

Sierra Leone Netherlands Business & Culture Council Sector Scan



Medical Sector in Sierra Leone

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Written by Esther Kamara for the SLNBCC - Sierra Leone Netherlands Business
and Cultural Council

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About SLNBCC

The Sierra Leone Netherlands Business and Culture Council (SLNBCC) is an affiliate of the GNBCC, Ghana. The SLNBCC has been officially registered and active since September 2017, and is currently building a network of companies from Sierra Leone and the Netherlands. The target being collaborations, investments or partnerships between companies from the two countries.

Our network consists of both government and the private sector actors, and we work closely together with the Sierra Leonean Investment and Export Promotion Agency (SLIEPA) and the Sierra Leonean Chamber for Agribusiness development (SLeCad). The SLNBCC is currently expanding its membership base, these members receive:

- Monthly newsletters
- Quarterly networking and informative events
- Access to the Dutch network, to Dutch companies with interest in Liberia/ Sierra Leone and introductions
- Access to more information on the Netherlands Enterprise Agency's (RvO) financial instruments
- Workshops and seminars on business related topics
- The SLNBCC also offers paid business services to both members as well as non-members. These services include:
 - Assisting with travel arrangements for business investors from the Netherlands to Sierra Leone
 - Representing and assisting Dutch companies who do not have their own subsidiary, partner or office in Sierra Leone

This sector scan is part of the SLNBCC's efforts to attract foreign companies to engage in business with Sierra Leone.

Chapter 1 | Executive Summary

There is no lack of efforts towards rebuilding and strengthening the Sierra Leonean medical sector. After the ebola outbreak, a myriad of institutions, companies and projects have been putting resources into rebuilding the country and into preventing such an emergency from happening again. This could give the impression that the market is saturated. Interestingly, it is exactly this abundance that is one of the biggest challenges the medical sector faces. Organisations working in silos, mis-matching of program timelines with the current government efforts and a general lack of infrastructure result in a fragmented development of the sector.

Combined with the fact that the current state of Sierra Leone's medical sector is still below standard, this leaves room for creative solutions, especially with companies that are able to spot the specific necessities unfulfilled by the large number of current initiatives.

Chapter	5 page -	6 page -	7 page -	8 page -
Sector	Medical Sector	Medical Supplies & Supply Chain Logistics	E-health & Digital Innovation	Human Resources and Education
Opportunities	<ul style="list-style-type: none"> - Specialised health care services: dental care, optometry, mental health, private health insurance - Financial transparency solutions: management systems - Partnering with local institutions to access funding 	<ul style="list-style-type: none"> - National Medical Supplies Agency Support: management solutions, distribution tools, drug storage facilities management and logistics - Provision and installation of stock security systems - Solutions for counterfeit and expired drugs - Blood services - Laboratory network services 	<ul style="list-style-type: none"> - E-Payment systems - Privacy and security technology - Data warehousing technology - Information infrastructure/ data management solutions - Supporting the development of the Health Information System: data center, data management and transferrals. 	<ul style="list-style-type: none"> - High quality training and supporting of health workers - Leadership and capacity training of those in managerial functions: IT, M&E, administrative skills - Offering Continuous Professional Development (CPD) - ELearning training

Chapter 2 | Acronyms

• AfDB	African Development Bank
• AfP	Agenda for Prosperity
• BPEHS	Basic Package for Essential Health Services
• DfID	Department for International Development
• ECOWAS	Economic Community of West African States
• EHealth	Electronic Health
• EU	European Union
• EVD	Ebola Virus Disease
• GDP	Gross Domestic Product
• HRH	Human Resources for Health
• IHRIS	Integrated Human Resource Information System
• GoSL	Government of Sierra Leone
• MHealth	Mobile Health
• MoHS	Ministry of Health and Sanitation
• MRU	Mano River Union
• NEPAD	New Partnership for Africa's Development
• NRA	National Revenue Authority
• RVO	Netherlands Enterprise Agency
• SLIEPA	Sierra Leone Investment & Export Promotion Agency
• SLPA	Sierra Leone Port Authority
• SLRTC	Sierra Leone Transport & Road Corporation
• UN	United Nations
• UNDP	United National Development Program
• WHO	World Health Organization

Chapter 3 | The Sierra Leonean Context

Country Overview

Sierra Leone is found in the West Coast of Africa, bordered by Guinea, Liberia and the Atlantic Ocean. It has been experiencing annual GDP growth. Several years back, the country's GDP growth rate was one of the highest in Africa, but had a quick downward turn due to the twin shocks of a shrinking of the global iron ore price and the outbreak of the Ebola Virus Disease. However, Sierra Leone is actively reforming its business environment in order to facilitate the ease of doing business in the country.

Sierra Leone recently had a change of government, with Brig. Julius Maada Bio of the Sierra Leone People's Party (SLPP) as the new president of the country. His New Direction strategy promises an avid investment and development of the private sector, with one of its' goals to attract foreign investors and companies. Real GDP growth of double digits was a clear indication that the country was developing fast. Average GDP per capita has almost returned to its pre-2014 Ebola percentages and growth is registered in almost all sectors.

The mining and agriculture sector are the leading sectors in the country. The mining sector accounts for roughly 90 percent of annual export revenues. In 2016, Sierra Leone's exports were worth approximately US\$897 million, of which mineral resources accounted for approximately 75%, followed closely by cocoa (8.5%) and coffee.¹

History & Politics

Sierra Leone gained independence from Britain in 1961. From 1961 to 1998, the political system shifted between multi- party democracy, military rule and one-party rule. Sierra Leone has remained a multi-party democracy since 1998. The country emerged from a decade-long civil war in 2002. The constitution recognises three branches of government: legislative, executive and judicial. Parliamentary terms last for five years and the President may not serve for more than two terms, whether or not those terms are consecutive. After a two-term reign, former president Ernest Bai Koroma stepped down and was replaced by Julius Maada Bio of the opposing SLPP. Maada Bio won with a 51.8% of votes. However, APC still holds the majority of seats in parliament. The constitution, as currently drafted, does not allow an incumbent to stand for a third term. The peaceful, credible and stable transition of powers should increase investor confidence by providing a reduced risk of shock and greater predictability.

