



Department of Nursing and Health Sciences

Implementing a Health Maintenance Organisation in West Africa

For the module IHS 10:
Study project

Submitted by:

Asres loab, Kolahta; Beiter, Malin; Blaschzyk, Viktoria; Gatzke,
Romana; Häckel, Sarah; Haselbauer, Katharina; Hoang, Nghia-
Luong; Jaenecke, Saskia; Janz, Laura; Jung, Marie; Kern, Ronja;
Pyschny, Fabiola; Reißinger, Julia; Volkmar, Alina

For the study programme:

B.Sc. International Health Sciences

Winter Semester 2020/21

Supervisor: Prof. Dr. Dr. Konrad Obermann

Fulda, 15.03.2021

Executive Summary

The purpose of this report is to determine whether health maintenance organisations (HMOs) can provide a suitable and viable form of financial health protection and service provision in selected West African countries, supplementary to existing healthcare provision and coverage. Burkina Faso, Côte d'Ivoire, The Gambia, Guinea-Bissau, Liberia and Sierra Leone were chosen as country examples. Chapter 1 provides the context for the health and healthcare situation in West Africa as well as specific country profiles, whilst Chapter 2 describes factors to be considered when establishing an HMO. The range of technical dimensions of an HMO introduced in this report includes: administration, human resources, financing, accreditation, service availability and readiness, the benefits catalogue, paying providers, drugs and quality management. Each of these dimensions is further discussed in Chapters 3 – 10.

The administration of an HMO consists of nine interconnected fields: management dashboard, quality management, IT department, purchasing and coordination, finance and accounting, health plan and benefit package, member management, human resources, and marketing. In Chapter 3, the authors give a more in-depth analysis of the fields of marketing and member management. Recommendations provided in this chapter include the use of different marketing approaches to bridge the gap between communities and the HMO by establishing informative advertising (e.g., via a mobile responsive website, social media, posters, flyers, radio, and recorded information).

Chapter 4 focuses on an HMO's human resources, particularly in regard to staff recruiting, development and retention. Staff development expands staff competence by increasing employees' motivation and job satisfaction, which leads to an increase in their performance and productivity, thereby improving staff retention. Furthermore, staff retention is important for ensuring a long-term commitment to the HMO. In conclusion, the success of an HMO is crucially dependent on motivating staff and enabling them to exercise, develop and share their skills.

Chapter 5 covers the financial aspects of an HMO, including dimensions related to its target population, financial barriers, funding resources, management of funds, and specific country challenges. In order to calculate the necessary resources, this chapter makes clear that an HMO must consider cost projections for the benefit package, infrastructure development, administration, expansion and a reserve.

To establish an accreditation system, HMOs can interact with stakeholders from different fields and levels of service delivery and administration, as examined in Chapter 6. The political and social conditions of a country must be considered by the HMO in order to effectively implement an accreditation system. Besides this, an HMO can seek to improve the

performance quality of healthcare by supporting the establishment of an accreditation scheme.

Reliable information on service availability and readiness is necessary for successful health systems management as it allows health services to be tracked in terms of how they have responded to changed inputs and processes. In Chapter 7, the authors analyse the Service Availability and Readiness Assessment (SARA) tool, and recommend its application within the HMO, as it offers a standardised approach to monitoring the supply of services by providing a standard set of tracer indicators.

To implement a health benefit package (HBP), the authors assess existing models, such as the one introduced by Glassman et al. (2017) which specifies ten core elements of an HBP design and helps to enable discussions on the most relevant aspects in designing an HBP for an HMO. Chapter 8 presents a coinsurance scheme within the HBP design which will affect the service utilisation of members as well as utilisation management as one method for cost control. In addition, actuarial calculations are proposed using Sierra Leone as a case example.

Chapter 9 describes the pharmaceutical supply chain required by an HMO. Important steps of the HMO's medicine supply chain include: selection, quantification and forecasting, procurement, storage, and distribution of medical products. Medicines provided by the HMO must be safe, available, accessible, and affordable at all times and for all members. Stock-outs must be avoided, and therefore this chapter recommends employing community-based health workers in order to ensure distribution to patients in rural areas.

Quality management is an important field in an HMO analysed in Chapter 10 of this report. It includes patient safety, efficiency, and patient satisfaction; all factors that must be considered during the implementation of an HMO. The chapter concludes by noting that quality is highly subjective and must therefore be applied to the specific context of an HMO within a specific country.

Finally, Chapters 11 and 12 of the report include implementation challenges of an HMO in West Africa, as well next steps that should be followed. Although similar challenges concerning the social, political, or structural environment can be found in most West African countries, direct transfer of elaborated information to other countries and healthcare situations is not always possible. As well as these situational challenges, HMOs encounter different questions such as how to balance the scope of available services against the coverage of diverse geographical areas, engagement of various stakeholders and reflection of respective values, interests and perspectives of local populations.

Limitations of the report include a lack of specificity in general, and the use of many specific country settings, as observations and examples for one HMO dimension may not always

be transferable to other regions and healthcare situations. Therefore, this report is not meant to provide concrete conclusions or solutions in regard to the implementation of an HMO in a specific country setting.

In conclusion, this report states that HMOs have the potential to play a substantial role in healthcare system strengthening, provision of quality healthcare services and the prevention of financial burden due to ill-health. As a result, an HMO can support West African countries in their role to fulfil their obligation of protecting the health of their citizens. Additionally, the authors strongly believe that an HMO must reflect the cultural, societal and political environment in which it is implemented. Therefore, it is essential that research be conducted prior to its implementation in addition to including the relevant local stakeholders as early as possible in the process.

Contents

1	Health and healthcare in West Africa	1
1.1	Background.....	1
1.1.1	Demographics	1
1.1.2	History, political context and culture	2
1.2	Disease burden.....	3
1.3	Health literacy and health-seeking behaviour	3
1.4	Public health context	4
1.5	Pharmaceutical sector	5
1.6	Country Profiles.....	7
2	Establishing an HMO - relevancy, investment, and risk factors	13
2.1	Why a private HMO?	13
2.2	Sustainability of business, income & expenditure forecasts.....	14
2.3	SWOT analysis	15
3	Administration	17
3.1	Marketing	17
3.2	Member management	20
4	Human resources	24
4.1	Staff development.....	24
4.1.1	Staff interviews	24
4.1.2	Mentoring and coaching.....	25
4.1.3	Job design	25
4.1.4	Training programmes	25
4.2	Staff retention.....	26
4.2.1	Intrinsic motivation.....	26
4.2.2	Corporate incentives	26
4.2.3	Occupational health management	27
5	Financing.....	28
5.1	Financial barriers	28
5.2	Funding	28
5.3	Further funding resources	29
5.4	Pooling	29

5.5	Allocation of funds	30
5.6	Calculation	30
6	Accreditation	34
6.1	Aims	34
6.2	Involvement.....	34
6.3	Hospital accreditation	35
6.4	Nursing education accreditation	36
6.5	HMO relevance.....	37
7	Service availability and readiness	39
7.1	Access.....	39
7.2	Service Availability and Readiness Assessment (SARA).....	39
7.2.1	Methodology	39
7.2.2	Service availability.....	40
7.2.3	Service readiness.....	41
7.3	Challenges.....	43
8	Designing a health benefit package.....	44
8.1	Roadmap to an HBP for an HMO in Sierra Leone.....	44
8.2	Coinsurance model.....	48
8.3	Actuarial calculations.....	49
8.3.1	Demographic projections	50
8.3.2	Revenue projections.....	51
8.3.3	Benefit cost estimation	52
8.4	Cost control through utilisation management.....	53
9	Pharmaceuticals.....	55
9.1	Essential drug prices, availability, and accessibility.....	55
9.2	Medicine supply chain management.....	56
9.2.1	Selection	56
9.2.2	Quantification and forecasting	57
9.2.3	Procurement.....	57
9.2.4	Storage	58
9.2.5	Distribution.....	59
9.3	Performance improvement	60

10 Quality management	62
10.1 Introduction	62
10.2 HMO quality framework	63
10.3 Structural quality	64
10.4 Process quality	64
10.4.1 Patient safety	64
10.4.2 Efficiency	65
10.4.3 Referral system	66
10.5 Outcome quality	67
10.5.1 Quality indicators	67
10.5.2 Patient satisfaction	67
11 Challenges	69
11.1 General challenges	69
11.2 Corruption	70
12 Conclusion and next steps	71
List of figures	73
List of tables	74
List of abbreviations	75
Bibliography	76
List of appendices	91
Appendix	i

1 Health and healthcare in West Africa

A health maintenance organisation (HMO) is a prepaid health plan that in contrast to other forms of service provision and insurance, combines financing and care delivery within one organisation with the aim of aligning the incentives of the health care provider and payer (Falkson/Srinivasan 2020). This report aims to establish where and how an HMO would be a suitable and viable form of financial health protection and service provision, supplementary to the existing healthcare provision and coverage in each respective West African country.

Several characteristics of the West African situation, both general and health related, must be considered when establishing a healthcare system in the form of an HMO. This includes finding solutions for and setting priorities according to the burden of disease in these countries, which commonly include respiratory infections, diarrheal diseases, malaria and Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS). Furthermore, cost limitations of the population must be taken into account and it must be assured that those who most need care – in many cases the rural poor – are also addressed and included within the system.

The following chapters will address a range of HMO dimensions, including: administration, human resources, financing, accreditation, service availability and readiness, the benefits catalogue, paying providers, drugs and quality management. A selection of West African countries, namely Burkina Faso, Côte d'Ivoire, The Gambia, Guinea-Bissau, Liberia and Sierra Leone will be used as country examples in order to illustrate an HMO implementation strategy as well as more country specific challenges.

1.1 Background

1.1.1 Demographics

West Africa has been experiencing a huge demographic shift, being the last continent to experience sharp population growth into the 21st century. It is a region that is still rapidly growing, with the majority of population growth having been absorbed by West African cities (Sahel and West Africa Club/OECD 2006). The West African demographic is additionally characterised by a very young population, with people under age 25 counting for up to two thirds of the population in some countries such as Côte d'Ivoire, whilst in comparison the European continent and others are already in a stage of depopulation, and face instead issues an ageing population brings with it. The overall population of the West African region currently lies at 407 million, equating to just over five percent of the total world population, and has had a steady annual growth rate of between 2-3 % (Worldometer 2021a). Gross-domestic product (GDP) per capita in the region fluctuates between US\$ 622 in Liberia to

US\$ 276 in Côte d'Ivoire (World Bank 2020b). Almost 50 % of the population is considered urban, and the median age lies at around 18 years. Life expectancy in the West African region lies at 57 for men, and 59 for women (Statista 2020), and the overall fertility rate currently sits at just over five. Infant mortality in West Africa is still decidedly high compared with the rest of the world, with rates ranging from 27 per 1000 live births in The Gambia, to 87 per 1000 live births in Burkina Faso (IHME 2020a; IHME 2020b).

When addressing the various HMO dimensions, it is important to consider these demographic factors within the West African region, as well as within the individual countries, in order to adjust service provision to the needs of the population. For example, the needs of young, urban members will be different to others who are perhaps ageing and live rurally.

1.1.2 History, political context and culture

West Africa has had a long and turbulent history, with a mix of influences and conquests from the Arab world, and later Europe. The slave trade between the 1600's and early 1800's also played a strong role. Colonisation of West Africa began in the 1800's, predominantly by Britain and France, with the colonial period only ending as recently as the 20th century (Fage/McCaskie 2020). For this reason, the majority of the countries in West Africa are still predominantly francophone or anglophone, alongside over 500 other indigenous languages. The postcolonial period up until today has also been littered with conflicts and civil wars, the roots of these issues being decidedly complex and "embedded in the interplay of historical factors, socio-economic crisis, legacies of authoritarianism and the politics of exclusion, international forces, and local struggles" (Obi 2012).

West Africa has up until recently been considered politically volatile, with civil wars and conflicts littering the 20th century. However, since achieving independence, the majority of these have been classified as intrastate conflicts, and overall, the political situation has stabilised in the region (Marc et al. 2015). Although progress has been made in regards to democratic consolidation, there still exist a host of challenges affecting the political situation, such as the emergence of new threats related to drug-trafficking, religious extremism, widening inequalities, overall institutional weakness and poor governance. These challenges therefore underscore the huge progress made in economic growth, technical development, and participation in the globalised world. Due to the rapid economic growth in the region, and overall level of societal change, West African institutions are becoming increasingly strained, and it remains to be seen in which ways they will stand up to meet the needs of their increasingly young, urban and educated populations.

When it comes to culture and society, West Africa is home to a complex mix of ethnic, religious, and linguistic groups. Due to its diversity, it is essential to understand the cultural differences between nations, regions, tribes and linguistic groups, rather than treating West

Africa as simply an undifferentiated whole (Lituchy/Michaud 2017). Islam is the predominant religion in the region, followed by Christianity, as well as a range of indigenous religions. Certain traditional cultural practices such as forced early marriage and female genital mutilation are still common in many parts of West Africa, and should also be taken into consideration as to their impact on health (Amnesty International UK 2020).

The historical background, political situation, and cultural complexity are all factors that must be considered when establishing an HMO. These factors set the context and underlying foundation in that they influence a country's ability to provide health services, as well as general attitudes towards health.

1.2 Disease burden

Communicable diseases have always been a major driver of the leading causes of death in Africa. These include diseases such as malaria, lower respiratory infections, neonatal disorders, diarrhoeal diseases, and tuberculosis. However, while in 1990 eight of the top ten causes of death were communicable diseases, the overall proportion has decreased to only five of ten, with a higher proportion of non-communicable diseases (NCDs) now placing among the top ten causes in 2017 (El Bcheraoui et al. 2020: 344f). This shift towards a higher burden of NCDs is consistent within the West African region, with ischemic heart diseases and stroke now placing among the top ten causes of death in all example countries. Other NCDs that occur more frequently (but not in all the countries) are congenital defects and cirrhosis, followed by hemoglobinopathies, which ranked among the top ten causes of death only in Burkina Faso (IHME 2020a).

Although all countries are affected by similar causes of death and a rise of NCDs, they are all affected to varying degrees by these diseases. For example, although malaria placed among the top ten causes of death for all example countries, in Guinea-Bissau it was only in eighth place, whilst in the other countries it placed among the top three causes of death (IHME 2020c). Therefore, differing disease burdens such as these, as well as other country and gender specific factors such as population, age structure or differences in gender-specific vulnerability for diseases must be considered in order to enable a comprehensive health care delivery scheme.

1.3 Health literacy and health-seeking behaviour

The World Health Organisation (WHO) defines health literacy as: "the personal characteristics and social resources needed for individuals and communities to access, understand, appraise and use information and services to make decisions about health" (WHO 2021a). Poor health literacy is associated with higher mortality rates (Bostock/Stephoe 2012: 3).

General consumer literacy levels regarding medicines in West Africa is very low, thus affecting the rational use and awareness of safe medication. Many people in West Africa do not have adequate health literacy skills which indicates that there is low compliance when it comes to medication regulation and following advice regarding life-style habits (Amoah/Philips 2018: 44; Wångdahl/Mårtensson 2015: 165 f.). A study among adults in Ghana found that 40% of participants had inadequate health literacy, 26% problematic health literacy, and only 32% sufficient health literacy (Amoah/Philips 2018: 44). However, literature is scarce and not always consistent. For example, another study conducted in Lagos State, Nigeria, displayed a higher health literacy rate of 75% (Kuyinu et al. 2020: 1).

Health seeking behaviour can be described as “any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy” (Olenja 2003: 61). According to Kakkar et al. the utilisation of health care services is related to different socio-demographic factors. Examples for these are age, gender, literacy- and socioeconomic status, availability, faith and education (Kakkar et al. 2013: 139 ff.). In 2018, Nuhu found that health-seeking behaviour differs between people living in rural and urban areas. People living in urban areas are more likely to seek health care at a private health care facility. The same scientific work revealed that poor individuals tend to seek help from traditional/herbal practitioners more than individuals in higher income groups (Nuhu 2018: 163 f.).

1.4 Public health context

An important stakeholder in the West African region is the “Economic Community of West African States” (ECOWAS) with its health-specialised sub-organisation, the “West African Health Organisation” (WAHO), consisting of 15 member states (WAHO 2015: 12). These states have been trying to improve the health status of the population, but there is still a long way to go before all health needs are adequately addressed. The health situation of the region is currently characterised by high morbidity and mortality rates. Outbreaks of diseases like meningitis, cholera, yellow fever and measles have put pressure on the region. Particularly severe were the outbreaks of Ebola haemorrhagic fever between 2014 - 2016 (WAHO 2015: 21). Affected countries were Guinea, Liberia, Sierra Leone, Mali, Nigeria and Senegal (CDC 2019). Approximately 11,000 of the 27,000 infected citizens died, including many healthcare workers, further weakening the health systems (Elston et al. 2017: 63; WAHO 2015: 1). Not only health systems, but also the economic and social situation deteriorated as a result of job losses and breakdown in the populations’ trust (Elston et al. 2017: 61 ff.). Mal- and undernutrition are other public health concerns in West-African countries and accountable for more than 50% of deaths occurring in children under five (WAHO 2015: 21). Health care in West Africa is separated between public and private care. In 2011 the

growing private sector already provided about 60% of services in Benin and Nigeria. Approximately 70-80 % of ECOWAS inhabitants, especially people living in rural areas, use traditional medicine (WAHO 2015: 21 ff). On average 43 % of the health care spending is paid out-of-pocket (OOP), representing a huge burden on some population groups (WAHO 2015: 22). Health care systems in West Africa face a diverse range of problems, including governance issues; financing shortages; brain drain; lack of qualified health care personnel, medical products and research; counterfeit medicines; and difficulties in communication, for instance, when it comes to border-crossing epidemics (WAHO 2015: 7).

1.5 Pharmaceutical sector

West African countries face similar challenges affecting drug manufacturing and the supply of medicines. Firstly, there is only a limited availability of qualified human resources, which is exacerbated by the problem of 'brain drain' due to poor remuneration (Ekeigwe 2019: 2). Additionally, lack of good infrastructure, high dependency on imported medical products and raw materials, difficulty to fulfil pre-qualifications set by the WHO, lack of research organisations, and financial as well as technical constraints are some of the factors hindering drug manufacturing in West Africa (WAHO 2014: 15 ff.). Furthermore, African countries purchase medical products at lower prices than developed markets do. Therefore, drug manufacturing in West Africa is a tough business with only small profit margins, meaning manufacturers are forced to become cost competitive in the international market (WAHO 2014: 17). The medicine regulation system in West Africa is also poor, with unclear regulatory requirements regarding the registration of medicines that reflect the variety of languages in the region (WAHO 2014: 22). Counterfeit medicines are also a big challenge in the West African pharmaceutical sector, due to sales of medicines in open unregulated markets and a poor infrastructure for quality control (WAHO 2014: 25). In some countries, the incidence of counterfeit medicines was reported to be over 50%, leading to therapeutic failures and drug resistance (WAHO 2014: 22). Additionally, the pharmaceutical sector is poorly funded by the states, meaning most research activities for pharmaceutical development are donor-funded and do not address the priorities of the ECOWAS region (WAHO 2014: 26).

To address these problems, the WAHO has developed an ECOWAS pharmaceutical plan, aiming to provide a strategic framework that can manage and regulate the pharmaceutical sector, so that self-sufficiency in production and the use of accessible, affordable, safe, and effective medical products can be provided (WAHO 2014: 28). When building up an HMO in West Africa, the challenges above need to be kept in mind, as well as the medicines supply

processes, to ensure they are in line with the framework provided by the WAHO. Additionally, this pharmaceutical plan can serve as a strategic approach for the development of a sustainable and efficient pharmaceutical supply within the HMO.

Burkina Faso

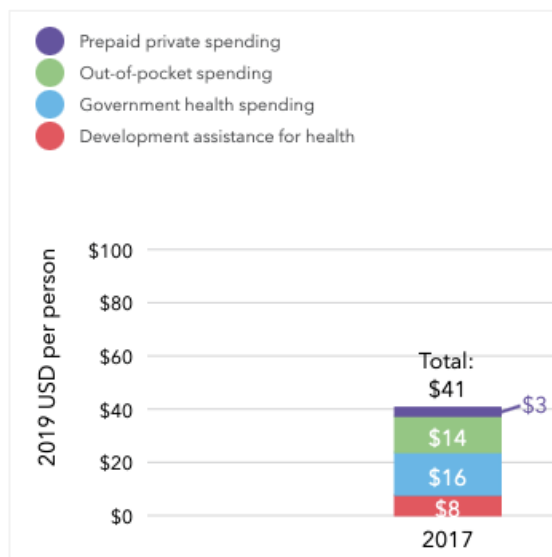
Population	20 million (2019)
GDP	US\$ 16 billion (2019)
GDP per capita	US\$ 786 (2019)
Current health expenditure	6% of GDP (2018)
OOP of health expenditure	36% (2018)

(World Bank 2020a)



(Deschamps et al. 2021)

Health spending



(IHME 2020a)

Life expectancy

Female 62 years

Male 60 years (2018)

Birth rate

35 per 1,000 population (2020)

Infant mortality

87 per 1,000 live births (2019)

Maternal mortality

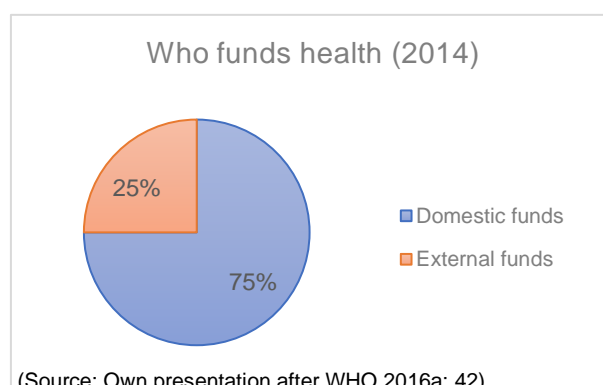
320 per 100,000 live births (2017)

Physician density

0.1 per 1,000 inhabitants

(IHME 2020a; Index mundi 2020a)

Burkina Faso is located in the centre of West Africa and has borders to Mali, Côte d'Ivoire, Ghana, Togo, Benin and Niger. The population density is 76 inhabitants per km², and the predominant part lives within urban areas (Worldometer 2020a). In rural areas, health infrastructure and services are poor, whereas urban regions are more privileged (Zon et al. 2020: 7). The National Monitoring Committee has implemented a national health development plan which focuses on maternal mortality, malaria and HIV control. Around 10% of the population is currently covered by some kind of health insurance (Bocoum et al. 2018: 310).



(Source: Own presentation after WHO 2016a: 42)

The 5 leading causes of death (2019)

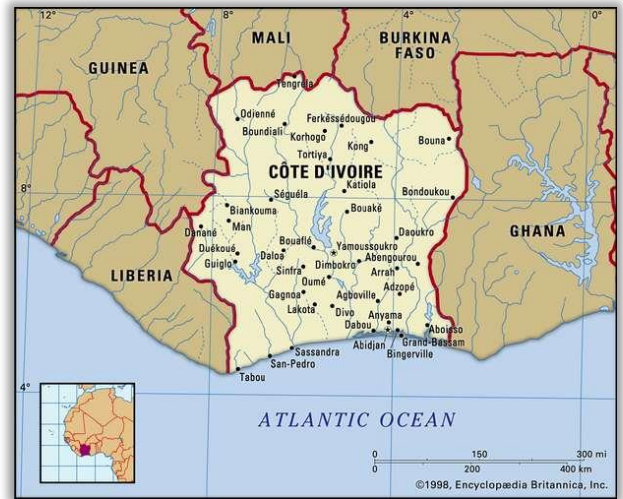
1. **Malaria**
2. **Lower respiratory infect**
3. **Neonatal disorders**
4. **Diarrheal diseases**
5. **Ischemic heart disease**

(IHME 2020a)

Côte d'Ivoire

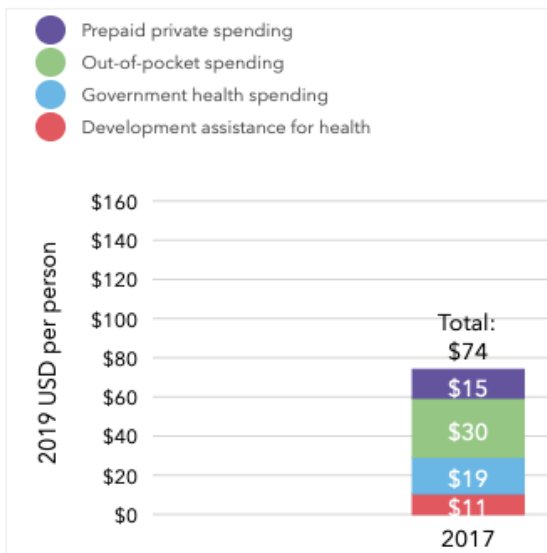
Population	26 million (2019)
GDP	US\$ 59 billion (2019)
GDP per capita	US\$ 2,276 (2019)
Current health expenditure	4% of GDP (2018)
OOP of health expenditure	39% (2018)

(World Bank 2020b)



(Lawler et al. 2021)

Health spending



(IHME 2020d)

Life expectancy

Female 65 years

Male 60 years (2018)

Birth rate

36 per 1,000 population (2017)

Infant mortality

47 per 1,000 live births (2019)

Maternal mortality

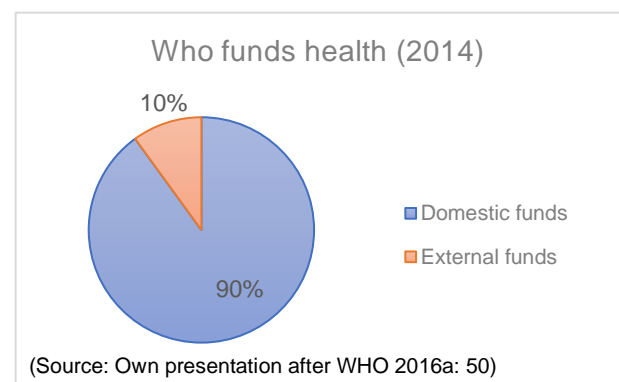
614 per 100,000 live births (2019)

Physician density

0.2 per 1,000 inhabitants

(IHME 2020d; Index mundi 2020b)

Côte d'Ivoire is located on the south coast of West Africa, with borders to Guinea, Liberia, Mali, Burkina Faso, Ghana and the Atlantic Ocean. The country's area comprises 318,000 km², with a total population of about 26 million (Worldometer 2019). Public healthcare is divided into three levels. The primary level includes centres and clinics, whilst the secondary level comprises first referrals to regional, general and specialised hospitals. Teaching hospitals and specialised national institutes for second referral form the tertiary level. As less than 10% have adequate health coverage, a National Health Insurance Fund has been implemented to manage and regulate health financing schemes (USAID 2016).



The 5 leading causes of death (2019)

1. **Malaria**
2. **Neonatal disorders**
3. **Lower respiratory infect**
4. **HIV/AIDS**
5. **Ischemic heart disease**

(IHME 2020d)

The Gambia

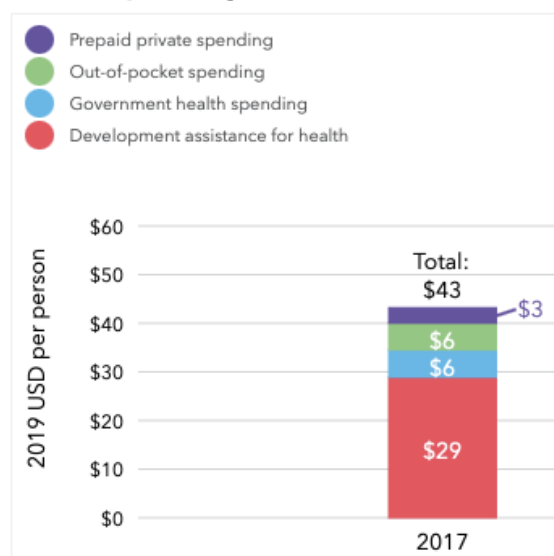
Population	2 million (2020)
GDP	US\$ 2 billion (2019)
GDP per capita	US\$ 777 (2019)
Current health expenditure	3% of GDP (2018)
OOP of health expenditure	29% (2018)

(World Bank 2020c)



(Clark et al. 2021)

Health spending

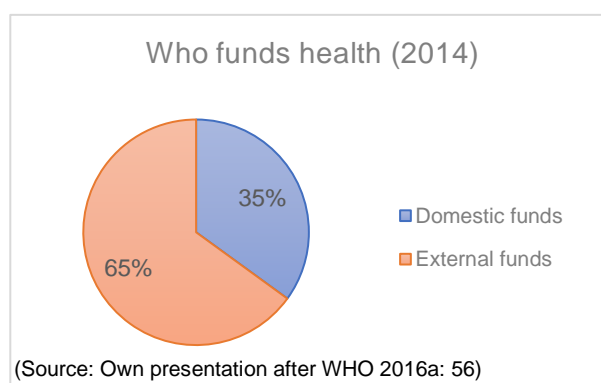


(IHME 2020b)

Life expectancy	Female 68 years Male 64 years (2020)
Birth rate	27 per 1,000 population (2020)
Infant mortality	27 per 1,000 live births (2019)
Maternal mortality	433 per 100,000 live births (2018)
Physician density	0.1 per 1,000 inhabitants

(IHME 2020b; Index mundi 2020c)

The Gambia is located in the western part of West Africa, surrounded by Senegal except for its western coast, by the Atlantic Ocean. With 10,000 km², Gambia is the smallest country in Africa. Population density is 239 inhabitants per km², and the predominant part of inhabitants live within urban areas (Worldometer 2020b). Four percent of the Gambian population is currently covered by a health insurance (Sine et al. 2019: 10). As for its important institutions, the Medical Research Council investigates tropical diseases, and the government has established a medical school to qualify its own doctors (Clark et al. 2021).



