Republic of Guinea-Bissau

Guinea-Bissau Health Sector Diagnostic

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HNP GP

AFRICA

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Guinea-Bissau Health Sector Diagnostic

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Health, Nutrition and Population Global Practice

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LIST OF ABBREVIATIONS

CFA	West African Franc (*Communaute Financiere Africaine franc*)
CMNND	Communicable, Maternal, Neonatal, and Nutritional Diseases
DALYs	Disability-Adjusted Life Years
DHS	Demographic and Health Survey
DRS	Regional Health Directorate (*Direcao Regional de Saude*)
GBD	Global Burden of Disease
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ILAP	Poverty Evaluation Household Survey (*Inquérito Ligeiro para a Avaliação da Pobreza*)
IMR	Infant Mortality Rate
INASA	National Institute of Public Health (*Instituto Nacional de Saude*)
LIC	Low-Income Countries
LLIN	Long Lasting Insecticide Nets
MDG	Millennium Development Goals
MICS	Multi Indicators Cluster Survey
MINSAP	Ministry of Public Health (*Ministerio da Saude Publica*)
MMR	Maternal mortality ratio
NCD	Non-Communicable Diseases
NCDI	Non-Communicable Diseases and Injuries
NGO	Non-Governmental Organizations
NMR	Neonatal Mortality Rate
NPHRH	National Plan for Human Resources for Health
OOP	Out-of-Pocket
PNDS	National Health Development Plan (*Plano Nacional de Desenvolvimento Sanitario*)
PPP	Purchasing Power Parity
SDG	Sustainable Development Goals
SDI	Service Delivery Indicators
SNP	Strategic Nutrition Plan (*Plano Strategico de Nutricao)*
THE	Total Health Expenditures
UNICEF	The United Nations Children's Fund
USAID	United States Agency for International Development
U5MR	Under-Five Mortality Rate
WDI	World Development Indicators
WFP	World Food Program
WHO	World Health Organization

Executive Summary

1. **This report provides a comprehensive diagnostic of the Guinea-Bissau health system.** It focuses on key health system's building blocks, namely health financing, health service delivery and the health workforce. These are the areas identified as of greatest needs in the country and the focus of the World Bank health system strengthening strategy. The report is divided in two parts: firstly, it compares Guinea-Bissau's health system and health outcomes with regional (countries in West and Sub-Saharan Africa) and economic peers (low-income countries); and secondly, it analyzes the distribution of health outcomes across Guinea-Bissau regions, controlling, to the extent the data allow, to variables such as poverty rates, availability of health workers, access and payments for health services, and other key health service delivery indicators.

2. **Guinea-Bissau has achieved some progress in health in the recent years, nevertheless some critical challenges remain.** The country's life expectancy is 55 years, which is lower than the average for Guinea-Bissau's regional (59) and income peers (60). According to the last Multi Indicators Cluster Survey (MICS) the maternal mortality rate (MMR) is estimated at 900 maternal deaths per 100,000 live births, one of the highest rates in the world (UNICEF, 2014). The MICS also reports that only 45% of the deliveries are assisted by a trained health professional. Progress has been made to reduce infant mortality, but both infant mortality rate (IMR) and under-five mortality rate (U5MR) remain among the highest in the world, 60 and 88.8 per 1,000 live births, respectively (WDI, 2016). Malaria is the single biggest cause of deaths (15.8%), followed by HIV, neonatal disorders, lower respiratory infections, diarrheal diseases and nutritional deficiencies. The burden of HIV in Guinea-Bissau is the highest in West Africa and it disproportionately affects more women than men (female adults with HIV represents 58.6% of the population above 15 years old with HIV). The country's health system faces persistent challenges related to inadequate supply of health workers, low public spending, poor infrastructure, and weak governance.

3. **Health care spending per capita is the lowest among countries in the sub-region**. In 2013, the per capita spending on health was US$37, well below the average per capita among West African countries (US$65.3) and approximately a third of the Sub-Saharan African countries average (US$97). This is largely driven by low public health spending. Public spending accounts for about 20% of total health spending, lower than the average among for West African countries (32%), but similar to the average for Sub-Saharan African countries (22%). Additionally, government spending is mostly to pay staff salaries while donors finance nearly 90% of the recurrent costs of the sector, including medicines and other critical health inputs. Out-of-pocket (OOP) payments represent the largest source of financing, 49.5%. The analysis shows that OOP payments for health care increase the absolute and extreme poverty headcount ratio by 1.4 and 1.1 percentage points, respectively.

4. **Access to health care services is significantly associated with economic status**. Available household survey data show that the top income group is, on average, 12% more likely access to health services than the poorest income group. Additionally, there are regional disparities, with Bafatá and Cacheu having the highest levels of inequity in access to health services. Public health centers are the primary place for seeking care in Guinea-Bissau, 70% of those who seek care visited public health centers, followed by hospitals (approximately 14%). Individuals report the lack of medicine, costs and long waiting times as the main

problems faced when accessing health services. Among those who visited any health facility when ill, 17.4% reported the lack of medicines as the main problem; followed by 17.1% who reported that the healthcare services were very expensive. Health care costs were reported as the main reason for not seeking health care when needed, 44% of the respondents were discouraged to seek treatment when ill due to health care costs.