¹ <https://atlas.media.mit.edu/en/profile/country/sle/>

Governance

The Government of Sierra Leone is led by a President elected directly by the people and who is also the Head of State and Commander-in-Chief of the armed forces. Within the Government of Sierra Leone, the Ministry of Trade and Industry has oversight over policies relating to domestic and international trade. The Sierra Leone Investment & Export Promotion Agency (SLIEPA) is responsible for policies to improve the investment climate, promote local and export trade, and encourage the development of small-to-medium-sized businesses. SLIEPA has thus far focused on Foreign Direct Investments in key economic sectors including the agriculture, marine resources, mining, energy, and tourism sectors. A system of local government was established by the Local Government Act 2004, which is comprised of 19 councils. Five city councils, one municipal council, and 13 district councils form the total of this local government structure. The Decentralization Secretariat was established under the World Bank's Institutional Reform and Capacity Building Project to promote decentralisation.

Core industries

Agriculture (key crops: rice, sugar, oil palm and cocoa, as well as agribusiness functions relating to trading and/or processing); diamonds (over 600,000 carats exported in 2013), iron ore (one of the world's largest iron ore deposits at African Minerals' Tonkolili mine contains an estimated 12.8 billion tonnes), rutile (the world's largest reserves, producing an estimated 120,000 tons of contained titanium dioxide in 2014), gold (producing approximately 141 kilograms worth of gold in terms of mine output in 2012 and 193 kilograms in 2014) and bauxite mining (including the country's Port Loko deposit, which contains 100 million tons of bauxite reserves).

Key exports and imports

Sierra Leone's main exports are in the mining and agriculture sectors. Until 2012, diamonds were Sierra Leone main export product. Iron ore has since taken its place, accounting for 55.7 percent of total exports in 2013. The mining sector accounts for roughly 90 percent of annual export revenues. In 2016, Sierra Leone's exports were worth approximately US\$897 million, of which mineral resources accounted for approximately 75 percent, followed closely by cocoa (8.5 percent) and coffee. Sierra Leone's main imports are machinery and transport equipment (largely relating to mining and oil investment projects and accounting for approximately 50 percent of total imports) and fuel (10 percent).

Foreign Aid

The country remains largely dependent on foreign aid. The current account deficit was estimated to be US\$511.8 million in 2013 and US\$466.9 million in 2014. The deficit was reported to be around US\$582 million in 2015. Sierra Leone benefits from

the support of various international agencies, including the United Nations Development Programme (UNDP), the World Bank, and the UK Department for International Development (DFID).

The Ports

Freetown boasts one of the largest deep water natural harbours in Africa. The existing QE2 Freetown container port is currently managed by Bolloré Africa Logistics under a 20-year concession agreement awarded by the Sierra Leone Port Authority (SLPA) in 2010. The agreement includes plans to renovate the port's bulk handling terminal and expand its capacity. GoSL is also considering developing a "dry port" to ease congestion at QE2 and facilitate the transportation of containers destined for rural areas. Further efforts to involve private partners in the ports system have seen the SLPA award a 20-year concession for the Marine Slipway and Ship Repair facilities to Holland Shipyard.

To support the needs of the mining sector, the GoSL plans to develop a new deep water port and associated rail infrastructure with the capacity to export between 30-50million tonnes of ore and other minerals each year. A pre- feasibility study to review options for the new deep water port was commissioned by the GoSL in 2014. The World Bank is carrying out the study as part of a project to develop a "Ports Master Plan" assessing the need for the expansion of the Freetown Port and the feasibility of the proposed deep water port. It is hoped that the study will also consider the potential for shared use at the Tonkolili and Pepel port.

Chapter 4 | Country Overview

Population	7,369,190 ²
Urbanisation	40.7% ³
Situated	West Africa, coastal, Sub-Sahara
Bordered by	Guinea (North/NorthEast), Liberia (South/SouthEast), Atlantic Ocean (West)
Area	71,740 square kilometres.
GDP	US\$3,64 billion ⁴ (2017)
Real GDP growth	6% ⁵ (2016), 3.5% (2017)
Total Expenditure on health per capita	US\$224
Total expenditure on health as % of GDP	11.1 ⁶
Official languages	Krio, English
Ha of arable land	5.4 million
Rainfall	3,800mm annually
Climate	Tropical
Seasons	Two: Rainy season (monsoon): May to October & Dry Season (Harmattan) October to May

² World Bank, 2016

³ IMF 2017

⁴ IMF 2017

⁵ IMF 2017

⁶ WHO Global Health Observatory 2014: <http://www.who.int/countries/sle/en/>

Chapter 5 | The Medical Sector

Overview

The Sierra Leonean health sector is pluralistic, with public and private health care institutions and service providers active in the sector. Within the public sector, a myriad of international and national institutions collaborate with the government to strengthen the sector. This includes supply chain logistics, human resource management, data sourcing and analysis and other operational tasks within the sector.

The private sector is sub-divided in two categories: the not-for-profit private sector and the for-profit private sector. Little data is available on the private sector, but the presumption can be made that they are an important provider of services. There is a considerable network of private sector pharmacies and private hospitals in the country⁷.

In general, the private and public providers have been working independently of each other, creating new vertical systems that fail to entirely feed in to existing structures. Combined with the insufficient efforts of the government to regulate the market, this has resulted in a fragmented sphere with many partners intervening in the space.

However, the GoSL has made concerted efforts to solve these problems by the creation and the implementation of the National Health Sector Strategic Plan 2017-2021 (NHSSP II), in which a clear and all-encompassing strategy has been constructed in order to join stakeholders around to the governments long-term vision which are pivotal in achieving the country's Social Development Goals (SDGs)⁸.

Within this strategy, the Ministry of Health and Sanitation (MoHS) has created the opportunity for the private sector to collaborate and intervene. Formal collaborations between public private partnerships (PPPs) and the government are being stimulated. As the strategy runs from 2017-2021, it seems that this is an interesting time to explore the possibilities and see where private sector companies can join in the effort to developing the sector.

Apart from those disclosed in the NHSSP II, other areas within the medical sector

⁷ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 30

⁸ HSSP II

have promising opportunities.