(Source: Own presentation after WHO 2016a: 56)

The 5 leading causes of death (2019)

1. Lower respiratory infect
2. Ischemic heart disease
3. Neonatal disorders
4. HIV/AIDS
5. Stroke

(IHME 2020b)

Guinea-Bissau

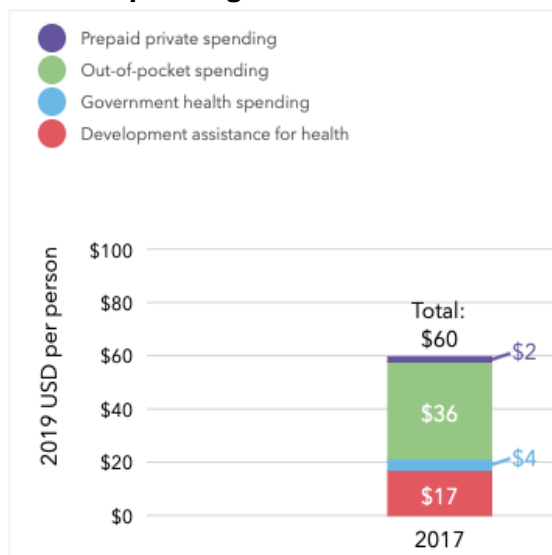
Population	2 million (2020)
GDP	US\$ 1 billion (2018)
GDP per capita	US\$ 697 (2019)
Current health expenditure	7% of GDP (2018)
OOP of health expenditure	74% (2018)

(World Bank 2020d)



(Galli et al. 2021)

Health spending



(IHME 2020d)

Life expectancy

Female 63 years

Male 58 years (2020)

Birth rate

37 per 1,000 population (2020)

Infant mortality

47 per 1,000 live births (2017)

Maternal mortality

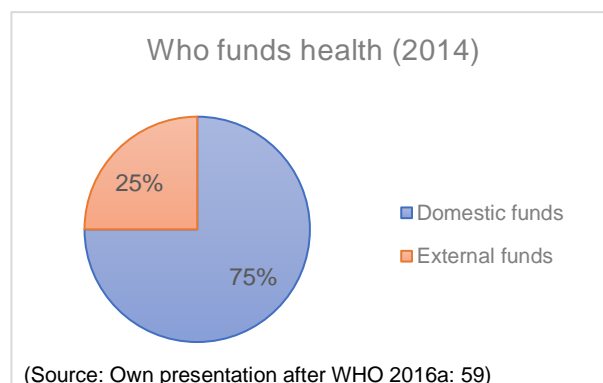
549 per 100,000 live births (2017)

Physician density

0.1 per 1,000 inhabitants

(IHME 2020d; Index mundi 2020d)

Guinea-Bissau is situated on the West African coast, with borders to Senegal, Guinea and the Atlantic Ocean. Guinea-Bissau measures 28,000 km² with a total population of nearly 2 million (Worldometer 2019). Public healthcare is delivered at three levels. On the local level, primary healthcare is provided by health centres; on the secondary level, more specialised care is delivered by regional hospitals; and lastly, located centrally is the national hospital which offers higher quality services and performs surgeries. The Health Sector Coordination Committee, international health initiatives and various subsidies support the investments in Guinea-Bissau's health system (Kitson 2019: 9).



The 5 leading causes of death (2019)

1. Neonatal disorders
2. Diarrheal diseases
3. Lower respiratory infect
4. HIV/AIDS
5. Ischemic heart disease

(IHME 2020d)

Liberia

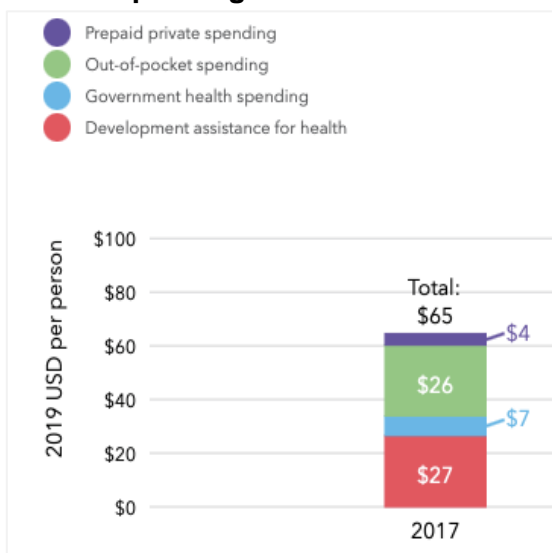
Population	5 million (2020)
GDP	US\$ 3 billion (2019)
GDP per capita	US\$ 622 (2019)
Current health expenditure	7% of GDP (2019)
OOP of health expenditure	42% (2018)

(World Bank 2020e)



(Holsoe et al. 2021)

Health spending



(IHME 2020e)

Life expectancy

Female 67 years

Male 62 years (2020)

Birth rate

37 per 1,000 population (2021)

Infant mortality

47 per 1,000 live births (2017)

Maternal mortality

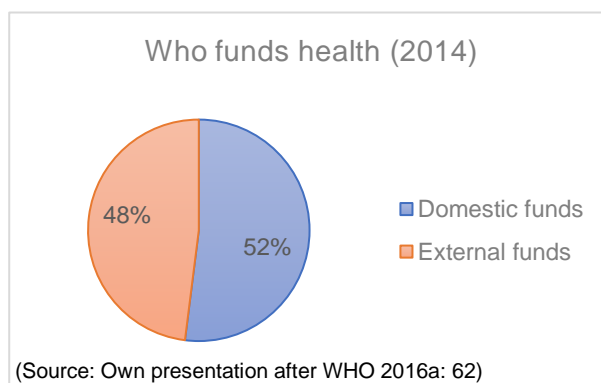
661 per 100,000 live births (2017)

Physician density

< 0.1 per 1,000 inhabitants

(The Worldfactbook 2021a; Index mundi 2020e)

Liberia is located on the western Atlantic coast of Africa and has borders to Guinea, Côte d'Ivoire and Sierra Leone, with a population density of around 53 inhabitants per km² (Worldometer 2020c). An employer-based health insurance currently covers around four to six percent of the Liberian population. The West African Health Organisation has collaborated with the WHO and the International Health Regulations to implement the One Health approach, in order to strengthen the response to infectious diseases (Agbo et al. 2019: 2).



(Source: Own presentation after WHO 2016a: 62)

The 5 leading causes of death (2019)

1. **Malaria**
2. **Diarrheal diseases**
3. **Neonatal disorders**
4. **Lower respiratory infect**
5. **Ischemic heart disease**

(IHME 2020e)

Sierra Leone

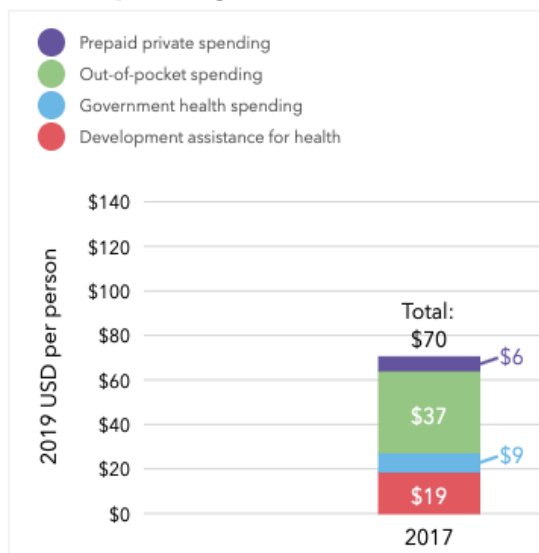
Population	8 million (2020)
GDP	US\$ 4 billion (2019)
GDP per capita	US\$ 527 (2019)
Current health expenditure	11% of GDP (2014)
OOP of health expenditure	45% (2018)

(World Bank 2020f)



(Nicol et al. 2021)

Health spending



(IHME 2020f)

Life expectancy

Female 61 years

Male 59 years (2020)

Birth rate

35 per 1,000 population (2020)

Infant mortality

70 per 1,000 live births (2017)

Maternal mortality

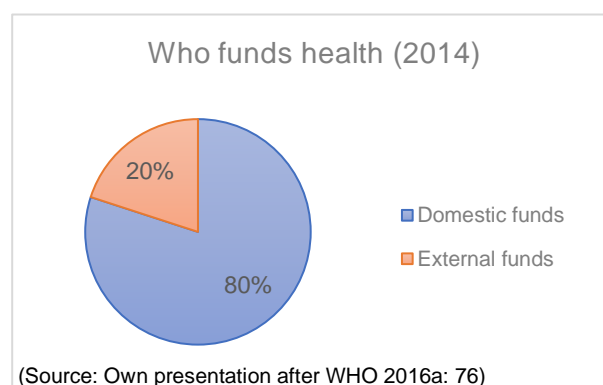
1,120 per 100,000 live births (2017)

Physician density

< 0.1 per 1,000 inhabitants

(IHME 2020f; Index mundi 2020f)

Sierra Leone is located on the southwest coast of West Africa, with borders to Liberia, Guinea and the Atlantic Ocean. It has a total area of 72,000 km², with around eight million inhabitants (Worldometer 2019). The private health sector includes services at secondary and tertiary level in hospitals nationwide, whilst public facilities consist of hospitals and community health centres that cover various levels of care (Ministry of Health and Sanitation 2017). The Ministry of Health and Sanitation arranges the control of malaria and other infectious diseases. The National HIV/AIDS Secretariat is responsible for awareness, prevention and treatment methods within the country (Nicol et al. 2021).



(Source: Own presentation after WHO 2016a: 76)

The 5 leading causes of death (2019)

1. **Malaria**
2. **Lower respiratory infect**
3. **Neonatal disorders**
4. **Ischemic heart disease**
5. **Diarrheal diseases**

(IHME 2020f)

2 Establishing an HMO - relevancy, investment, and risk factors

HMOs employ managed care strategies that emphasise prevention, detection, and treatment of illnesses. Their objective is to provide health care delivery solutions through the continuum of care (Policy Scout 2021). HMOs represent one of the most integrated forms of managed care. This includes the, at least, partial integration of service financing and service provision. HMOs either take over the service provision or conclude selective contracts with elected service providers to ensure service coverage for their members (Amelung 2012: 66). These contract negotiations can amount to considerable discounts in services. The HMO carries most of the financial risk for the service provision, but also directly influences and therefore controls quality and costs to a certain extent. One of the instruments for this is using primary care physicians as the coordinator of patient care needs (Amelung 2012: 66). The following sub-chapters discuss the establishment of a private HMO in West Africa regarding relevancy, investment, and risk factors.

2.1 Why a private HMO?

Countries in West Africa often have insufficient resources in the field of health care which makes risk-sharing mechanisms especially important. Many health care services are financed OOP by the respective population. The development of prepayment schemes to expand health insurance coverage and reduce OOP has been recommended by the Regional Committee for Africa by the WHO (Carapinha et al. 2011: 2). In spite of the billions of dollars of international aid that have been distributed, an astonishing 50% of West Africa's total health expenditure is financed by out-of-pocket payments (OOPs) by its population (WHO Regional Office for Africa 2013). For this reason, private HMOs represent an affordable and reasonable alternative.

In general, an HMO will only cover costs sanctioned by the primary service provider. This makes it possible to have well maintained private facilities and provide all services needed due to the simplified demand planning (International Finance Corporation 2013: 7). Moreover, it is possible to have quick medical attention as most private healthcare facilities are less busy compared to public facilities. Efficient delivery of health care services and enhanced member engagement regarding the patients' own health care should be provided. HMOs that typically provide basic insurance coverage coupled with selected preferred providers, are currently emerging throughout Sub-Saharan Africa. These usually involve a capitation model or in-house provision of care. By providing in-house health services (generally primary care), these HMOs can control claimed costs and fraud more efficiently. Although

cost containment can make insurance affordable, the main development impact is the creation of incentives to catalyse the development of a larger provider network. Currently this model is best developed in Namibia, Nigeria, and Zimbabwe (International Finance Corporation 2013: 7).

2.2 Sustainability of business, income & expenditure forecasts

To answer the open question of the positive outcome of investing in an HMO in West Africa, one must look at the initial calculations on the sustainability and income of the HMO and its forecasted expenditure. The following information in regard to financing is discussed more in-depth in Chapter 6, as the purpose of this chapter is to provide an overview for investment purposes.

First, when determining the target population of an HMO, sustainability must be considered. To achieve a high coverage in little time, the initial target area would be a high-density area such as capitals or big cities. Based on calculations from successful, existing HMO systems, the authors decided to set a monthly contribution rate of 6% of total income, an amount considered feasible for the target group of working members (Ministry of Health and Sanitation 2017: 55). With this steady contribution flow, the partial financial stability of the HMO would be ensured. With further development and calculating precision, the target group is able to be expanded. Sustainability is intricately connected to the second topic: income projections. This includes the allocation of financial resources based on revenue projections. With external contributors such as the World Bank, the Global Alliance for Vaccines and Immunisations (GAVI), and the Global Fund considered, an HMO in Guinea-Bissau was projected to achieve a total revenue of US\$ 23 million (see 5.8). Lastly, the revenue must be broken down into different expenditure categories, with the contributory percentage being set according to need. Based on calculations and assumptions made by the authors, 60% of the total budget would be allocated to the benefit package of the health plan, which covers various health areas and medical services. Reserve, administration, infrastructure, and expansion would each be assigned 10% of the budget (see 5.8). It is necessary to project expenditures at full capacity for these four categories during the implementation process of the HMO. With efficiency and standardisation, cutbacks in these areas can then be made.

Hygeia Nigeria Limited is an example of a successful HMO implementation. Founded in 2005, it is now one of the leading HMOs in Nigeria and other low- and middle-income countries (LMICs). In 2017, the company had an annual revenue of almost US\$ 24 million (Dun & Bradstreet n. d.). Large companies invested heavily, such as the International Finance Corporation, and it was accredited by the National Health Insurance Scheme in Nigeria (International Finance Corporation 2016). Although the implementation process requires a

large capital investment, a private-for-profit HMO can still be of interest to global fund partners looking to invest. In 2007, the Global Partnership on Output-Based Aid covered 70% of the project costs for implementing a pre-paid health scheme in Nigeria, which replicated the Hygeia concept (GPOBA 2007). With this contribution, a ten-year implementation period was enabled, which initially subsidised user premiums at 100%, and shifted to 0% subsidisation at the end of the implementation period. This type of commitment from global funds emphasises the need for HMOs in this context, as well as their successful implementation model in LMICs.

2.3 SWOT analysis

A SWOT analysis serves as the basis for strategic planning before the implementation of a company. This analysis demonstrates the strengths and opportunities of an HMO in West Africa, as well as its weaknesses and existing threats (Table 1). The authors of this paper executed a SWOT analysis based on the information included in the following chapters to provide an overview of strategic planning considerations for the HMO implementation.

Table 1: SWOT analysis of the implementation of an HMO in a LMIC in West Africa

<p><u>Strengths:</u></p> <ul style="list-style-type: none"> ▪ Nearly monopolistic position ▪ High quality of health care ▪ Wide range of various examinations and treatments ▪ HMO run by West Africans 	<p><u>Opportunities:</u></p> <ul style="list-style-type: none"> ▪ Emerging market ▪ Many potential new members ▪ Employee benefits as binding mechanism to HMO via health care plan provision ▪ Successful examples as guidance
<p><u>Weaknesses:</u></p> <ul style="list-style-type: none"> ▪ Uncertainty in finding investors for initial capital ▪ High initial investment with insufficient health infrastructure ▪ Affordability/willingness to pay by the members ▪ Economic dependency on external investments ▪ Market uncertainty ▪ Lack of qualified staff 	<p><u>Threats:</u></p> <ul style="list-style-type: none"> ▪ Low enrolment ▪ High burden of disease ▪ Pandemics ▪ Loss of investors ▪ Health provider absenteeism ▪ Safety hazards and political instability ▪ Corruption

(Source: Own presentation)

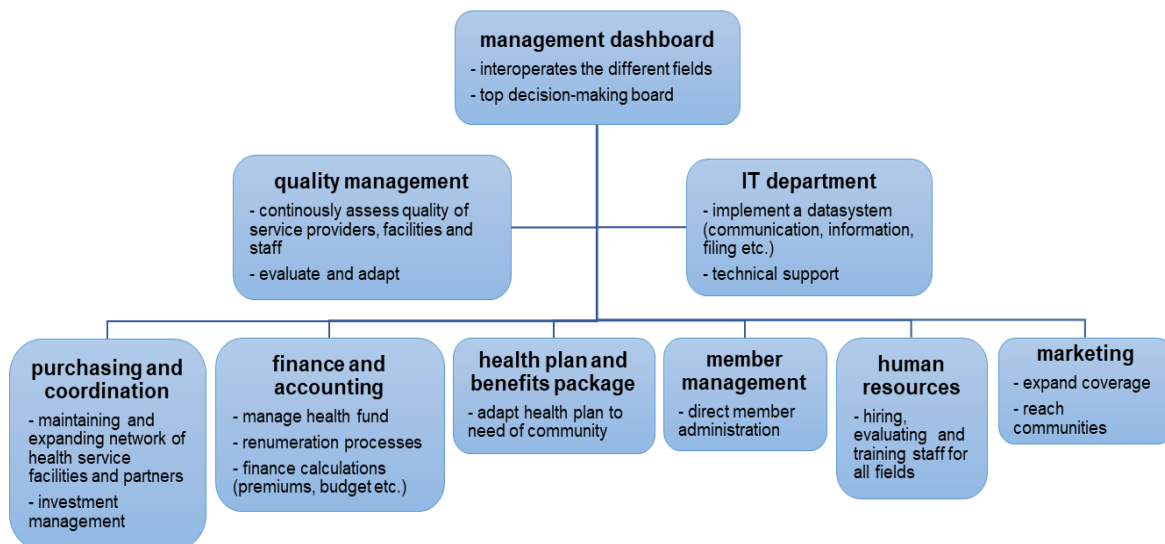
The success of the HMO can be achieved by taking a closer look at individual parts of the analysis above. It is important to clarify which threats the HMO is exposed to as a result of its weaknesses. For example, this could include the low enrolment of members, as many people do not have the means or willingness to pay the fee. One way to minimise this threat would be to provide transparent and easily understandable information about the HMO and its services for future members. Through this, people will see the benefits of an HMO and

be more willing to join. In addition, payment by instalments could be offered so that members can afford the membership even when they do not have enough money to pay the entire fee at once. Furthermore, it is important to look at whether the HMO is missing opportunities due to its weaknesses. While there is an emerging market with many new potential members, there is also market uncertainty, because it cannot be accurately forecast whether the HMO will be well accepted by people. Therefore, the HMO's weaknesses and risks need to be countered by its strengths. For example, due to the almost monopolistic position of the HMO in West Africa, it can be assumed that many people would join the HMO, as there is no alternative. In addition, a survey could be carried out regarding the residents' acceptance towards the HMO to counteract any uncertainty, before starting the implementation of the HMO. Finally, it must be clarified which strengths can be used to take advantage of opportunities. As the HMO is run by local people, there is the chance to bind them to the HMO using various benefits, such as a reduced membership fee for HMO employees. Overall, an HMO's weaknesses and threats must be addressed and minimised accordingly, whilst its strengths and opportunities should simultaneously be developed and utilised.

3 Administration

The administration of an HMO usually tends to have some hierarchical structural features. To explain this structure, nine overall fields and their underlying objectives have been identified (Figure 1). Evidently, these fields are multilateral and interact with each other. Nevertheless, the authors tried to separately define fields to demonstrate the entire administration of an HMO.

Figure 1: Overview of administration fields in an HMO



(Source: Own presentation)

The fields of marketing and member management were identified as most relevant and in need of further explanation and therefore will be focused on within the remainder of this chapter.

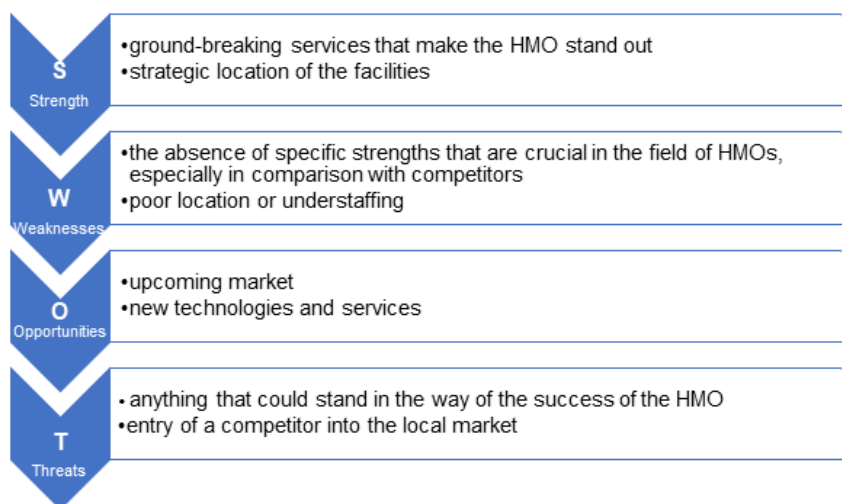
3.1 Marketing

Marketing is the first major key aspect in the field of administration of an HMO implemented in West Africa that needs to be considered. Marketing is the consistent alignment of the HMO to the needs of the respective target group (Wheelhouse Advisors 2020) and is essential as it helps to advertise the respected services and builds a relationship between the HMO and the potential members. Moreover, the marketing strategy generates growth for the HMO, based on its resources and capabilities, by choosing the right approach (Tefen Management Consulting 2016).

The first central step in the practice of marketing is the development and execution of a marketing strategy. A marketing strategy is a vision-driven, strategic detailed document that is meant to help facilitate the accomplishment of specific objectives, missions, and goals over a given period of time (Morgan et al. 2019: 4). A robust marketing plan, that employees

from different departments subscribe to internally, makes sure that all decision-makers are on the same page, streamlining the HMO and making operations more efficient. The departments must work in tandem to achieve overall success (Reddy 2019). The first step of the marketing analysis is the identification of the state of the health industry as well as the existence of competitors in the same area. Moreover, the areas worth engaging in must be clarified and a layout of the environment must be set. By identifying the most common diseases within the target population, the marketing plan can be specified further. An additional useful step towards a marketing approach is the establishment of a SWOT analysis; a strategic planning technique with four steps. It is used to help the HMO to identify strengths, weaknesses, opportunities, and threats related to project planning and marketing in particular (Vinerean 2017: 30f.).

Figure 2: SWOT- Analysis of marketing within an HMO



(Source: Own presentation after Reddy 2019)

The market structure analysis is followed by an analysis of the members, including the identification of the member profile. Several questions should be clarified: who are the potential members? What services do they desire? What is their main motivation to enrol? Lastly, all goals, objectives and plan of attack should be determined (Reddy 2019).

Recruitment of members is crucial to the success of the HMO. Different marketing approaches can be applied and should be used simultaneously to cover the majority of the respective population (Morgan et al. 2019: 8). A revolutionary change has occurred in the way people gather information about services they are interested in, particularly in an online setting. The transition to more online services has created the opportunity to better communicate and interact with the target groups of an HMO (Vinerean 2017: 28ff.). Therefore, a user friendly and mobile responsive website is a key element in the field of marketing as a significant amount of people from West Africa own a phone, but only a small group of people own a laptop (Kemp 2020). Especially the available services, the location and the

HMO's contact details must be clearly indicated. Social media is another medium that offers a setting for creating a competitive advantage for relations between potential members and service providers or targeted audiences of an HMO. Social media marketing is a differentiating factor for HMOs in online interactive settings, for a quality relationship (Vinerean 2017: 30). Especially the platforms "Facebook" and "WhatsApp" are convenient as they have the highest numbers of users throughout Burkina Faso (Kemp 2020). Social media makes the HMO relatable, and the staff can interact with current or future members and build a reputation. Posters and flyers in high density areas, and areas where people gather and spend time (e.g., market halls, public transport stations or hospitals) can also be beneficial. A consistent and recognisable logo and/or slogan makes the HMO easily identifiable and word-of-mouth will be ensured especially when the goal is explained successfully (Tefen Management Consulting 2017). However, there is a need for translators and recordings in different languages as most West African countries are home to a huge variety of languages. High rates of illiterates in West African settings make self-explanatory pictures a necessary inclusion (Statista 2018). Changes should be based on patient feedback through a diversity of channels. This demonstrates to members that the HMO values their opinion and is willing to take action based on the feedback. It should be made a priority, that every time feedback is received, it is collected and analysed, in line with the field of quality management (see Chapter 11) (Morgan et al. 2019: 6). The acoustic marketing will focus on using the radio, as it is one of the most popular mediums in Burkina Faso and West Africa in general. The radio has made it possible to reach people with low levels of literacy and those living in remote areas. The proliferation of stations and the popularity of programmes have given listeners a voice. The widespread use of mobile phones over the past decade has brought radio and listeners even closer, as the majority of people can react on air by calling or texting (Boudani 2020). Recorded information on the website and on social media will be placed next to the written texts. Employees of the HMO will distribute flyers and hold presentations in market stalls in different settlements of the countries. That ensures a high coverage, as even small villages have a rotation concept where the market takes place in a different location every day of the week (Aker/Fafchamps 2015: 263). All employees in the field of marketing must have a clear-cut understanding of the services and products, the necessity of them and how they are perceived by the target audience. That ensures a more efficient, cost-effective, and result-oriented marketing.

The marketing of recruitment of staff will focus on using the HMO's website, with a separate section for job offers. Online job boards which are mobile responsive will also be used to place job offers. Social media (especially WhatsApp and Facebook), university placement offices and secondary schools will be contact points for the potential future employees of the HMO. Especially in Burkina Faso, only a minority of adolescents attend secondary

schools, with an even smaller number of female students, which must be taken into consideration in regard to marketing in secondary schools and universities (World Bank 2021b). The radio will be used again to reach a broad range of different people within the target population.

Marketing in the case of recruitment of facilities will be focused mainly on the search for good quality facilities by observing daily procedures and processes within the facilities in Burkina Faso. The additional consideration of building new, optimally located facilities can also allow the accessibility for all members to be improved. Overall, the minimisation of travel costs in order to reach the facilities by HMO members can be reduced by building new, as well as recruiting optimally located, facilities (Severe Malaria Observatory 2019).

Difficulties regarding marketing success could be due to the lack of trust in insurance-type arrangements as members pay in advance for a service that they may or may not receive (Dong et al. 2013: 850ff.). Moreover, there is an absence of a formal insurance culture in Burkina Faso and West Africa in general (WHO 2012). In many cases the target population will have weak financial capacities, making it essential to advertise the reduction of OOPs during enrolment (Dong et al. 2013: 850ff.).

3.2 Member management

The second key aspect for the administration of an HMO in a LMIC is the management of its members. In a LMIC context, this administrative field needs to be adequately adapted to current underlying conditions of the target population, which are mentioned in Chapter 1. Member management includes all administrative procedures with direct contact to the insured person. The authors identified six overarching fields, which will be discussed in this chapter: enrolment, issuing of IDs, premium collection, member services, grievance procedures, and accessibility.

Enrolment deals with the eligibility and the unit of enrolment. The simplest forms of eligibility would be either citizenship, or residency, in the country. The former can be seen in the Ethiopian's community-based health insurance (CBHI), and is usually used in public government-funded schemes (Feleke et al. 2015: 4). The latter can be seen in private or for-profit health insurance schemes, which are more apparent in Kenya or Nigeria for example (Carapinha et al. 2011: 3), and more inclusive as they give access to several social groups, such as migrants and refugees. With a more widespread eligibility more people can be reached in the same geographic area. This would also include a more substantial money pool and broader risk sharing (van Hees et al. 2019: 12). In addition to the eligibility criteria, the unit of enrolment must be selected. The authors identified individual and household memberships as relevant for the HMO. Individual or person-specific memberships are common in high-income countries (HIC). LMICs on the other hand, are faced with problems if

health insurance schemes only accept enrolment in private health insurance schemes on an individual basis. Oftentimes, insurance schemes for workforce exclude children, women staying at home or senior citizens. Within the context of this HMO and the massive social exclusion of specific vulnerable groups in health insurance schemes in LMICs, a single membership carries a high risk for adverse selection (van Hees et al. 2019: 11). An instrument to tackle adverse selection is the enrolment at household level (van Hees et al. 2019: 12). For example, the residents of each household and, depending on the HMO definition, sometimes including up to three non-residents, can pay a collective premium to enrol all members of the household. All members of the household can then access health services individually and are independent from the head of the household. These memberships are used in several health insurance schemes in developing countries with a growing enrolment rate and successful counteraction of adverse selection with the inclusion of higher risk members of households (Carrin et al. 2005: 803). Therefore, the authors propose enrolment at household level for the HMO.

With the enrolment criteria set, the HMO must ensure an accessible and feasible method of premium collection. This aspect is important to ensure the continuous membership of the HMO. A framework needs to consider the different geographical and systematic challenges for the premium collection. The collection process in LMICs is made difficult by the lack of digital financial services. Currently only about 43% of Sub-Saharan Africa have access to different modern options, such as mobile wallets or agent banking (World Bank 2018a). This number, which has grown at high rates over the last years, is still not sufficient for a finance strategy dependant on bank transfers. For this reason, a physical method of submitting premiums must be ensured. The most plausible way for this is the collection of premiums at local health facilities. The geographical barrier is the lowest at these facilities. With local money pooling instruments at hand, this would also enable the ability for local solidarity funds. Local health facility pools, in addition to the regular overall money fund, could subsidise premiums of poorer households according to their definition and the needs of the community (Wang/Rosemberg 2018: 25). Remittances from foreign sources also play an important role in countries with high emigration rates. According to the World Bank, Burkina Faso had a net migration of approximately 125.000 people in 2017 (World Bank 2019a). Money transfers would therefore enable people to cover the premiums of families or relatives living in Burkina Faso using income earned outside of the country. In addition to the collection process, the collection period requires close consideration and should not be generalised. For a monthly or yearly collection period different benefits apply. In some contexts, as demonstrated by Ethiopia, a monthly collection period works best as a monthly premium poses a lower barrier compared with a yearly premium of one large payment all at once (Feleke et al. 2015: 4). In Tanzania on the other hand, a yearly payment system has been more suitable due to the dependence on agricultural yields (Wang/Rosemberg 2018:

26). With crop harvest comes income, allowing payments to be made, whereas monthly payments could stop during droughts or awaiting harvests and prevent continued enrolment. LMICs, such as Guinea-Bissau, rely mainly on this type of income with over 67% of employment in agriculture in 2020 (World Bank 2020g). Furthermore, premium collection also addresses risk management. Ethiopia's CBHI offers a comparable example of this. Within this scheme, enrollees have a one-month waiting period after enrolment before they can access the covered health services (Feleke et al. 2015: 4). This fortifies enrolment before sickness. Due to the initial target group being highly populated areas such as capitals and big cities, a monthly premium collection at local health facilities with the possibility to transfer contribution payments also from out-of-state and a one-month waiting period after enrolment was identified as the most suitable solution for the HMO.

In 2018, the World Bank published a paper in which the importance of identification (ID) for health in LMICs is explained and knowledge regarding emerging health sectors is summarised (World Bank 2018b). The authentication of enrolment to access covered services is considered an essential factor, as health insurers need to be able to identify enrolled patients. With an ID, quality of treatment and efficiency of patient management can be improved and strengthened. This can also be used for medical records and treatment histories. Overall, an ID facilitates usage of health services for patients and for medical staff, reduces fraud and improves data collection, which can be used for statistical purposes. All of this enables planning, evaluation, emergency response, improved treatments, and disease management. For the application of an identification system there are two options. Firstly, the creation of a health-specific functional identification system, such as an electronic health record or other mobile health applications. This could be in the form of a health card for every insured person. Implementing a new system requires a lot of administrative resources and if the resources are not available for proper implementation, the mentioned benefits will most likely be forfeited, with inferior care being the result. A stand-alone system often "cannot communicate, transfer data or records, or aggregate data between or within facilities" (World Bank 2018b: 1). Hence, the authors decided the second option would be more suitable for the HMO, namely the usage of existing foundational identification systems as basis for a health ID. Existing systems can take the form of national ID cards, population registers or unique identification numbers. This has been successfully done in many countries, such as Botswana with identification for HIV/AIDS care, or in Thailand with combining different databases for a universal healthcare registry (World Bank 2018b: 2). This can eliminate health-ID specific costs with an increase in efficiency and enables opportunities for interoperability with other databases, for instance, for social aid or similar governmental systems. Nevertheless, potential drawbacks are not excluded. Some countries are struggling with government identification systems due to low coverage or lack of robustness of

ID systems. In Chad, for example, there are no centralised archives of civil registration information and the records are scattered throughout the country, and in 2017 the estimated registration rate was at 40% (World Bank 2017: 10). In addition to that, an overarching database can pose as a privacy hazard if the system is not safe. For these reasons, a target population with a safe and successfully implemented ID system with a coverage of above 70% is recommended by the authors.