5. **The health workforce shortcomings are particularly critical as they limit the country capacity to improve service delivery to its population.** First, there are not enough health workers to fulfill population needs and the available health workers are concentrated in urban areas. The regions of Bolama, Bissau, and Biombo, have higher density of clinical staff, while the regions with the highest mortality burden, Gabú, and Bafatá, face critical shortages. Second, there are imbalances in the skill mix with shortages of critical cadres and specialties - such as midwifery, surgery, and obstetricians and gynecologists. The training costs for producing the additional number of necessary health workers is estimated in US$11.3 million (plus an additional yearly cost of US$5.14 million to maintain these health workers - a 111% increase over current spending). Given the current fiscal constraints, there is an urgent need to rethink the service delivery model to focus on the delivery of a package of well-validated high-impact, low-cost interventions, delivered by a mix of professionals and auxiliary teams of health workers, targeting health sector priorities in the country (such as maternal and child mortality)

6. **This report provides the evidence base for designing policies to tackle health systems challenges in Guinea-Bissau.** Although in-depth discussion and consultations with the Government of Guinea Bissau, the donor community and civil society in the country, are necessary to validate and further explore the findings of this report, an initial set of recommendations can be listed. These are:

- *Improve donors' coordination*. The Ministry of Public Health (MINSAP) needs to play a central role in coordinating donors' efforts, by identifying national priorities and requesting donors to act accordingly given their comparative advantages. This will require investments in capacity building at the MINSAP;

- *Improve the public resource tracking system*. There is an urgent need to strengthen regulation to eliminate informal payment, and to rationalize the purchase and distribution of medicines;

- *Adopt and implement the newly designed processes and timelines for planning, recruitment and hiring of health workers* proposed as a result of the recent workshops with the Government of Guinea-Bissau, the EU, and the World Bank;

- *Strengthen health workforce policies by revising the current the national health workforce plan*. This includes defining clear career pathway for different health workers, revision of the remuneration policy to implement performance-based pay and introduce non-monetary incentives;

- *Expand community-based primary health care service delivery* model for the entire country;

- *Improve coordination and provision of services by integrated frontline primary health care (PHC) teams* composed primarily of paid community health workers, auxiliary nurses and clinical officers, trained midwives, with the support of graduate nurses and physicians;

- *Strengthen information systems for disease surveillance and rapid response to disease outbreaks*. That includes for both human and animal health.

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Acknowledgements

This report has been prepared by the World Bank Health, Nutrition and Population Global Practice (HNP GP). The report was led by Edson C. Araujo (TTL and Senior Economist, HNP GP). The core team included Hui Wang (Consultant, World Bank), Robert L. Cohen (Consultant, World Bank) and Alejandro Medina Giopp (Senior Monitoring and Evaluation Specialist, GPV04). The team received insightful comments and inputs from Christophe Lemiere (Lead Health Specialist/Program Leader, AFCW3) and Michael Drabble (Senior Education Specialist, GED04). The report was prepared under the supervision of Raja Kattan (Program Leader, AFCF1) and cleared by Trina Haque (Program Manager, GHN07) and Louise Cord (Country Director, AFCF1).

1. INTRODUCTION

Key Points

1) Despite some remarkable progress in the recent years, critical challenges persist in the health sector in the country. The life expectancy at birth in Guinea-Bissau is lower than its economic and regional peers. The maternal mortality ratio (MMR) is estimated at 900 per 100,000 live births, one of the highest in the world and lagging far behind Millennium Development Goals (MDG) target. Only 45% of birth deliveries are assisted by a trained health professional;

2) This report focuses on the main health system's building blocks in Guinea-Bissau, namely health financing, health service delivery and the health workforce. The report explores the links between poverty distribution and key health outcomes and health service delivery indicators (access and financial protection);

3) These analyses rely mostly on available secondary data. The next phase of the diagnostic, the World Bank team will collect and explore primary data through the implementation of the Service Delivery Indicators (SDI) survey.

1. **Guinea-Bissau, one of the poorest countries in the world, has faced constant political instability and a lack of stable social and economic institutions for more than two decades.** With a Gross National Income per capita of US$590 (2015, around 70% of the population lives in moderate poverty (PPP US$2 per day) and about 33% in extreme poverty (PPP $1 per day, 2010). The population of Guinea-Bissau is estimated in 1.88 billion (2016), among those 51.5% lives in urban areas and 21% lives in the Capital Bissau (WDI, 2016). The country's population is relatively young with approximately 60% under 24 years. The population growth rate has been around two percent since the 1980's, with a small increase since 2008 and reaching 2.4% in 2014 (WDI, 2016). Following the most recent *coup d'etat* in 2012, Guinea-Bissau underwent a period of political crisis followed by a political transition, with general elections successfully held in April-May 2014.

