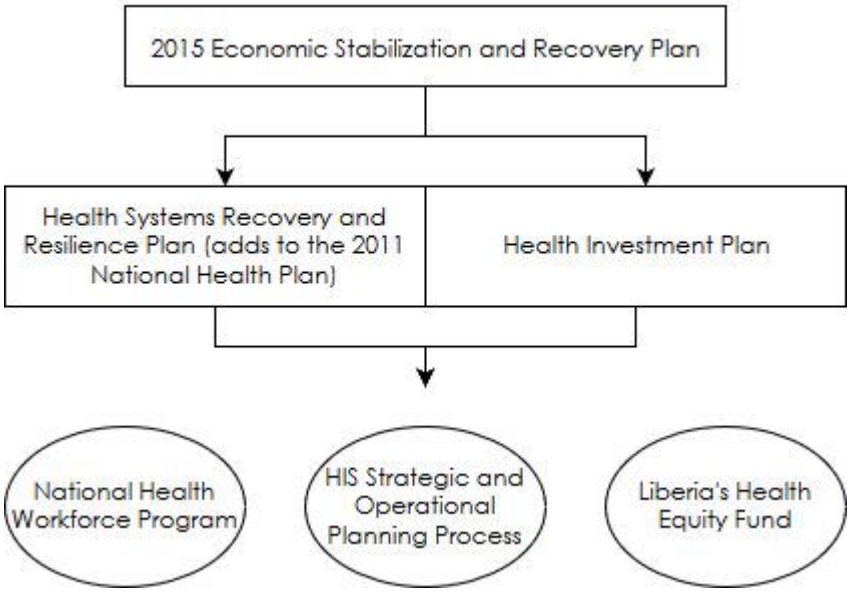

Figure 1: A summary of government interventions for health system strengthening after the Ebola outbreak of 2014 in Liberia

Though these initiatives by the government have led to some progress in infrastructure development, clear facts show that Liberia still has a long way to go. The country still faces serious challenges including a shortage in health workforce and weak health infrastructure and is therefore unable to provide equal access yet (IMF, 2016).

5.3 Trust in the health system after the Ebola outbreak

Before and during the Ebola outbreak, distrust in the health system was high in Liberia (Alexander *et al.*, 2015; McFarland, n.d.). To improve overall health outcomes, trust in the health system needs to be rebuilt (Calnan & Rowe, 2005).

The government has found an opportunity to rebuild local people's trust in the health system by employing community health workers as a linkage between local people and the health system (Fletcher *et al.*, 2016). Fear towards modern health care has withheld many people from searching it and instead led them search for care from traditional healers or within the family (Alexander *et al.*, 2015). In many Liberian communities, traditional healers and certain members of the community are held in high regard (IFRC, 2016). By employing community health workers, local people can be provided with health messages and awareness by trustworthy people. In case people need formal health care, the community health workers point at the importance and serve as advocates for seeking health care at health facilities (Fletcher *et al.*, 2016). Research by Napier *et al.* (2016) shows that this community health workers program has already increased patient load and demand for care at health facilities.

USAID (2016) and Luckow *et al.* (2017) also show that a certain increase in trust in health facilities has already been observed. The rates of birth delivery in health facilities appeared to be higher already within ten months after the Ebola epidemic than they had been before (USAID, 2016). Besides, a research in the Konobo district shows that health care utilization increased for diarrhea, fever and acute respiratory infection among children and as well for facility-based birth delivery (Luckow *et al.*, 2017), reflecting a certain amount of confidence and trust in health facilities.

5.4 The way forward for the Liberian health system

The previous section showed the efforts that are so far undertaken to reconstruct the Liberian health system after the Ebola outbreak. Though adequate national plans are constructed and progress is underway, the Liberian health system still needs significant improvement to become well-functioning.

The widespread assumption is that the six building blocks of a health system need to be adequate and functional to deliver efficient health services of high quality. This approach tackles the root causes of health system deficiencies and focuses on both

investment in inputs as well as on improving how the health system operates (WHO, 2007; Zolia *et al.*, 2017). Furthermore, trust in the health system is also necessary for the well-functioning of a health system, because without trust, people will avoid making use of health facilities and health care.

This means that Liberia urgently needs more sufficiently trained health workers, an improved health information system, better access to medical products, vaccines and technologies and improved health infrastructure to provide access to health service delivery. Solid plans to strengthen these health system elements are in place. To achieve significant improvement, it is now time for these plans to become sufficiently implemented by the government. To increase trust in the health system, the government must maintain putting effort in rebuilding this, which is possible by strengthening a community health workers network and providing better health services overall.

5.5 Conclusion

The health system of Liberia was among the weakest in the world prior to the Ebola outbreak, but became even weaker after the devastating epidemic of 2014 and is in serious need of reconstruction. Improvement of the health system will involve substantial investment in the health sector and adequate reforms by strong leadership and governance. Therefore, the government needs to implement solid strategies and receive support from external donors to implement these. Community engagement by employing community health workers and incorporating traditional healers into the health system has also set foot on the agenda for health system strengthening. Overall, it is understood that a strong health system involves well-functioning of the six building blocks and that good health outcomes are reliant on trust in the health system as well.