The fourth field is member services or care. This entails any kind of support for insured people. The range of member services includes help with completing contracts, support for technical or membership issues, and the assistance of members in finding doctors and care that meet their needs. Member service is the helping hand for any occurring questions and problems and therefore needs to be connected via phone but also via physical access to ensure accessibility for everyone. The authors agreed a call centre with email access and approachable offices at main health facilities would be the best possible realisation of member service.

Connected with member services is the field of grievance procedures. A grievance is, in short, a complaint management system including processing and evaluation of complaint for improvement (CMS 2020: 18f). Complaints can concern aspects related to provision of health care or prescription drug services, issues regarding the health care plan or any accessibility remarks. With a changing environment and many varying factors, as is the case in LMICs, a complaint management is necessary to ensure that the community is engaged in adapting health care plans to their needs. Resources for member services should also be used for grievance procedures and grievances need to be evaluated on a regular basis for possible improvement proposals.

Key messages:

- The administration of an HMO consists of nine interconnected fields: management dashboard, quality management, IT department, purchasing and coordination, finance and accounting, health plan and benefit package, member management, human resources, and marketing.
- Different marketing approaches should be used to bridge the gap between communities and HMO by establishing informative advertising (e.g., mobile responsive website, social media, posters, flyers, radio, recorded information).
- An HMO's member management includes enrolment, issuing IDs, premium collection, member services, grievance procedure, and accessibility – all of which need to be carefully adapted to the given context.

4 Human resources

Human resource management describes the optimal use of staff with the aim of contributing to the company's success. It can be defined as “a strategic and coherent approach to the management of an organisation’s most valued assets – the people working there who individually and collectively contribute to the achievement of its objectives” (Armstrong 2006: 3). The goal of human resource management is that an organisation achieves success with the contribution of its staff (Lindner-Lohmann et al. 2016: 1). Human resource management of an HMO can include the several subtopics. First, the staff of the HMO must be recruited, especially medical staff and administrators, a process which includes both marketing and application. Second, staff controlling is needed with planning, supervision, and navigation of the staff. Finally, staff retention with incentives and remuneration and staff development with promotions, job design and further staff education are also extremely useful (Lindner-Lohmann et al. 2016: 5ff.). The following sections will explain staff development and staff retention in more detail; two essential topics for an HMO.

4.1 Staff development

Staff development is the totality of all measures and activities which serve to harmonise the company’s requirements with the abilities, skills, motivations, and behaviour of the staff (Lindner-Lohmann et al. 2016: 162). There are various objectives of staff development, these can include for example to support the achievement of the organisation’s goals, to meet the demand for professional and managerial staff, to improve the flexibility and performance of employees and the motivation and retention of staff (Lindner-Lohmann et al. 2016: 164; Kauffeld/Grote 2011: 114). There are many different measures that can be used for staff development, as listed below.

4.1.1 Staff interviews

Staff interviews are an important measure of staff development, in order to stimulate an exchange between a supervisor and their staff on a regular basis. The interviews are used to talk about the work- and professional situation, which gives the staff orientation about their location in the organisation and personal perspectives. Furthermore, it promotes their ability to identify with the company and its goals. In addition, staff interviews can be used to analyse problems and difficulties and discuss possibilities for improvement. It is also used to agree on new objectives, to address strengths and weaknesses of staff and supervisors and to promote professional development of staff (Papenfuß/Pfeuffer 1989: 398).

4.1.2 Mentoring and coaching

Mentoring and coaching is especially important for an HMO in West Africa as the education standard is not as high as in European countries and there is a lack of resources for education (UNESCO Institute for Statistics 2019). Some well-educated staff members can take on the role of coaches and mentors and train other staff members. Coaching is important for personal and professional development and is mostly used for members with management tasks. A coach is a process consultant and uses a variety of methods (Lancer et al. 2016: 5ff.). In the HMO context, coaching could be used for managers of the HMO or heads of departments. In addition, mentoring could also be used to integrate new staff into the organisation and teach them new skills. A mentor is always an experienced member of the organisation that gives advice based on their experience in the organisation (Lancer et al. 2016: 5ff.). Mentoring can therefore be used for new organisation members in lower positions like nurses, administrators, and people without formal education. Mentoring and coaching make it possible to hire people with low formal education and train them over time.

4.1.3 Job design

Job design is another important measure for educating staff, which often includes four common designs. One design is called job enrichment, where additional tasks of varying degrees of difficulty are given to the staff, requiring them to take over planning, decisions, and control over time (Schreyögg/Reuther 1997: 326). A second design is called job enlargement, and involves tasks being expanded with different yet similar tasks in order to counter monotony. Thirdly, job rotation of staff can be scheduled, allowing them to change their workplace (Schreyögg/Reuther 1997: 325) and giving staff the opportunity to get to know all areas of the HMO and flexibly change their work area when needed. For example, due to job rotation, nurses can become familiar with all stations in the hospital, and administrators with all stations in the administration of the HMO. This could be useful if some staff members are unable to come to work. Finally, semi-autonomous working groups can be used as a job design, in which staff members can decide independently on the allocation of tasks. This relieves supervisors of delivering work instructions as the group is able to organise itself (Schreyögg/Reuther 1997: 327).

4.1.4 Training programmes

In addition to the above-mentioned aspects, it is extremely useful to implement a range of training programmes to develop staff. This allows staff to continue their education without leaving the organisation (Schäferhoff 2014). There are a number of different training programmes and opportunities for an HMO, the most important of which will be listed below.

The HMO could offer language courses to improve the communication between staff members, seeing as many different languages are spoken in West Africa (Brenzinger 2005). Microsoft Office courses would also be an additional useful training tool, as many people do not have access to a home computer and are not well educated in this area of work (Statista 2021). Moreover, the HMO could offer their staff financial support towards the attendance of university courses. As many people cannot afford university courses this would provide them the chance to further educate themselves. Soft skill training and leadership coaching are also useful training programmes.

4.2 Staff retention

Staff retention is an important aspect of internal human resource marketing and is the desired outcome of staff support. The primary goal is to secure the commitment of staff, both now and in the future (Lippold 2015: 29). The benefits of successful staff retention include preserving knowledge and know-how and reducing costs through less staff turnover. This also leads to less stress and burnout, fewer sick days among the workforce, and helps to create a good working atmosphere. Other aspects include better quality of performed work and as a result the better reputation of the company (Frey 2013: 103).

4.2.1 Intrinsic motivation

The behaviour of staff is dependent on their inner motivation regarding actions. In addition, intrinsic actions are associated with a positive feeling, as it enables the acting person to self-actualise (Kunz/Quitmann 2011: 58). Therefore, promoting and stimulating internal motivation is essential for long-term staff retention and consequently contributes to an efficient and high-performing workforce. Retaining staff for an HMO additionally requires consideration of country-specific factors. In some countries people often live in fear of terror and, especially in the more rural areas, even the basic physiological needs cannot always be satisfied (OSAC 2020). In order to enable the staff to achieve the main goal of self-actualisation, the HMO can start by providing its staff with free water, food and work clothes. In addition, it is important to provide stability by guaranteeing job security, so that the fear of losing income can be reduced. Besides meeting basic needs, the HMO should also offer corporate incentives. These can be incentives within the organisational environment, the work itself, as well as social and financial incentives.

4.2.2 Corporate incentives

Examples of corporate incentives are corporate culture, social climate, the work itself and remuneration (Lippold 2015: 32). Implementing an appreciative corporate culture is essential in order to work together productively. This requires the staff to be able to identify with the company's goals and plans, leading to shared values and norms (Badura et al. 2010:

54). Corporate culture also includes diversity management. Diversity management ensures equality and appreciation of each staff member. Its task is to prevent any discrimination based on age, cultural origin, religion, disabilities or gender, and to respect the needs and interests of each employee (Franken 2015: 11ff.). In an HMO, many people from different countries and backgrounds work together, therefore mutual acceptance and cooperation are important for a healthy social climate in the workplace (Badura et al. 2010: 53ff.). Corporate incentives can further be divided into tangible incentives, such as remuneration, and intangible incentives, such as the work itself (Lippold 2015: 32).

When considering the possibilities for these incentives, many aspects can be listed. An HMO might offer multiple options regarding remuneration, for example, that staff can use the services free of charge. Additionally, close family members might not have to pay the full price either. If regionally possible, travel costs should be covered by public transport up to a certain amount. Funds for scholarships to support good students are also a useful measure to retain them as staff later on. The provision of a car for doctors to make house calls is also conceivable. On the other hand, there are also many opportunities for intangible incentives. As a reliable employer, the HMO is a safe choice for staff. Professional development and training can be provided. In addition, high-quality equipment is used. In-house day care also allows mothers to work.

4.2.3 Occupational health management

In addition to motivating staff, it is also important for every company to take care of the health of its staff at work. Occupational health management promotes the health of the staff during work and educates them to behave in a health-promoting manner (Badura et al. 2010: 33). Measures considered useful in the context of an HMO include hiring a psychologist and physiotherapist to maintain mental and physical health. Ergonomic keyboards, for office workers and ergonomic operating chairs, for doctors can also be provided, in addition to an addiction prevention programme and occupational safety measures.

Key messages:

- Staff development expands staff competence, which increases their motivation and job satisfaction leading to an increase of performance and productivity improved staff retention.
- Comprehensive staff development makes the HMO more attractive for potential new staff and gives it a competitive advantage over other organisations.
- Staff retention is important for ensuring a long-term commitment to the company. Motivating staff and enabling them to exercise, develop and share their skills will lead to the success of the company.

5 Financing

This section of the report will focus on financing issues that need to be considered in order to set up an HMO successfully.

5.1 Financial barriers

The highest burden on financing of health services is caused by informal payments, predominantly found in African countries. In the health sector, informal payments can include cost-contribution payments, solicited unofficial salary supplements and unsolicited donations. Consequently, equity and quality are impacted, and the efficiency of services are undermined. Most often, informal payment services are used by individuals that are not able to afford official services, which can lead to delayed or even withheld treatment if no financial resources are available. Especially in rural areas healthcare is often insufficiently organised and many patients lack proper education and information in regard to user fees in order to recognise exorbitant prices. An estimated 10% to 45% of informal payments in Guinea-Bissau are comprised of OOP payments, which is a convenient coping mechanism for informal health workers with poor working conditions and low or irregular salaries (Kitson 2019: 7 f.)

West African countries show a strong dependency on external aid for health budgets, as statutory contributions are limited to a minimum and may not even cover the salaries of the whole health workforce (WHO 2016b: 1). A need for action and the reconsideration of current financing policies are essential in order to overcome financial barriers, with the overall goal to improve equity, efficiency and quality of care for every citizen. Most importantly, sustainable, well-functioning and long-term health financing systems must be established (Kitson 2019: 23 f.).

5.2 Funding

Funding can be understood as the process of revenue collection. It is feasible to differentiate between who is paying, what kind of payment is being made and who collects the resources (Mossialos/Dixon 2002: 4). The provision of a basic package of essential services and financial protection against catastrophic financial losses through illness or crop failures should be considered when collecting and raising sufficient revenue (Salehi 2010: 10).

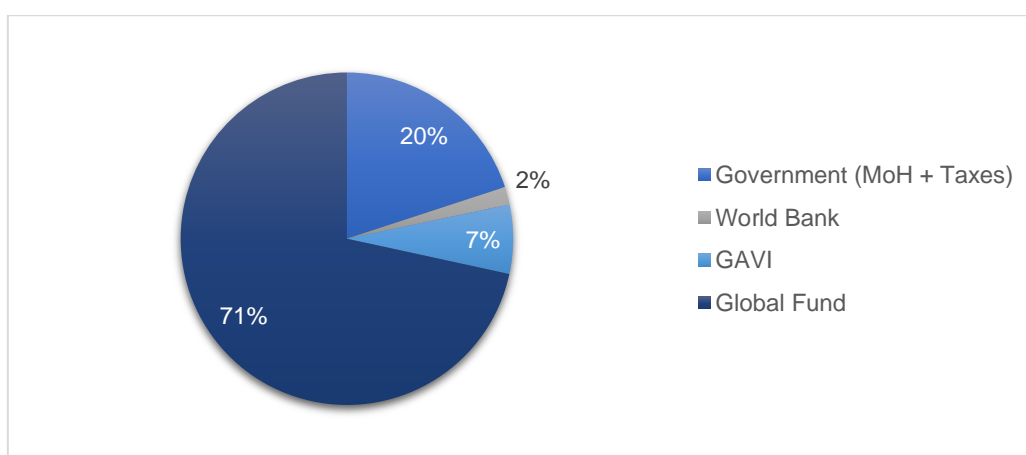
Major challenges in funding an HMO are demonstrated by difficulties in increasing available funds in order to provide sufficient, accessible and quality health services. Possible solutions can include the expansion of domestic funds or the diversification of the country's funding sources. Therefore, governments should give health a higher priority when allocating their budget (WHO 2021b).

5.3 Further funding resources

When national funding resources are limited, external investments become more important for financing an HMO. This frequently includes investments by international donors, non-governmental organisations (NGOs), and other private donors, often provided by earmarked programmes with specific targets. In Guinea-Bissau, all three sources of external investments mentioned are present and necessary, as health financing depends principally on external aid. Huge external financial resources are contributed by the World Bank (World Bank 2021c), GAVI (GAVI 2020) and the Global Fund (The Global Fund 2021). In some cases, patients are supported financially by earmarked programmes for specific health issues (World Bank 2019b: 24 f.). There are also earmarked programmes with a focus on maternal and child health, which guarantee healthcare free of charge for these population groups (European Commission 2021, UHC2030 2021).

The authors of this publication estimate, that approximately 5,6 % (US\$ 1.25 million) of the overall budget from this HMO will derive from allocations by external, governmental and non-governmental partners. Figure 3 illustrates the expected proportion each of these partners will contribute to the external funding of the presented HMO.

Figure 3: Share contributed by different partners to the external funding of HMO



(Source: Own presentation after Russo et al. 2017; World Bank 2021c; GAVI 2020; Global Fund 2021)

5.4 Pooling

Pooling is defined as “the accumulation of prepaid healthcare revenues on behalf of a population” (Kutzin 2001: 177). In other words, this means that different revenue streams such as donations and contributions are collected in advance and put into one ‘pot’ to finance the healthcare costs of insured members.

Pooling of financial resources is an important financing opportunity for HMOs due to the following advantages (CABRI 2005; Kutzin 2001: 177 ff.):

- Enables complementarity of different funding sources (defragmentation)
- Allows the possibility of administering different funding resources
- Simplifies financial flows
- Secures the cross-subsidisation of available prepaid funds and therefore enhances insurance member equity in financing and access
- Reduces risk if a resource dissipates and therefore supports viability of an HMO

To benefit from these pooling advantages, it is essential to have technical equipment and regional experts for the management of pooling systems in place.

5.5 Allocation of funds

The allocation process encourages the purchase of health services to be strategic, and allocatively and technically effective (Salehi 2010: 10), for which the following questions need to be asked. Are funds allocated in a way that healthcare needs are met? Which population size, gender or age groups should be covered? Which institutions are required? To answer these questions, several steps need to be considered during allocation. First of all, *alignment issues*, which relate to how revenue aligns with other sectors or the benefit package. Secondly, *purchasing services*, for instance how to allocate financial resources to different health service providers. And lastly, the *flow of funds*, which should have a clear structure from the funding source through to the pooling and purchasing mechanisms. Due to these reasons, the provider payment system and market structure, together with organisational setup between purchasers and providers, need to be taken into account (WHO 2017a: 14 ff.). In LMICs, HMOs should consider population groups with the lowest income, families, and populations living in rural areas as well as facilities with the lowest infrastructure. The role traditional medicine and traditional healers play must also be taken into account, as often rural populations put more trust in and are familiar with these services (Diniz et al. 1994: 729).

5.6 Calculation

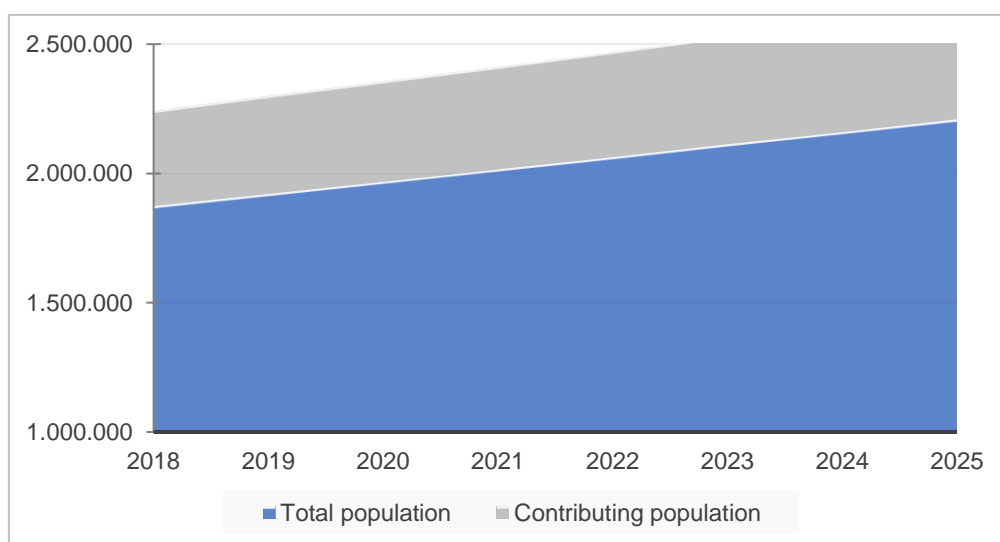
When calculating financial resources for an HMO, several issues need to be considered:

- Which external financial resources are available?
- How much money does the government spend on the health system?
- How much money can be raised by population contributions?
- How much money is needed for the different aspects of implementing an HMO?

As resources are limited, the set up and maintenance of a successful HMO is insecure, and the risk of miscalculation high. This makes it necessary to calculate conservatively, especially during the launch phases of the insurance, in order to forecast how much money, and from which resources, will be available for the final allocation. Next, the overall financial capacity and distribution of spending for 2020 will be demonstrated using the example of Guinea-Bissau. The underlying actuarial calculations are presented in Appendix 1 “Actuarial calculations – Guinea-Bissau”.

Currently, Guinea-Bissau has a population of two million people, with an average growth rate of 2.5% (Figure 4). The selected population to be covered by the HMO are those working and living in the capital, Bissau, between the ages of 15 to 64. This population group, comprising of 214,000 individuals, has been considered suitable for covering contribution payments. Usually, education is compulsory and free for individuals until the age of 15, after which secondary and higher education is possible but certainly not given, and is mostly carried out abroad due to higher quality (Nichols 2021). After the HMO has been implemented and is working well, coverage can be extended to include further population groups.

Figure 4: Population projections Guinea-Bissau



(Source: Own presentation after United Nations 2019; Worldometer 2021b)

Revenue projections consist of different funding sources and contributors (Table 2). With an annual average income of Bissau’s working population of around US\$ 1,700, of which 6% is contributed to the HMO yearly, around US\$ 21 million would be generated annually. Additional external resources, comprising governmental and non-governmental revenues are also relevant for the calculation. Non-governmental revenues consist of international donors like GAVI, the Global Fund and the World Bank, as well as private donors and earmarked funds. Governmental revenues are covered by the Ministry of Health and the populations income tax. Altogether Guinea-Bissau currently generates approximately US\$ 25

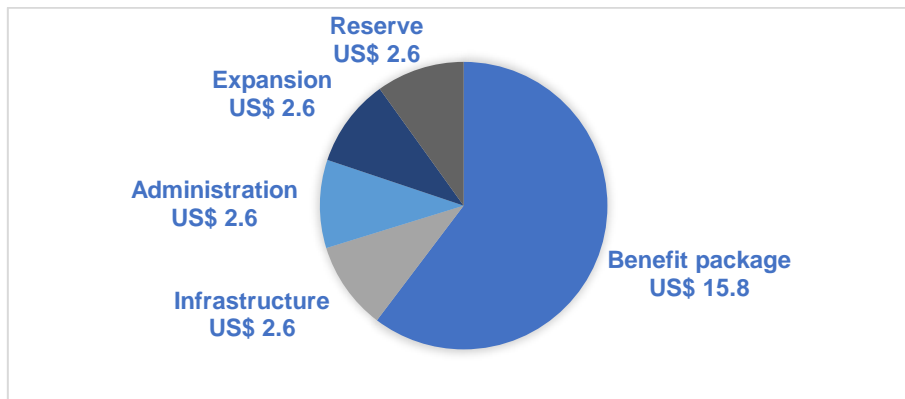
million through all external revenues; of which 5% would be allocated to the HMO. This 5% allocation rate is based on calculations carried out by other successfully implemented HMOs in order to integrate them into the national health care system (Ministry of Health and Sanitation 2017: 55). This percentage of external resources, together with the formal contributions of the population, would annually result in an estimated US\$ 22.25 million available for allocation by the HMO.

Table 2: Revenue projections Guinea Bissau

Formal contributions		
Number of contributors	214,000	
Average yearly insurable income per contributor	US\$ 1,670	
Contribution rate	6%	
Average contribution per contributor per year	US\$ 100	
Total sum	US\$ 21 million	
External resources (yearly budget in US\$)		
Governmental revenues		
Ministry of Health	23,000	
Population income tax	5 million	
Percentage allocated to HMO	5%	
Total sum	251,000	
Non-governmental revenues		
International Donors	World Bank	433,000
	GAVI	1.69 million
	Global Fund	18 million
Percentage allocated to HMO	5%	
Total sum	1 million	
Total HMO revenue	22.25 million	

(Source: Own presentation after Russo et al. 2017; World Bank 2019b; World Bank 2020d; GAVI 2020; The Global Fund 2020)

The next step of the calculation is the benefit cost projection, where the financing of various sectors and services needs to be considered. Five categories were selected for this, based on research by the authors, towards which the total budget would be allocated (Figure 5). Firstly, the benefit package, which covers various health areas and medical services, would be allocated 60% of the total budget. Additionally, 10% of the budget would be assigned to each of the remaining categories: infrastructure, administration, expansion and reserve. A reserve is essential in case any funding sources or income contributions are cutback. Based on these calculations, the HMO would reach an average annual per capita cost of approximately US\$ 61 per member.

Figure 5: Benefit cost projection (in millions)

(Source: Own presentation after actuarial calculation in Appendix 1)

In the final step of the actuarial calculation, an actuarial balance is required. This balance is essential for demonstrating whether the entire cash outflow can be covered by the cash inflow, composing of population contributions as well as internal and external contributions. A complete actuarial calculation is required in order to determine if the implementation of an HMO in a West African country is economically feasible.

Key messages:

- The target population, financial barriers, funding resources, management of funds, and specific country challenges must be considered in regard to an HMO's financing.
- Requirements for optimising internal funding relevant to an HMO include: more health-related government investment, sensitisation, a health supporting tax system, and less informal and OOPs.
- To calculate the required funding, an HMO must consider cost projections for the benefit package, infrastructure development, administration, expansion and a reserve.

6 Accreditation

Accreditation is described as a process of official public acknowledgement by a mandated healthcare body. Initially an assessment of the level of performance in comparison to set standards to improve the overall performance is required to achieve this (Mansour et al. 2020: 1 and 9). However, as little information was available in regard to current accreditation schemes in West Africa, the following section will examine overall accreditation aims and relevant actors. Additionally, existing schemes in other countries will be presented, in regard to their potential implementation within an HMO in Côte d'Ivoire.

6.1 Aims

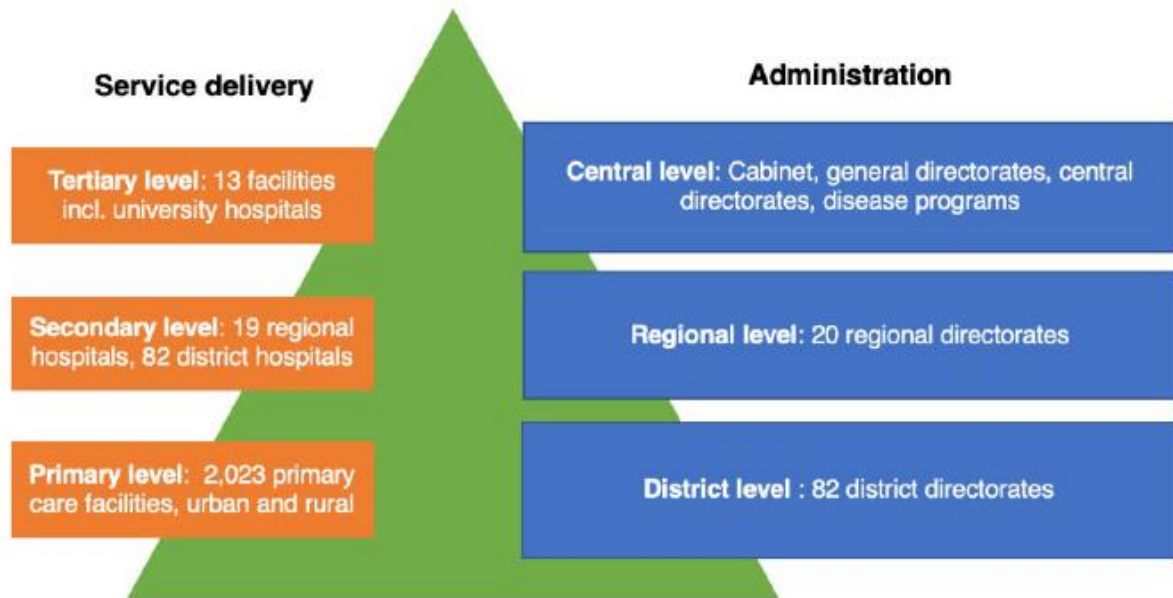
Having the overall goal of quality improvement in the health sector in mind, accreditation schemes aim to enhance the public accountability of healthcare organisations. This can be achieved by putting the Ministry of Health (MoH) in place as an accreditation body to oversee the initial assessment, and as a standard setting institution. Accreditation schemes can also be used as improvement tools (Mansour et al. 2020: 9). This accounts for both the public and private sector if i.e., an accreditation system is linked with a hospitals reimbursement scheme to drive improvements. Furthermore, accreditation can be used as an indicator for internationally high-performance (Mansour et al. 2020: 9). This is of special interest in the field of medical tourism if it is assumed that patients are seeking the best quality care, and therefore use international accreditation schemes as a marker for this.

6.2 Involvement

For the successful implementation and maintenance of an accreditation scheme, actors from different levels and fields are needed. Figure 6 shows the different levels of governance from a service delivery and administration perspective in Côte d'Ivoire, which must be considered depending on the given circumstances. Furthermore, the stakeholders can be assigned to different categories depending on their level of governance. As mentioned above, the MoH is a possible actor who would be classified on a national governmental level. The MoH can help maintaining financial and political support which subsequently enables more sustainable programmes. Also, if used as an accreditation body, it avoids the financial burden of additionally implementing such an entity (Mansour et al. 2020: 11 f.). National stakeholders from a service delivery perspective can include health professional associations in Côte d'Ivoire. These could be i.e., regional or national physician associations whose objective it is to "direct all available national resources toward one common strategic objective that is improving the quality of care" (Mansour et al. 2020: 11 f.). International state or non-state actors can serve as donor agencies – such as the Bill and Melinda Gates

Foundation – or help by providing technical support to government and health care organisations in the form of health expert consultants (Mansour et al. 2020: 11 f.). An HMO therefore needs to approach and collaborate with these different levels of actors in order to ensure an effective accreditation scheme.

Figure 6: Governance structure of the Ivorian health system



(Source: Duran et al. 2020: 42)

6.3 Hospital accreditation

The first example of an existing accreditation scheme can be seen in Liberia. The accreditation system was planned and implemented by the Liberian Ministry of Health and Social Welfare as a component of the broader “Basic Package of Health Service”. The scheme aims to evaluate existing services and critical management systems and therefore demonstrate areas of improvement (Cleveland et al. 20011: 272). Table 3 presents the nine categories under which health facilities were assessed, including their specific weight within the overall facility score. For example, the category of health services was most weighted, as these are the services required under the compulsory “Basic Package of Health Service” (Cleveland et al. 2011: 274). Based on the assigned scores and their weighting, an overall facility score was calculated. Depending on the score, certification using stars were granted as a symbol of accreditation, with an overall facility score of 75% or above being awarded a “Bronze ½ Star”, 85% a “Silver 1 Star” and facilities which met all requirements a “Gold 2 Star” (Cleveland et al. 2011: 275). The accreditation scheme resulted in “unprecedented amounts of comprehensive, timely and detailed information [...]” (Cleveland et al. 2011: 276). Based on this information, more evidence-based decision making and priority setting

was made possible. It also showed potential strengths, weaknesses and areas of improvement while increasing accountability. It is important to note that major investments in laboratory capacities were made following the accreditation assessment, as all facilities scored relatively low in this category and this apparent weakness was revealed (Cleveland et al. 2011: 276 f.). In Côte d'Ivoire this type of accreditation scheme could be carried out in co-operation with an HMO in order to support the government in implementing and conducting the accreditation process within both public and private health facilities.

Table 3: Accreditation categories for hospital assessment

Category	Weight	Example standards
Human Resources & Facility Operations	7.5%	- Appropriate staff number and qualifications - Evidence of conducting performance evaluations
Pharmacy, Dispensary and Storeroom	7.5%	- Proper storage of drugs and supplies - Standardised and complete record keeping
Drugs and Supplies	7.5%	- Availability of essential drugs - Availability of key disposable supplies, i.e. gloves
Laboratory & Diagnostics	7.5%	- Availability of standard diagnostic tests - Completeness of record keeping
Equipment	7.5%	- Presence and functionality of essential medical and non-medical equipment
Communicable Disease & Infection Control	7.5%	- Presence of hand washing stations in all clinical areas - Appropriate waste disposal practices
Medical Records and Guidelines	7.5%	- Use of a single medical record number for each patient - Record location and access protect patient confidentiality
Infrastructure	7.5%	- Structural integrity of health facility - Adequacy of space to meet demand
Health Services	40%	- Current availability of services required under the BPHS in each category
Antenatal Care		
Labour, Delivery and Postpartum Care		
Newborn Care		
Reproductive and Adolescent Health		
Child Health		
Communicable Disease		
Mental Health		
Emergency Care		
Sexual & Gender-based Violence Care		

(Source: Cleveland et al. 2011: 274)

6.4 Nursing education accreditation

A second example of a successful accreditation scheme is in South Africa, which implemented an institutional accreditation of nursing education. In the context of South Africa, only institutions and educational programmes accredited by the Nursing Education and Training Quality Assurance are legally allowed to provide education or training to qualify a nurse (Mtshali et al. 2019: 92). Mtshali et al. (2019: 93) conducted a qualitative study with heads of nursing education institutions to examine potential benefits from the accreditation scheme. These benefits were categorised into four themes, namely: a) institutional benefits, b) nursing educators' benefits, c) students' benefits and d) nursing education benefits. When summing up the specified benefits from the different categories, it can be said that accreditation in general increased the institution's prestige as it was seen as an example of

best practice and networking opportunities. Furthermore, the accreditation promoted standardisation, effectiveness, and quality in regard to teaching and learning. It also enabled the educators to assess performance compared to set performance standards and work further towards their improvement. Accreditation not only benefitted the institution and the educators, but also the students, as their prestige increased and created a higher demand of graduates in the workplace (Mtshali et al. 2019: 93 ff.). As in many West African countries, nurses are usually the first point of care on a primary level of health provision in Côte d'Ivoire. However, there is a major lack of data regarding the qualification and distribution of health personnel, especially in the private sector (Duran et al. 2020: 43). A functioning accreditation scheme, such as the example from South Africa, could allow an HMO to improve data availability, ensure standardised quality treatment, and set further standards for both the public and private sector.