2. **The objective of this report is to provide a comprehensive diagnostic of the health sector in Guinea-Bissau after the 2012 political crisis.** The diagnostic focuses on the main health system's building blocks in Guinea-Bissau, namely health financing, health service delivery and the health workforce. These are the areas identified as of greatest needs in the country and the focus of the World Bank health system strengthening strategy. The report follows two main strategies: firstly, it compares Guinea-Bissau with countries in the same sub-region, i.e. Guinea-Bissau regional peers (countries in West and Sub-Saharan Africa), and to countries at the same level of economic

development, i.e. Guinea-Bissau economic peers (low-income countries – LIC).[1] Secondly, it analyzes the distribution of health outcomes across Guinea-Bissau regions, controlling, to the extent the data allow, to variables such as poverty rates, availability of health workers, and critical health service delivery indicators. The within-country analysis also includes an assessment of financial protection and equity in the access to health care.

3. **The analyses rely on available national and global databases.** National datasets include the Multi Indicators Cluster Survey (MICS) 2014 (UNICEF, 2015), the Poverty Evaluation Household Survey (ILAP, *Inquérito Ligeiro para a Avaliação da Pobreza*, in Portuguese), and administrative data collected from the Ministry of Public Health (*Ministerio da Saude Publica*, or MINSAP). Global databases, used to compare Guinea-Bissau with regional and economic peers, include the World Bank World Development Indicators (WDI), the Global Burden of Disease (GBD), and the World Health Organization (WHO) health data and statistics. This report is the first phase of the health sector diagnostic conducted by the World Bank team; the second phase will collect and explore primary data through the implementation of the Service Delivery Indicators (SDI) survey.

4. **This report is structured as follows**: the next section provides an overview of the burden of diseases in Guinea-Bissau and compares the country with its regional (West and Sub-Saharan Africa countries) and economic peers (low-income countries). It also describes the distribution of the disease burden within Guinea-Bissau, comparing it to the distribution of poverty in the country. Section 3 provides an overview of the health service delivery system in Guinea-Bissau, it and it explores the ILAP 2010 data to explore the patterns of seeking and accessing health care services among different social and economic groups. Additionally, it reviews of the existing health information system in the country. Section 4 describes the system of health care financing in Guinea-Bissau. It provides an in-depth comparison of Guinea-Bissau to its economic and regional peers, analyzes the government expenditures and explores the households' payments for health care using data from the ILAP 2010. Section 5 discusses several aspects related to the health workforce in Guinea-Bissau, such as the supply and composition of the health workforce, health sector wage bill, and the country training capacity. The section closes by presenting an analysis of the selection and hiring process for health workers in the country with suggestions for improvement. Section 6 concludes and presents key recommendations.

[1] Regional peers are all Sub-Saharan Africa countries (West African countries are highlighted in comparison figures); Economic peers are all LICs in other regions, namely Afghanistan, Cambodia, Haiti, Democratic People's Republic of Korea, and Nepal.

2. POPULATION HEALTH STATUS AND POVERTY

Key points

1) Guinea-Bissau performs at or worse than a group of comparable countries (West Africa, sub-Saharan Africa, or Low-Income Countries) on most health indicators. It performs comparably on under-five mortality rate (U5MR), but worse on neonatal mortality rate (NMR), life expectancy and MMR (one of the highest rate of maternal mortality in the world);

2) Eight diseases account for over 70% of deaths and DALYs (Disability-Adjusted Life Years) in Guinea-Bissau: Malaria, HIV, neonatal disorders, lower respiratory infections, diarrheal diseases, nutritional deficiencies, injuries, and cardiovascular disease;

3) Malaria is the single biggest cause of deaths (15.8%) and DALYs (19.7%) in Guinea-Bissau, and accounts for a higher incidence rate as well as greater proportional disease burden than average in West Africa (12.0% and 13.8%, respectively);

4) The mortality rate due to non-communicable diseases and injuries (NCDI) is higher than in the country's economic and regional peers, but the proportion of deaths accounted for by NCDI (33.8%) is smaller than average in West Africa (average 41.6%), indicating a worse overall health status;

5) The burden of disease varies greatly across regions of the country, with nearly a four-fold difference in U5MR between Biombo and Gabú, for example. Across regions, a few predictors, namely nutrition, maternal education, and usage of bed nets, correlate very strongly with regional variation in mortality (malnutrition and maternal knowledge alone explain 90% of regional U5MR variation). Birth spacing and birth order strongly predict NMR.