Furthermore, opportunities were found in the following areas:

Chapter 6: Medical supplies and supply chain management

Chapter 7: E-health and digital innovation

Chapter 8: Human resources & education

Definition of medical sector

In this sector scan, the term Medical Sector has been chosen instead of health sector or healthcare sector.

According to the United Nations Standard Industrial Classification⁹ (ISIC) the healthcare sector is defined as the following

1. Hospital activities
2. Medical and dental practice activities
3. "Other human health activities"

Allied health professions including yoga, homeotherapy, acupuncture and others fall under the third class. This sector scan will not include these activities. Some activities within this class however, such as scientific research or diagnostic laboratories, are relevant. Hence, the term Medical Sector now loosely refers to the first two classes with an addition of medical research. The term medical sector and health sector will be used intermittently, as many policies refer to the health sector.

Health finance data

In general, health expenditure shows a growing trend in the last five years. In 2015, health expenditure as a share of GDP was 18.32%¹⁰. Health expenditure per capita was USD \$ 107¹¹ in 2015 against USD \$ 95 in 2013, during which total health expenditure was estimated at USD 590 million¹². Clear trends for increased expenditure can be explained by the Ebola Virus Outbreak, peaking in 2014 and slightly decreasing in 2015

The two tables below show data of the last five years, specifying the sources of the

⁹ United Nations: *The International Standard Industrial Classification of All Economic Activities (ISIC)*.
Link to source: https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

¹⁰ data.worldbank.org

¹¹ data.worldbank.org

¹² Ministry of Health and Sanitation, 2013

increase in health expenditure. From 2011 to 2015, current health expenditure rose from 10.6% to 18.3%, a significant increase, reflected in health expenditure per capita from USD \$ 47 in 2011 to almost USD \$ 107 in 2015. With a real GDP growth of 3.5% in 201¹³, prospects are the medical sector expenditure will increase as well.

Sierra Leone Health Financing Data	2011	2012	2013	2014	2015
Current health expenditure (% of GDP)	10.6	8.9	11.6	19.7	18.3
Current health expenditure per capita (current US\$)	47.0	50.0	82.2	139.8	106.7
Current health expenditure per capita, PPP (current international \$)	131.5	127.2	198.1	351.6	256.3
Domestic private health expenditure per capita (current US\$)	29.0	34.2	52.0	56.2	41.0
Domestic private health expenditure (% of current health expenditure)	61.8	68.4	63.2	40.2	38.4
Domestic private health expenditure per capita, PPP (current international \$)	81.2	87.0	125.2	141.5	98.5

Figure 1: World Bank databank health expenditures Sierra Leone (table)¹⁴

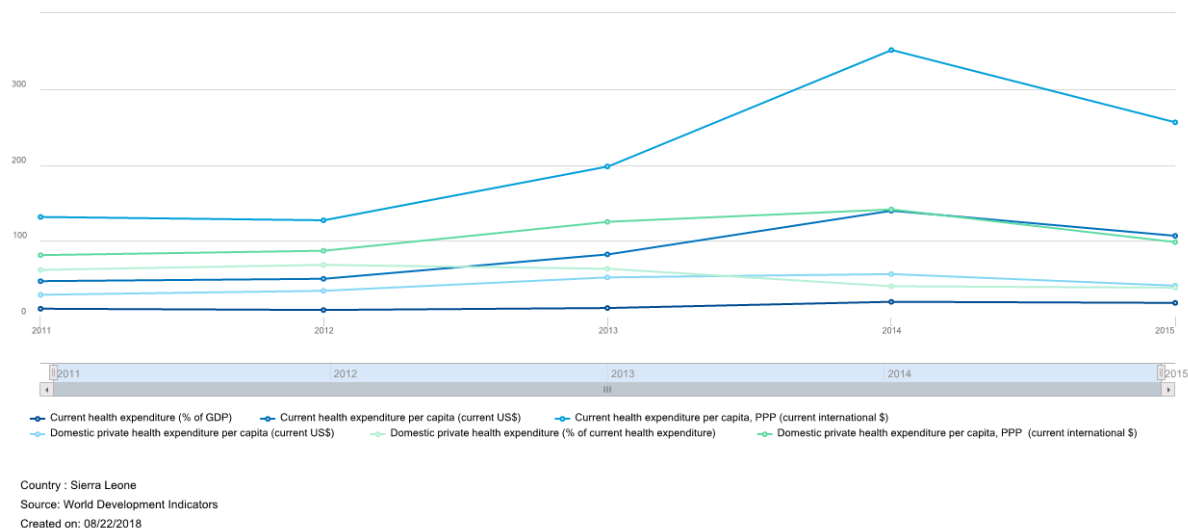


Figure 2: World Bank databank health expenditures Sierra Leone (visual)¹⁵

A comparison with its neighbouring countries reveals that Sierra Leone's spending on health is higher than other countries in the region, largely driven by high out-of-pocket expenditure¹⁶s.

¹³ IMF 2017

¹⁴ <http://databank.worldbank.org/data/reports.aspx?source=2&country=SLE#>

¹⁵ <http://databank.worldbank.org/data/reports.aspx?source=2&country=SLE#>

¹⁶ World Health Organization Global Health Expenditure database

Liberia	2011	2012	2013	2014	2015
Current health expenditure (% of GDP)	10.5	9.3	9.2	14.1	15.2
Current health expenditure per capita (current US\$)	40.0	38.5	41.6	64.6	69.3
Current health expenditure per capita, PPP (current international \$)	77.3	72.5	76.9	119.2	127.8
Domestic private health expenditure per capita (current US\$)	14.1	14.4	14.6	15.7	15.0
Domestic private health expenditure (% of current health expenditure)	35.3	37.3	35.1	24.3	21.7
Domestic private health expenditure per capita, PPP (current international \$)	27.3	27.0	27.0	29.0	27.7

Created from: World Development Indicators
Country : Liberia

Figure 3: World Bank databank health expenditures Liberia

Guinea	2011	2012	2013	2014	2015
Current health expenditure (% of GDP)	5.1	4.6	4.7	4.3	4.5
Current health expenditure per capita (current US\$)	23.3	22.9	25.1	24.2	25.1
Current health expenditure per capita, PPP (current international \$)	61.6	57.4	59.5	55.1	57.2
Domestic private health expenditure per capita (current US\$)	14.1	14.5	15.9	15.5	14.6
Domestic private health expenditure (% of current health expenditure)	60.6	63.3	63.3	64.2	58.0
Domestic private health expenditure per capita, PPP (current international \$)	37.4	36.4	37.6	35.3	33.1

Created from: World Development Indicators
Country : Guinea

Figure 4: World Bank databank health expenditures Guinea

In terms of health financing sources, the chart below offers data from 1995 until 2013.