6.5 HMO relevance

In general, HMOs can take over several different types of functions in regard to an accreditation scheme. Depending on the current state of an accreditation system – for example if none exists yet – an HMO can promote and advocate the necessity of developing and implementing such a scheme for the above-mentioned reasons. An HMO can also act as an accreditation body itself, assigning certificates to eligible healthcare institutions. Alternately, it can either directly manage a healthcare institution seeking to acquire an accreditation certificate itself or help such an institution by providing technical and financial support during the accreditation process (UNIDO 2017: 16 ff.).

In conclusion, it is clear to say that working accreditation systems have apparent benefits, as demonstrated above. However, there are always certain challenges in the process of planning, implementing, and sustaining such a scheme. These include limited available resources to implement and sustain such a project (Mansour et al. 2020: 12). Further hindering factors which have to be taken into account are the given political situations, such as that in Côte d'Ivoire. Shaped by two civil wars and inconsistent government and policies, this could lead to insufficient commitment for the programme. This goes hand in hand with other issues on a governmental level such as policymakers' specific interests, which are not always in line with potential health benefits, and corruption (Mansour et al. 2020: 12). Other hindering factors, summed up as application factors, include poor available hospital infrastructure, lack of technology, inadequately trained hospital staff and a general lacking commitment and enthusiasm about the programme (Mansour et al. 2020: 13).

Key messages:

- HMOs can interact with stakeholders of different areas and levels to establish an accreditation system.
- An HMO can seek to improve performance quality of healthcare by supporting the establishment of an accreditation scheme.
- The political and social conditions must be considered by the HMO in order to effectively implement an accreditation system.
- An HMO must take limited resources into account, resulting from general scarcity or critical circumstances.

7 Service availability and readiness

Reliable information on service availability and readiness is necessary for successful health systems management. This is because it can allow health systems to be tracked, in terms of how they have responded to changed inputs and processes, and whether these changes have improved health outcomes or not (WHO 2013: 7). This chapter will provide a basic overview of what would need to be considered in terms of availability and readiness when setting up an HMO, taking into account the impact that access can have. Examples from Côte d'Ivoire will be used to illustrate this.

7.1 Access

When talking about the dimensions of service availability and readiness, it is important to additionally keep service access in mind. Service access includes a number of components: availability, which refers to physical presence of health facilities or workers; accessibility, which refers to how easily a patient can reach a provider's location; affordability, which refers to the ability of patients to be able to pay for a service; and acceptability, which refers to the sociocultural dimension (WHO 2013: 9). It is important for an HMO to take each of these components into account, as just because a service is available or ready, does not mean that people will be able to access it (McLaughlin/Wyszewianski 2002). For example, when it comes to accessibility, geographic barriers and travel time would need to be considered in addition to the general availability of a facility.

7.2 Service Availability and Readiness Assessment (SARA)

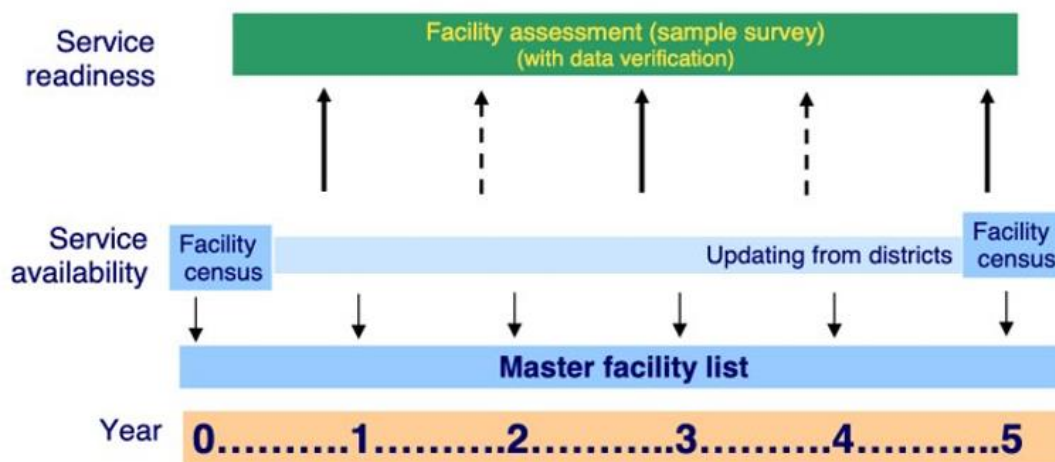
When it comes to addressing the issues of service readiness and availability, there are many different frameworks that can be used to measure these dimensions. One of the most well-known frameworks for doing this is the Service Availability and Readiness Assessment – a comprehensive tool jointly developed by the WHO and United Nations Agency for International Development. It offers a standardised approach to monitoring the supply of health services by providing a standard set of tracer indicators that can be applied to any health system (WHO 2013). The authors propose using the SARA for assessing service availability and readiness in regard to the implementation of an HMO, as it provides a useful monitoring tool that can be used to establish an overview of the HMO's health facilities.

7.2.1 Methodology

The SARA provides the tool for the assessing service readiness and availability. In regard to availability, an important foundation for the SARA is having a Master Facility List (MFL) available – this is a list of all health facilities in a country, ideally up-to-date and complete,

which helps provide data on the availability of services (WHO 2017b). Figure 7 demonstrates the methodology of what is required for a SARA. Ideally, a facility census of all facilities should be carried out every 5 years on a government level (as depicted by the orange section), in addition to updates from different districts more regularly (blue section). In terms of service readiness (green section), the SARA usually selects a sample of all facilities stratified across all different types – both public and private – on which to carry out a more detailed assessment on. However, depending on the reliability of regular facility censuses on a national level, the HMO could play a role in carrying out facility assessments in cooperation with the MoH. In general, something to be considered when carrying out assessments such as this, is that they can be combined with assessments from other dimensions e.g., in relation to quality or accreditation – to make it more efficient and to prevent wasting the HMO's resources.

Figure 7: Timeline of implementation for SARA



(Source: WHO 2013: 15)

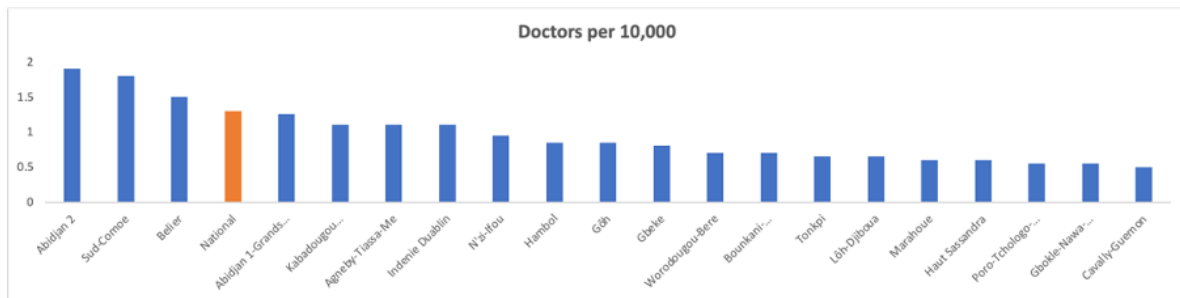
7.2.2 Service availability

Service availability refers to the physical presence of items required for the delivery of services (WHO 2013: 12). It encompasses several domains, including health infrastructure and health workforce. For each domain the HMO would measure several items as tracer items, for example the number of available health facilities, beds or health workers.

Côte d'Ivoire generally demonstrates a low level of service availability. For example, in the domain of health workforce, the national average of doctors per 10,000 inhabitants is low at 1.4 (Figure 8, orange bar), and there are also major problems in terms of distribution. Most doctors are concentrated in urban areas of Abidjan, whereas the majority of other regions have much fewer workers. Côte d'Ivoire currently has a new human resources strategy in place, in line with work from the Human Resources for Health in 2030 (HRH2030) –

which aims to improve the training output of health workforce. The ongoing human resources challenge within an HMO will remain in balancing the numbers between rural and urban areas, as well as preventing brain-drain to other countries.

Figure 8: Doctors per 10,000 in Côte d'Ivoire



(Source: Own presentation after Duran et al. 2020: 33)

7.2.3 Service readiness

Service readiness is divided up into two broad categories – general service readiness and disease-specific readiness. These categories would make it easier for an HMO to differentiate and categorise different types of services, for example in regard to what might be included in the benefit package (see Chapter 8).

The SARA includes four broad categories for general service readiness – basic amenities and equipment, standard precautions, laboratory testing capacity and essential medicines. A certain amount of tracer items is set for each of these categories, which are considered necessary in order for a health facility to be generally ready, and can be taken into account when planning the service coverage of the HMO (Table 4). The average scores in Côte d'Ivoire for each of the general readiness categories ranged between moderate to high readiness overall for the category of standard precautions for example, at just over 80%, to very low readiness in terms of essential medicines (28%).

Table 4: General service readiness

Category	Tracer Items examples	Côte d'Ivoire Average Score (% of facilities)
Basic amenities and equipment (14 items)	Amenities (7 items): <ul style="list-style-type: none"> • Water source within 500 m of facility • Room with auditory and visual privacy • Adequate sanitation facilities • Communication equipment (phone/short-wave radio) • Emergency transportation 	57%

	Equipment (7 items): <ul style="list-style-type: none"> • Weighing scales • Thermometer • Stethoscope 	
Standard precautions (9 items)	<ul style="list-style-type: none"> • Safe final disposal of sharps/ infectious wastes • Disinfectant • Single-use disposable or auto- disposable syringes • Soap and running water or alcohol-based hand rub • Guidelines 	81%
Laboratory testing capacity (8 items)	<ul style="list-style-type: none"> • Blood haemoglobin • Blood glucose • Blood smear or rapid test for malaria parasites (for countries where malaria is endemic) • Urine dipstick glucose • Urine pregnancy test 	47%
Essential medicines (14 items)	<ul style="list-style-type: none"> • Amoxicillin • Atenolol • Ciprofloxacin • Paracetamol suspension 	28%

(Source: Own presentation after O'Neill 2013: 924f)

For service-specific readiness, the SARA sets out 20 key programme areas that provide different kinds of interventions related to different target groups, including for example immunisation, family planning and malaria treatment. It also sets out four domains, namely: staff and guidelines, equipment, diagnostics, and medicines and commodities. As with the general readiness, these programme areas and domains would be useful for an HMO in order to determine which services are necessary to include within the benefit package. Table 5 shows an example for antenatal care services, and also specifies several tracer items that should be available within each domain. Here, the average scores for health facilities in Côte d'Ivoire also differ a lot – whilst medicines and commodities are widely available in this case, other items such as haemoglobin or protein urea test have low scores.

Table 5: Service-specific readiness

	Domains	Inputs	Côte d'Ivoire
SARA service-specific service readiness (example of ANTENATAL CARE SERVICE)	Staff and guidelines	<ul style="list-style-type: none"> • Guidelines on antenatal care • Staff trained in antenatal care 	<ul style="list-style-type: none"> • 36% had directives available • 45 % of staff trained ANC
	Equipment	<ul style="list-style-type: none"> • Blood pressure apparatus 	<ul style="list-style-type: none"> • No information
	Diagnostics	<ul style="list-style-type: none"> • Haemoglobin test • Urine dipstick protein test 	<ul style="list-style-type: none"> • 12% haemoglobin test • 36% protein urea test
	Medicines and commodities	<ul style="list-style-type: none"> • Iron tablets • Folic acid tablets • Tetanus toxoid vaccine 	<ul style="list-style-type: none"> • Commodities mostly available

(Source: Own presentation after O'Neill 2013: 924 f.; Duran et al. 2020: 35 f.)

7.3 Challenges

Using the SARA in order to assess service availability and readiness has many potential benefits for an HMO. These include providing accurate information on the supply of health services, as well as providing a framework for monitoring these services. This standardised monitoring and review platform has the potential to improve the availability and use of data to inform health sector review processes on a global level (WHO 2015).

Despite these potential benefits, existing or potential challenges in regard to service availability and readiness must also be taken into account when setting up an HMO concept. Firstly, although the SARA is a very comprehensive assessment tool, it does not assess all aspects that need to be considered. For example, although it looks at availability, one facet of access, it does not actually address other dimensions of access such as geographic barriers, travel time and affordability. Secondly, the SARA assesses readiness and availability - which are considered prerequisites for quality – but it does not directly address any quality indicators. Therefore, the HMO would need to combat these challenges by extending the assessment tool to make it more comprehensive or by carrying out further assessments to address other dimensions such as access and quality.

The SARA has demonstrated where further work is required and which weaknesses are present in the Côte d'Ivoire's system, which would need to be considered during the planning and implementation of an HMO. This would include addressing factors such as distribution of human resources, ensuring access for rural populations, and improving availability and readiness particularly regarding diagnostics and medicines. The burden of disease also needs to be taken into account, in order to ensure that priority diseases are reflected in the services an HMO provides.

Key messages:

- Reliable information on service availability and readiness is necessary for successful health systems management as it allows health systems to be tracked, in terms of how they have responded to changed inputs and processes.
- The SARA is a useful tool for an HMO as it offers a standardised approach to monitoring the supply of services by providing a standard set of tracer indicators.
- The SARA can be combined with other assessments e.g., in relation to quality, to make it more efficient and to prevent wasting the HMO's resources.
- A factor that can hinder the reliable assessment of service availability and readiness by an HMO is the lack of a complete and up-to-date MFL.
- Issues particularly affecting the West African region in regard to availability and readiness that an HMO must take into account include the unequal distribution of human resources, inequitable access for rural populations, and low availability and readiness particularly regarding diagnostics and medicines.

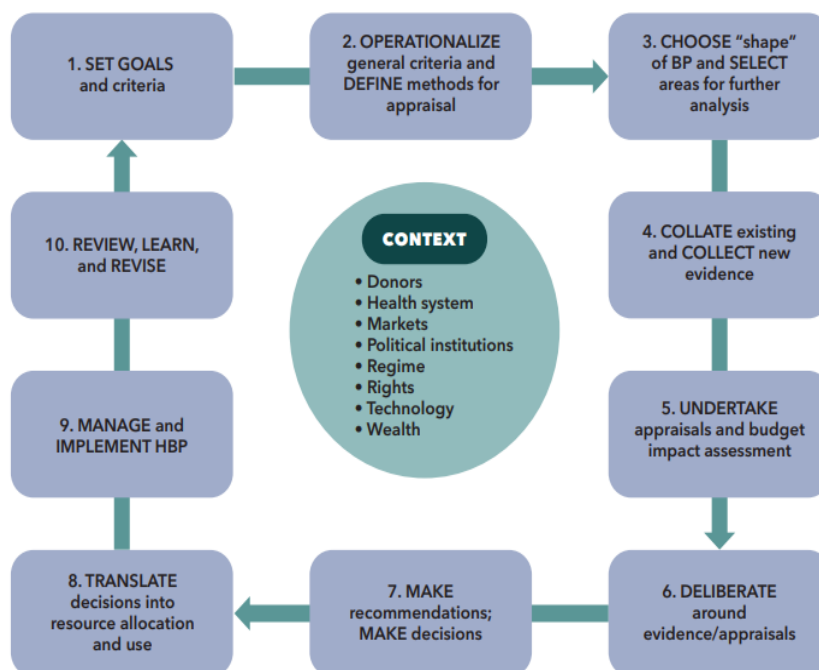
8 Designing a health benefit package

A health benefit package (HBP) can be defined as “the set of health services and products that can feasibly be financed and provided for everyone, given a particular country’s [or in this case HMO’s] actual circumstances” (Glassman et al. 2017: 1). Besides limitations deriving from available funds, other aspects such as infrastructure, culture or human resources also constrain the range of services that can be offered by an HMO. Therefore, tough choices must be made during the design of the HBP, in a transparent way, in order to weight the claims of patients, localities, services, and technology suppliers (Glassmann et al. 2017: 3 ff.). This chapter aims to elaborate on important considerations in the design of a HBP for an HMO, using the example of Sierra Leone.

8.1 Roadmap to an HBP for an HMO in Sierra Leone

Figure 9 shows a model comprising ten core elements of a HBP design, which was introduced by Glassman et al. in 2017. It is probable that the sequential order of the different elements presented in this model will not be reflected in reality, as actors likely face the challenge of having to work on several elements at the same time. Nevertheless, it helps to illustrate both the interdependence of the different features as well as the continuous process a HBP design requires (Glassman et al. 2017: 7 f.). The model represents the basis for a roadmap to a HBP for an HMO in Sierra Leone, which will be presented in the following sections.

Figure 9: The ten core elements of a HBP design after Glassmann et al. 2017



(Source: Glassman et al. 2017: 8)

To begin, the authors clearly defined the intended impact of the HBP. The aim of this HMO is to provide a range of services complementary to already existing health services and thus to provide its beneficiaries with a HBP that covers unmet health needs and maximally benefits its members. Each of the following steps must be in line with this defined goal to ensure coherence. This includes the setting of non-technical criteria for the inclusion and exclusion of disease control priorities. The authors decided to use the burden of disease as basic selection criteria. Additionally, service inclusion and exclusion criteria within the disease control priorities were agreed upon. Following the goal to provide a complementary HBP, services already covered by other public institutions were defined as not eligible for inclusion in the roadmap. The same also applied for interventions that were considered ineffective. In line with this, the decisions of well-known assessment agencies would be used initially, in order to reduce labour and costs for the HMO. Implementing an integrated assessment agency could be considered as a long-term goal, that might be pursued when more financial resources are available (cf. Glassman et al. 2017: 8 ff.).

Next, non-technical criteria were transferred into specific technical criteria to reach a defensible appraisal method for the inclusion or exclusion of services into the HBP (cf. Glassman et al. 2017: 9). The WHO recommends using disability-adjusted-life-years (DALYs) to assess the overall burden of disease (WHO 2021c), which is why this indicator was also used for the further design of the HBP. The selection of an appraisal method is closely linked to the previously defined goal. In line with the objective of the HBP, a cost-effectiveness analysis was selected as the appropriate method of operationalisation (cf. Glassman et al. 2017: 9).

Table 6 demonstrates the disease categorisation and prioritisation that was carried out during the design of this roadmap for the HBP design. The authors agreed on six service categories, namely preventative care services, primary care services, mother and child health care services, mental health care services, secondary and tertiary care services as well as emergency care services. Within the respective service categories, diseases and their possible interventions were ranked according to the number of DALYs they generated, to create a triage. High-ranking services were given high priority, whereas the inclusion of lower-ranking services was considered a mid-term or long-term goal of the HBP. In the case of preventative care services, the authors agreed to weight NCDs and communicable diseases (CDs) equally by ranking them alternately. In regard to emergency care services, no triage system was created as an equal level of disease severity was assumed. (cf. Glassman et al. 2017: 9 f.).

Table 6: Disease categorisation and prioritisation for an HBP design

	Preventative care services	Primary care services	Mother & child care services	Mental health care services	Secondary/tertiary care services	Emergency care services
<p>High number of DALYs</p> <p style="text-align: center;">↓</p> <p>Low number of DALYs</p>	<p><u>1. Disease (CD)</u></p> <p>→ possible interventions</p>	<p><u>1. Disease</u></p> <p>→ possible interventions</p>	<p><u>1. Disease</u></p> <p>→ possible interventions</p>	<p><u>1. Disease</u></p> <p>→ possible interventions</p>	<p><u>1. Disease</u></p> <p>→ possible interventions</p>	
	<p><u>2. Disease (NCD)</u></p> <p>→ possible interventions</p> <p><u>3. Disease (CD)</u></p> <p>etc.</p>	<p><u>2. Disease</u></p> <p>→ possible interventions</p> <p><u>3. Disease</u></p> <p>etc.</p>	<p><u>2. Disease</u></p> <p>→ possible interventions</p> <p><u>3. Disease</u></p> <p>etc.</p>	<p><u>2. Disease</u></p> <p>→ possible interventions</p> <p><u>3. Disease</u></p> <p>etc.</p>	<p><u>2. Disease</u></p> <p>→ possible interventions</p> <p><u>3. Disease</u></p> <p>etc.</p>	
<p><i>DALYs=Disability-adjusted life-years, CD= Communicable disease; NCD= Non-communicable disease</i></p>						

(Source: Own presentation)

In order to reach a transparent inclusion process, the Service Inclusion Protocol, presented in Table 7, was designed. It comprises several core elements of a HBP design, starting with the collection and collation of evidence. In regard to possible interventions, guidelines from different assessment agencies on treatment options for the respective disease must be screened, as well as further literature if necessary. Next, the protocol requires reflections on the costs of the different possibilities for treatment. As a first step this involves a cost-effectiveness analysis (CEA). In this context it must be pointed out that CEA cannot be easily transferred from one health care system to another, which is why decision-makers must accept possible trade-offs in regard to this methodologic choice. As a further step, actors must calculate if the proposed changes are affordable by undertaking a budget impact assessment. This step is especially important to ensure the sustainability of the resulting HBP. Next, the collected data must be discussed and put into perspective. This allows relevant considerations to be added upon, that were not previously discussed, but are important for the final inclusion decision (e.g., limitations in infrastructure or training of health care professionals). The aim of this process is to reach a final recommendation on services to be included in the HBP. This conclusion is final until the next round of the HBP evaluation and must be binding for decision-making (cf. Glassman et al 2017: 10 ff.). Examples of Service Inclusion Protocols can be retrieved from Appendix 3 “Service inclusion protocol examples”.

Table 7: Service Inclusion Protocol

	Deliberation
Disease	Name (Service category) Prevalence / incidence (year)
Possible Interventions	1. Intervention 2. Intervention etc.
Evidence	Evidence resulting from scanning recommendations from other relevant institutions and further literature
Costs (All presented prices are approximations and do not reflect reality)	<p><u>Cost-Effectiveness Analysis (CAE):</u> 1. CAE for first intervention 2. CAE for second intervention etc.</p> <p><u>Budget Impact Assessment</u> → Available remaining budget for service category^{a)}:</p> <p>1. Budget impact assessment for first intervention Annual intervention costs^{b)} x Estimated number of members in need of treatment^{c)}: → 90 % / 95 % / 100 %^{d)}:</p> <p>2. Budget impact assessment for second intervention Annual intervention costs^{b)} x Estimated number of members in need of treatment^{c)}: → 90 % / 95 % / 100%^{d)}:</p> <p>etc.</p>
Discussion	Further constraints that must be considered (e.g., in infrastructure or culture)
Recommended service for inclusion	→ First line treatment (→ Second line treatment ^{e)}) (Long term goals ^{f)})
<p>Comments:</p> <p>^{a)} Available remaining budget for service category= Total budget for service Category- Estimated expenses for already covered services within the respective service category ^{b)} Estimated costs for the annual costs of drugs derive from the International Medical Products Price Guide (IMPPG). For the estimated appointment costs with health care workers, an hourly salary of US\$ 0,70 was assumed, based on the average monthly salary of USD\$ 110 for nurses employed by the Ministry of Health (Ministry of Health and Sanitation 2016: 38) and under the assumption nurses work 40 hours per week ^{c)} Assuming 10 % population coverage and no differences in the prevalence/incidence of the respective condition in the group of beneficiaries compared with the total population ^{d)} The proportion used to calculate price coverage by the HMO (90 % for secondary/tertiary care services; 95 % for primary care services, mother & child care services, mental health care services; 100 % for preventative care services) ^{e)} Second line treatment options can be used if no results can be seen with a first line treatment option ^{f)} Broader investments that have the potential to reduce costs and should be pursued</p>	

(Source: Own presentation)

When it comes to the allocation of resources within the HBP, this roadmap recommends that the HMO put regulations in place to ensure the inclusion decisions that have been taken are reflected in its resource allocation. Additionally, the HBP should constantly be adjusted to the available resources (cf. Glassman et al. 2017: 11 f.) After the HBP has been introduced, it becomes important to monitor its performance in order to guarantee its financial sustainability. Therefore, prescription and utilisation data must be constantly collected. This enables the HMO to monitor whether services have really been delivered, and to make important adjustments and enable negotiations on prices with manufacturers

(cf. Glassman et al. 2017: 12). This information will also support the permanent revision of the HBP. In addition, data on new technologies, as well as new evidence, regarding included services should be taken into account during the evaluation of the HBP together with changes in the available resources (cf. Glassman et al 2017: 12). A potential model for a revision time frame would include periodical small evaluations after one year, medium evaluations after five years and extensive evaluations every ten years. This allows short-term, mid-term and long-term goals to be set for the HBP and enables decision-makers to undertake adjustments accordingly during the same time frame.

8.2 Coinsurance model

This section aims to illustrate how treatment costs are shared between the HMO and its members. The patient coverage proposed by this HBP is limited to a certain proportion of the treatment costs, a model which is called *coinsurance*, where the remaining proportion of the costs is paid by the patient themselves (Mayo Clinic 2020). In practice, the percentage that must be paid out-of-pocket by the patient, would range from no OOPs for preventive care services; to 10 % for primary care services, maternal and child health care services and mental health care services; and 20 % for secondary and tertiary care services. OOPs for emergency care services would be made according to the care level delivering the according treatment.

It is well known that cost-sharing arrangements have the potential to disproportionately burden poorer and chronically ill population groups, which can prevent patients from seeking the care they need (Krubiner/Faden 2017: 299). To counteract these observations, Table 8 presents an annual upper ceiling (AUC) for OOPs that should be introduced by the HMO in regard to the HBP. This threshold was calculated as a percentage, ranging from 5 % to 25 % of catastrophic health expenditure (CHE) for each of the five income quantiles in Sierra Leone. CHE is defined here as annual health care costs, that exceed 40% of the annual household income after subsistence needs have been met (Xu et al. 2003). For subsistence needs an annual lumpsum of US\$ 1240 was assigned per household, based on consumption expenditure data in Sierra Leone from an integrated household survey in 2018 (Statistics Sierra Leone 2019: 201 ff.) The following formula presents the AUC for OOPs:

$$\text{AUC for OOPs} = (\text{Annual average income} - \text{US\$ } 1240) \times 0.40 \times \text{percentage of CHE}$$

As CHE for the first income quantile ranged below zero (cf. Table 8) a different approach for calculating the AUC for OOPs was taken for this quantile. In this specific case, as a substitute, 50 % of the AUC for OOPs from the second income quantile was used.

Table 8: Calculation of AUC for OOP per income quantile in Sierra Leone

Income quantile	Annual average income (in US\$)	Catastrophic health expenditure (in US\$)	Percentage of catastrophic health expenditure	Annual upper ceiling for OOPs (in US\$)
1.	289	<0	5	0.20
2.	1250	4	10	0.40
3.	2860	650	15	100
4.	6150	1,960	20	390
5.	26,820	10,230	25	2,560

(Source: Own calculation after Statistics Sierra Leone 2019: 191, 201)

In addition, certain services, as well as population groups, would be exempted from OOPs. Payments by the patient would not be required for primary care services, maternal and child health care services and mental health care services if the patient is referred for treatment by another provider (e.g., referral from preventative care services to primary care services). In case a treatment can only be delivered in more than one interaction, OOPs must only be made for the first appointment and no further payments would be required for follow-up appointments. Finally, it was decided to completely exclude birth deliveries from OOPs. Also, for children under five years and elderly over 65 years, all services would be completely covered. It is important to note that this list of excluded services and population groups cannot be considered final. Instead, the authors recommend using an approach from Cambodia as inspiration, where community leaders were asked to decide on who should be exempted from user fees (WHO 2010: 45). A similar approach could help to enable the participation of members in the decision-making processes of the HMO and to create more equity and transparency.

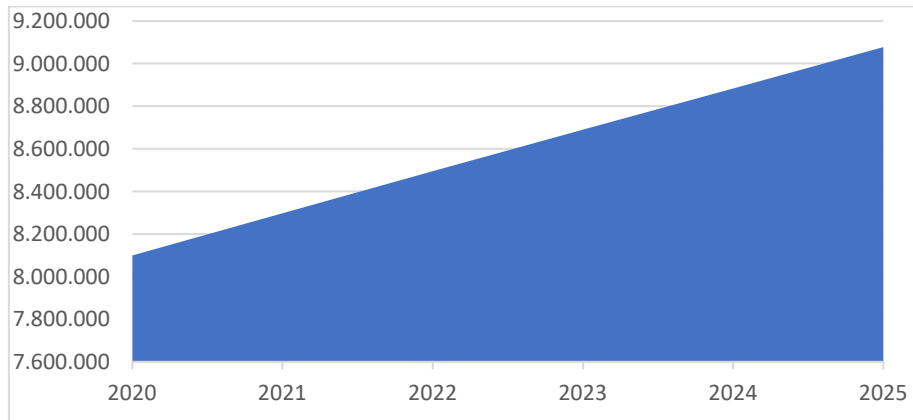
8.3 Actuarial calculations

In this section, the results of three steps of the actuarial calculations for Sierra Leone will be presented, namely demographic projections, revenue projections and a benefit cost estimation. The underlying actuarial calculations are presented in Appendix 2 “Actuarial calculations – Sierra Leone”. Undertaking such calculations is beneficial when designing a HBP as they can estimate the available resources and how they can be used efficiently for covering certain services.

8.3.1 Demographic projections

This section illustrates Sierra Leone's population projection and how it will develop within the next years, in order to facilitate the calculation of the revenue produced and the estimation of projected costs.

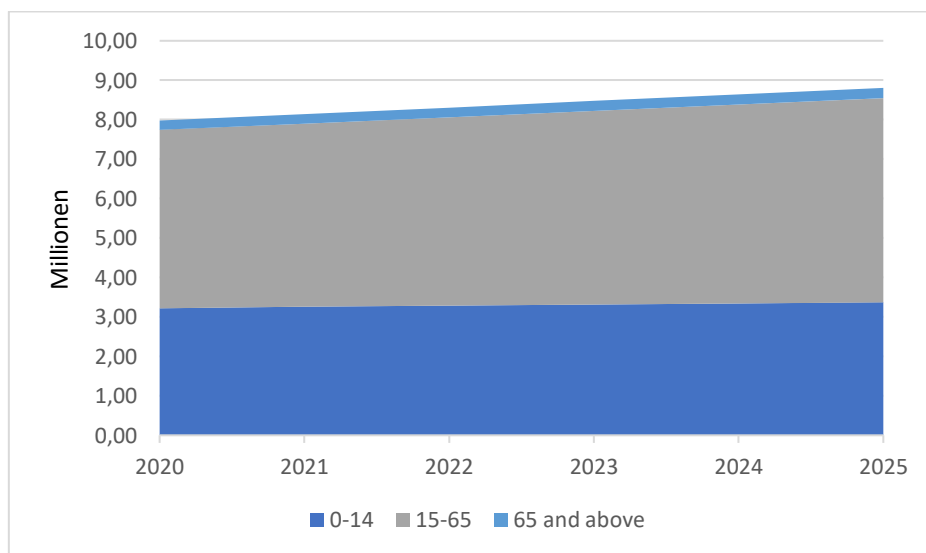
Figure 10: Total population projection Sierra Leone



(Source: Own presentation after Togoh et al. 2017: 4, 19)

Figure 10 shows a continuous increase in the total population with an estimated growth rate of around 2.5 % yearly (Togoh et al. 2017: 4 ff.). Population growth provides an insight into how the population's size and age range is changing, which is important for calculating the size of the working groups that will pay contributions. The population projections by age groups (Figure 11) gives an approximation of the relation between the population group and the utilisation of services. For instance, 40 % are under 15 years old which suggests that childcare services are greatly needed, meaning this should be taken into consideration in the HBP design.