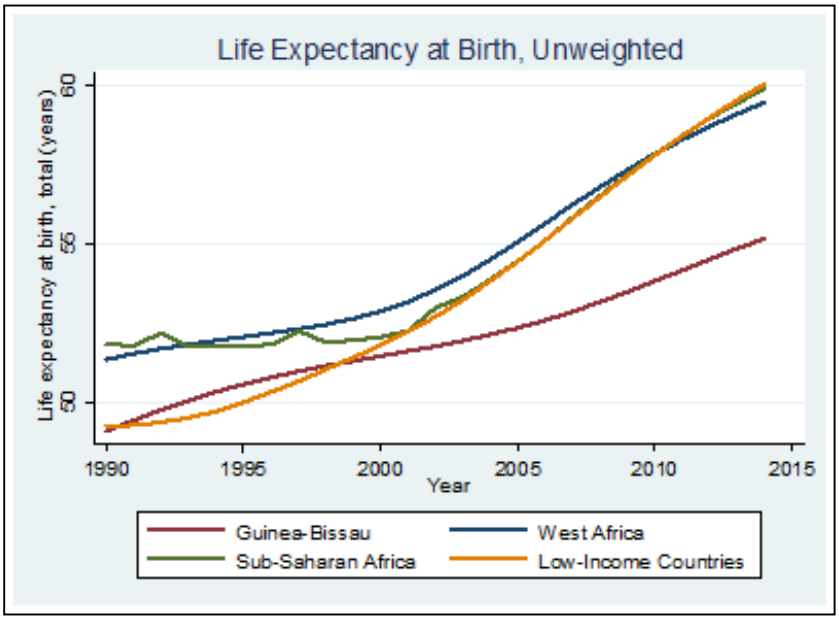
5. **This section analyzes the main trends in the burden of diseases in Guinea-Bissau.** It first compares Guinea-Bissau with its economic and regional peers, to identify the extent to which the observed changes in the epidemiological profile in Guinea-Bissau follows global trends or are unique to the country's situation. Data sources include the Global Burden of Diseases and Injuries (2013) and the World Development Indicators (2016). The second part of this section analyzes the distribution of the burden of disease within Guinea-Bissau, specifically, across the nine regions of the country. The within-country analysis tries to establish the association between health conditions and socioeconomic and health system variables. Such analyses will help to identify the main factors associated with the health achievements in the country and/or the main challenges to improving health outcomes.

2.1 – Guinea-Bissau and its Economic and Regional Peers

6. **Regarding health outcomes, Guinea-Bissau performs the same or worse than the average of its regional peers and economic peers.** The country's life expectancy is 55 years, which is lower than the regional (59) and the average among countries in the same income group as Guinea-Bissau (60) (Figure 1). The maternal mortality rate (MMR) is estimated at 900 maternal deaths per 100,000 live births, one of the highest rates in the world (Figure 2). The country did not achieve the Millennium Development Goal (MDG) for the MMR, set to 229 per 100,000 live births by 2015 and keeping current trends is unlikely to achieve the Sustainable Development Goals (SDGs) target for

MMR by 2030.[2] Progress has been made to reduce infant mortality, but both infant mortality rate (IMR) and under-five mortality rate (U5MR) remain among the highest in the world, 60 and 88.8 per 1,000 live births, respectively (WDI, 2016). Its rate of neonatal mortality rate (NMR) decline is comparable to similar countries (Figure 2.3), but its rate of life expectancy increase is slower than that of comparable countries, suggesting that diseases which affect people over the age of 5 have a significant impact (Figure 1).

Figure 1: Life Expectancy at birth, Guinea-Bissau and its peers



SOURCE: World Development Indicators, 2016.

7. **Eight diseases account for over 70% of deaths and Disability-Adjusted Life Years (DALYs) in Guinea-Bissau** (Table 1). Malaria is the single biggest cause of deaths (15.8%) and DALYs (19.7%) in Guinea-Bissau and accounts for a higher rate and proportion than average in West Africa (12% and 13.8%, respectively). The other top causes of deaths are HIV, neonatal disorders, lower respiratory infections, diarrheal diseases, nutritional deficiencies, injuries, and cardiovascular disease. The same eight causes are responsible for 68% and 64% of death and disability in West Africa (averaged weighting country equally), although with smaller contributions from HIV and malaria and larger contributions from cardiovascular diseases, neonatal disorders, and lower respiratory infections (GBD, 2013).

[2] SDG 3 targets are MMR of 70, U5MR of 25, and NMR of 12 by 2030.

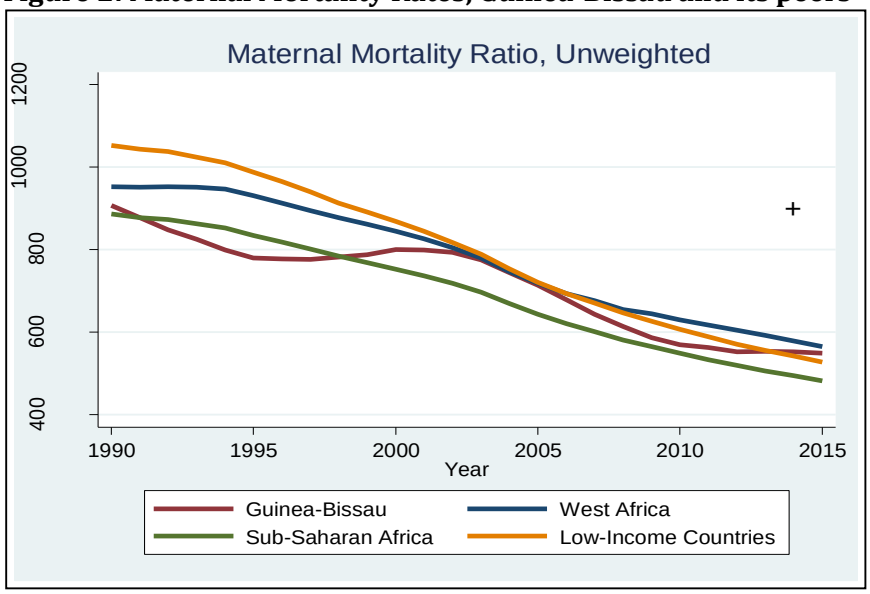
Table 1: Main causes of death and disability in Guinea-Bissau and West Africa