The government has put effort in reconstructing several sectors of the country by launching their Economic Stabilization and Recovery Plan. Incorporated in this plan is the Health System Recovery and Resilience Plan, which aims to address health system vulnerabilities and make the health system more resilient. The objectives of the renewed health plan reflect the recommendations made for reconstruction. To make this plan work, the government set up a special Health Investment Plan. This plan includes multiple investment areas which again reflect the WHO building blocks for a strong health system. The country faces challenges in achieving its goals and

therefore needs support from external partners. To reinforce the health workforce, the government set up the National Health Workforce Program, because it regards a more extensive, trained workforce as top priority in health system reconstruction. Due to this program, many health workers and also community health workers will be employed. Employing community health workers is a strategy to rebuild trust in the health system and make health services more accessible in rural areas. With the aim of creating a more integrated and better functioning health information system, the government launched a HIS Strategies and Operational Planning Process. Research on improvement of access to medical supplies, vaccines and technologies is lacking, but regarding the state prior to the Ebola outbreak, a cautious assumption could be made that access to these resources is still not sufficient. Overall health service delivery improvement is underway by strengthening the health workforce and constructing road networks and energy supplies. Besides, the government tries to make health services more accessible by creating Liberia's Health Equity fund, which aims to guarantee equal access to quality health care and provide financial protection to all Liberian citizens. Yet, to achieve these objectives, more time and improvement is needed.

Trust in the health system totally broke down during the Ebola epidemic. To improve health outcomes, Liberia needs to rebuilt this trust and does so by employing community health workers. Research showed that health service utilization has already increased in some Liberian districts, which simultaneously shows slight improvement in health system trust.

Although improvement is underway and the government has set solid health system strengthening strategies and a clear investment plan, the Liberian health system still has a long way to go to become well-functioning. The country still suffers from a shortage in trained health workers and unequal distribution throughout the country. Furthermore, medical and general infrastructure is still insufficient and access to medical supplies, vaccines and technologies still appears to be limited, which makes good health service delivery difficult or unattainable. To strengthen the health system, Liberia is very dependent on external partners.

6. Conclusion and discussion

In this chapter I will firstly describe the main findings of this study and give an answer to the central question of this research. After that, I will review what this study adds, what limitations this study shows and I will state some final recommendations for the future of the Liberian health system.

6.1 Findings study

The state of the Liberian health system prior to the Ebola outbreak was weak. The civil war the country suffered from for fourteen years almost completely devastated the health system. Many health facilities were destroyed and a lot of health workers fled from the violence in the country. To strengthen the system, president Sirleaf and the Ministry of Health and Social Welfare launched the 2007 National Health Plan. Improvement of the health system occurred, but the system was still insufficient at the moment Ebola broke out. The health workforce was too limited and inequitably distributed. The health budget remained limited, leading to a deficit in investments in health training, infrastructure and the purchase of medicines. The Ebola outbreak also revealed that the country lacked a notable health information system. The lack of a sufficient, skilled health workforce, a small number of functioning health facilities, lacking infrastructure and lacking resources made it hard for the Liberian health system to provide good health service delivery and added difficulties when Ebola stroke the country.

As a result of the ill-functioning of the health system and a late response, the Ebola epidemic of 2014 resulted in more than 5.000 deaths in Liberia due to the virus and many other deaths from diseases which the health system was unable to treat or cure. National, international and community-based response reinforced each other and eventually halted the epidemic after more than a year from the start. Liberia's health system was regarded one of the weakest in the world prior to the Ebola outbreak, but was even more weakened after the devastating crisis and in serious need of reconstruction.

When the Ebola epidemic came to an end, the government started to undertake efforts to rebuild and strengthen the health system. It did so by launching an Economic Stabilization and Recovery plan, with a specific integrated Health System Recovery and Resilience Plan to address the health sector. Its aim is to address health system vulnerabilities and make the health system more resilient for future

crisis. To finance this plan, the government established the Health Investment Plan and cooperates with external partners. Efforts to improve several health system building blocks are already noticeable so far. To reinforce the health workforce, the government set up the National Health Workforce Program. This program must lead to the employment of many health workers and community health workers. The government aims to specifically employ community health workers to rebuild trust in the health system and make health services more accessible in rural areas of the country. To create a more integrated and better functioning health information system, the government launched a HIS Strategies and Operational Planning Process. Improvement of overall health service delivery is underway by strengthening the health workforce, constructing road networks and energy supplies and by making health services more accessible by creating Liberia's Health Equity fund. This fund aims to guarantee equal access to quality health care and provide financial protection to all Liberian citizens. Research on improvement of access to medical supplies, vaccines and technologies is lacking thus far.