Figure 11: Population projection by age group Sierra Leone



(Source: Own presentation after World Bank 2020 f.)

8.3.2 Revenue projections

Calculations in regard to revenue projections are based on the assumption that the HMO would provide coverage for at least 10 % of Sierra Leone's population. This membership rate was set in order to ensure enough revenue can be generated for the HMO to function. 60 % of the revenue projected will flow into designing the HBP, as this includes all services as well as provider payment.

Four types of sources were identified for revenue collection in Sierra Leone, namely: contributions from both the formal and informal sectors; external governmental resources; and external non-governmental resources (see Appendix 2). The formal sector is estimated to include 30 % of the working population, while the informal sector includes 70 %. From both sectors, a contribution rate of 6 % would be collected, which is based on calculations by the Ministry of Health and Sanitation (MoHS) in Sierra Leone (Ministry of Health and Sanitation 2017: 55). In the case of the informal sector, the willingness to pay would be taken into consideration, and divided into five income quantiles to ensure equitable financing. Five percent of the budget allocated to the MoHS would flow to the HMO's revenue, seeing as the HMO is part of Sierra Leone's healthcare system and would offer many health services that are not provided in the public sector, which in turn is important for the health and productivity of the population. In this way, the HMO would not only be able to gain more revenue, but also collaborate with the country's healthcare system directly.

External non-governmental resources would be collected to coordinate the design of the HBP of the HMO with the external funds and vertical programmes available in Sierra Leone. Sierra Leone receives around 274 million leones (US\$ 2.6 million) of external funds towards the MoHS budget, for financing different vertical projects (Saffa 2020). Generally, earmarked donor funds and vertical programmes are not included in a HBP design in LMICs. However, establishing one single pool to join together different funds as a budgetary support for the HBP can be helpful in increasing the availability of different resources which can be used efficiently and include more services and projects to empower the health system of the country. Ethiopia and Rwanda have succeeded in implementing this theory (Glassman 2017: 90 ff.). Therefore, this HMO would aim to coordinate with existing vertical programmes and donor funds and include these funds within revenue collection and the HBP design.

To ensure revenue collection, different approaches to avoid risk sharing challenges should be considered during the enrolment process.

8.3.3 Benefit cost estimation

The benefit package would be designed according to the available resources, as demonstrated in Table 9 for the years 2021-2023 in Sierra Leone. The yearly revenue would be allocated by percentage to the six service categories introduced in the first section. The percentage of budget coverage would differ according to which care package is necessary and needed by the enrolees, and would set an upper threshold according to which interventions would be added. 20 % of the budget would be allocated to the following service categories: preventive care; primary health care; maternal and child health care; and secondary and tertiary health care. 10 % of the budget would go to mental health care and emergency care.

Table 9: Summary of revenue projection and budget allocation (million US\$)

	<u>2021</u>	<u>2022</u>	<u>2023</u>
Total revenue projection	212	219	228
Total revenue projection for benefit package:	125	131	136
20% Budget allocated to each category (total 80%) - preventive care - primary health care - maternal and child health care - secondary and tertiary health care	25 (total 100)	26.2 (total 104.8)	27.2 (total 108.8)
10% Budget allocated to each category (total 20%) - mental health care - emergency care	12.5 (total 25)	13.1 (total 26.2)	13.6 (total 27.2)

(Source: Own presentation after Statistics Sierra Leone 2019: 191, 201; Saffa 2020)

Table 9 demonstrates the amount of the budget allocated to the different service categories, with each having been assigned either 20 % or 10 % of the yearly budget.

Next, the previously designed list of disease control priorities (cf. Chapter 8.1) for each service category must be applied. For each disease included in the service, interventions with highest evidence and cost-effectiveness would continue to be added until the upper ceiling of the budget has been reached. Importantly, the calculations of intervention costs would be carried out according to the previously mentioned coinsurance model, as well as the budget impact analysis. For instance, the estimate of preventive care costs would be calculated at 100 % because no coinsurance is to be paid for this type of care. However, for secondary and tertiary care, 80 % of costs are to be covered by the HMO and 20 % by coinsurance from members; therefore, the estimated costs would be calculated at 90 % in order to take into account the costs of those exempted from paying coinsurance. Similarly, instead of calculating 90 % coverage of primary care, maternal and childcare as well as mental health care, estimated costs would be calculated at 95 %. The different steps of the

intervention inclusion process are demonstrated with diseases relevant to Sierra Leone in Appendix 3 “Service inclusion protocol examples”.

8.4 Cost control through utilisation management

Utilisation management can be defined as “a diverse set of activities designed to influence the use of health care services and thereby constrain health care resource consumption” (Wickizer/Lessler 2002: 233). As a first step towards the utilisation management of this HMO, the services for which insured members would not receive coverage must be clearly defined. As previously explained, it was initially agreed upon to exclude from coverage services already covered by other public institutions and treatments that have been declared as ineffective by assessment agencies. In addition to this, Figure 12 presents which other services would not be covered by the HMO.

Figure 12: Health services excluded from coverage



(Source: Own presentation)

Another important measure in utilisation management for an HMO is the implementation of a referral system that uses lower levels of care as gatekeepers for the secondary and tertiary care levels and requires members to present a referral from another provider to receive service coverage for these specific services. Such a system has shown to be helpful in containing health care costs by limiting appointments with specialists (Martin et al. 1990: 1632). Nevertheless, one needs to recognise that in emergency care it would not be feasible to obtain a referral from another provider before receiving secondary or tertiary care. Recognising this problem, the authors recommend implementing an emergency referral phone number for patients. Members that are in need of urgent care can call this number

and receive recommendations by trained health care workers in regard to the appropriate provider for their health problem. In this case, a recommendation for secondary or tertiary care by this number will suffice as a referral. Similar models have been previously adopted elsewhere and have proved to be economical (Simone 2009: 5 f.). In these particular cases, patients would receive their usual 80 % coverage of secondary and tertiary care, without a prior referral.

The previously introduced coinsurance model is also another measure used within utilisation management. Including patients in their treatment costs, even with a small proportion, has proven to be effective in changing the behaviour of patients (Simone 2009: 11). In addition, the detailed design of the coinsurance model has the potential to help contain health care costs. As the OOPs proportion increases with the rising level of care, one can assume that the utilisation of lower care levels, for example for preventative or primary care, would be incentivised in comparison with secondary and tertiary care services.

Finally, billing data, as well as data from quality management should be used to monitor the utilisation of services by the patients. This information helps to determine necessary changes in the HBP design during the periodical revision of the HBP.

Key messages:

- Models, such as the one introduced by Glassmann et al., help to enable discussions on the most relevant aspects in designing a HBP for an HMO.
- Reality will differ from assumptions based on a model, meaning an HMO needs to constantly monitor the HBP, as well as the service utilisation, to determine necessary changes.
- HBP design and implementation are determined by the availability of resources and how efficiently they are allocated as well as the disease burden within the population.
- The authors propose including a coinsurance scheme within the HBP design, which will affect the service utilisation of members. To prevent an extreme financial burden on households, an AUC for these expenses has been defined for each income quantile.
- Services excluded by the HMO must be clearly defined a priori and should include, amongst others, unnecessary or ineffective medical treatments.
- Different measures, such as a referral system or the gatekeeper principal, help to contain health care costs and should be implemented by an HMO alongside the benefit package.

9 Pharmaceuticals

People spend a significant share of their income on medicines, and the share of governments' health expenditure invested in pharmaceuticals is also large. Countries must try to make medical products available, affordable and accessible, to their whole population. They must also ensure that the products are safely stored and transported to everyone in need (Skolnik 2015: 127). This chapter describes which steps an HMO must consider when managing a pharmaceutical supply chain. Additionally, practical examples of how the different steps can be implemented will be presented, using the example of Liberia.

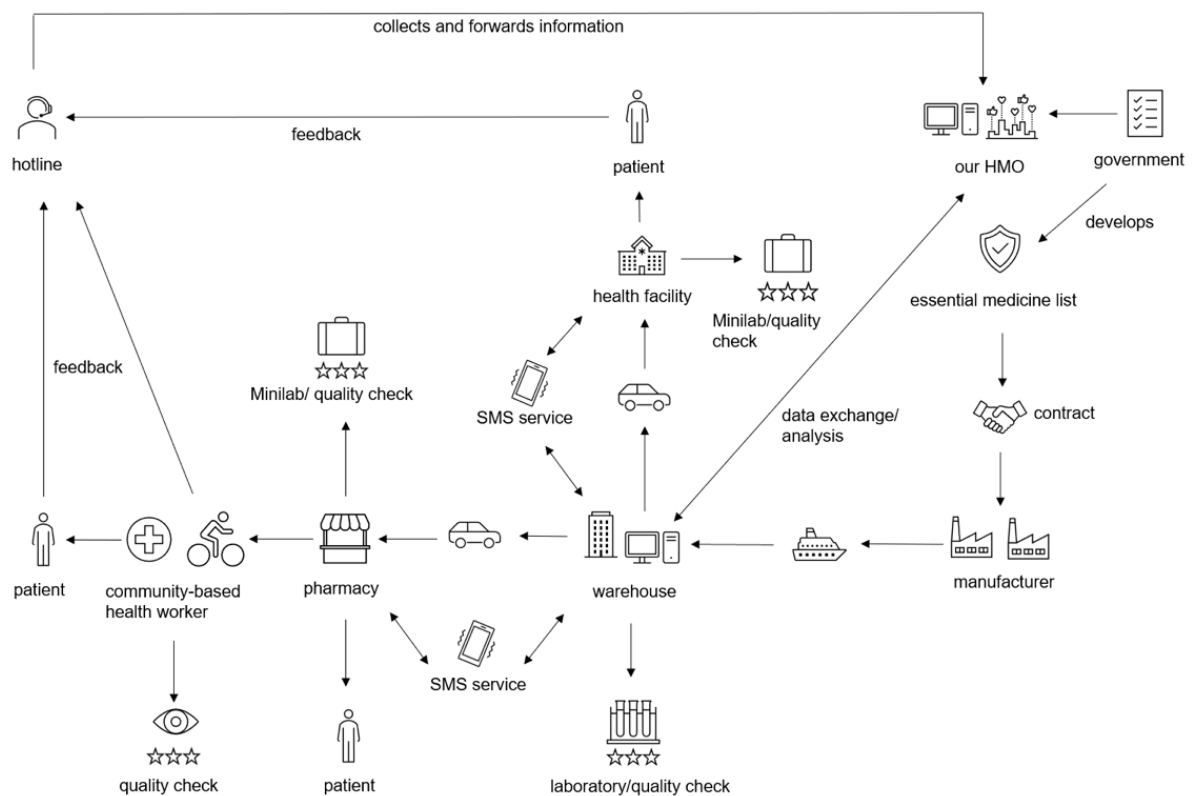
9.1 Essential drug prices, availability, and accessibility

Medicines remain inaccessible, unaffordable, and not available for many West Africans. In 2001, the WHO, together with Health Action International (HAI), established a standardised method to assess the availability, affordability, and medicine price components of essential medicines across countries (WHO/HAI 2008: 3). Data for several countries can be found on the HAI Database (HAI 2021). Among the countries assessed were four West African countries, namely: Ghana, Nigeria, Mali and Burkina Faso. In those countries, the mean availability of the lowest price generics in the public sector ranged from 17.9 % in Ghana to 81 % in Mali. The affordability of drugs in these countries can be analysed by comparing the wage of the lowest-paid unskilled government worker in relation to the treatment of diabetes for 30 days. When purchased from the private sector, *glibenclamide*, a medicine used to treat diabetes, can cost the lowest-paid unskilled government worker up to 3 days wages (Nigeria) for the lowest price generics, and up to 12 days wages (Ghana) for the originator brand. When comparing the median price of a basket of five medicines, standardised to the Management of Sciences for Health reference price, the average median price ratio (MPR) was lowest in Mali, in both the public and private sector, with a MPR of 2.11 and 3.28, respectively. In Nigeria, the median MPR was highest for the public sector and in Burkina Faso it was highest for the private sector with a MPR of more than 7, indicating that the local medicine price in the private sector is on average 7 times higher than the international reference price (HAI 2021). Unfortunately, the surveys of the West African countries were conducted between 2004 and 2009. No up-to-date data addressing the availability, affordability, and prices of essential drugs in West African countries could be found. To properly evaluate the efforts made to reach the Sustainable Development Goal indicator 3.b “[...] provide access to affordable essential medicines and vaccines [...]” (United Nations 2015: 19), further data for West African countries is urgently needed.

9.2 Medicine supply chain management

This section will present the theoretical considerations and the practical implementation of medicine supply chain management. The scheme below (Figure 13) illustrates the path from selecting essential medicines the HMO members require, to finally distributing them from the highest level of the supply chain to where they are needed. During this process, government regulations must be fulfilled, contracts closed, the quality of the medical products ensured, and up-to-date information collected to constantly improve the system.

Figure 13: HMO medicine supply chain



(Source: Own presentation)

9.2.1 Selection

To begin, the HMO needs to prioritise a list of medicines that will be prescribed by the HMO, which should reflect the medicines included in the HBP. This list also needs to match the financial resources available and should address the disease burden of the HMO's members (MoHSW 2010: 26). In the case of Liberia, the "2nd Edition National Standard Therapeutic Guidelines and Essential Medicines List Liberia" established by the MoH, can be used as an orientation to select medical products from. The medicines most needed by patients must be selected, whilst other cost-effective drugs can be added additionally. As 85 % of medications on Liberia's Essential Medicines List can be found on the WHO's Essential Medicines List - indicating a high evidenced-based value - it provides a trustworthy

framework (Persaud et al. 2019: 404B). It is important for the HMO to work closely together with the governmental institutions that set provisions and restrictions, to fulfil all regulations when purchasing and distributing pharmaceuticals throughout the country.

9.2.2 Quantification and forecasting

The next step requires the demand for the selected medical products to be quantified and forecasted. Therefore, historical data of consumption must be obtained from health facilities and medical stores within Liberia, especially in the region where most HMO members come from. Additionally, epidemiological data of the country needs to be analysed to identify how many people suffer from which disease and trends such as the rise of specific diseases. Using these analyses, it can be estimated to which extent the patients will suffer from which diseases, allowing the demand for medical products for treatment to be forecasted. The prices of these medical products can then be calculated and compared with the available financial resources. Following this, a supply plan must be developed, which defines when the products need to be ordered, when they will arrive, how much needs to be procured, and how much they will cost. The overall goal is to organise a steady, uninterrupted, and sufficient supply of the medical products that patients require. This step requires regular evaluation and data analysis to adapt the supply plan (SIAPS Program 2014a: 3). Therefore, the HMO should use technology that records data, helping its management to set up contracts with manufacturers that match the health needs of HMO members.

9.2.3 Procurement

The third step is the procurement of medical products. Managing the tendering, bidding, and contracting process is the main focus of this stage, which benefits from well-defined and accountable proceedings. To proceed successfully, explicit criteria for procurement decisions need to be set to ensure transparency and a fair process. Manufacturers of high-quality medical products that are cost-effective, and reliable suppliers, should then be selected (SIAPS Program 2014b: 4). To prevent high dependency on one specific supplier, contracts need to be closed with various manufacturers. However, it must be noted that it is important to balance out the number of manufacturers from which the HMO can buy and still get quantity discounts, so the products remain affordable. Currently, it may be necessary to work closely together with different foreign manufacturers, as drug manufacturing in Liberia or even West Africa is scarce (Ekeigwe 2019: 2). In addition, a management information system needs to be established to track the status of orders and payments, as well as monitor suppliers by compiling information.

9.2.4 Storage

As a fourth step, the newly arrived medical products need to be received and stored in a suitably located warehouse. The inventory needs to be managed and documented, to ensure a constant flow of medical products in a cost-effective and timely manner, and in the required quantities. Qualified human resources are also needed to allow the receiving, storing, and dispatching operations to be managed smoothly. In addition, performance monitoring is required, and the warehouse should have appropriate storage installations available where good practice storage solutions are followed (SIAPS Program 2014c: 3). In the case of Liberia, the warehouse would be located in or around Monrovia, the capital of Liberia and located in the Montserrado district; the most populous region in Liberia and therefore a good place to establish an HMO, as it depends on the inclusion of a large group of people to work efficiently (LISGIS 2009: 10). From there, medications can be delivered to pharmacies and health care facilities the HMO cooperates with. Moreover, the warehouse is the first stage of a threefold drug quality check. Firstly, it must be equipped with laboratory and personnel that randomly inspect the efficacy and safety of imported medical products. In addition, the HMO would implement a second step to ensure the quality of its drugs by testing medicines in some of the bigger pharmacies and health care facilities with 'minilabs'. Minilabs are suitcases including all important instruments to check the quality of various antibacterial medicines, antimalarial medicines, antimycobacterial medicines, antiretroviral medicines, anthelmintic medicines, other anti-infective and antiseptic medicines, and non-anti-infective medicines (GPHF 2021a; GPHF 2021b). Pharmacies and health care facilities must be stocked with essential medicines at all times so that patients have access to them. Cooperation with existing pharmacies and health facilities is conceivable, but if an area is not sufficiently covered, the HMO would set up its own providers to ensure healthcare is in reach for all of its members. The third step of the drug quality check relates to distribution and it therefore discussed in 9.2.5.

To prevent stockouts, the HMO would apply a short-message-service (SMS) system. A study carried out in Tanzania used a SMS system to avoid stockouts of malaria treatment. Following recommendations by Barrington et al. (2010), every pharmacy and health care facility cooperating with the HMO should therefore be supplied with a registered mobile phone number. A SMS message will regularly be sent to every registered mobile phone number, enquiring about stockouts. The facility can answer via the registered mobile phone number when medications are low in stock. If a facility does not reply within a certain time period, a reminder will automatically be sent to the registered mobile to give facilities a second chance to report a stockout. The system transfers information from the facilities

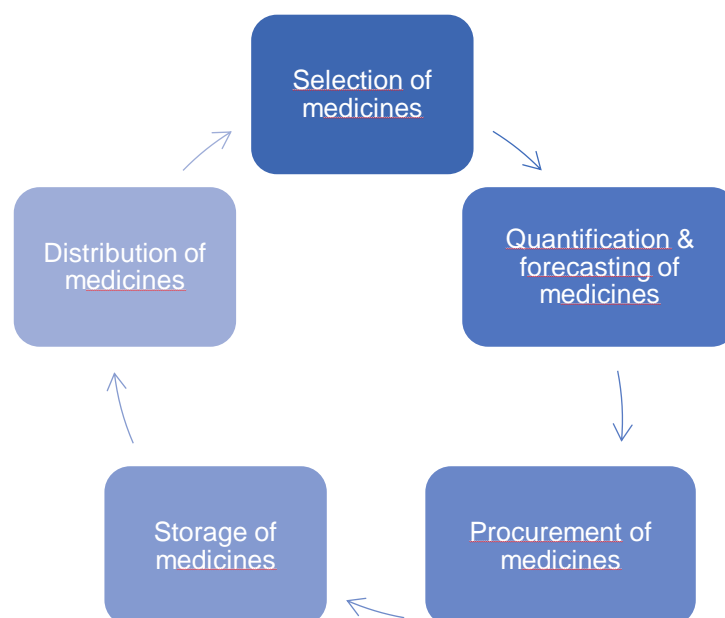
regarding stockouts to the warehouse, which can afterwards deliver the required medications. The study showed an increase of fully stocked facilities and a high SMS response rate of pharmacies and health care facilities (Barrington 2010: 2 ff.).

9.2.5 Distribution

In the final step of the medicine supply chain, the distribution of medical products is organised. The main goal is to ensure that medical products are safely distributed to those who need them, in a timely manner. During transportation, the products should always be traceable and stored in accordance with the conditions stated on the medicine labels, so that the safety and quality of the products are not put at risk (SIAPS Program 2014d: 3).

Reaching rural areas may be a major distribution challenge. If members living rurally feel that the HMO is not adequately caring for them, they may decide to opt-out or never contract with the HMO. To prevent this, the HMO plans to cooperate with community-based health care volunteers, as they are more familiar and within reach of the people. The volunteers will be authorised to pick up drugs in pharmacies or health facilities and forward them to the patients. They will be trained by the HMO on how to administer medications properly and how to detect unusable or counterfeit drugs. Thus, they perform the third step of the three-fold drug quality check. Researchers investigated the motivation of community-health care volunteers in Ghana and found that volunteers mentioned the desire to help, prestige and equipment with helpful materials such as bicycles and torch lights, as motivation and incentive for volunteering (Chatio/Akweongo 2017: 5 ff.). Therefore, the authors recommend that the HMO should contribute to the willingness of volunteers by providing equipment.

Figure 14: Medicine supply chain



(Source: Own presentation after WHO 2021d)

9.3 Performance improvement

The whole process of medicine supply chain management should be evaluated and adapted regularly in order to be more efficient and to prevent errors such as overstocks or stockouts of products in the future. Therefore, during every step of the process, data must be collected from different actors. A free hotline will be installed to get direct feedback from patients or community-based health volunteers to find out whether they have received what was needed or if they have faced any stockouts. In return, the HMO-hotline would strengthen the patient's knowledge of health by promoting the rational use of medical products. As the proper use of medical products is crucial, skilled health professionals such as doctors, nurses and pharmacists will provide information on health and on how to use a medication, if people cannot read or understand the instructions given on the medication package or package insert. The hotline could also advise on whether a visit to a health care facility is necessary if a patient is unsure about how to interpret their symptoms. Especially people living in rural areas will benefit from a hotline offering advice, as the direct visit of a health care practitioner may be too time-consuming for them. The implementation of the hotline would follow experiences made in Malawi in 2011, where a hotline was implemented, that answered questions on health and nutrition. The hotline initially started as a pilot project, but later covered the whole country and reached high levels of trust and satisfaction among users (Blauvelt et al. 2018: 1 ff.).

A further aspect of performance improvement includes the HMO collecting data on the medical products consumed by its members, as well as the diseases they suffer from. This data can be used to forecast which medicines are needed so that the patients are not affected by stockouts. Additionally, the performance of the different stages can be assessed, to ensure the quality of medicines is maintained. In line with this, HMO members will have the opportunity to express complaints or report side-effects of medicines through a hotline. In addition, the HMO's community-based health workers will record the medicines they are distributing in rural areas, regularly communicate their data to the warehouse, and document any scepticism they face regarding the quality of drugs. Data in regards to falsified and counterfeit drugs detected at any point in the supply chain will also be documented and analysed regularly, to make informed decisions on potential adaptations, such as changing manufacturers.

To take these factors into account, the HMO would establish a comprehensive and suitable data management platform with personnel specifically trained to collect and analyse relevant data. Additionally, standard operating procedures would be developed to facilitate the adaption of the medicine supply chain management system. Through these interventions, the HMO's supply chain management system can improve steadily, and errors can be eliminated so that patients can access available and affordable medicines at any time.

Key messages:

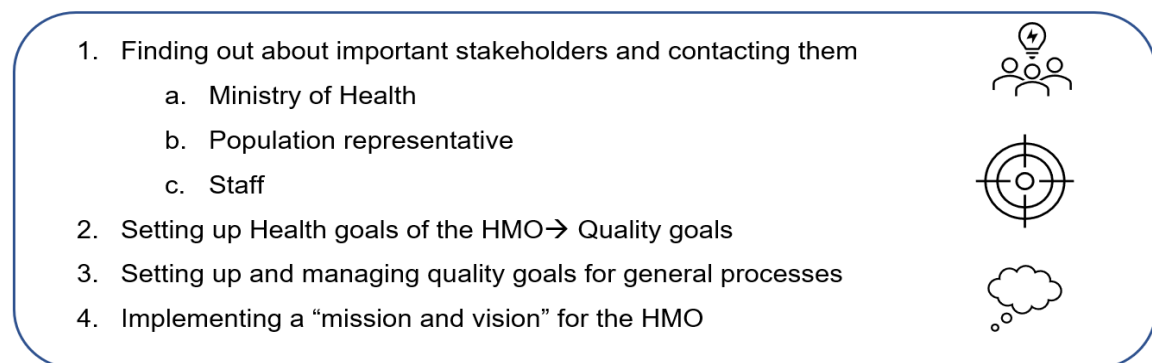
- Important steps of the HMO's medicine supply chain include selection, quantification and forecasting, procurement, storage, and distribution of medical products.
- It is important that the HMO collects data at all stages of its supply chain to become more efficient and adapt to the needs of its members.
- Medicines provided by the HMO must be safe, available, accessible and affordable at all times and for all members. Stockouts must be avoided, and community-based health workers would be employed to ensure distribution to patients in rural areas.
- Due to the scarcity of data regarding the availability, affordability, accessibility, and prices of medicines in West Africa, the HMO should support improvements related to data collection and provision, and drug manufacturing processes.

10 Quality management

10.1 Introduction

There is no single definition for quality, as it always depends on a person's point of view and their personal preferences (Bart 2020: 8 f.). However, "[...] quality can be defined as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with the current professional knowledge" (Institute of Medicine 2002: 1). Quality management is therefore based on coordinated mechanisms for leading and steering organisations. This means that it addresses not only the evaluation and measurement of certain indicators, but also the planning and implementation processes which actively contribute to a certain level of quality (Bart 2020: 9 f.). There exist a number of limitations regarding quality management, including the inability to be able to measure everything, and its resource consuming nature. However, despite this, it is important to consider the ethical obligation to ensure patient safety and to adhere to certain standards, especially in a medical context. Other advantages of quality management include the potential to more efficiently use resources which is especially relevant in the context of establishing an HMO in a LMIC (Bart 2020: 11 ff.).

Figure 15: Plan for implementation of a quality management system



(Source: Own presentation)

Figure 15 demonstrates an implementation plan for a quality management system. Firstly, together with important stakeholders, the general and living situation of the people and their needs must be identified. Health goals and quality goals are subsequently based on these needs. If for example a health goal is "access to primary health care services for every enrollee", a related quality goal might be "having a community health worker not more than ten kilometres from the home of every enrollee". The last step, implementing a mission and vision, is important for providing a general orientation frame on how to act, even if the quality management system is not yet fully implemented. It should include information about the self-concept and goals of the HMO (Graf/Spengler 2016: 62 f.).

The importance of participation:

The participation of important stakeholders such as the MoH and staff is very important for the implementation of a quality management system. Stakeholder engagement may lead to improved acceptance of new measures, that may need to be implemented in order to guarantee quality. The knowledge of important groups should also be included within the concept, to help push the HMO members towards better understanding and accepting certain measures and quality goals. In some countries, it might also be difficult to find out about national guidelines and standards, for example via the internet, which underlines the importance of the participation of government representatives (Engelhardt 2016: 74 f.).

10.2 HMO quality framework

Quality is a construct based on theoretical implications and is only explicable by approximation. Therefore, it is important to build a quality strategy on a quality model, which seeks to explain which aspects, and the way they differ, can influence and structure different quality dimensions (Hensen 2019: 25 ff.). The authors have used Donabedian's three-step approach as an example, as it makes the indicators influencing quality very tangible, provides a lot of detail and is often used in the health care sector. Generally, the model suggests that all parts are dependent on one another and represent a prerequisite for the next step (Hensen 2019: 34). In addition to this model, a quality management framework is an ongoing process, which means that quality is always being controlled and new measures are being taken.

Table 10: Donabedian Framework for the HMO

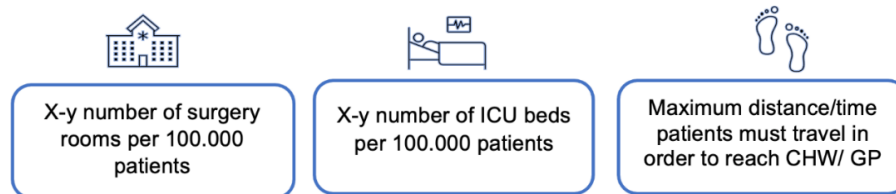
	Structure	Process	Outcome
Function	Deals with the structural prerequisites/inputs	Focuses on health care delivery related processes	Have the desired medical endpoints/surrogate parameters been met?
Examples	<ul style="list-style-type: none"> • Buildings • Equipment • Adequate staff • Benefit catalogue • Contracts • Concept of financing • Organisational structure • Documentation strategy • Access • Drugs, remedies, aids 	<ul style="list-style-type: none"> • Efficiency • Patient safety • Referral system • Health education • Management • Documentation • Standardisation • Effectiveness • Interpersonal atmosphere 	<ul style="list-style-type: none"> • Quality indicators • Patient satisfaction • Staff satisfaction • economic maintenance • Meeting set goals • Health status

(Source: Own presentation after Hensen 2019: 32 f.)

10.3 Structural quality

As aspects related to structural quality (Figure 16) have been previously described in Chapter 7, this chapter will focus on other quality dimensions such as process and outcome quality.

Figure 16: Examples of structural quality in an HMO



(Source: Own presentation)

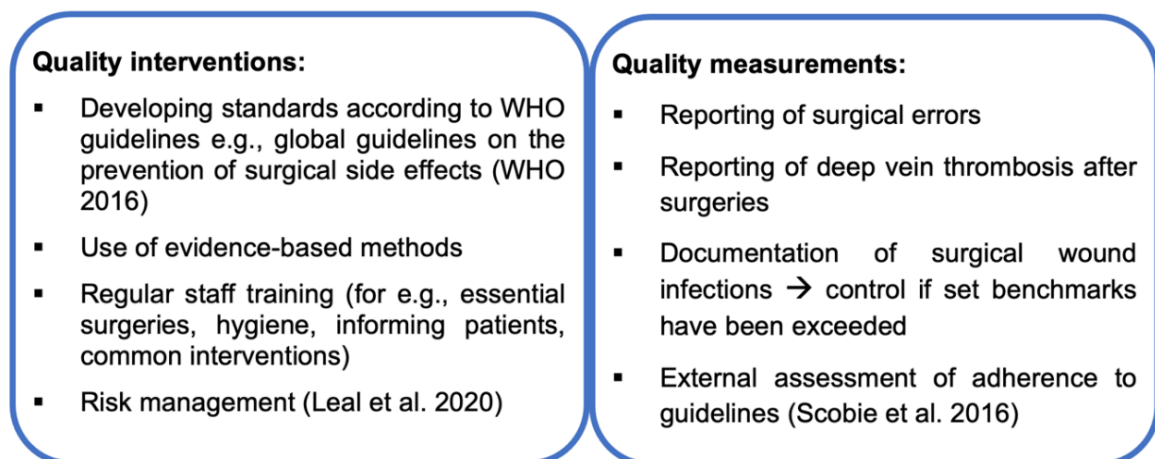
10.4 Process quality

Process quality includes the quality delivered through health care and all sub-and support processes. In Table 10 several examples of process quality are listed, some of which will be explained in further detail below.