Cause	Guinea-Bissau Deaths (%)	Guinea-Bissau DALYs (%)	West Africa Deaths (%)	West Africa DALYs (%)
Malaria	15.8	19.7	12.0	13.8
Cardiovascular diseases	11.9	5.2	13.6	5.5
HIV/AIDS	11.2	9.3	6.2	4.8
Lower resp. infections	9.0	8.4	10.1	9.1
Neonatal disorders	8.3	10.8	9.4	12.2
Injuries	6.2	5.8	6.9	6.2
Diarrheal diseases	6.0	6.5	6.0	6.3
Nutritional deficiencies	4.0	5.3	4.1	5.9
Total % contribution of top 8 causes	72.4	71.0	68.3	63.8

SOURCE: Global Burden of Disease Study, 2013.
Note: weighted

8. **Guinea-Bissau has one of the highest maternal mortality rates in the world**. As pointed out above, recent evidence from the MICS estimates the MMR at 900 per 100,000 live births, which is the second highest MMR in the world, only after Sierra Leone (1,360) and slightly greater than that of Chad (856) and South Sudan (789). The average MMR in 2014 among West Africa countries is 579, among LIC is 542 and in Sub-Saharan Africa is 494 (all per 100,000 live births) (WDI, 2016). The utilization of obstetric services by expecting mothers in Guinea-Bissau has been persistently low for several years, only 45% of the deliveries take place within health facilities (MICS, 2014). Key contributing factors include, on the supply side, an acute shortage of midwives, weak infrastructure, low availability of surgical services, and medicines. Obstetric care in most regions is provided by general nurses, most of whom are males. On the demand side, a set of issues have been pointed out as reasons to not utilize maternal health services such as under the table payments, the perception of low quality of services, and cultural factors.

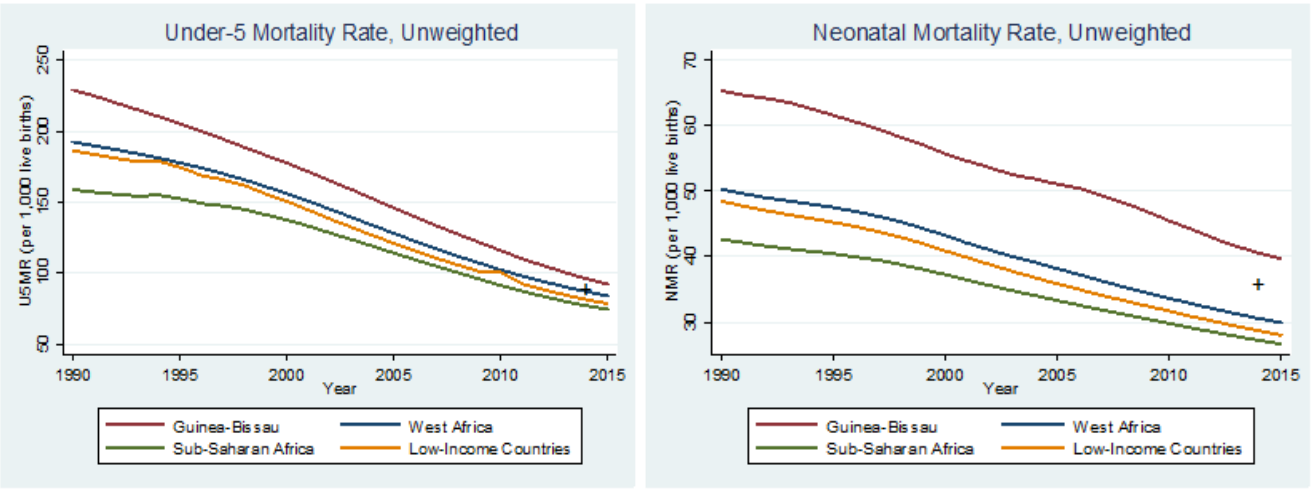
Figure 2: Maternal Mortality Rates, Guinea-Bissau and its peers



SOURCE: World Bank's World Development Indicators, 2016). + indicates data from the 2014 MICS.
Note: They yearly estimates from WDI are partly based on a mathematical model, so the MICS is considered more accurate.

9. **During the last two decades, Guinea-Bissau made significant progress in reducing child mortality**. The 2012 MDG progress report indicated that Guinea-Bissau reduced infant mortality rate (IMR) by 26% during the period 1990-2010. Its U5MR (88.8 per 2014 MICS) is comparable to the 2014 average of its regional and economic peers, 87.0 (West Africa) and 81.4 (LICs) respectively. Neonatal mortality also dropped in the recent years, but the neonatal mortality rate (NMR) in Guinea-Bissau remains significantly higher than the average in West Africa, Sub-Saharan Africa, and LICs (see Figure 3).