Health financing Source: WHO 2015																				
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
External resources for health as a percentage of total expenditure on health	1.5	1.1	7.5	6.7	6.3	7.0	5.1	8.5	5.9	10.6	12.9	19.6	15.0	14.5	30.3	39.2	50.9	35.5	31.3	
General government expenditure on health as % of GDP	2.3	2.1	2.4	2.0	3.0	4.0	3.1	3.1	2.7	2.6	2.6	1.9	1.6	1.8	2.2	2.4	2.6	1.9	1.7	
General government expenditure on health as a percentage of total expenditure on health	21.0	19.5	21.7	18.7	25.2	28.7	26.4	26.0	24.1	23.2	22.0	18.7	16.5	17.6	17.1	22.5	22.8	17.9	14.3	
General government expenditure on health as a percentage of total government expenditure	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.3	11.6	11.9	10.9	12.4	11.7	12.3	9.5	11.4	
Out-of-pocket expenditure as a percentage of total expenditure on health	73.3	74.5	73.2	75.8	69.0	66.3	69.7	70.0	72.1	69.9	65.4	71.7	78.6	79.4	62.9	66.9	63.6	62.5	61.3	
Per capita government expenditure on health (PPP int. \$)	18.0	17.0	18.0	15.0	22.0	32.0	23.0	27.0	26.0	26.0	27.0	21.0	19.0	22.0	27.0	31.0	37.0	31.0	33.0	
Per capita government expenditure on health at average exchange rate (US\$)	5.0	5.0	5.0	3.0	5.0	6.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	8.0	9.0	11.0	13.0	12.0	14.0	
Per capita total expenditure on health (PPP int. \$)	84.0	85.0	85.0	81.0	88.0	110.0	86.0	105.0	108.0	113.0	123.0	113.0	116.0	124.0	160.0	139.0	163.0	175.0	228.0	
Per capita total expenditure on health at average exchange rate (US\$)	24.0	26.0	24.0	18.0	20.0	21.0	30.0	33.0	33.0	33.0	38.0	37.0	39.0	45.0	55.0	47.0	58.0	69.0	96.0	
Private prepaid plans as a percentage of private expenditure on health	0.9	0.9	0.8	0.8	0.9	0.9	0.6	0.6	0.6	0.6	0.6	1.0	0.4	0.3	0.2	0.3	0.3	0.2	0.2	
Social security expenditure on health as a percentage of general government expenditure on health	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total expenditure on health as a percentage of gross domestic product	11.0	10.8	11.2	10.6	11.8	13.8	11.9	11.8	11.4	11.4	11.9	10.4	9.8	10.0	12.7	10.5	11.6	10.9	11.8	

Figure 5: Sierra Leone sources of health financing, 1995- 2013, WHO 2015.

Development partners & key stakeholders and treaties

The Sierra Leonean medical sector has many stakeholders that intervene in the space. The following table highlights the key actors and four of the treaties that have a significant impact on the ways in which the sector is developing. NGOs and Faith Based Organisations (FBOs) have been omitted from this list, but can be found in the footnotes.¹⁷

¹⁷ List of NGOs in Sierra Leone: http://www.commonwealthofnations.org/sectors-sierra_leone/civil_society/international_ngos/

Government Ministries and Agencies	Key Donors & Agencies	International Treaties	Relevant aims of treaty
Ministry of Health & Sanitation (MoHS)	European Union (EU)	United Nations Sustainable Development Goals 2030 (SDGs)	Ensure healthy lives and promote wellbeing for all at all ages.
Health Services Commission (HSC)	UK Department for International Development (DFID)	Abuja Declaration	Government to allocate >15% of annual budget to improve the health sector
National Emergency Services (NEMS)	German Development Corporation (GIZ)	Universal Health Coverage (UCH2030)	Universal health coverage in which all partners provide equitable and quality health care without causing financial hardships
National Medical Supplies Agency (NMSA)	Japanese International Cooperation Agency (JICA)	Health Compact	Affirms national ownership of the health sector strategy and implementation.
National Public Health Agency (NPHA)	World Bank	Paris Declaration	Strengthening aid effectiveness in health
National Pharmaceutical Procurement Unit (NPPU)	US Agency for International Development (USAID)		
Sierra Leone Social Health Insurance (SLESHI)	German Development Bank (KfW)		
	United Nations: UNFPA, UNICEF, WHO		

Opportunities

The NHSSP 2017-2021 strategy offers a guideline for partners and private companies who are interested in intervening in the space. The MoHS alone cannot realise this vision without relying on and collaborating with public and private partners. This offers a myriad of opportunities for companies that are somehow able to tap into the ongoing reforms and developments. The challenge lies in finding out what is happening when, especially with delays caused by the recent general elections and structural issues in execution and management by the government.

The private sector can come in filling capacity gaps and offer creative solutions for the most common bottlenecks. Human resources, electronic health and supply chain will be further discussed in the following chapters. This paragraph will outline some broader opportunities based on challenges identified in the HSSP 2017-2021 and other opportunities that fall in a different category.

Specialised health care services

In 2013, there were more than 15,000 national and international NGO workers in Sierra Leone¹⁸. Most agencies do not allow their personnel to seek treatment at government hospitals. Private clinics do exist, such as Aspen Medical clinic in Freetown, but these also outsource complicated specialised care to clinics outside of the country. Only 1% of health facilities has basic amenities and 35% of facilities had basic equipment necessary for service delivery.¹⁹ Potential customers now travel to Ghana or Cote d'Ivoire to access specialised health care.

Dental care- In 2010 Sierra Leone had only 12 dentists, of whom 80% are based in Freetown²⁰, and projections by the government made in the BPEHS 2010 was that an additional 1500 dentist are needed to meet the demand of oral care. The GoSL is making efforts towards filling this shortage, but developments are slow, and the private sector can cater to an audience that is currently underserved. The shortage is not limited to human resources; there is a shortage of material sources as well.