10.4.1 Patient safety

One crucial part of quality management is patient safety. According to the WHO “[...] it aims to prevent and reduce risks, errors and harms that occur to patients during provision of health care” (World Health Assembly 2019). Requirements for this include safe infrastructure, safe medical devices, their use by skilled workforce, as well as informed patients (Parker et al. 2015).

Figure 17: Possible quality interventions and tools for patient safety



(Source: Own presentation)

Alongside other quality interventions, another important tool is taking risk management into account. This includes the detection and analysis of existing risks and ways to prevent or reduce them (Scobie et al. 2006). To measure the quality of patient safety it is necessary to not only report and document errors or failures but also to define benchmarks with the help of comparable indicators (e.g., that there has not been an error in more than X % of all surgeries) and a continuous control of the trend. It would be important for an HMO to implement a system with easy reporting, which is able to count reported events automatically. If negative trends occur, improvement possibilities should be identified by carrying out a detailed analysis of all included actions, equipment etc.

10.4.2 Efficiency

Efficiency is another important aspect of process quality. It is defined as the maximum output from available resources (OECD 2013). Simplified, it is the ratio of the input and the output. Inputs are relatively easy to measure and can be separated into labour and capital. Output is more difficult to define. One possibility is to separate between financial output or revenue, and the amount of care provided. An example for measuring provided care could be to count the outpatient visits or inpatients days (Cyclus et al. 2017). When both input and output have been defined, the efficiency can be determined. The most common ways for doing this are by using a ratio analysis and a data envelopment analysis, both of which have differing characteristics (Table 11).

Table 11: Comparison of ratio analysis and data envelopment analysis

Ratio analysis	Data envelopment analysis
<ul style="list-style-type: none"> ▪ The input-output ratio for financial and physical variables are separated ▪ Easy to compute ▪ Low costs 	<ul style="list-style-type: none"> ▪ Can handle multiple input and output variables ▪ More time and cost intensive
<p>➔ Provides useful information on the detection of inefficiencies</p>	<p>➔ Clear and precise evidence</p>

(Source: Own presentation after Hafidz et al. 2018)

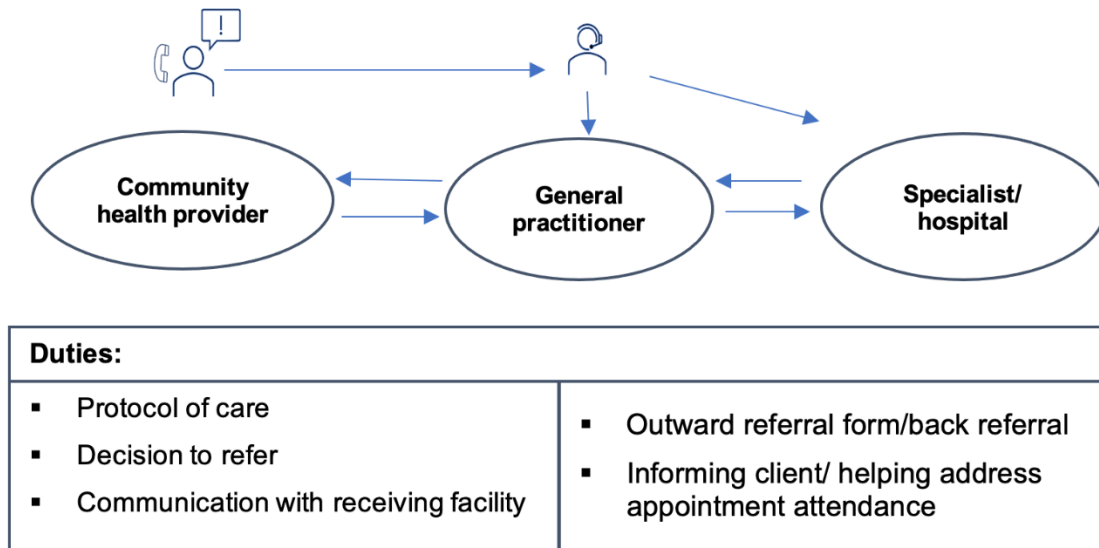
Due to scarce resources in African LMICs, the ratio analysis is more suitable as it requires less time, money, researchers, and expertise to carry out (Hafidz et al. 2018).

A potential intervention to increase efficiency, depending on what needs to be improved, could be to reallocate staff. This is to ensure that every facility has an appropriate number of staff members to improve outreach activities, reduce financial and physical barriers or to invest in health promotion (Hafidz et al. 2018).

10.4.3 Referral system

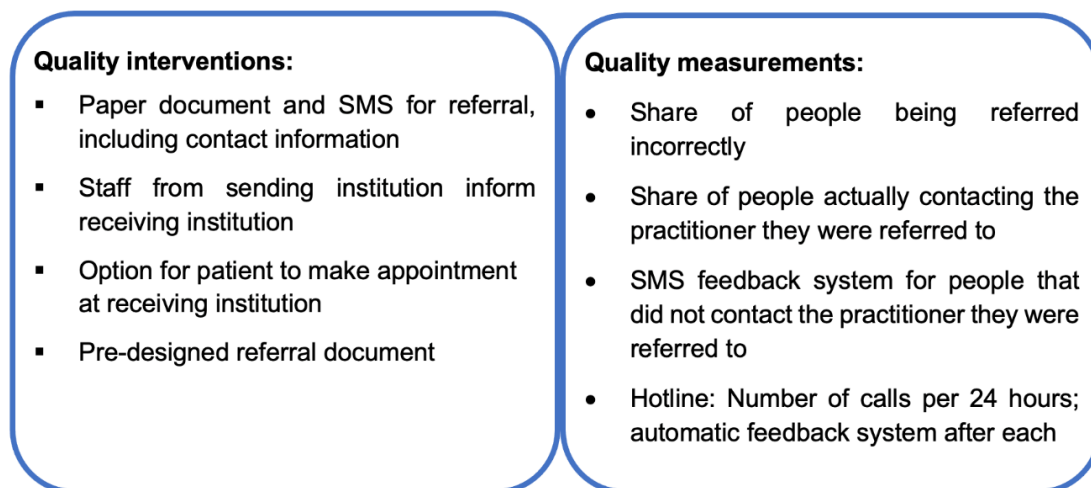
The referral system plays a major part in the quality of an HMO, as it decides whether patients see the right service provider or if the practitioner has the right information available to them. Figure 18 demonstrates the duties of the referral system, whilst Figure 19 presents exemplary quality interventions and measurements that an HMO can implement or utilise.

Figure 18: Overview of processes in the referral system



(Source: Own presentation)

Figure 19: Quality interventions and quality measurements in the referral system



(Source: Own presentation)

10.5 Outcome quality

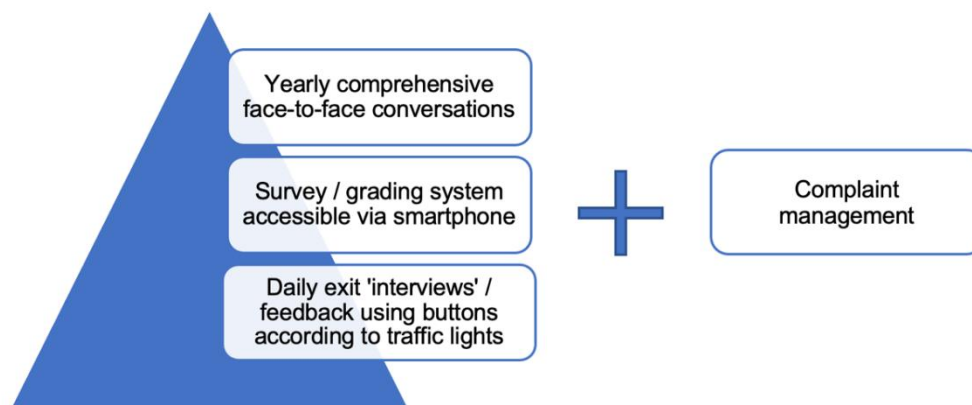
10.5.1 Quality indicators

To measure outcome quality, it is necessary to identify indicators which reflect the performance of the HMO. As mentioned previously, health indicators must be used carefully as they are often too broad to use in relation to the HMO and its performance. To therefore select quality indicators which reflect the HMO's performance, one can use the OECD database as orientation to identify indicators for quality of care. An indicator for quality care of mental health would be the suicide rate within 30 days following hospitalisation, whilst quality of care related to cancer could be measured using 5-year net survival after diagnosis (OECD 2019). The indicators must also be in line with the services offered by the HMO. To use quality indicators there is the need for comparable indicators and set goals. Overall, health indicators should give an idea about the overall performance and the eventual need for improvement. When health goals are far from being achieved, then perhaps the set goal was unrealistic and the goal itself needs to be adjusted.

10.5.2 Patient satisfaction

As another example, this paper focuses on patient satisfaction as it is a crucial part of quality care. It is not only important as patients are the target group of every HMO but also because higher satisfaction leads to better adherence (Batbaatar et al. 2017). In this section, an example for The Gambia was developed, to demonstrate what a patient feedback system could look like (Figure 20). The patient feedback system was developed with the help of a local (J. Sisawo, personal communication, 1st December 2020). As patient satisfaction is always dependent on expectations shaped by the culture and other circumstances, local stakeholders should always be included when developing standards.

Figure 20: Overview of a patient feedback system in The Gambia



(Source: Own presentation)

Tools for examination should be analysed well before applying them in practice to prevent over- or under interpretation of the results. Furthermore, the questions asked must be easy to understand and address all crucial areas (Shirley et al. 2016). Problems that could occur in The Gambia would be that people would not let the inquirer know when they do not understand the question but simply answer something that seems suitable. Another problem is the low literacy rate in The Gambia. Therefore, buttons according to traffic light colours have been used in the authors' example. The results would therefore not be detailed, but provide an overview in regard to overall satisfaction in a timely manner. As there are about 140 mobile phones per 100 inhabitants in The Gambia, another opportunity would be to provide a survey that is accessible either via barcode or by SMS code, as many phones are still non-smartphones (The Worldfactbook 2021b). This would likely be used more by the younger generation, seeing as their literacy rate is higher (The Worldfactbook 2021b). To gain a deeper insight into patients' experiences and satisfaction, comprehensive face-to-face interviews would need to be carried out annually at the health care facilities. When interpreting results, goals should be set, for example that not more than 10% of people who pushed the button pressed the red one. The resulting data should be evaluated at regular intervals, and if necessary, issues improved.

The authors also suggest the HMO implement a complaint management system that gives the patient the opportunity to give written or oral feedback. To make a complaint management system work, there need to be automatic paths so that every complaint is received by the same division, who's responsibility it is to evaluate all objections that have been received, decide if something must be changed, and if so, then what.

Key messages:

- Quality is highly subjective and must therefore be applied to the specific context of the HMO.
- All interventions and measurements should be developed and analysed with stakeholders and locals in order to meet cultural needs and preferences.
- Patient safety, efficiency, patient satisfaction are essential parts of quality management and should be considered during the HMO's implementation.
- An HMO should include structures that allow them to analyse, evaluate and measure quality continuously. If needed, goals and measurements should be adapted.

11 Challenges

11.1 General challenges

The following paragraphs present several general challenges that must be considered when setting up an HMO in West Africa. Due to the fact that the majority of West African countries are LMICs there is a notable lack of financial resources for individuals, but also for the country in general. More detailed information regarding this was discussed in the Chapter 5. Poor infrastructure is another issue that can be observed as consequence of lack of resources. This affects an HMO by way of problematic transportation, which influences the provision of medical equipment and pharmaceuticals, as well as access barriers for patients.

The percentage of the population whose earnings depend on agriculture in West Africa must also be taken into account, as this varies between 61% and 90% (Table 12). This field of work is extremely dependent on various external factors, including not only weather but also variations in seed prices and the price farmers are able to sell their products and goods for. Therefore, in the case of a failed harvest or other catastrophic event, many people would suffer from extreme financial hardship (see 3.2). This uncertain financial situation, which affects the majority of the population, is therefore an extreme challenge for the sustainable financing of the HMO.

Table 12: Overview of labour force in agriculture (percentage)

Country	Labour force in agriculture
Burkina Faso	90%
Guinea	76%
Guinea-Bissau	82%
Sierra Leone	61%
The Gambia	75%

(Source: Own presentation after The Worldfactbook 2021b, c, d, e, f)

Most countries are strongly divided into urban and rural regions. While health care workers are concentrated in the urban areas, the rural regions of West Africa often suffer from a lack of trained health staff. Additionally, the HMO must take into account brain drain not only from the villages into cities, but also from within the country to abroad.

Furthermore, many West African countries have faced a political crisis in the previous decades. To name some examples: a civil war took place in Sierra Leone between 1991 - 2002

(The Worldfactbook 2021f), the civil war in Guinea-Bissau ended in 1999 (The Worldfactbook 2021e) and in 2016 The Gambia emerged from a period of a dictatorship which lasted 22 years (The Worldfactbook 2021b). Political uncertainty and instability are still consequences of this turbulent past, in addition to many struggling economies. These issues affect the work of an HMO severely, not only due to the weak remaining infrastructure, but also because of distrust among the population (Hoddie/Smith 2009: 177). The impact of political crises like civil wars have been far-reaching and therefore a detailed discussion and analysis in regard to their impacts on an HMO go beyond the scope of this paper.

Lastly, when talking about general challenges, one has to discuss the different backgrounds of those implementing the HMO, as well as its target group. Difficulties are often caused when theories or constructs created by non-locals are applied in a target country. This can lead to problems such as lack of acceptance by the target group, and the perception of treatment methods as being inappropriate, making it essential to work together with local individuals or organisations in order to understand and meet the needs of the citizens, and accept their culture. Therefore, an HMO must adjust itself to its surroundings in order to achieve its set goals. Only when the HMO is accepted by the patients, will it be able to provide quality health care.

11.2 Corruption

According to the WHO, corruption is defined as “the abuse of entrusted power for private gain” (WHO 2018a: 2). Corruption can take place in all HMO departments, for example when informal payments are expected by service delivers, or when absenteeism occurs in human resources. Studies suggest that corruption is significantly associated with negative health outcomes. This demonstrates that corruption not only costs money, but also people’s lives (WHO 2018a: 1). In order to prevent corruption, emphasis is placed on ensuring transparency and accountability. This also means that enrolees should be informed about their rights, and that swift action is taken when standards are not met. Therefore, it is necessary to identify key areas in which corruption plays a role, in order to take preventive measures (WHO 2018a: 3 f.). A strategy suggested by WHO is to implement an “anti- corruption” hotline within the HMO, for people to report any corruption they face within the system. It is important that this hotline provides a safe place for people and anonymity is ensured in order to protect whistle-blowers. The acceptance of such hotlines can differ between countries, and sometimes it may not be possible to reach general acceptance for such a measure. A low-threshold, easy to access indicator in regard to corruption within the HMO system can be taken from Transparency International, which reports on corruption in the health care sector annually, within nearly every country (WHO 2018a: 21).

12 Conclusion and next steps

This report discussed the prospects and challenges of implementing an HMO in West Africa. This was achieved not by presenting one HMO in particular, but instead, by discussing aspects of this specific health insurance model in regard to different West African countries. For example, whilst accreditation was exemplified by Cote d'Ivoire, pharmaceutical management was illustrated using the example of Liberia. It is important to note that countries in West Africa largely face similar challenges concerning their social, political or structural environment. Furthermore, the health status of population groups within the region is also comparable in many cases. Despite this, it is important to note that observations and proposals for one HMO dimension, that have been elaborated using a specific country setting, are not directly transferable to other countries and healthcare situations. Individual adjustments must be made in order to feasibly implement an HMO in a specific setting. In addition, as data in the West African setting is often scarce, this report is based on many assumptions by the authors. Accordingly, the goal of this report was to provide ideas and to generate food for thought. It does not provide concrete, one-size-fits-all solutions for the complex process in question, namely the implementation of an HMO in West Africa. However, this report can be used as a basis for further in-depth discussions and more specific elaborations regarding the presented topics.

The private sector encompasses advantages compared to the public sector in LMICs due to political instabilities and economic policies that undermine the health departments. Thus, the public sector is often understaffed and under facilitated, and incapable of offering high quality healthcare services. The unique design of an HMO offers many promising elements for this region, as it can provide comprehensive, integrated and coordinated care (Policy Scout 2021) with a focus on preventive measures to decrease costs and improve health. In addition, an HMO can create a new market for healthcare that offers new employment opportunities as well as training for health workers.

Nevertheless, various pitfalls for the implementation of HMOs in West Africa could be observed. First of all, it remains questionable if citizens would be willing to enrol in a prepaid health insurance, as this financing model is still uncommon in West Africa and the willingness to pay for services that might not be required (in a best-case scenario) might be low. Besides the willingness to pay, the ability to pay contributions might also limit the reach of an HMO. For example, as many people in West Africa work in the agricultural sector and thereby do not have a constant income, they are at risk of losing their entire income during droughts. Furthermore, scaling up the range of services provided by HMOs may lead to challenges regarding available resources in urban and rural areas. It is likely that initially, mainly those living in capitals, cities or other urban parts of West Africa will profit from the

implementation of HMOs. Accordingly, HMOs must therefore ask themselves difficult questions regarding the services they offer, as pursuing coverage of a huge variety of services might lead to serious inequities if the range of available services is substantially reduced for members living in rural areas compared to those in urban areas. Including services within a health benefit package that are not available to all beneficiaries can be considered as ethically questionable (Krubiner/Faden 2017: 298) and consequently urges HMOs to make tough decisions in weighing the range of available services against coverage of diverse geographical areas. Additionally, the societal and political instability faced by the region overall must be considered, as these issues, along with overall poor infrastructure, pose a considerable threat to the successful implementation of a private health insurance in West Africa.

Nevertheless, HMOs have the potential to strengthen the healthcare systems in West Africa by providing beneficiaries with quality healthcare services, while at the same time reducing their financial burden due to ill-health. Therefore, the authors conclude that HMOs have the potential to play a role in enabling West African countries to fulfil their obligation of protecting the health of their citizens. However, in order to reach this goal, several aspects must be considered. Newly designed HMOs must reflect the cultural, societal and political environment in which they are implemented. Therefore, it is key to conduct research prior to the implementation of HMOs and to include various local stakeholders as early as possible. If the values, interests and perspective of the local population are not reflected in the design of an insurance, attracting members becomes difficult and the probability of the project failing increases. Due to the low-income setting, overall available financial resources are limited in general, making it necessary to constantly monitor the HMO's monetary flows and make necessary adjustments and hence ensure the financial sustainability of the HMO. Only in this way can the financial sustainability of an HMO be ensured. Additional measures should also be taken in order to prevent informal payments by HMO members to the healthcare providers, as well as any other forms of corruption. The trust of the patients belonging to the HMO, as well as its image, could be seriously hampered if informal under-the-counter payments such as these occur alongside the regular payment mechanisms. Lastly, an HMO must begin to take steps in preparing itself for foreseeable upcoming challenges, for example in the context of climate change or new infectious diseases such as Ebola or COVID-19. To conclude, it can be envisaged that the successful implementation of an HMO in one area could encourage further countries to follow the respective example and support similar approaches in their own healthcare context, eventually resulting in a domino effect within the region of West Africa.

List of figures

Figure 1: Overview of administration fields in an HMO	17
Figure 2: SWOT- Analysis of marketing within an HMO.....	18
Figure 3: Share contributed by different partners to the external funding of HMOE.....	29
Figure 4: Population projections Guinea-Bissau.....	31
Figure 5: Benefit cost projection (in millions)	33
Figure 6: Governance structure of the Ivorian health system.....	35
Figure 7: Timeline of implementation for SARA.....	40
Figure 8: Doctors per 10,000 in Côte d'Ivoire	41
Figure 9: The ten core elements of a HBP design after Glassmann et al. 2017.....	44
Figure 10: Total population projection Sierra Leone.....	50
Figure 11: Population projection by age group Sierra Leone	50
Figure 12: Health services excluded from coverage	53
Figure 13: HMO medicine supply chain	56
Figure 14: Medicine supply chain.....	59
Figure 15: Plan for implementation of a quality management system	62
Figure 16: Examples of structural quality in an HMO	64
Figure 17: Possible quality interventions and tools for patient safety	64
Figure 18: Overview of processes in the referral system	66
Figure 19: Quality interventions and quality measurements in the referral system	66
Figure 20: Overview of a patient feedback system in The Gambia.....	67

List of tables

Table 1: SWOT analysis of the implementation of an HMO in a LMIC in West Africa	15
Table 2: Revenue projections Guinea Bissau.....	32
Table 3: Accreditation categories for hospital assessment	36
Table 4: General service readiness	41
Table 5: Service-specific readiness	42
Table 6: Disease categorisation and prioritisation for an HBP design	46
Table 7: Service Inclusion Protocol.....	47
Table 8: Calculation of AUC for OOP per income quantile in Sierra Leone.....	49
Table 9: Summary of revenue projection and budget allocation (million US\$)	52
Table 10: Donabedian Framework for the HMO	63
Table 11: Comparison of ratio analysis and data envelopment analysis	65
Table 12: Overview of labour force in agriculture (percentage)	69

List of abbreviations

AUC	Annual upper ceiling
CBHI	Community-based health insurance
CDs	Communicable diseases
CHE	Catastrophic health expenditure
DALYs	Disability-adjusted-life-years
ECOWAS	Economic Community of West African States
GAVI	Global Alliance for Vaccines and Immunisation
HAI	Health Action International
HBP	Health benefit package
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HMO	Health maintenance organisation
LMICs	Low- and middle- income countries
MoH	Ministry of Health
MoHS	Ministry of Health and Sanitation
MFL	Master facility list
MPR	Median price ratio
NGOs	Non-governmental organisations
NCDs	Non-communicable diseases
OOP	Out-of-pocket
OOPs	Out-of-pocket payments
PIMI	Integrated programme for the reduction of maternal and child mortality
SARA	Service Readiness and Availability Assessment
SDGs	Sustainable Development Goals
SMS	Short message service
UHC	Universal health coverage
WAHO	West African Health Organisation
WHO	World Health Organisation

Bibliography

- Agbo, S.; Gbaguidi, L.; Biliyar, C.; Sylla, S.; Fahnbulleh, M.; Dogba, J.; Keita, S.; Kamara, S.; Jambai, A.; Harris, A.; Nyenswah, T.; Seni, M.; Bhoeye, S.; Duale, S.; Kitua, A. (2019): Establishing National Multisectoral Coordination and collaboration mechanisms to prevent, detect, and respond to public health threats in Guinea, Liberia, and Sierra Leone 2016-2018. *One Health Outlook*: 1-13.
- Aker, J. C.; Fafchamps, M. (2015): Mobile Phone Coverage and Producer Markets: Evidence from West Africa. *The World Bank Economic Review* 29 (2): 262–292.
- Amelung, V. E. (2012): *Managed Care. Neue Wege im Gesundheitsmanagement*. 5. Aufl. Wiesbaden: Gabler.
- Amiri, A.; Goudarzi, R.; Amiresmaili, M.; Iranmanesh, F. (2018): Cost-effectiveness analysis of tissue plasminogen activator in acute ischemic stroke in Iran. *Journal of Medical Economics* 21 (3): 282-287.
- Amnesty International UK (2020): FGM and early & forced marriage. London. N.e. Available online at: <https://www.amnesty.org.uk/fgm-early-forced-marriage-west-africa> (retrieved on: 29.01.21).
- Amoah, P. A.; Philips, D. R. (2018): Health literacy and health: rethinking the strategies for universal health coverage in Ghana. *The Royal Society for Public Health*. 159: 40-49.
- Armstrong, M. (2006): *A Handbook of Human Resource Management Practice*. London: Kogan Page Publishers.
- Badura, B.; Walter, U.; Hehlmann, T. (2010): *Betriebliche Gesundheitspolitik. Der Weg zur gesunden Organisation*. 2. Aufl. Berlin, Heidelberg: Springer.
- Barrington, J.; Wereko-Brobby, O.; Ward, P.; Mwafongo, W.; Kungulwe, S. (2010): SMS for Life: a pilot project to improve anti-malarial drug supply management in Tanzania using standard technology. *Malaria Journal* 9 (298): 1-9.
- Bart, S. (2020): Einführung in das Qualitätsmanagement. In: Leal, W. (ed.): *Qualitätsmanagement in der Gesundheitsversorgung*. Berlin, Heidelberg: Springer: 7-21.
- Batbaatar, E.; Dorjdagva, J.; Luvsannyam, A.; Savino, M. M.; Amenta, P. (2017): Determinants of patient satisfaction: a systematic review. *Perspectives in Public Health* 137 (2): 89-101.
- Blauvelt, C.; West, M.; Maxim, L.; Kasiya, A.; Dambula, I.; Kachila, U.; Ngwira, H.; Armstrong, C. E. (2018): Scaling up a health and nutrition hotline in Mafi: the benefits of multisectoral collaboration. *British Medical Journal* 363 (k4590): 1-7.
- Bloom, B. R.; Atun, R.; Cohen, T.; Dye, C.; Fraser, H.; Gomez, G.; Knight, G.; Murray, M.; Nardell, E.; Rubin, E.; Vassall, A.; Volchenkov, G.; White, R.; Wilson, D.; Yadav, P.; Salomon, J. (2017): Tuberculosis. In: Homes, K.; Bertozzi, S.; Bloom, B.; Jha, P. (eds.): *Disease Control Priorities 6, Major Infectious Diseases*. Washington DC: World Bank: 233-313.

- Bocoum, F. Y.; Grimm, M.; Hartwig, R. (2018): The healthcare burden in rural Burkina Faso: Consequences and challenges for insurance design. *Population Health* 6: 309-316.
- Bostock, S.; Steptoe, A. (2012): Association between low functional health literacy and mortality in older adults: longitudinal cohort study. *British Medical Journal* 344: 1-10.
- Boudani, Y. (2020): Burkina Faso: Addicted to radio. Montreal. UNESCO. Available online at: <https://en.unesco.org/courier/2020-1/burkina-faso-addicted-radio> (retrieved on: 13.02.2021).
- Brenzinger, M. (2005): Sprachenvielfalt auf dem afrikanischen Kontinent. N.p. Matthias Brenzinger. Available online at: <https://www.bpb.de/internationales/afrika/afrika/58933/sprachenvielfalt?p=all> (retrieved on: 12.01.2021)
- Burney, P.; Perez-Padilla, R.; Marks, G.; Wong, G.; Bateman, E.; Jarvis, D. (2017): Chronic Lower Respiratory Tract Diseases. In: Prabhakaran, D.; Anand, S.; Gaziano, T.; Mbanya, J.; Wu, Y.; Nugent, R. (eds.): *Disease Control Priorities 5, Cardiovascular, Respiratory, and Related Disorders*. Washington DC: World Bank: 263-286.
- CABRI (2005): Financing healthcare in Africa. Position paper. Centurion: CABRI secretariat.
- Carapinha, J. K.; Ross-Degnan, D.; Desta, A. T.; Wagner, A. K. (2011): Health insurance systems in five Sub-Saharan African countries: Medicine benefits and data for decision making. *Health policy* 99 (3): 193-202.
- Carrin, G.; Waelkens, M.-P.; Criel, B. (2005): Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems. *Tropical Medicine and International Health* 10 (8): 799-811.
- CDC (2019): Ebola (Ebola Virus Disease). 2014-2016 Ebola Outbreak in West Africa. Atlanta. N.e. Available online at: <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html> (retrieved on: 10.01.2021).
- Chatio, S.; Akweongo, P. (2017): Retention and sustainability of community-based health volunteers' activities: A qualitative study in rural Northern Ghana. *PLoS ONE* 12 (3): e0174002.
- Clark, A.; Gailey, H. A.; Forde, E. R. A. (2021): The Gambia. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/The-Gambia> (retrieved on: 22.01.2021).
- Cleveland, E. C.; Dahn, B. T.; Lincoln, T. M.; Safer, M.; Podesta, M.; Bradley, E. (2011): Introducing health facility accreditation in Liberia. *Global public health* 6 (3): 271–282.
- Centers for Medicare & Medicaid Services (CMS) (2020): Parts C & D Enrollee Grievances, Organization/Coverage Determinations, and Appeals Guidance. Baltimore: Center for Medicare & Medicaid Services.
- Deschamps, H. J.; Echenberg, M.; Dresch, J.; Guiguemde, P. H. (2021): Burkina Faso. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/Burkina-Faso> (retrieved on: 05.02.2021).
- Diniz, M. A.; Silva, O.; Paulo, M. A.; Gomes, E. T. (1994): Medicinal use of plants in Guinea-Bissau. In: Van der Maesen, L. J. G.; Van der Burgt, X. M.; Van Medenbach de Rooy, J. M.

- (eds.): *The Biodiversity of African Plants*. Wageningen: Kluwer Academic Publishers: 727-731.
- Dong, H.; Kouyate, B.; Cairns, J.; Mugisha, F.; Sauerborn, R. (2013): Willingness-to-pay for community-based insurance in Burkina Faso. *Health economics* 12 (10): 849–862.
- Dun & Bradstreet, Inc. (n. d.): Hygeia HMO Limited Company Profile. Financial Statements. New Jersey. N.e. Available online at: https://www.dnb.com/business-directory/company-profiles/hygeia_hmo_limited.675afd0849a4f981eb61f8a192c22d22.html#financials-anchor (retrieved on: 11.02.2021).
- Duran, D.; Sieleunou, I.; Özaltın, E. (2020): Health systems assessment for Côte d'Ivoire. Accelerating reforms towards universal health coverage. Washington DC: World Bank Group.
- Ekeigwe, A. A. (2019): Drug manufacturing and access to medicines: The West African story. A literature review of challenges and proposed remediation. *American Association of Pharmaceutical Scientists Open* 5 (3): 1-15.
- Elston, J. W. T.; Cartwright, C.; Ndumbi, P.; Wright, J. (2017): The health impact of the 2014-15 Ebola outbreak. *Public Health* 143: 60-70.
- Engelhardt, H. D. (2016): *Total Quality Management. TQM: Konzept – Verfahren – Diskussion*. Regensburg: Walhalla digital.
- European Commission (2021): Guinea-Bissau Strengthening Maternal and Child Health Service Delivery. Washington DC. World Bank Group. Available online at: <https://projects.worldbank.org/en/projects-operations/project-detail/P163954?lang=en&tab=overview> (retrieved on: 29.01.21).
- Fage, J. D.; McCaskie, T. C. (2020): Western Africa. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/western-Africa/Muslims-in-western-Africa> (retrieved on: 16.01.21).
- Falkson, S. R.; Srinivasan, V. N. (2020): Health Maintenance Organization. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing.
- Feleke, S.; Mitiku, W.; Zelelew, H.; Ashagari, T. (2017): Ethiopia's Community-based Health Insurance: A Step on the Road to Universal Health Coverage. Bethesda: Abt Associate Inc.
- Franken, S. (2015): *Personal: Diversity Management*. Wiesbaden: Springer Gabler.
- Frey, R. V. (2013): Kundenzufriedenheit als Determinante von Mitarbeiterzufriedenheit im Professional Services Kontext. In: Roth, S. (eds.): *Aktuelle Beiträge zur Dienstleistungsforschung*. Kaiserslautern: Springer: 101-121.
- Galli, R. E.; Birmingham, D.; Lobban, R. A.; Pélissier, R. (2021): Guinea-Bissau. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/Guinea-Bissau> (retrieved on: 10.12.2020).
- GAVI (2020): Guinea-Bissau. Geneva. N.e. Available online at: <https://www.gavi.org/programmes-impact/country-hub/africa/guinea-Bissau> (retrieved on: 29.01.21).