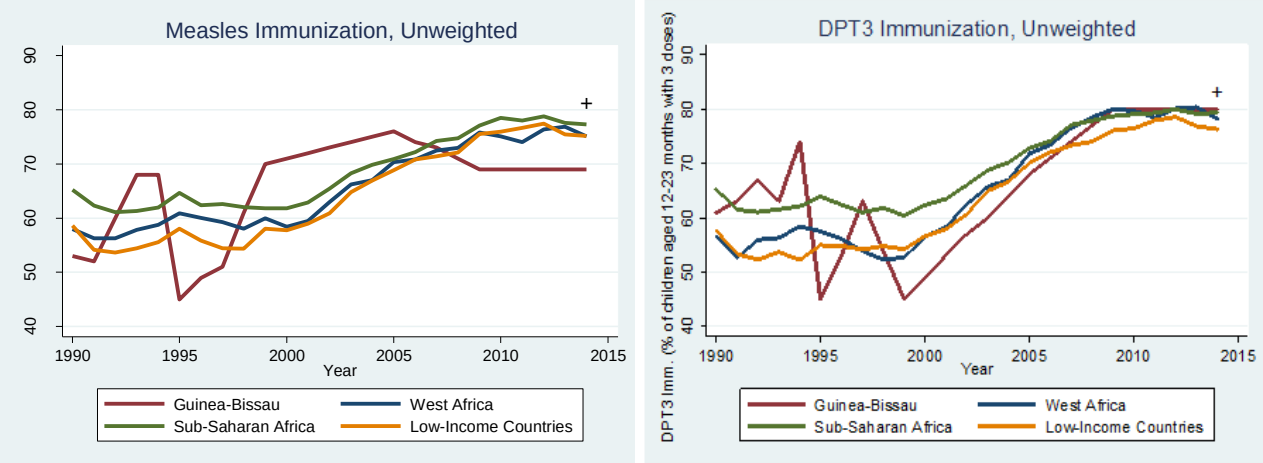
Figure 3: Under-5 and Neonatal Mortality Rates, Guinea-Bissau and its peers



SOURCE: World Development Indicators. + indicates data from the 2014 MICS.

10. **The achievement in improving child health outcomes shows that targeted priority interventions can make a difference.** While no formal evaluation has been done to explain the factors driving these accomplishments, it is possible to point some contributing factors: (i) relatively high coverage of immunizations, especially measles vaccination (Figure 4); (ii) implementation of community-based interventions, including health promotion and prevention interventions (washing hands, nutrition, and oral rehydration therapy); and (iii) high coverage and utilization of long lasting insecticide treated nets (LLIN). For example, a recent evaluation by the National Institute of Public Health (INASA), demonstrated that between 2010 and 2013, the proportion of children under five, and pregnant women who slept under an LLIN increased from 36% to 94%, and from 32% to 91%, respectively. It is a significant achievement, especially since malaria is the top killer disease of children under-five and the overall population.

Figure 4: Measles and DPT3 Immunizations, Guinea-Bissau and its peers



SOURCE: World Development Indicators. + indicates data from the 2014 MICS.

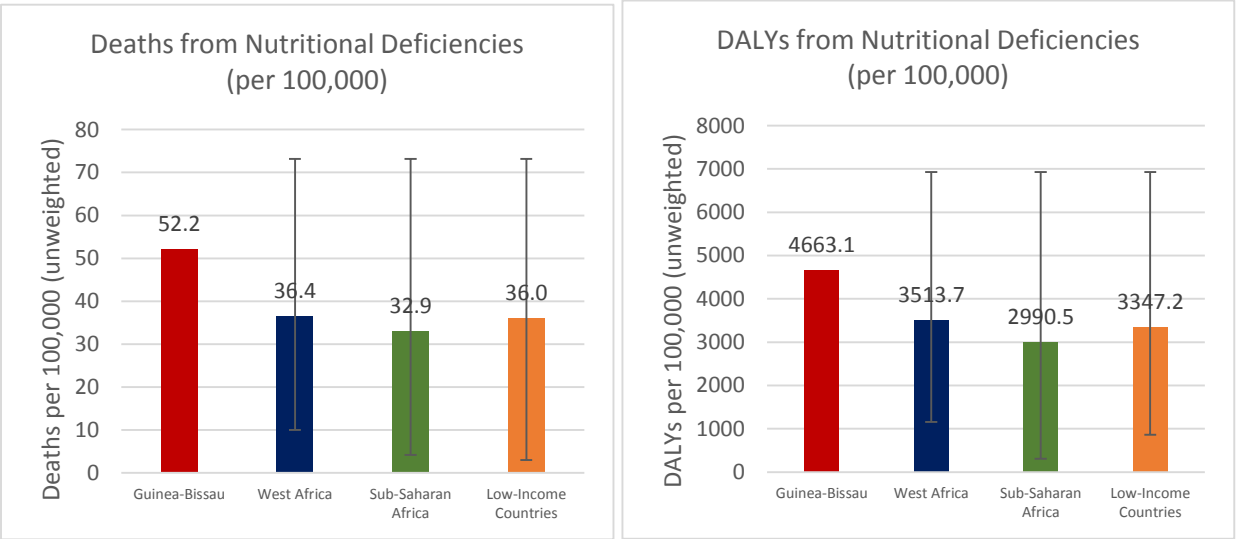
11. **Guinea-Bissau has a very high burden of malnutrition, which directly correlates with maternal and child mortality.** Accordingly, to a national food security assessment conducted by the World Food Programme (WFP) in 2013, only 7% of the population in Guinea-Bissau is food-secure. The level of food insecurity is particularly high in rural areas where more than 93% of the population may face food insecure and requires immediate assistance (WFP, 2013). The high level of food insecurity in the country is partly attributed to a significant drop in cashew nut prices in 2013 compared to 2011-2012 levels.[3] Undernutrition is a major public health challenge in Guinea-Bissau, mainly attributable to food insecurity. The national prevalence of acute malnutrition (wasting, defined as weight for height lower than two standard deviations below the mean) is 6%, reaching approximately 8% in some areas, while the prevalence of stunting among children under five years is 27.6% (UNICEF, 2015). Moreover, Guinea-Bissau has a higher burden of deaths and DALYs due to nutritional deficiencies compared to comparable countries (Figure 5). Many