Optometry- Another example is the shortage of optometrists in the country. According to Vision Aid, Sierra Leone currently has only two qualified optometrists.²¹ The Eye Health System Assessment identifies core challenges with human resources, access to financing and medical supplies.

¹⁸ 2013 NGO survey for national accounts compilation

¹⁹ Ministry of Health and Sanitation. "Basic Package of Essential Health Services 2015-2020." (2015): 12

²⁰ Ministry of Health and Sanitation. "Basic Package of Essential Health Services 2010-2015." (2010): 47.

²¹ <https://www.visionaidoverseas.org/sierra-leone>

Mental health- Sierra Leone has two psychiatrists, two Clinical Psychologists, and 19 Mental Health Nurses.²² Also here the government works towards improved mental health care, however, these are for now focussed on psychosocial support within communities and health facilities.

Private Health Insurance- In 2017, the GoSL launched SLeSHI (Sierra Leone Social Health Insurance), a mandatory and universal social health insurance covering primary health services. This basic insurance does not cover secondary health care, leaving opportunities for private companies that cover broad range and quality health care.

Financial transparency

A key issue in the development of the medical sector is the management of finances. Mismanagement and lack of transparency has effects on a great deal of processes that are necessary for prosperity. These include but are not limited to: low quality HR services due to salary delays, gaps in supply chain flow, improper reporting leading to budgeting issues, theft and corruption. The private sector can offer solutions that increase the transparency, speed and access to financial resources.

Blockchain technology and cryptocurrencies- Blockchain technology allows for the transparent transferring of valuables with a digital print that cannot be erased. Double payments and ghost transactions are impossible with this technology.

²² <https://www.afro.who.int/news/improving-access-mental-health-services-sierra-leone>

Chapter 6 | Medical Supplies & Supply Chain Management

With all efforts towards developing the medical sector, Sierra Leone still suffers from an inability to provide quality health services. The World Banks' Service Availability and Readiness Assessment (SARA 2017) revealed that the two biggest factors are poor health infrastructure and scarcity of drugs and medical supplies²³.

Barriers to Service Delivery	North	East	South	TOTAL
Governance & accountability	31	16	19	66
Availability of drugs and medical supplies	159	67	80	306
Availability of trained health workers	27	19	18	64
Availability of adequate financial resources	20	17	42	79
Data use for planning	10	6	5	21
Health infrastructure	79	83	75	237
Availability of the necessary hospital equipment	23	13	37	73
Public and environmental services (WASH)	22	13	34	69
Adequate community support in health service delivery	7	6	5	18
Barriers to service uptake	7	2	2	11
	385	242	317	944

Figure 6: SARA 2017 results- General Service Availability (figure source: NHSSP 2017-2021)²⁴.

The GoSL response is clearly outlined in the aforementioned HSSP 2017-2021 and the BPEHS 2015-2020, in which they underline the importance of outsourcing supply chain management to the private sector (being for-profit and not-for-profit). This includes procurement, distribution and management of supplies.

In this chapter, key components of the two policies will be highlighted and linked to private sector involvements. As the process of entering the sector can be confusing and complex, the following paragraphs will help to get a better sense of the actors and protocols involved with medical supplies.

Procurement

The three main sales channels are through government procurement, donor procurement or by selling directly to private medical facilities. As the government is trying to streamline all medical care efforts towards its long-term vision outlined in the HSSP 2017-2021, it is important to understand how to tap in to that sphere.

This year, the newly established National Medical Supplies Agency (NMSA) has

²³ <https://datacatalog.worldbank.org/dataset/sierra-leone-enterprise-survey-2017>

²⁴ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 32

replaced The National Procurement Unit (NPPU), and is now responsible for the procurement and distribution of essential medical products throughout the countries. This centralisation of the procurement of drugs should facilitate the implementation of all health policies. This includes the BPEHS 2015-2020, which has an extensive list of all medical supplies necessary for the accomplishment of the missions and aims of the policy²⁵.

The MoHS is responsible for the implementation of the BPEHS and the NMSA for the procurement of medical supplies. However, the MoHS recognises that implementation of the BPEHS 2015-2020 is reliant on support from partners, both private and non-private²⁶, and they expect that partners willing to take on the execution of certain objectives that they coordinate closely with the different government agencies to avoid the creation of more parallel systems. Signing a Memorandum of Understanding (MoU) might be necessary.

Pharmacy Board

The Pharmacy Board regulates the pharmaceutical sector. They offer licenses, handle registrations of new companies and medical supplies and do quality control of available drugs and service providers. They recently inaugurated a new laboratory that allows for testing drug quality. This can encourage the private sector to invest in the pharmaceutical industry as International Certification and ISO Standardisation can now be attained through this facility. The laboratory has a physico-chemical unit, a microbiology unit and a medical device testing unit.²⁷

The following products must be registered by the Pharmacy Board

- Medicinal products and Medical devices
- Chemical substances and Cosmetics
- Herbal/complementary products
- Food/dietary supplements
- Nutritional agents including energy drinks, beverages, and packed and bottled water.²⁸
- The registration process can take up to three months.

Opportunities

National Medical Supplies Agency support- As the NMSA becomes fully

²⁵ This list can be found in the publicly available BPEHS 2015-2020 policy: *insert link*

²⁶ Ministry of Health and Sanitation. "Basic Package of Essential Health Services 2015-2020." (2015): 27.

²⁷ Ade Campbell. "Sierra Leone News: Pharmacy Board Expands." Awoko, June 19, 2017, <https://awoko.org/2017/06/19/sierra-leone-news-pharmacy-board-expands/>

²⁸ <http://pharmacyboard.gov.sl/>

operational, additional services such as quality personnel, transportation, management of drug storage facilities, innovation and streamlining of clearance procedures, distribution tools and management solutions can support the agency in fulfilling its tasks. Although there are NGOs that support the GoSL in medical supply chain logistics, the private sector has the opportunity to propose solutions and bid on tenders.