- GBD 2016 Stroke Collaborators (2019): Global, regional, and national burden of stroke, 1990–2016: A systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology* (18): 439-458.
- Glassman, A. (2017): Managing the Money: Fiscal and Budgetary Considerations for the Benefits Package. In: Glassman, A; Giedion, U.; Smith, P. (eds.): What's in, what's out? Designing Benefits for Universal Health Coverage. Washington DC: Center for global development: 88-104.
- Glassman, A; Giedion, U.; Smith, P. (2017): The Health Benefits Package: Bringing Universal Health Coverage from Rhetoric to Reality. In: Glassman, A; Giedion, U.; Smith, P. (eds.): What's in, what's out? Designing Benefits for Universal Health Coverage. Washington DC: Center for global development: 1-18.
- Global Partnership on Output-Based Aid (GPOBA) (2007): Nigeria – Pre-Paid Health Scheme Pilot Project. Project information Document. Washington D.C. World Bank Group. Available online at: <http://documents.worldbank.org/curated/en/127481468145170376/Nigeria-Pre-Paid-Health-Scheme-Pilot-Project> (retrieved on: 11.02.2021).
- Global Pharma Health Fund (GPHF) (2021a): The GPHF-Minilab™ - Protection Against Counterfeit Medicines. Giessen. N.e. Available online at: <https://www.gphf.org/en/minilab/> (retrieved on: 13.01.2021).
- Global Pharma Health Fund (GPHF) (2021b): The GPHF-Minilab™ - Focusing on Prevalent Medicines against Infectious Diseases. Giessen. N.e. Available online at: <https://www.gphf.org/en/minilab/wirkstoffe.htm> (retrieved on: 13.01.2021).
- Graf, P.; Spengler, M. (2016): Sozialmanagement Praxis. Leitbild- und Konzeptentwicklung. 5. Aufl. Regensburg: Walhalla Digital.
- Health Action International (HAI) (2021): Database of medicine prices, availability, affordability and price components. Geneva. N.e. Available online at: <https://www.haiweb.org/MedPriceDatabase/> (retrieved on: 15.01.2021).
- Hensen, P. (2019): Qualitätsmanagement im Gesundheitswesen: Grundlagen für Studium und Praxis. 2. Aufl. Wiesbaden: Springer Gabler.
- Hoddie, M.; Smith, J. S. (2009): Forms of civil war and their consequences for future public health. *International Studies Quarterly* 53 (1): 175-202.
- Holsoe, S. E.; Petterson, D. R.; Jones, A. B. (2021): Liberia. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/Liberia> (retrieved on: 14.01.2021).
- Hyman, S.; Parikh, R.; Collins, P.; Patel, V. (2017): Adult Mental Disorders. In: Vikram Patel, V.; Chisholm, D.; Dua, T.; Laxminarayan, T.; Medina-Mora, M. (eds.): Disease Control Priorities. Mental, Neurological, and Substance Use Disorders. 3rd edition. Washington DC: World Bank: 67-86.
- Index mundi (2020a): Burkina Faso. Charlotte. N.e. Available online at: https://www.indexmundi.com/burkina_faso/ (retrieved on: 22.02.2021).

- Index mundi (2020b): Cote d'Ivoire. Charlotte. N.e. Available online at: https://www.indexmundi.com/cote_d_ivoire/ (retrieved on: 22.02.2021).
- Index mundi (2020c): The Gambia. Charlotte. N.e. Available online at: https://www.indexmundi.com/the_gambia/ (retrieved on: 22.02.2021).
- Index mundi (2020d): Guinea-Bissau. Charlotte. N.e. Available online at: <https://www.indexmundi.com/guinea-bissau/> (retrieved on: 22.02.2021).
- Index mundi (2020e): Liberia. Charlotte. N.e. Available online at: [indexmundi.com/liberia/](https://www.indexmundi.com/liberia/) (retrieved on: 22.02.2021).
- Index mundi (2020f): Sierra Leone. Charlotte. N.e. Available online at: https://www.indexmundi.com/sierra_leone/ (retrieved on: 22.02.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020a): Burkina Faso. Seattle. N.e. Available online at: www.healthdata.org/burkina-faso (retrieved on: 09.01.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020b): Gambia. Seattle. N.e. Available online at: <http://www.healthdata.org/gambia> (retrieved on: 09.01.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020c): Guinea-Bissau. Seattle. N.e. Available online at: www.healthdata.org/guinea-bissau (retrieved on: 09.01.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020d): Cote d'Ivoire. Seattle. N.e. Available online at: www.healthdata.org/cote-divoire (retrieved on: 09.01.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020e): Liberia. Seattle. N.e. Available online at: www.healthdata.org/liberia (retrieved on: 09.01.2021).
- Institute for Health Metrics and Evaluation (IHME) (2020f): Sierra-Leone. Seattle. N.e. Available online at: www.healthdata.org/sierra-leone (retrieved on: 09.01.2021).
- Institute of Medicine (2002): Guidance for the national healthcare disparities report. Washington DC: National Academy Press.
- International Finance Corporation (2013): The Business of Health in Africa. Partnering with the Private Sector to Improve People's Lives. Washington DC: International Finance Corporation.
- International Finance Corporation (2016): IFC, IFHA II, Swiss Re and CIEL Healthcare Invest in Hygeia Nigeria to Expand Access to Quality Healthcare. Washington DC. N.e. Available online at: <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=25850> (retrieved on: 11.02.2021)
- International Medical Products Price Guide (IMPPG) (2016a): Fluoxetine. Arlington. N.e. Available online at: <https://mshpriceguide.org/en/single-drug-information/?DMFId=357&searchYear=2015> (retrieved on: 28.01.2021).
- International Medical Products Price Guide (IMPPG) (2016b): Amitriptyline. Arlington. N.e. Available online at: <https://mshpriceguide.org/en/single-drug-information/?DMFId=1278&searchYear=2015> (retrieved on: 28.01.2021).

- International Medical Products Price Guide (IMPPG) (2016c): Acetylsalicylic Acid. Arlington. N.e. Available online at: <https://mshpriceguide.org/en/single-drug-information/?DMFId=2&searchYear=2015> (retrieved on: 28.01.2021).
- International Medical Products Price Guide (IMPPG) (2016d): Labetalol. Arlington. N.e. Available online at: <https://mshpriceguide.org/en/single-drug-information/?DMFId=921&searchYear=2015> (retrieved on: 28.01.2021).
- Kakkar, R.; Kandpal S. D.; Negi, K. S.; Kumar, S. (2013): To study health seeking behavior of population catered by rural health training centre, Rajeev. *Indian journal of preventive and social medicine* 44: 137-141.
- Kauffeld, S.; Grote, S. (2011): Personalentwicklung. In Kauffeld, S.: *Arbeits-, Organisations- und Personalpsychologie für Bachelor*. Heidelberg: Springer Medizin: 114-141.
- Kemp, S. (2020): Digital 2020: Burkina Faso. N.p. DataReportal – Global Digital Insights. Available online at: <https://datareportal.com/reports/digital-2020-burkina-faso> (retrieved on: 13.02.2021).
- Kitson, N. (2019): Informal payments in the public healthcare sector in Guinea-Bissau. Working paper 564. London: ODI.
- Kleindorfer, D.; Broderick, J.; Demaerschalk, B.; Saver, J. (2017): Cost of Alteplase Has More Than Doubled Over the Past Decade. *Stroke* 48 (7): 2000-2002.
- Krubiner, C.; Faden, R. (2017): A Matter of Morality: Embedding Ethics and Equity in the Health Benefits Policy. In: Glassman, A; Giedion, U.; Smith, P. (eds.): *Whats's, what's out?. Designing Benefits for Universal Health Coverage*. Washington DC: Center for global development: 290-326.
- Kunz, J.; Quitmann, A. (2011): Der Einfluss von Anreizsystemen auf die intrinsische Motivation. *Zeitschrift für Personalforschung* 25: 55-76.
- Kutzin, J. (2001): A descriptive framework for country-level analysis of health care financing arrangements. *Health Policy* 56(3): 171-204.
- Kuyinu, Y. A.; Femi-Adebayo, T. T.; Adebayo, B. I.; Abdurraheem-Salami, I.; Odusanya; O. O. (2020): Health literacy: Prevalence and determinants in Lagos State, Nigeria. *PLoS ONE* 15 (8): e0237813.
- Lancer, N.; Clutterbuck, D.; Megginson, D. (2016): *Techniques for Coaching and Mentoring*. 2nd edition. New York: Routledge.
- Lassi, Z. S.; Bhutta, Z. A. (2015): Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes. *The Cochrane database of systematic reviews* 3: 1-103.
- Lassi, Z. S.; Kumar, R.; Bhutta, Z. A. (2016): Community-Based Care to Improve Reproductive, Maternal, Newborn, and Child Health. In: Black, R.; Temmerman, M.; Laxminarayan, R.;

- Walker, N. (eds.): Disease Control Priorities 2, Reproductive, Maternal, Newborn, and Child Health. Washington DC: World Bank: 263-284.
- Lawler, N. E.; Mundt, R. J.; Comhaire, J. L. (2021): Côte d'Ivoire. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/Cote-dIvoire> (retrieved on: 17.01.2021).
- Levin, C.; Chisholm, D. (2017): Cost-Effectiveness and Affordability of Interventions, Policies, and Platforms for the Prevention and Treatment of Mental, Neurological, and Substance Use Disorders. In: Vikram Patel, V.; Chisholm, D.; Dua, T.; Laxminarayan, T.; Medina-Mora, M. (eds.): Disease Control Priorities. Mental, Neurological, and Substance Use Disorders. Washington DC: World Bank: 219-236.
- Lindner-Lohmann, D.; Lohmann, F.; Schirmer, U. (2016): Personalmanagement. 4. Aufl. Berlin, Heidelberg: Springer Gabler.
- Lippold, D. (2015): Einführung in die Personalmarketing- Gleichung. Wiesbaden: Springer Gabler.
- Liberia Institute of Statistics and geo-information services (LISGIS) (2009): Republic of Liberia. 2008 population and housing census. Final results. Monrovia: LISGIS.
- Lituchy T. R.; Michaud J. (2017): A cultural perspective of Africa. In: Lituchy, T. R.; Galperin, B. L.; Punnett, B. J. (eds.): LEAD: Leadership Effectiveness in Africa and the African Diaspora. Palgrave Studies in African Leadership. New York: Palgrave Macmillan US: 19-31.
- Mansour, W.; Boyd, A.; Walshe, K. (2020): The development of hospital accreditation in low- and middle-income countries. A literature review. Health policy and planning 35 (6): 684–700.
- Marc, A.; Verjee, N.; Mogaka, S. (2015): The challenge of stability and security in West Africa. Africa Development Forum series. Washington DC: World Bank.
- Maredza, M.; Chola, L. (2016): Economic burden of stroke in a rural South African setting. eNeurologicalSci 3: 26-32.
- Martin, D.; Diehr, P.; Price, K.; Richardson, W. (1990): Effect of a gatekeeper plan on health services use and charges: a randomized trial. American Journal of Public Health 79 (12): 1628-1632.
- Mayo Clinic (2020): Glossary of billing and insurance terms. Rochester. N.e. Available online at: <https://www.mayoclinic.org/patient-visitor-guide/billing-insurance/glossary#:~:text=Coinsurance%20is%20a%20provision%20that,those%20covered%20by%20your%20insurance> (retrieved on: 28.01.2021).
- McLaughlin, C. G.; Wyszewianski, L. (2002): Access to care. Remembering old lessons. Health services research 37 (6): 1441–1443.
- Ministry of Health and Sanitation (2016): Human Resources for Health Country Profile. Sierra Leone Country Profile. N. p.: Sierra Leone Ministry of Health and Sanitation.
- Ministry of Health and Sanitation (2017): National Health Sector Strategic Plan 2017 – 2021. N. p.: Sierra Leone Ministry of Health and Sanitation.

- Ministry of Health and Social Welfare (MoHSW) (2010): Supply Chain Strategy 2015. Monrovia: Ministry of Health and Social Welfare.
- Morgan, N. A.; Whitley, K. A.; Feng, H.; Chari, S. (2019): Research in marketing strategy. *Journal of the Acad. Mark. Sci.* 47 (1): 4–29.
- Mossialos, E.; Dixon, A. (2002): Funding health care: an introduction. In: WHO (ed.): *Funding health care: options for Europe*. Buckingham, Philadelphia: Open University Press: 1-30.
- Mtshali, N.; Shelembe, T.; Rachel Naidoo, J.; Harerimana, A. (2019): Institutional accreditation by nursing education and training quality assurance: Perspectives of heads of private nursing institutions in South Africa. *Journal of Nursing Education and Practice* 10 (2): 91.
- National Institute for Health and Care Excellence (NICE) (2016): Tuberculosis. NICE guideline [NG33]. London. NICE. Available online at: <https://www.nice.org.uk/guidance/ng33> (retrieved on: 08.12.2020).
- National Institute for Health and Care Excellence (NICE) (2018): Chronic obstructive pulmonary disease (acute exacerbation): antimicrobial prescribing. NICE guideline [NG114]. London. NICE. Available online at: <https://www.nice.org.uk/guidance/NG114> (retrieved on: 10.12.2020)
- Nichols, Z. (2021): Challenges in Education in Guinea Bissau. Tacoma. The Borgen Project. Available online at: <https://borgenproject.org/education-in-guinea-bissau/> (retrieved on: 16.02.2020).
- Nicol, D. S. H. W.; Fyfe, C.; Sesay, S. M. (2021): Sierra Leone. N.p. Encyclopaedia Britannica. Available online at: <https://www.britannica.com/place/Sierra-Leone> (retrieved on: 16.02.2020).
- Nienhaus, A.; Schablon, A.; Costa, J. T.; Diel, R. (2011): Systematic review of cost and cost-effectiveness of different TB-screening strategies. *BMC Health Services Research* 11 (247): 1-10.
- Nuhu, K. M. (2018): Determinants of health seeking behavior in Ghana. Carbondale (IL): Southern Illinois University.
- O'Neill, K.; Takane, M.; Sheffel, A.; Abou-Zahr, C.; Boerma, T. (2013): Monitoring service delivery for universal health coverage. *The Service Availability and Readiness Assessment. Bulletin World Health Organisation* 91: 923-931.
- Obi, C. (2012): *Conflict and peace in West Africa*. Uppsala, Sweden: The Nordic Africa Institute.
- OECD (2019): *Health at a Glance 2019. OECD Indicators*. OECD Publishing Paris: 65-85; 119-147.
- Olenja, J. M. (2003) Health Seeking Behaviour in context. *East African Medical Journal* 80 (2): 61-62.
- Ortegón, M.; Lim, S.; Chisholm, D.; Mendis, S. (2012): Cost effectiveness of strategies to combat cardiovascular disease, diabetes, and tobacco use in sub-Saharan Africa and South East Asia: mathematical modelling study. *British Medical Journal* 344.

- Overseas Security Advisory Council (OSAC) (2020): Country Security Report. Burkina Faso 2020 Crime & Safety Report. Washington DC: OSAC Bureau of Diplomatic Security, U.S. Department of State.
- Papenfuß K.; Pfeuffer, E. (1989): Mitarbeitergespräch. In: Strutz, H.: Handbuch Personalmarketing. Wiesbaden: Gabler: 397-412.
- Persaud, N.; Jiang, M.; Shaikh, R.; Bali, A.; Oronsaye, E.; Woods, H.; Drozdal, G.; Rajakulasingam, Y.; Maraj, D.; Wadhawan, S.; Umali, N.; Wang, R. McCall, M.; Aronson, J. K.; Plüddemann, A.; Moja, L.; Magrinic, N.; Heneghan, C. (2019): Comparison of essential medicines lists in 137 countries. *Bulletin of the World Health Organization* 97: 394-404C.
- Policy Scout (2021): Private vs Public Health Insurance. N.p. N.e. Available online at: <https://polycyscout.com/private-vs-public-health-insurance> (retrieved on: 07.02.2021).
- Puumalainen; A.; Elonheimo, O.; Brommels, M. (2020): Costs structure of the inpatient ischemic stroke treatment using an exact costing method. *Heliyon* (6): 1-6.
- Reddy, M. (2019): All You Need to Know to Create a Healthcare Marketing Plan. Chicago. Digital Authority Partners. Available online at: <https://www.digitalauthority.me/resources/healthcare-marketing-plan-guide/> (retrieved on: 31.01.2021).
- Russo, G.; Pavignani, E.; Guerreiro, C. S.; Neves, C. (2017): Can we halt health workforce deterioration in failed states? Insights from Guinea-Bissau on the nature, persistence and evolution of its HRH crisis. *Human resources for health* 15 (1): 12.
- Saffa, J. J. (2020): Government budget and statement of economic and financial policies for the financial year 2021. For the Financial Year, 2019. Theme: "Fiscal Consolidation for Human Capital Development". Freetown: Ministry of Fina.
- Sahel and West Africa Club; OECD (2006): The socio-economic and regional context of West African migrations. Working document. Paris: Sahel and West Africa Club/OECD.
- Salehi, H. (2010): Capacity Building Workshop On Health System Development. Health Care Financing; Objectives, Functions and Options. Tehran: World Health Organization.
- Schäferhoff, N. (2014): Die Vorteile von betrieblicher Weiterbildung für Arbeitgeber. Bonn. N.e. Available online at: <https://www.soufflearning.com/vorteile-betrieblicher-weiterbildung-arbeitgeber/> (retrieved on: 12.01.2021).
- Schreyögg, G.; Reuther, U. (1997): Arbeitsgestaltung und Humanisierung. In: Kahsnitz, D.; Rophol, G.; Schmid, A. (eds.): Handbuch zur Arbeitslehre. Munich: Oldenbourg Wissenschaftsverlag: 319-330.
- Severe Malaria Observatory (2019): Burkina Faso health system. N.p. N.e. Available online at: <https://www.severemalaria.org/countries/burkina-faso/burkina-faso-health-system>. (retrieved on: 14.02.2021).
- Simone, D. (2009): Cost Reduction Strategies for Emergency Services: Insurance Role, Practice Changes and Patients Accountability. *Health Care Analysis* 17: 1-19.

- Sine, J.; Saint-Firmin, P. P.; Williamson, T. (2019): Assessment of the health system in the Gambia. Overview, Medical Products, Health Financing, and Governance Components. Washington DC: Palladium, Health Policy Plus.
- Skolnik, R. (2015): Global Health 101. Burlington (MA): Jones & Bartlett Learning.
- Statista (2018): Länder mit dem größten Anteil an Analphabeten 2018. N.p. N.e. Available online at: <https://de.statista.com/statistik/daten/studie/37211/umfrage/analphabetenquote-aus-gewaehlter-laender/> (retrieved on: 14.02.2021).
- Statista (2020): Average life expectancy in Africa for those born in 2020, by gender and region. N.p. N.e. Available online at: <https://www.statista.com/statistics/274511/life-expectancy-in-africa/> (retrieved on: 29.01.21).
- Statista (2021): Computer penetration rate among households in Africa 2005-2019. N.p. N.e. Available online at: <https://www.statista.com/statistics/748549/africa-households-with-computer/#statisticContainer> (retrieved on: 25.02.2021).
- Statistics Sierra Leone (2019): Sierra Leone integrated household survey (SLIHS) report 2018. N.p.: Statistics Sierra Leone, The World Bank, Government of Sierra Leone.
- Systems for Improved Access to Pharmaceuticals and Services Program (SIAPS) (2014a): Promising Practices: Quantification: Forecasting and Supply Planning. Arlington: Management Sciences for Health.
- Systems for Improved Access to Pharmaceuticals and Services Program (SIAPS) (2014b): Promising Practices: Procurement. Arlington: Management Sciences for Health.
- Systems for Improved Access to Pharmaceuticals and Services Program (SIAPS) (2014c): Promising Practices: Warehousing and Inventory Management. Arlington: Management Sciences for Health.
- Systems for Improved Access to Pharmaceuticals and Services Program (SIAPS) (2014d): Promising Practices: Distribution. Arlington: Management Sciences for Health.
- Tefen Management Consulting (2016): Marketing Strategy in the HMO Market - from Analysis to Implementation. New York. Uziely, G.; Stark, T. I. S.. Available online at: https://www.tefen.com/insights/services/Strategy/marketing_strategy_in_the_hmo_market_analysis_to_implementation (retrieved on: 13.02.2021).
- The Global Fund (2020): Guinea-Bissau. Geneva. N.e. Available online at: <https://data.theglobalfund.org/investments/location/GNB/-/-/Active> (retrieved on: 10.12.2020).
- The Global Fund (2021): Guinea-Bissau. Geneva. N.e. Available online at: <https://data.theglobalfund.org/investments/location/GNB/-/-/Active> (retrieved on: 29.01.21).
- The Worldfactbook (2021a): Africa: Liberia. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/liberia/#people-and-society> (retrieved on: 22.01.2021).

- The Worldfactbook (2021b): Africa: The Gambia. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/gambia-the> (retrieved on: 28.01.2021).
- The Worldfactbook (2021c): Africa: Burkina Faso. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/burkina-faso> (retrieved on: 28.01.2021).
- The Worldfactbook (2021d): Africa: Guinea. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/guinea> (retrieved on: 28.01.2021).
- The Worldfactbook (2021e): Africa: Guinea-Bissau. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/guinea-bissau> (retrieved on: 28.01.2021).
- The Worldfactbook (2021f): Africa: Sierra Leone. Washington. Central Intelligence Agency. Available online at: <https://www.cia.gov/the-world-factbook/countries/sierra-leone-faso> (retrieved on: 28.01.2021).
- Tiruneh, G. T.; Shiferaw, C. B.; Worku, A. (2019): Effectiveness and cost-effectiveness of home-based postpartum care on neonatal mortality and exclusive breastfeeding practice in low-and-middle-income countries: a systematic review and meta-analysis. *BMC pregnancy and childbirth* 19 (507): 1-19.
- Togoh, G. P. Y.; Turay, A. B.; Komba, A. (2017): Sierra Leone 2015 Population and Housing Census. Thematic Report on Population Projections. N. p.: Statistics Sierra Leone.
- Transparency International (2020): Corruption Perceptions Index. Berlin. N.e. Available online at: <https://www.transparency.org/en/cpi/2020/index/nzl> (retrieved on: 07.02.2021).
- UHC2030 (2021): History. Geneva. World Health Organization. Available online at: <https://www.uhc2030.org/about-us/history/> (retrieved on: 29.01.21).
- UNESCO Institute for Statistics (2019): Education in Africa. Montreal. N.e. Available online at: <http://uis.unesco.org/en/topic/education-africa> (retrieved on: 12.01.2021).
- United Nations Industrial Development Organization (UNIDO) (2017): Setting up Accreditation Bodies in Developing Countries. A guide to opening the door for global trade. 2nd edition. Vienna: UNIDO.
- United Nations (2015): Transforming our World: The 2030 Agenda for Sustainable Development. A/RES/70/1. N. p.: United Nations.
- United Nations (2019): Department of Economic and Social Affairs. Population Dynamics. World Population Prospects 2019. New York. World Population Prospects. Available online at: <https://population.un.org/wpp/DataQuery/> (retrieved on: 02.12.2020).ur Rehman, A.; Hassali, M. A. A.; Abbas, S.; Ali, I. A. B. H.; Harun, S. N.; Muneswarao, J.; Hussain, R. (2020): Pharmacological and non-pharmacological management of COPD; limitations and future prospects: a review of current literature. *Journal of Public Health* 28: 357–366.

- USAID (2016): African Strategies for health. Health financing profile: Côte d'Ivoire. Arlington: United States Agency for International Development.
- Van Hees, S. G. M.; O'Fallon, T.; Hofker, M.; Dekker, M.; Polack, S.; Banks, L. M.; Spaan, E. J. A. M. (2019): Leaving no one behind? Social inclusion of health insurance in low- and middle-income countries: a systematic review. *International journal for equity in health* 18 (134).
- Vinerean, S. (2017): Importance of Strategic Social Media Marketing. *Expert Journal of Marketing* 5 (2): 28-35.
- West African Health Organization (WAHO) (2014): The Economic Community of West African States (ECOWAS). Regional pharmaceutical plan (ERPP). Bobo-Dioulasso: WAHO Essential Medicines and Vaccines programme.
- West African Health Organization (WAHO) (2015): Strategic Health Plan 2016-2020. Bobo-Dioulasso: West African Health Organization.
- Wang, H.; Rosemberg, N. (2018): Universal Health Coverage in Low-Income Countries: Tanzania's Efforts to Overcome Barriers to Equitable Health Service Access. Washington DC: The World Bank.
- Wångdahl, J. M.; Mårtensson, L. I. (2015): Measuring health literacy - the Swedish Functional Health Literacy scale. *Scandinavian journal of caring sciences* 29 (1): 165–172.
- WHO (2010): The world health report: health systems financing: the path to universal coverage. Geneva: World Health Organisation.
- WHO (2012): Spending on health: A global overview. Geneva. World Health Organisation. Available online at: <https://www.who.int/news-room/fact-sheets/detail/spending-on-health-a-global-overview> (retrieved on: 11.01.2021).
- WHO (2013): Service availability and readiness assessment (SARA). An annual monitoring system for service delivery. Geneva: World Health Organisation.
- WHO (2015): Service availability and readiness assessment (SARA). An annual monitoring system for service delivery. Geneva: World Health Organisation.
- WHO (2016a): Public Financing for Health in Africa: from Abuja to the SDGs. Geneva: World Health Organisation.
- WHO (2016b): Country Cooperation Strategy at a glance. Central African Republic. Geneva: World Health Organisation.
- WHO (2017a): Developing a national health financing strategy: a reference guide. *Health financing guidance* 3: 1-44.
- WHO (2017b): Master Facility List Resource Package. Guidance for countries wanting to strengthen their Master Facility List. Geneva: World Health Organisation.
- WHO (2017c): Talking about depression in Sierra Leone. Geneva. World Health Organisation. Available online at: <https://www.afro.who.int/news/talking-about-depression-sierra-leone> (retrieved on: 28.01.2021).

- WHO (2018a): Integrating a focus on anti-corruption, transparency and accountability in health systems assessments. Geneva: World Health Organisation.
- WHO (2018b): Sierra Leone. Annual report. A year in focus 2018. Geneva: World Health Organisation.
- WHO (2020): Mental Health in Sierra Leone. Geneva. World Health Organisation. Available online at: <https://www.afro.who.int/media-centre/infographics/mental-health-sierra-leone> (retrieved on: 28.01.2021).
- WHO (2021a): Track 2: Health literacy and health behaviour. Geneva. World Health Organisation. Available online at: <https://www.who.int/healthpromotion/conferences/7gchp/track2/en/#:~:text=Health%20Literacy%20has%20been%20defined%20as%20the%20cognitive,it%20effectively%2C%20health%20literacy%20is%20critical%20to%20empowerment> (retrieved on: 15.01.2021).
- WHO (2021b): Health financing for universal coverage. How is a health system to be funded? Geneva. World Health Organisation. Available online at: https://www.who.int/health_financing/strategy/revenue_collecton/en/ (retrieved on: 03.01.2021).
- WHO (2021c): Disability-adjusted life years (DALYs). Geneva. World Health Organisation. Available online at: <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/158> (retrieved on: 28.01.2021).
- WHO (2021d): Essential medicines and health products: Medicines Supply. Geneva. World Health Organisation. Available online at: <https://www.who.int/medicines/areas/access/supply/en/> (retrieved on: 21.01.2021).
- WHO; Health Action International (HAI) (2008): Measuring medicine prices, availability, affordability and price components. Geneva. World Health Organisation. Available online at: <http://www.haiweb.org/medicineprices/manual/documents.html> (retrieved on: 11.01.2021).
- World Bank (2017): The state of identification systems in Africa. Country Briefs. Washington DC: The World Bank Group.
- World Bank (2018a): Digital Access: The future of financial inclusion in Africa. Washington DC: The World Bank Group.
- World Bank (2018b): The Role of Digital Identification for Healthcare. The Emerging Use Cases. Washington DC: The World Bank Group.
- World Bank (2019a): Net migration – Burkina Faso. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/indicator/SM.POP.NETM?locations=BF> (retrieved on: 30.01.2021).
- World Bank (2019b): Guinea-Bissau: Service Delivery Indicators Report. Health. Washington DC: The World Bank Group.
- World Bank (2020a): Burkina Faso. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/burkina-faso> (retrieved on: 20.01.2021).

- World Bank (2020b): Cote d'Ivoire. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/cote-divoire> (retrieved on: 20.01.2021).
- World Bank (2020c): The Gambia. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/gambia> (retrieved on: 20.01.2021).
- World Bank (2020d): Guinea-Bissau. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/guinea-bissau> (retrieved on: 20.01.2021).
- World Bank (2020e): Liberia. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/liberia> (retrieved on: 20.02.2021).
- World Bank (2020f): Sierra-Leone. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/country/sierra-leone> (retrieved on: 20.02.2021).
- World Bank (2020g): Employment in agriculture (% of total employment) (modelled ILO estimate). Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=GW> (retrieved on: 30.01.2021).
- World Bank (2021a): Current health expenditure per capita (current US\$). Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD?end=2017&start=2017&view=bar> (retrieved on: 15.12.2020).
- World Bank (2021b): School enrollment, secondary (% gross) - Sub-Saharan Africa. Washington DC. The World Bank Group. Available online at: <https://data.worldbank.org/indicator/SE.SEC.ENRR?locations=ZG> (retrieved on: 14.02.2021).
- World Bank (2021c): Guinea-Bissau. Washington DC. The World Bank Group. Available online at: <https://projects.worldbank.org/en/projects-operations/project-detail/P163954?lang=en&tab=overview> (retrieved on: 29.01.21).
- Worldometer (2019): Population: West Africa. N.p. N.e. Available online at: <https://www.worldometers.info/population/africa/western-africa/> (retrieved on: 20.01.2021).
- Worldometer (2020a): Burkina Faso Population. N.p. N.e. Available online at: <https://www.worldometers.info/world-population/burkina-faso-population/> (retrieved on: 08.03.2021).
- Worldometer (2020b): Gambia Population. N.p. N.e. Available online at: <https://www.worldometers.info/world-population/gambia-population/> (retrieved on: 08.03.2021).
- Worldometer (2020c): Liberia Population. N.p. N.e. Available online at: <https://www.worldometers.info/world-population/liberia-population/> (retrieved on: 08.03.2021).
- Worldometer (2021a): Western Africa population. N.p. N.e. Available online at: <https://www.worldometers.info/world-population/western-africa-population/> (retrieved on: 29.01.21).
- Worldometer (2021b): Guinea-Bissau Population. N.p. N.e. Available online at: <https://www.worldometers.info/world-population/guinea-bissau-population/> (retrieved on: 13.01.2021).