[3] The Coup d'état in 2012 coincided with the beginning of the cashew nut season, which is the main source of income for more than 80 percent of rural households in Guinea-Bissau.

international reviews pointed out that malnutrition is perhaps the single greatest cause of child mortality in developing countries, as malnutrition weakens a child's ability to recover from a disease that would not kill a better-nourished child (Benson and Shekar, 2006).

12. **In 2014, the government of Guinea-Bissau prepared the National Strategic Nutrition Plan (SNP) 2015-2019**. The SNP 2015-2019 was defined and validated using a participatory and inclusive approach involving various local partners. It provides a policy framework for the implementation of multi-sectoral nutrition interventions in the country, the ultimate objective of the SNP 2015-2019 is to ensure the implementation, extension, and synergy of nutrition interventions, and sectors sensitive to nutrition, to improve the population nutrition's status (Republica da Guinea-Bissau, 2014). The main SNP 2015-2019 targets for 2019 are to: i) Reduce by 15% the malnutrition rates among the population; ii) Reduce by 15% the over-nutrition rate among the population; iii) Increase by 30% the level of household food security; iv) Improve the inter-sectoral coordination of nutrition actions; v) Reduce by 15% the prevalence rate of stunting, acute malnutrition and underweight in children aged 6 to 59 months. Despite its importance, the SNP 2015-2019 has not yet been implemented. The World Bank team is currently supporting the Government of Guinea-Bissau in the costing of the SNP 2015-2019. It will provide the government of Guinea-Bissau with the tools needed to leverage adequate resources from their national budgets, as well as from development partners, to scale-up the SNP 2015-2019.

Figure 5: Nutrition outcomes, Guinea-Bissau and its peers



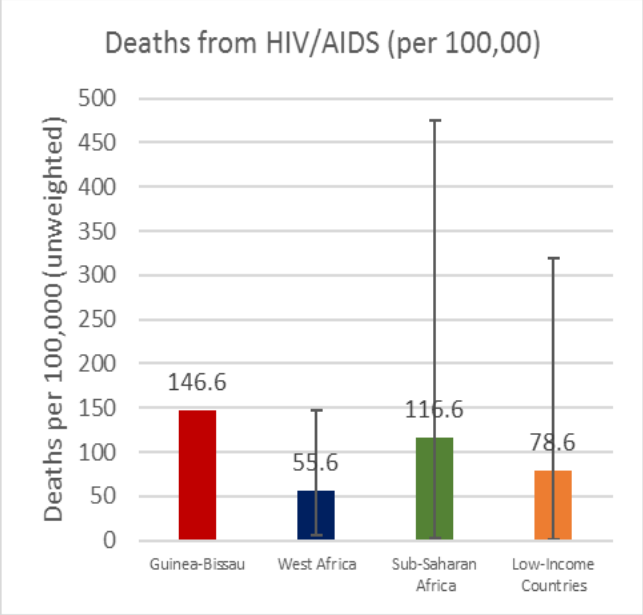
SOURCE: Global Burden of Disease, 2013.

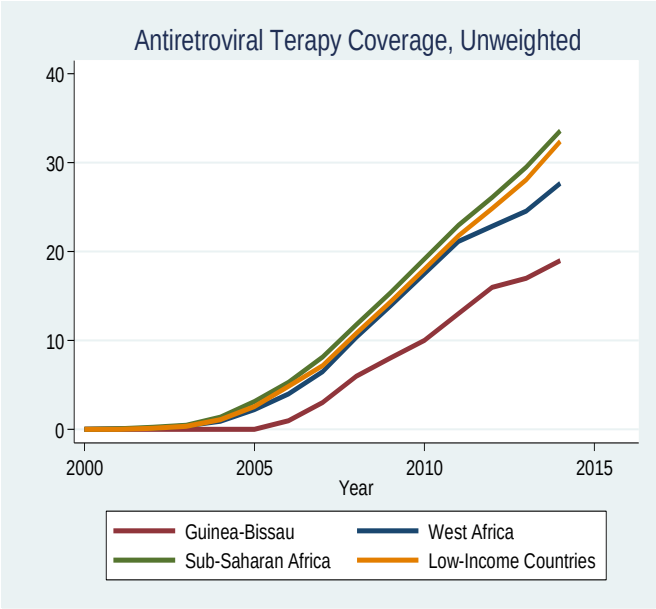
13. **In recent years, the incidence of non-communicable diseases (NCD) grew considerably.** This indicates that Guinea-Bissau is already facing a double burden of communicable diseases (infectious diseases) and NCD, what will place further pressure on its already weak health system. Guinea-Bissau has a higher rate of death from NCD and injuries than comparable countries, but as the proportion of total deaths due to NCD and injuries is lower in Guinea-Bissau (33.8%) than in