- One example is that there is no organising system in place for medical supplies in warehouses. Simple solutions such as labelling is not applied.
- A second example is offering storage / cooling facilities for medicines.

Provision and installation of stock security systems- With the increased efforts towards ensuring the timely and effective distribution of medical supplies, systems that ensure the safeguarding of these stocks will be in demand. This could be specifically administrable for the national warehouse that will stock the public sector supply chain, which is to be constructed in the near future²⁹.

Solutions for counterfeit & expired drugs- In 2017, the Pharmacy Board destroyed 700 million leones worth of expired and counterfeit drugs³⁰ (USD \$ 93,000, September 2017 exchange rate), and it is estimated that 5% of drugs in circulation are counterfeit³¹. Meanwhile, the figure at the beginning of this chapter shows insufficient drug supplies as a huge challenge. Solutions that can either increase the efficacy of quality control, offer storage facility improvements to increase shelf life of medications or create a system that allows for the immediate identification of soon-to-expire drugs could become equitable (example: data management systems that check drug consumption and stock-levels).

Blood services- According to the NHSSP 2017-2021, there is no current system for blood services. “Availability of blood and transfusion services remains poor across the country, and the national blood services program remains under-resourced.”³²

Supporting laboratory networks- The BPEHS 2015-2020 aims to capacitate all 14 district laboratories to perform all test menus. There are opportunities here for companies that can provide supporting services for these installations. For the full list of laboratory necessities, please refer to page 80-92 of the policy document.

²⁹ Ministry of Health and Sanitation. “National Health Sector Strategic Plan 2017-2021.”(2017): 57-58

³⁰ <http://pharmacyboard.gov.sl/site/NewsUpdates/News/tabid/311/ID/16/Pharmacy-Board-Destroys-medicines-Worth-Over-700-Million-Leones.aspx>

³¹ <http://pharmacyboard.gov.sl/site/Resources/Articles/CounterfeitMedicines.aspx>

³² Ministry of Health and Sanitation. “National Health Sector Strategic Plan 2017-2021.”(2017): 57

Chapter 7 | Electronic health & digital innovation

One of the most promising developments in the sector is the implementation and creation of electronic health systems (EHS). During the Ebola epidemic, many NGO's used digital solutions to increase the responsiveness and effectiveness of health partners. One example is the OpenMRS- Ebola Electronic Health Record System, a software system that offered an alternative patient tracking system. The paper-based data collection hindered the acquisition of patient data from red-zones.³³

Whether these technologies are deployed by profit or non-for profit companies, they all provide specific solutions to problems occurring in the public and private health sector. Tapping into the huge potential that IT solutions can offer will not only accelerate the development of the sector, but also allow for the organic progression towards a more data centred industry.

In order to increase profit targeting the region (including Liberia and Guinea) can be useful. Also, collaborating with local partners³⁴ can increase chances of securing funding and tenders.

III. eHealth expenditures and their funding source								
Expenditure	Public funding		Private funding		Donor/non-public funding		Public-private partnerships funding	
	Country response	Global response (%) ^{bs}	Country response	Global response (%) ^{bs}	Country response	Global response (%) ^{bs}	Country response	Global response (%) ^{bs}
ICT equipment	Yes	78	Yes	37	Yes	59	—	28
Software	Yes	76	Yes	35	Yes	56	—	29
Pilot projects	No	69	Yes	33	No	51	—	28
Skills training	No	61	Yes	26	No	43	—	20
Ongoing support	No	61	Yes	19	No	35	—	18
Scholarships	No	28	No	8	No	19	—	4

IV. Capacity building		
	Country response	Global response (%) ^{bs}
<i>ICT education</i>		
ICT training for students in health sciences at tertiary institutions	Yes	77
Institutions offer continuing education in ICT for health professionals	Yes	75
<i>Professional groups offered ICT continuing education</i>		
Medical	Yes	73
Nursing	Yes	62
Public health	Yes	60
Dentistry	No	54
Pharmacy	Yes	54

Figure 7: AFRO WHO figures of Sierra Leone eHealth status

³³ OpenMRS-Ebola : <https://openmrs.org/2017/08/openmrs-ebola-electronic-health-record-system-used-in-sierra-leone/>

³⁴ Local partners examples: Sensi Tech Hub, IdT Lab Freetown

Opportunities

In general, smart IT solutions can help medical providers increase their efficiency, efficacy and transparency. These supportive solutions can either be provided by separate companies, or be implemented by larger companies in their strategy.

E-payment systems E-payment systems to increase access for those active in remote areas that would normally spend time and resources on collecting payments.

Privacy and security technology to ensure ethical collection and distribution of electronically stored sensitive information (patient files). This aligns with the implementation of the HMIS.

Data Warehousing technology to support supply chain management and keep track of incoming and outgoing supplies of resources.

Data analysis forecasting software can be of support to understaffed medical facilities. Analysing patient data and lab research outcomes can be of great value in remote areas and in medical facilities with insufficiently trained supportive staff.

Information infrastructure/ Data management solutions/mHealth can offer significant support in both hardware and software forms and are essential in a context where formal infrastructures are lacking. Softwares that can tackle fraud, mismanagement of funds and can spot waste, especially in the supply chain of medicines. Thousands of dollars worth drugs are destroyed every year because they have passed their expiration date³⁵.

AI solutions for spotting fraud- AI systems can recognise patterns and risk factors humans are unable to detect. This can help insurance companies, hospital registrations and financial transactions become more fraud-proof.

Blockchain technology - technology that requires a de-centralized and fragmented data storage across the globe- allows for the safe, transparent and democratic storage and transferral of data. Solutions are applicable to for example financial, patient and research data.

Information sharing systems- can facilitate the process of essential data communication. Examples of this are technologies that enable rapid transmission of lab results to remote areas to accelerate the commencement of treatment.

mHealth - is especially interesting for areas with weak internet connectivity

³⁵ In 2017, 700 million SLL (USD \$ 93,300 equivalent) worth of medication was destroyed by the Pharmacy Board. Source: <http://pharmacyboard.gov.sl/site/NewsUpdates/News/tabid/311/ID/16/Pharmacy-Board-Destroys-medicines-Worth-Over-700-Million-Leones.aspx>

MoHS Development of the Health Information System-

The GoSL is moving towards a better electronic management system for medical information.³⁶ The Health Management Information System (HMIS) is a centralised database that stores and collects relevant data, such as lab tests, patient profiles, medicine allocations and disease information. This system uses the open source DHIS 2. In order to support this, the MoHS is also:

- 1) Investing in a data center and server to host the HIS,
- 2) Ensuring all connected health facilities can collect and report data electronically,
- 3) Build capacity in HIS and data management.³⁷

For those interested in coming up with solutions for the GoSL, request must be sent to the eHealth Hub, an initiative of the government to manage and deploy all eHealth initiatives.³⁸ See footnotes for link.