- Xu, K.; Evans, D. B.; Kawabata, K.; Zeramdini, R.; Klavus, J.; Murray, C. J. L. (2003): Household catastrophic health expenditure: a multicountry analysis. *The Lancet* 362: 111-117.
- Yan, L.; Li, C.; Chen, J.; Luo, R.; Bettger, J.; Zhu, Y.; Feigin, V.; O'Donnell, M.; Miranda, J.; Zhao, D.; Wu, Y. (2017): Stroke. In: Prabhakaran, D.; Anand, S.; Gaziano, T. A.; Mbanya, J.-C.; Wu, Y.; Nugent, R. (eds.): *Cardiovascular, Respiratory, and Related Disorders*. 3rd edition. Washington DC: International Bank for Reconstruction and Development / The World Bank: 157-172.
- Zon, H.; Pavlova, M.; Groot, W. (2020): Regional health disparities in Burkina Faso during the period of health care decentralization. Results of a macro-level analysis. *International Journal of Health Planning and Management* 35: 939-959.

List of appendices

Appendix 1: Actuarial calculations – Guinea-Bissau	i
Appendix 2: Actuarial calculations – Sierra Leone	vii
Appendix 3: Service inclusion protocol examples	x

Appendix

Appendix 1: Actuarial calculations – Guinea-Bissau

Population projections Guinea-Bissau by sex 2015-2030

	male	female	total	growth rate
2015	846,000	891,000	1,737,000	2.66%
2016	869,000	914,000	1,782,000	2.59%
2017	892,000	936,000	1,828,000	2.58%
2018	915,000	959,000	1,874,000	2.52%
2019	939,000	982,000	1,921,000	2.51%
2020	963,000	1,005,000	1,968,000	2.45%
2021	987,000	1,029,000	2,015,000	2.39%
2022	1,011,000	1,052,000	2,063,000	2.38%
2023	1,035,000	1,076,000	2,112,000	2.38%
2024	1,060,000	1,100,000	2,160,000	2.27%
2025	1,085,000	1,125,000	2,209,000	2.27%
2026	1,110,000	1,149,000	2,259,000	2.26%
2027	1,135,000	1,174,000	2,309,000	2.21%
2028	1,160,000	1,199,000	2,359,000	2.17%
2029	1,186,000	1,224,000	2,410,000	2.16%
2030	1,212,000	1,250,000	2,461,000	2.12%

(United Nations 2019)

Population of Guinea-Bissau by age groups: 2015-2030

	2015	2020	2025	2030
0-4	285,000	305,000	321,000	336,000
5-14	456,000	520,000	572,000	609,000
15- 59	918,000	1,053,000	1,216,000	1,401,000
60-64	33,000	33,000	37,000	42,000
65+	46,000	57,000	65,000	73,000

Population proportion % of age groups: 2015-2030

--	--	--	--	--

	2015	2020	2025	2030
0-4	16.4%	15.5%	14.5%	13.7%
5-14	26.3%	26.4%	25.9%	24.7%
15- 59	52.8%	53.5%	55.0%	56.9%
60+	4.5%	4.6%	4.6%	4.7%
65+	2.7%	2.9%	2.9%	3.0%

(United Nations 2019)

	2015	2020
% of population in the age of 15-64	54.75%	55.18%
working age (15-64) population	951,008	1,085,942
population in capital city	342,536	388,028
population of working age in the capital	187,539	214,114

Revenue projections Guinea-Bissau

Formal contributors		2015	2020	2021	2022	2023	2024	2025
Number of contributors		187,538.68	214,113.85	220,056.86	226,397.33	233,274.03	239,598.00	245,120.45
average national income per contributor in local currency		731,463.00	912,131.00	948,616.24	986,560.89	1,026,023.33	1,067,064.26	1,109,746.83
Contribution rate		6%	6%	6%	6%	6%	6%	6%
average contribution per year per contributor		43,887.78	54,727.86	56,916.97	59,193.65	61,561.40	64,023.86	66,584.81
HMO direct revenue		8,230,656,285.44	11,717,992,828.75	12,524,970,689.93	13,401,285,278.53	14,360,675,918.90	15,339,987,728.05	16,321,298,383.73
External resources		2015	2020	2021	2022	2023	2024	2025
Non-governmental revenues								
International donors and NGOs	World Bank	220,241,555.52	231,833,216.34	4,141,575,102.11	4,141,575,102.11	4,141,575,102.11	243,424,877.16	255,596,121.01
	GAVI	768,248,636.11	903,693,242.07	842,539,618.48	276,652,762.00	276,652,761.77	290,485,399.86	305,009,669.85
	Global Fund	9,149,456,704.78	9,631,007,057.66	10,112,557,410.54	10,618,185,281.07	11,149,094,545.12	11,706,549,272.38	12,291,876,736.00
Private donors		384,184.32	400,192.00	416,199.68	432,847.67	450,161.57	468,168.04	486,894.76
Earmarked programmes	PIMI	4,420,196.35	4,604,371.20	4,788,546.05	4,980,087.89	5,179,291.41	5,386,463.06	5,601,921.58
	NGOs	329,152.51	342,867.20	356,581.89	370,845.16	385,678.97	401,106.13	417,150.37
Sub-total		10,143,080,429.59	10,771,880,946.47	15,102,233,458.75	15,042,196,925.90	15,573,337,540.95	12,246,715,286.62	12,858,988,493.58

Governmental revenues	2015	2020	2021	2022	2023	2024	2025
Population income tax	2,592,000,000	2,915,647,488.00	3,032,273,387.52	3,153,564,323.02	3,279,706,895.94	3,410,895,171.78	3,547,330,978.65
Ministry of Health	10,982,000	12,353,266.45	12,847,397.11	13,361,292.99	13,895,744.71	14,451,574.50	15,029,637.48
Sub-total	34.969.336.760	46.218.942.994,45	47.418.336.580,63	48.649.471.806,91	49.913.212.486,33	51.210.446.838,09	52.542.088.210,24
Total revenue projections	45.112.417.189,59	56.990.823.940,92	62.520.570.039,38	63.691.668.732,81	65.486.550.027,28	63.457.162.124,72	65.401.076.703,82
Percentage allocated to HMO	5%	5%	5%	5%	5%	5%	5%
HMO indirect revenue	2.255.620.859,48	2.849.541.197,05	3.126.028.501,97	3.184.583.436,64	3.274.327.501,36	3.172.858.106,24	3.270.053.835,19
Total HMO revenue projections	10.486.277.144,92	14.567.534.025,80	15.650.999.191,90	16.585.868.715,17	17.635.003.420,27	18.512.845.834,28	19.591.352.218,92

Notes

local currency used - XOF

Contributors age of 15-64

Income estimated on a 4% growth of GDP

estimated growth of contributions of international donors 5%

estimated growth of contributions of private donors 4%

OOP annual growth rate of 2,5%

Benefit cost projections

	2015	2020	2021	2022	2023	2024	2025
Total budget	10.486.277.144,92	14.567.534.025,80	15.650.999.191,90	16.585.868.715,17	17.635.003.420,27	18.512.845.834,28	19.591.352.218,92
Scenario: coverage of all in the capital	342,536	388,028	397,358	406,824	416,486	425,952	435,615
Budget for benefit package (60%)	6.291.766.286,95	8.740.520.415,48	9.390.599.515,14	9.951.521.229,10	10.581.002.052,16	11.107.707.500,57	11.754.811.331,35
Budget for infrastructure (10%)	1.048.627.714,49	1.456.753.402,58	1.565.099.919,19	1.658.586.871,52	1.763.500.342,03	1.851.284.583,43	1.959.135.221,89
Budget for administration (10%)	1.048.627.714,49	1.456.753.402,58	1.565.099.919,19	1.658.586.871,52	1.763.500.342,03	1.851.284.583,43	1.959.135.221,89
Budget for HMO expansion (10%)	1.048.627.714,49	1.456.753.402,58	1.565.099.919,19	1.658.586.871,52	1.763.500.342,03	1.851.284.583,43	1.959.135.221,89
Budget for reserve (10%)	1.048.627.714,49	1.456.753.402,58	1.565.099.919,19	1.658.586.871,52	1.763.500.342,03	1.851.284.583,43	1.959.135.221,89
Total costs	9.437.649.430,43	13.110.780.623,22	14.085.899.272,71	14.927.281.843,65	15.871.503.078,24	16.661.561.250,86	17.632.216.997,03
per capita costs per population	27.552,25	33.788,23	35.448,89	36.692,27	38.108,09	39.116,05	40.476,63

Actuarial balance

	CASH INFLOW			CASH OUTFLOW	NET INCOME	RESERVE
	Contributions	Investment Income	Total Revenue	Total Cost	Net Income (Total Income+ Last Year Reserve +Investment Income -Total Cost)	As proportion of next year Outflow
	(a)	(b)	(c)=(a)+(b)+Net income from previous year	(d)	(e)	(f)
2015	10.486.277.144,92	-	10.486.277.145	9.437.649.430	1.048.627.714	0,08
2020	14.567.534.025,80	-	14.567.534.026	13.110.780.623	1.456.753.403	0,10
2021	15.650.999.191,90	145.675.340	15.796.674.532	14.085.899.273	1.710.775.259	0,11
2022	16.585.868.715,17	171.077.526	16.756.946.241	14.927.281.844	1.829.664.397	0,12
2023	17.635.003.420,27	182.966.440	17.817.969.860	15.871.503.078	1.946.466.782	0,12
2024	18.512.845.834,28	194.646.678	18.707.492.512	16.661.561.251	2.045.931.262	0,12
2025	19.591.352.218,92	204.593.126	19.795.945.345	17.632.216.997	2.163.728.348	

	Reserve of External contributions		Reserve of Internal contributions		Reserve for Formal Contributions
2015	50.715.402,15	2015	174.846.684	2015	41.153.281,43
2020	53.859.404,73	2020	231.094.715	2020	58.589.964,14
2021	75.511.167,29	2021	237.091.683	2021	62.624.853,45
2022	75.210.984,63	2022	243.247.359	2022	67.006.426,39
2023	77.866.687,70	2023	249.566.062	2023	71.803.379,59
2024	61.233.576,43	2024	256.052.234	2024	76.699.938,64
2025	64.294.942,47	2025	262.710.441	2025	81.606.491,92

Notes

Currency used XOF

Zins 0.10

Appendix 2: Actuarial calculations – Sierra Leone

Demographic projections in Sierra Leone

Population projections by sex: 2016-2030

Year	Total Population	Urban Population	Rural Population	growth rate
	male	female	total	growth rate
2015			7,092,113	3.2%
2016	3,591,542	3,704,860	7,296,402	2.9%
2017	3,691,506	3,807,980	7,499,486	2.8%
2018	3,790,791	3,910,394	7,701,185	2.7%
2019	3,889,366	4,012,088	7,901,454	2.6%
2020	3,987,250	4,113,068	8,100,318	2.5%
2021	4,084,494	4,213,388	8,297,882	2.4%
2022	4,181,167	4,313,093	8,494,260	2.4%
2023	4,277,318	4,412,283	8,689,601	2.3%
2024	4,373,020	4,511,012	8,884,032	2.2%
2025	4,468,350	4,609,341	9,077,691	2.2%
2026	4,563,350	4,707,350	9,270,700	2.1%
2027	4,658,099	4,805,077	9,463,176	2.1%
2028	4,752,626	4,902,593	9,655,219	2.0%
2029	4,846,987	4,999,933	9,846,920	2.0%
2030	4,941,221	5,097,140	10,038,361	1.9%

(Source: Togoh et al. 2017: 4-19)

Population percentage by age groups: 2000-2030

	2016	2020	2025	2030
<15	41.5	41.6	40.9	39.5
15-64	55	55.1	56.1	57.5
65+	3.5	3.3	3.1	3

(Source: Togoh et al. 2017: 24)

Population by age groups

	2020	2021	2022	2023	2024	2025
0-14	3,218,000	3,257,000	3,290,000	3,320,000	3,347,000	3,374,000
15-65	4,525,000	4,645,000	4,771,000	4,903,000	5,036,000	5,171,000
65 and above	234,000	239,000	245,000	250,000	255,000	261,000

(Source: World Bank 2020f)

Revenue projections

	2020	2021	2022	2023
1. Formal sector (30% of the working population)				
number of contributors	1,854,163	1,874,492	1,888,274	1,897,809
Average insurable income per one contributor per year	13,500,000	13,905,000	14,322,150	14,751,815
Contribution rate	6%	6%	6%	6%
Average contributions per one contributor per year	810,000	834,300	859,329	885,109
Total Sum	1,501,871,860,062	1,563,888,294,992	1,622,648,606,427	1,679,767,454,134
Total to BP (60% of sum)	901,123,116,037	938,332,976,995	973,589,163,856	1,007,860,472,481
2. Informal sector (70% of the working population)				
number of contributors in each quantile	865,276	874,763	881,195	885,644
1st income quantile				
annual average income	2,938,000	3,026,140	3,116,924	3,210,432
average annual contribution (6%) per contributor	176,280	181,568	187,015	192,626
sub-total	152,530,847,773	158,829,267,530	164,796,993,777	170,598,012,157
2nd income quantile				
annual average income	12,708,000	13,089,240	13,481,917	13,886,375
average annual contribution (6%) per contributor	762,480	785,354	808,915	833,182
sub-total	659,755,620,660	686,998,751,454	712,811,503,375	737,903,178,518
3rd income quantile				
annual average income	29,053,000	29,924,590	30,822,328	31,746,998
average annual contribution (6%) per contributor	1,743,180	1,795,475	1,849,340	1,904,820
sub-total	1,508,331,763,223	1,570,614,945,387	1,629,627,998,705	1,686,992,527,974
4th income quantile				
annual average income	62,493,000	64,367,790	66,298,824	68,287,788
average annual contribution (6%) per contributor	3,749,580	3,862,067	3,977,929	4,097,267
sub-total	3,244,421,466,943	3,378,392,585,347	3,505,329,656,939	3,628,720,753,474
5th income quantile				
annual average income	272,586,000	280,763,580	289,186,487	297,862,082
average annual contribution (6%) per contributor	16,355,160	16,845,815	17,351,189	17,871,725
sub-total	14,151,726,913,225	14,736,090,782,476	15,289,773,092,451	15,827,988,339,599
Total Sum	19,716,766,611,824	20,530,926,332,194	21,302,339,245,246	22,052,202,811,723
Total to BP (60% of sum)	11,830,059,967,095	12,318,555,799,316	12,781,403,547,148	13,231,321,687,034
3. External governmental resources				
MoF Budget to MoHS	755,289,000	794,178,000	840,013,000	910,967,000
contribution to HMO	5.00%	5.00%	5.00%	5.00%
Total Sum	37,764,450	39,708,900	42,000,650	45,548,350
Total to BP (60% of sum)	22,658,670	23,825,340	25,200,390	27,329,010
4. External non-governmental resources (Global funds and vertical programmes)				
Grant allocation	264,156,000	274,017,000	315,183,000	321,658,000
contribution to HMO	5.00%	5.00%	5.00%	5.00%
Total Sum	13,207,800	13,700,850	15,759,150	16,082,900
Total to BP (60% of sum)	7,924,680	8,220,510	9,455,490	9,649,740
If the whole population is enrolled:				
Total revenue projections	21,218,689,444,136	22,094,868,036,936	22,925,045,611,474	23,732,031,897,107
Total revenue projections to BP	12,731,213,666,482	13,256,920,822,162	13,755,027,366,884	14,239,219,138,264
If 10% of population is enrolled:				
Total revenue projections	2,121,868,944,414	2,209,486,803,694	2,292,504,561,147	2,373,203,189,711
Total revenue projections to BP	1,273,121,366,648	1,325,692,082,216	1,375,502,736,688	1,423,921,913,826

(Source: Own calculations)

Notes:

- Currency used is Leone
- BP = Benefit Package
- Working population = 18-64 years old
- Insurable income and income per quantile increase yearly by 3% according to increasing GDP growth per capita in Sierra Leone (WB)
- Ministry of finance (MoF) Budget allocation is referred from Saffa 2020: 74

Benefit cost estimation

Budget allocation for care packages

		2020	2021	2022	2023
Total revenue projection for Benefit Package		1,273,121,366,648	1,325,692,082,216	1,375,502,736,688	1,423,921,913,826
1. Preventive care					
	Budget (20%)	254,624,273,330	265,138,416,443	275,100,547,338	284,784,382,765
2. Primary Health care					
	Budget (20%)	254,624,273,330	265,138,416,443	275,100,547,338	284,784,382,765
3. Maternal and Child health care					
	Budget (20%)	254,624,273,330	265,138,416,443	275,100,547,338	284,784,382,765
4. Mental care					
	Budget (10%)	127,312,136,665	132,569,208,222	137,550,273,669	142,392,191,383
5. Secondary health care/ Tertiary health care					
	Budget (20%)	254,624,273,330	265,138,416,443	275,100,547,338	284,784,382,765
6. Emergency care					
	Budget (10%)	127,312,136,665	132,569,208,222	137,550,273,669	142,392,191,383

(Source: Own calculations)

Appendix 3: Service inclusion protocol examples

Service inclusion protocol for preventive care

	Deliberation
Disease	Tuberculosis (TB) Incidence rates in Sierra Leone in 2017: 23,000 cases
Possible interventions	Tuberculosis screening routine: 1. Interferon- γ release assays (IGRAs): <ul style="list-style-type: none"> • QuantiFERON Gold (QFT-G) • QuantiFERON Gold In-Tube (QFT-IT) • T-SPOT-based T-SPOT.TB 2. Tuberculin skin test (TST)
Evidence	<ul style="list-style-type: none"> - TB is often asymptomatic and it has low detection rate. - screening is evident as an early detection measure and to save more costs from an activated TB cases. - IGRAs have higher sensitivity than Tuberculin skin test (TST) especially for detecting latent TB. While TST gives false positive results in people vaccinated with BCG and those infected with other mycobacteria diseases.
Costs	<p><u>Cost-Effectiveness Analysis:</u></p> <p><i>Total cost per 1,000 screening tests:</i></p> <ul style="list-style-type: none"> - QFT-IT: US\$ 245 - T-SPOT.TB: US\$ 245 - TST: US\$ 240 <p><i>Costs saved through screening per future active TB cases prevented:</i></p> <ul style="list-style-type: none"> - QFT: US\$ 50 - T-SPOT.TB: US\$ 48 - TST: US\$ 58 <p>→ Available remaining budget for preventive care services in 2021:</p> <p>US\$ 25,000,000</p>
Discussion	<ul style="list-style-type: none"> - It should be considered that most cost-effectiveness studies were done in HIC. - The availability of efficient laboratory is a step needed to develop screening routine in many health facilities for that good infrastructure as well as health workers is necessary. - Detecting TB cases as early as possible is an effective preventive measure to ensure early and continuous treatment. - IGRAs have higher sensitivity and thus save the costs of further diagnostic measures such as radiology or chemoprevention.
Recommended service for inclusion	<ul style="list-style-type: none"> - Combination of BCG vaccine from the public health sector and routine TB screening for high-risk groups and their contacts, HIV positive patients and healthcare workers with IGRAs and TSTs.

(Source: Own presentation after NICE 2016: 5 ff.; Nienhaus et al. 2011: 1 ff., 6ff., 9ff.; Bloom et al. 2017, WHO 2018b)

Service inclusion protocol for primary care

	Deliberation
Disease	Chronic obstructive pulmonary disease (COPD)
Possible inter-ventions	<p>1. Non-pharmacological management</p> <ul style="list-style-type: none"> • Educational and behavioural activities • Pulmonary rehabilitation • Oxygen therapy • Immunisation - pneumococcal and influenza vaccine yearly <p>2. Pharmacological therapy/Inhalers</p> <ul style="list-style-type: none"> • Bronchodilators such as beta 2 agonists, antimuscarinics
Evidence	<ul style="list-style-type: none"> - Non-pharmacological management increases quality of life and reduces exacerbations and complications such as pulmonary hypertension. It improves lung-capabilities. For instance, pulmonary rehabilitation increases lung functions which increases patient's ability to exercise and oxygen therapy reduces symptoms for patients and improves quality of life. - It is easy to administer which is favourable for self-management plan while improving survival with low level of care through. - Educational and behavioural activities are very crucial in COPD management such as smoking cessation.
Costs	<p><u>Cost-Effectiveness Analysis:</u></p> <ul style="list-style-type: none"> - Effective COPD management in primary care decreases inpatient and medications costs. - Pharmacological treatment has high costs and requires combination of drugs which might cause numerous side-effects. <p>→ Available remaining budget for primary care services in 2021: US\$ 25,000,000</p>
Discussion	<ul style="list-style-type: none"> - Continuous and coordinated care for managing COPD, needs well trained physicians and availability of diagnostic instruments and laboratory technologies as well as medications.
Recommended service for inclusion	<ul style="list-style-type: none"> - Provision of non-pharmacological and pharmacological therapy guidelines in PHC. In addition, referral guidelines to secondary care in case of deteriorated situations. - Combined therapy is evidently better for managing COPD patients.

(Source: Own presentation after Burney et al. 2017: 273 ff., 276 ff.; NICE 2018; ur Rehman et al. 2020: 361 ff., 364)

Service inclusion protocol for maternal and child care

	Deliberation
Disease	Reproductive, Maternal, Neonatal and Child (RMNC) diseases
Possible interventions	<ol style="list-style-type: none"> 1. Community-based care (delivery of comprehensive interventions package) 2. Health-facility based care
Evidence	<ul style="list-style-type: none"> - Community based care can be used to deliver comprehensive and integrated RMNCH interventions/ services such as antenatal and postnatal visits; exclusive breastfeeding education; continuous child weight measurements; early detection of childhood diseases like diarrhoea and pneumonia and its treatment through education of the administration of oral rehydration solutions. - Community-based care have increased healthy practices and care seeking behaviour; high early detection, treatment and referral; decrease of neonatal and maternal mortality rates. - Community-based care is beneficial to link communities with Healthcare facilities. It enhances health care seeking behaviour as well as utilization of health care services. - Community-based intervention packages are highly accepted services by communities of LMICs.
Costs	<p><u>Cost-Effectiveness Analysis:</u></p> <ul style="list-style-type: none"> - Community-based care are less expensive, higher coverage of population, especially vulnerable population, who live in distant areas from health facilities. - Costs for community-based care is determined according which services from the aforementioned are included. Approximately, mean cost per beneficiary: <ul style="list-style-type: none"> • <i>Maternal and neonatal services – US\$ 35</i> • <i>Child health services – US\$ 4</i> <p>→ Available remaining budget for maternal and child care services in 2021: US\$ 25,000,000</p>
Discussion	<ul style="list-style-type: none"> - Important to consider the need to train community health workers as first point of contact to identify common symptoms and administer basic treatments/ therapy and provide them with basic care kit. - Complicated procedure to assess cost-effectiveness due to comprehensive of interventions included and benefits are not easily measurable due to its relatedness to other non-healthcare determinants. In addition, costs per disability-adjusted life year (DALY) averted should be compared with Gross domestic product (GDP) per capita of the country*. Services included within the community-based package are determined according to the burden of diseases of the country in focus.
Recommended service for inclusion	<ul style="list-style-type: none"> - Community-based care is important as first point of contact and facilitates referral system in case of need to health-facility based care such as delivery complications. - It is crucial to implement both types of care in a complementary manner.
<p>* <i>“Interventions are considered to be cost-effective when the cost per DALY averted is less than per capita gross domestic product (GDP) and very cost-effective when less than three times GDP per capita” (Lassi et al. 2016: 277)</i></p>	

(Source: Own presentation after Lassi et al. 2016: 263 ff., 273 ff., 277ff.; Tiruneh et al. 2019; Lassi/ Bhutta 2015)

Service inclusion protocol for mental care

	Deliberation
Disease	Depression Prevalence in Sierra Leone (2017): 240,000
Possible interventions	<ol style="list-style-type: none"> 1. Antidepressants <ul style="list-style-type: none"> - Selective serotonin reuptake inhibitors (SSRIs) - Tricyclic antidepressants (TCAs) 2. Psychotherapy <ul style="list-style-type: none"> - Brief psychological interventions - Problem-solving therapy - Cognitive behavioural therapy - Behavioural therapies - Psychodynamic therapies - Interpersonal psychotherapy 3. Combined treatment
Evidence	All the above-mentioned treatments are considered efficient in the treatment of depressive disorder by the Journal of Disease Control Prevention 3 (DCP-3)
Costs (All presented prices are just approximations and do not reflect reality)	<p><u>Cost-Effectiveness in Sub-Saharan Africa</u></p> <p><i>Cost per healthy life year gained, 2012:</i></p> <ol style="list-style-type: none"> 1. Antidepressants: <ul style="list-style-type: none"> - SSRIs: US\$ 1390 - TCAs: US\$ 1410 2. Psychotherapy: <ul style="list-style-type: none"> - Episodic psychosocial treatment (EPT) in primary care: US\$ 2190 3. Combination: <ul style="list-style-type: none"> - EPT + SSRIs: US\$ 2140 - EPT + TCAs: US\$ 2080 <p><u>Budget Impact Assessment (for annual costs):</u></p> <p>→ Available remaining budget for Mental Health Services in 2021: US\$ 12,500,000</p> <ol style="list-style-type: none"> 1. Antidepressants: <ul style="list-style-type: none"> - SSRIs (e.g. Fluoxetine): US\$ 16^a x 24,000 = US\$ 384,000 <ul style="list-style-type: none"> -> 95 %: <u>US\$ 364,800</u> - TCAs (e.g. Amitriptyline): US\$ 16^b x 24,000 = US\$ 384,000 <ul style="list-style-type: none"> -> 95 %: <u>US\$ 364,800</u> 2. Psychotherapy: <ul style="list-style-type: none"> - EPT: US\$ 12^c x 24,000 = US\$ 288,000

	<p style="text-align: center;">-> <u>95 %:US\$ 273,600</u></p> <p>3. Combination:</p> <p style="padding-left: 20px;">- EPT + SSRIs: US\$ 384,000 + US\$ 288,000 = US\$ 672,000</p> <p style="text-align: center;">-> <u>95 %: US\$ 638,400</u></p> <p style="padding-left: 20px;">- EPT + TCAs: US\$ 384,000 + US\$ 288,000 = US\$ 672,000</p> <p style="text-align: center;">> <u>95 %: US\$ 638,400</u></p>
Further relevant points for discussion	The overall infrastructure on mental health care in Sierra Leone is nearly not existent.
Recommended service for inclusion	<ul style="list-style-type: none"> • First line treatment with SSRIs • Second line treatment with TCAs • Long term goal: Training health care workers to make high quality non-medication mental health care services available for all insured people
<p><i>SSRIs=Selective serotonin reuptake inhibitors; TCAs=Tricyclic antidepressants; DCP-3=Journal of Disease Control Prevention 3; EPT=Episodic psychosocial treatment</i></p> <p>^a price for 12 x 30 tablet package</p> <p>^b price for 4 x 100 tablet package</p> <p>^c price assumption for 1 monthly session of one hour</p>	

(Source: Own presentation after Hyman et al. 2017: 74 ff.; IMPPG 2016a; IMPPG 2016b; Levin/Chrisholm 2017: 226 ff.; WHO 2017c; WHO 2020)

Service inclusion protocol for secondary and tertiary care

	Deliberation
Disease	<p>Acute stroke treatment</p> <p>Incident Cases in Sierra Leone (2016): 3870 (≈4000)</p>
Possible interventions	<ol style="list-style-type: none"> 1. <i>Ischemic Stroke (IS)</i>: Oral aspirin intake 2. <i>IS</i>: Tissue plasminogen activator (tPA) (0.9 milligram per kilogram of body weight; maximum of 90 milligrams) (e.g. Alteplase) 3. <i>Haemorrhagic Stroke (HS)</i>: Intensive blood pressure–lowering treatment (e.g. Labetalol) 4. Treatment in a stroke unit
Evidence	<ol style="list-style-type: none"> 1. Reduction in 14-day morbidity and mortality + reduction in the risk of a reoccurrence 2. tPA is the only therapeutic agent approved for arterial recanalization in acute IS. 3. Treatment with intensive blood pressure lowering interventions attenuated hematoma growth for 72 hours 4. Patients treated in stroke units are more likely to be alive, independent, and living at home one year after the stroke.

Costs	<u>Cost-Effectiveness Analysis:</u>
(All presented prices are just approximations and do not reflect reality)	<p>1. Oral Aspirin Intake: Cost effectiveness ratio in Sub-Saharan Africa: > \$PPP 6000 per DALY averted</p> <p>2. Incremental Cost effectiveness ratio in Iran: \$ 8,471 per QALY</p> <p>3. No information on cost-effectiveness could be found</p> <p>4. Provision of organised stroke unit care: Cost effectiveness ratio in Sub-Saharan Africa: > \$PPP 6000 per DALY averted</p>
	<u>Budget Impact Assessment:</u>
	<p>->Available remaining budget for Secondary& Tertiary care in 2021:</p> <p>US\$ 25,000,000</p>
	<p>1. Oral Aspirin Intake: Medication: US\$ 0,01^a) x 400 = US\$ 4</p> <p>Inpatient care costs: US\$ 2205^b) x 400 = US\$ 882,000</p> <p>Total= US\$ 882,004</p> <p><u>-> 90 %: US\$ 793,804</u></p>
	<p>2. Treatment with Alteplase:</p> <p>Medication: US\$ 12,105 x 400= US\$ 4,842,000</p> <p>Inpatient care costs: US\$ 2205^b) x 400 = US\$ 882,000</p> <p>Total= US\$ 5,724,000</p> <p><u>-> 90 %: US\$ 5,151,600</u></p>
	<p>3. Intensive blood pressure–lowering treatment with Labetalol:</p> <p>Medication: US\$ 4,5 x 400 = US\$ 1800</p> <p>Inpatient care costs: US\$ 2205^b) x 400 = US\$ 882,000</p> <p>Total = US\$ 883,800</p> <p><u>-> 90 %: US\$ 795,420</u></p>
	<p>4. Episodic treatment in stroke unit:</p> <p>Medication: US\$ 7890 x 400= US\$ 3,156,000</p> <p>Inpatient care costs: US\$ 2205^b) x 400 = US\$ 882,000</p> <p>Total = US\$ 4,038,000</p> <p><u>-> 90 %: US\$ 3,634,200</u></p>

Discussion	System level barriers for the implementation of stroke units as for example a lack of physicians must be considered and make this intervention not suitable for inclusion in comparison with other treatment options. Nevertheless, their implementation should be considered as long-term goal
Recommended service for inclusion	For IS: Oral Aspirin intake For HS: Intensive blood pressure lowering interventions (other treatment options should be regularly monitored to find more effective treatment options)
<p><i>IS=Ischemic Stroke; HS=Haemorrhagic Stroke; tPA=Tissue plasminogen activator</i></p> <p><i>\$PPP= Purchasing power parity US\$; DALY=disability-adjusted life year; QALY=quality-adjusted life year</i></p> <p><i>a) Price approximation for one tablet</i></p> <p><i>b) Approximation with data from South Africa</i></p>	

(Source: Own presentation after Amiri et al. 2018: 284 ff.; GBD 2016 Stroke Collaborators 2019: 448; IMPPG 2016c; IMPPG 2016d; Kleindorfer et al. 2017: 2000 ff.; Maredza/Chola 2016: 31 f.; Ortegón et al. 2012: 5 ff.; Puumalainen et al. 2020: 4; Yan et al. 2017: 165 ff.)