Trust of local people in the Liberian health system has been lacking for a long time. In the years after the civil war, distrust in the health system was high. People stated to have no trust in the fact that they could receive care if needed. This was the result of negative experiences with formal health care or being unfamiliar with this form of care because of the inability to obtain it. This led many people to search for help more often at traditional healers. During the outbreak, Liberian citizens reacted with mistrust and resistance to government messages about the outbreak, to Ebola response teams and international agencies. This originated predominantly from misunderstandings and dissatisfaction with measures undertaken to halt the epidemic. Many rumors about Ebola and response teams spread around, while at the same time messages provided and measures undertaken often negatively affected Liberian livelihoods and were in strong contrast to traditional practices. Distrust withhold many people from searching care and led in several places to attacks of Ebola health teams and escapes of patients from quarantine. The mistrust in and fear towards the modern health care interventions caused many people to search for help from traditional healers during the epidemic, which complicated efficient interventions. To rebuild trust, the government is now employing community health workers who can connect local people to the health system. It seems fruitful

as health care utilization for particular forms of care has already increased to a level higher than pre-Ebola.

The main question of this research was: *What is the transformative impact of the 2014 Ebola epidemic on the health system of post-conflict Liberia?* An answer to this question was found by doing a literature review.

In conclusion, the 2014 Ebola epidemic weakened an already insufficient health system of a country that was still recovering from its civil war. This is the result of a breakdown of the health system and a low level of trust therein. Yet, the Ebola epidemic also led to the recognition that serious health system strengthening and resilience-building is needed to be prepared for future crisis similar to the devastating Ebola epidemic. This recognition has in turn led to efforts made by the Liberian government to make serious improvements within the health system.

6.2 What this study adds

This research is based on a literature review. Even though many sources are available about the topics described, this study is unique because it does not solely focus on the more technical elements of the health system, but also incorporates social elements. Besides analyzing the building blocks of the Liberian health system, I also reviewed the concept of trust in the health system throughout the recent history of Liberia. Furthermore, this study does not focus on one period of time, but regards both the health system in the post-conflict and post-Ebola period. This way, it was possible to analyze which flaws of the system were revealed by the Ebola outbreak and in which way efforts are undertaken to address these flaws.

This study provides insight in issues of the health system that were revealed when Ebola broke out and issues that still need to be resolved in Liberia to deliver quality health services to all citizens now the epidemic has ended. These findings add to other evidence on this topic. Moreover, the study provides insight in the element of trust and the role it has played and continues to play in the Liberian health system. The concept of trust in the health system is significantly understudied, but this study unites multiple sources describing its importance and role in the health system. Besides, the study provides relevance to study this concept more, as it considerably affects health care utilization and overall health outcomes.

6.3 Limitations of the study

This study is conducted by doing a literature review and therefore completely relied on previously published articles and information. Thereby, a selection occurs between articles, possibly excluding contradictory information from this research. The ability to conduct research in the field was absent and thereby limits the research.

Another limitation of the study may be the use of the WHO Health System Building Blocks framework. A health system is a complex construct and this framework could therefore be limited as it determined six essential building blocks. The framework solely focuses on the health sector, while excluding and ignoring other sectors influencing health and people's behavior, such as the education sector. It leaves aside more social dynamics of a health system. On the other hand, because the health system is such a complex construct, boundaries within this framework are necessary. As certain elements of a health system are distinguished, the framework is useful in analyzing health systems and was therefore a good tool within this study.

The results of this study could have been more comprehensive if more literature was available on several topics, such as the role of community health workers and traditional health practices in recent years. Limitations in literature available from after the Ebola outbreak are due to the fact that the Ebola epidemic was not even completely halted two years ago. Field research on the role of different health care practices could have been a good complement to the existing literature. Another topic that proved difficult to study was trust. It seems that trust in the health system is understudied in comparison to other health system elements and may therefore be an interesting topic for future research.

During the research, I witnessed that it was difficult at times to be completely objective. Especially engaging communities and traditional healers often drew my extra attention during the writing of this research. This slight subjectivity might have had some influence on the results of this study.

6.4 Final recommendations for the future of the Liberian health system

This thesis provided insight in problems of the Liberian health system that were revealed when Ebola broke out and issues that still need to be resolved in the following years to deliver quality health services to all Liberian citizens.

I believe that the Liberian government has set up solid strategies and that the way forward for the country is to stick to the Economic Stabilization and Recovery Plan, make the 7-year Health Systems Recovery and Resilience Plan come true and invest sufficiently in the health sector. This way, all building blocks of a well-functioning health system can become adequate and strong. But to eventually improve health outcomes, the government also needs to keep putting effort in rebuilding people's trust in the national health system as this has proven to be a crucial element in providing health care, both during crisis and under normal circumstances. To create more trust in the health system, I think the government is following a right track by employing community health workers and engage communities more in the health system. Besides, trust in the health system could be enhanced if this Health Systems Recovery and Resilience Plan works and more people are able to receive and access good quality health care services.

The Liberian health system still has a long way to go to become well-functioning or even resilient. Informed by the results of this research, the future of the Liberian health system depends in my opinion highly on strong governance, increasing investment in the health sector and involvement of communities to increase health system trust. Only this way, the citizens of Liberia will be able to have equal access to affordable, quality health care and will the country be able to cope better with emergencies, such as the 2014 Ebola epidemic, in the future.

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