Challenges

- Weak digital infrastructure such as limited internet connection, erratic power supplies and poor connectivity, especially outside of urban areas. With the completion of the ACE submarine cable connection to Sierra Leone³⁹, data services will improve tremendously.

- Poor data literacy can prove to be both a challenge and an opportunity. With most Sierra Leoneans having had no access to digital technologies, staff need training to use basic software.

- Reluctancy for transparency. With technology exposing supply chain metadata and increasing transparency, fraudulent officials can be slow to adapt and implement these technologies

³⁶ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 61.

³⁷ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 62

³⁸ Standard Operating Procedures for the National eHealth Coordination Hub. (2017): 6. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&cad=rja&uact=8&ved=2ahUKEwi0vqnbm5_dAhUPzqQKHQZSBdYQFjADegQIBxAC&url=https%3A%2F%2Fmohs2017.files.wordpress.com%2F2017%2F12%2F2017-11-30_-sops-ehealth-coordination-hub-signed.pdf&usg=AOvVaw2496kZla-rV3N2pdnfc-9n

³⁹ SLIEPA: <http://www.kngroup.com/solutions/telecoms/ecowan-fibre-optic-network/>

Chapter 8 | Human Resources

High quality medical supplies, financial resources and innovative systems become unavailing without sufficient and competent human resources. According to the Human Resources for Health Country Profile, the medical sector deals with structural gaps in human resource capacity across the entire sector⁴⁰. Problems lie in discouraging working conditions and incentives, an unbalanced distribution of healthcare workers throughout the country, unsalaried health workers and limited training opportunities to strengthen managerial and administrative capacities.

The GoSL has implemented the Human Resources for Health Strategy (2017-2021) in order to improve the situation. The strategy streamlines all efforts from stakeholders to align with the GoSL's mission. Within this strategy, the GoSL aims to create "partnerships with private-sector, non-governmental and faith-based organisations in service delivery, education, and technology."⁴¹ The strategies objectives are responses to some of the challenges stated above, and the private sector can offer support towards reaching these objectives. This chapter highlights some of these objectives, but for more details regarding funding, short, medium and long-term goals and an overview of all objectives it is recommended to review the entire strategy (see footnotes for download link).⁴² Furthermore, it is important to underline that this strategy avoids the creation of parallel systems, meaning that all initiatives will have to run through government agencies and regulators in order to be implemented.

Opportunities

Opportunities for the private sector lie predominantly in offering high-quality education and training programs to support the GoSL's objectives.

High quality training and supporting of health workers- With 25 training institutions offering 56 different education programs, Sierra Leone still has insufficient human resources.⁴³ Also, they are in-equally spread across the nation, with the majority of the workforce based in the Western Area and in Bo. Lastly, there is an abundance of lower-educated nurses and a shortage of higher-educated medical staff. There is a current shortage of 6,903 health professionals in order to realise the objectives of the BPEHS, and future projections estimate a shortage of 2,800 health professionals in 2025, being mainly higher cadre nurses, medical officers

⁴⁰ Ministry of Health and Sanitation. "Human Resources for Health Country Profile." (2016): 7

⁴¹ Ministry of Health and Sanitation. "Human Resources for Health Strategy 2017-2021." (2016): 6.

⁴² Link to download the Human Resources for Health Country Profile: <https://www.afro.who.int/sites/default/files/2017-05/hrhstrategy2017.pdf>

⁴³ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 49

and midwives.⁴⁴ The MoHS plans to invest in order to increase production of professionals and is currently working on a training strategy.

Leadership and capacity training of those in managerial functions - IT skills, Management & Evaluation and administrative capacities. According to the HSSP 2017-2021, there are limited training opportunities within the country.⁴⁵ Trainings are often held abroad, exacerbating staff scarcity and performance delays. Specifically for the MoHS and public health facilities, the GoSL is willing to invest in leadership and management capacity at all level⁴⁶s.

Offering Continuous Professional Development (CPD)- There are currently no national guidelines for in-service training or Continuous Professional Development (CPD). Hospitals and development partners are now responsible for any follow-up training, and there is a lack of qualified trainers⁴⁷.

E-learning- Increasing data literacy for health care workers.

⁴⁴ Ministry of Health and Sanitation. "Human Resources for Health Country Profile." (2016): 32

⁴⁵ Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017): 22-24.

⁴⁶ Ministry of Health and Sanitation. "Human Resources for Health Strategy 2017-2021." (2016): 3

⁴⁷ Ministry of Health and Sanitation. "Human Resources for Health Strategy 2017-2021." (2016):37

Chapter 9 | Policy Framework

	<i>Existing health-related legislation</i>	<i>Planned revisions or new Acts</i>
General Sector Governance	<ul style="list-style-type: none"> Public Health Ordinance Act 1960 Local Government Act, 2004 Finance Bill, 2017 (FHC Tax) 	<ul style="list-style-type: none"> Public Health Act(<i>revision</i>)
Health Issues	<ul style="list-style-type: none"> Lunacy Act, 1902 The Prevention and Control of HIV and AIDS Act, 2007 The National HIV and AIDS Commission Act, 2011 	<ul style="list-style-type: none"> Mental Health Act(<i>revision</i>) The Safe Abortion Act, 2015 (<i>under review</i>)
Health Agencies or Bodies (Non-regulatory)	<ul style="list-style-type: none"> Hospital Boards Act, 2003 Sierra Leone Health Services Commission Act, 2011 National Pharmaceutical Procurement Act, 2012 Sierra Leone Council for Postgraduate Colleges of Health Specialties Act, 2016 Teaching Hospitals Complex Administration Act, 2016 	<ul style="list-style-type: none"> Sierra Leone Health Service Commission Act (<i>revision</i>) National Public Health Agency (<i>new</i>) SLESHI Act (<i>new</i>) National Medical Supplies Agency Act(<i>new</i>)
Regulation of Personnel and Substances	<ul style="list-style-type: none"> Medical Practitioners and Dental Surgeons Act, 1966; amendment (2008) Nurses and Midwives Board Act The Pharmacy and Drugs Act, 2001 The National Drugs Control Act, 2008; Amendment (2008) 	<ul style="list-style-type: none"> Allied Health Professionals Act(<i>new</i>) Nurses and Midwives Council Act (<i>revision</i>) Pharmacy and Drugs Act(<i>revision</i>) Food Safe

Source: Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021."(2017): 20

Strategy or Policy	Responsible Entity
<ul style="list-style-type: none"> • National Medical Supplies Agency Operational Plan – 2017-2018 	NMSA Management Team <i>(pending recruitment)</i>
<ul style="list-style-type: none"> • National Health Laboratory Strategic Plan – 2016 – 2020 	Directorate of Hospitals and Laboratory Services

Chapter 7 | Institutional Framework

Ministry of Health and Sanitation (MoHS)

The Ministry of Health & Sanitation (MOHS-SL) believes that access to sound health is a human right, its vision is to ensure a functional national health system delivering efficient, high quality health care services that are accessible, equitable and affordable for everybody in Sierra Leone and the overall goal is to maintain and improve the health of its citizens.

National Medical Supplies Agency (NMSA)

The NMSA has the exclusive responsibility for the procurement, warehousing and distribution of drugs and medical supplies in a transparent and cost-effective manner for and on behalf of all public institutions throughout Sierra Leone.⁴⁸

National Revenue Authority (NRA)

The NRA is charged with the responsibility of assessing and collecting domestic taxes, customs duties and other revenues specified by law, as well as administering and enforcing laws relating to these revenues.

Sierra Leone Airports Authority (SLAA)

Established to transport Freetown International Airport into a regional hub and to facilitate the transshipment of cargo and passengers.

Sierra Leone Local Content Agency (SLC)

The SLC is a semi-autonomous intervention under the Government of Sierra Leone (GoSL) to strengthen the local economy by creating linkages between Foreign Direct Investments in Sierra Leone. They focus on capacity development, systems coordination, SLLCA compliance, supplier & market development and community relations.

Sierra Leone Investment & Export Promotion Agency (SLIEPA)

SLIEPA follows the enactment of the Investment and Export Promotion Act adopted in 2007. Their main is to promote investment opportunities in Sierra Leone and to facilitate these processes.

The Pharmacy Board of Sierra Leone

The Pharmacy board is the medicines regulatory agency in the country and was set up by an Act of Parliament (Pharmacy and Drugs Act 1988 which was later reviewed in 2001) with the mission of ensuring that appropriate and workable

⁴⁸ *The National Medical Supplies Agency Act, 2017: www.sierra-leone.org/Laws/2017-11.pdf*

regulatory guidelines are implemented in order to achieve the highest practicable standards of the practice of pharmacy by professionals and of safety, efficacy and quality of all drugs, medical devices, cosmetics and nutritional agents (collectively termed 'products') locally manufactured, imported, exported, distributed, sold or used to ensure the protection of the public health as envisaged by the Pharmacy and Drugs Act.

Reference list

Abuja Declaration, World Health Organization. http://www.who.int/healthsystems/publications/abuja_declaration/en/

Ade Campbell. "Sierra Leone News: Pharmacy Board Expands." Awoko, June 19, 2017, <https://awoko.org/2017/06/19/sierra-leone-news-pharmacy-board-expands>

Centres for Disease Control and Prevention, "2014 Ebola Outbreak in West Africa – Case Counts," 2016, <https://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/case-counts.html>.

Commonwealth Of Nations. "International NGOs in Sierra Leone." http://www.commonwealthofnations.org/sectors-sierra_leone/civil_society/international_ngos/

Global Health Expenditure Database, World Health Organization. <http://databank.worldbank.org/data/reports.aspx?source=2&country=SLE#> or data.worldbank.org

IMF 2017.

Ministry of Health and Sanitation. "National Health Sector Strategic Plan 2017-2021." (2017)

Ministry of Health and Sanitation. "Basic Package of Essential Health Services 2015-2020." (2015)

Ministry of Health and Sanitation. "Human Resources for Health Strategy 2017-2021." (2016)

Ministry of Health and Sanitation. "Human Resources for Health Country Profile." (2016)

MIT, Atlas Media Sierra Leone Country Profile. <https://atlas.media.mit.edu/en/profile/country/sle/>

Pharmacy Board. <http://pharmacyboard.gov.sl/>

Pharmacy Board. "Counterfeit Medicines." 2017. <http://pharmacyboard.gov.sl/site/Resources/Articles/CounterfeitMedicines.aspx>

Pharmacy Board. "Pharmacy Board Destroys Medicines Worth over 700 Million Leones." 2017. <http://pharmacyboard.gov.sl/site/NewsUpdates/News/tabid/311/ID/16/Pharmacy-Board-Destroys-medicines-Worth-Over-700-Million-Leones.aspx>

Sierra Leone Enterprise Survey 2017, World Bank Data Catalog. <https://datacatalog.worldbank.org/dataset/sierra-leone-enterprise-survey-2017>

Statistics Sierra Leone. "NGO Survey for National Accounts Compilation." (2013).

Sustainable Development Goals, United Nations. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

The National Medical Supplies Agency Act, 2017: www.sierra-leone.org/Laws/2017-11.pdf

United Nations: The International Standard Industrial Classification of All Economic Activities (ISIC). Link to source: https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

Universal Health Coverage, World Health Organization. http://www.who.int/universal_health_coverage/en/

Vision Aid Overseas. <https://www.visionaidoverseas.org/sierra-leone>

World Development Indicators, World Bank, 2011. <http://databank.worldbank.org/data/home.aspx>.

World Health Organization Regional Office for Africa. "Improving Access Mental Health Services Sierra Leone." WHO, July 11th, 2017, <https://www.afro.who.int/news/improving-access-mental-health-services-sierra-leone>