West Africa (average 41.6%). Since 1990, the proportion of mortality resulting from communicable, maternal, neonatal, and nutritional diseases (CMNND) has declined across the world, including sub-Saharan Africa, LICs, and Guinea-Bissau. However, while overall mortality has decreased since 1990 in Guinea-Bissau, mortality from CMNND has declined slower than in comparable countries, and mortality from NCD and injuries has increased slightly, whereas it decreased in regional and economic peers.

14. **The burden of HIV in Guinea-Bissau is the highest in West Africa and, at the same time, the antiretroviral therapy coverage is second-lowest** (Figure 6). The estimated infection rate of 3.7% among the general adult population, and is spreading slowly. The HIV epidemic is pervasive, and women are disproportionately more affected than men (1.5% vs. 0.8%) aged 15-24 years, female adults with HIV represents 58.6% of the population above 15 years old with HIV in 2014 (WDI, 2016). Factors contributing to the spread of the HIV infection include low knowledge of HIV prevention and risky sexual behavior, including multiple sexual partnerships and inconsistent use of condoms. Underlying socio-economic conditions also play a role in the spread of the infection through various pathways, including distorted risk perception among the poor and vulnerable.

Figure 6: Burden of HIV and Antiretroviral Therapy Coverage, Guinea-Bissau and its peers





SOURCE: Global Burden of Disease, 2013 and World Development Indicators.

2.2 – Distribution of the burden of disease within Guinea-Bissau

15. There is large variation in burden disease distribution within Guinea-Bissau. Data from the latest MICS (2014) allows the measurement of the distribution of the health status across regions and a range of variables such as primary language, maternal education level, poverty rate etc. U5MR, for example, varies from 41.8 per 1,000 in the region of Biombo to 158.9 per 1,000 in

Gabú and 125.6 per 1,000 in Bafatá (Table 2). Surprisingly, the correlation between poverty and U5MR is weak, and the correlation between poverty and NMR is even weaker. The regression equation used to evaluate this is:

$$U5MR_i = \beta_0 + \beta_1 * Pov_i + \varepsilon_i \quad (1)$$

16. Where for each country region *i*, Pov_i is the poverty rate, which can be either below $1 or $2 per day PPP as measured by the World Bank. The same equation will be used to evaluate the effect of other independent variables *X* as on regional U5MR as follows:

$$U5MR_i = \beta_0 + \beta_1 * \mathbf{X}_i + \varepsilon_i \quad (2)$$

17. Where **X** is a vector of independent variables.

Table 2: U5MR, NMR and Extreme Poverty, Guinea-Bissau regions (2014)

Region	Extreme Pov. Rate*	NMR**	U5MR**
Bissau	0.17	33.5	68.7
Bolama	0.23	36.4	75
Biombo	0.37	11.5	41.8
Tombali	0.41	38.3	82.4
Bafatá	0.41	45.7	125.6
Gabú	0.43	49.5	158.9
Cacheu	0.45	43	95.7
Oio	0.5	30.4	63.7
Quinara	0.51	19.9	76.8
Guinea-Bissau	**0.33**	**35.8**	**88.8**

SOURCE: World Bank, 2016 and MICS, 2015.
* Extreme Poverty Rate is the proportion of people who live on < $1 per day (PPP);
** NMR and U5MR are per 1,000 live births.

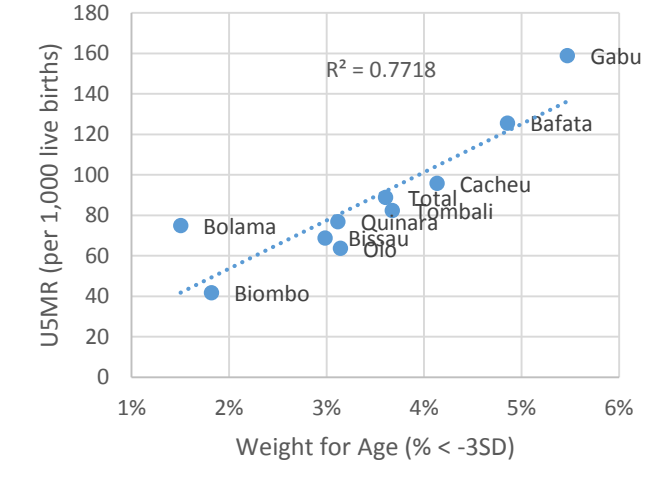
18. **The strongest predictors of U5MR are malnutrition, mosquito bed net usage, maternal knowledge, and vaccinations**.[4] Figure 7 shows a very high and statistically significant correlation between nutrition outcomes and U5MR across regions of the country (correlation coefficient r = -

[4] Maternal knowledge is measured by percent of mothers who could identify at least one sign of pneumonia; and vaccination is the measured by the percent of children whose vaccination card was seen at the last visit.

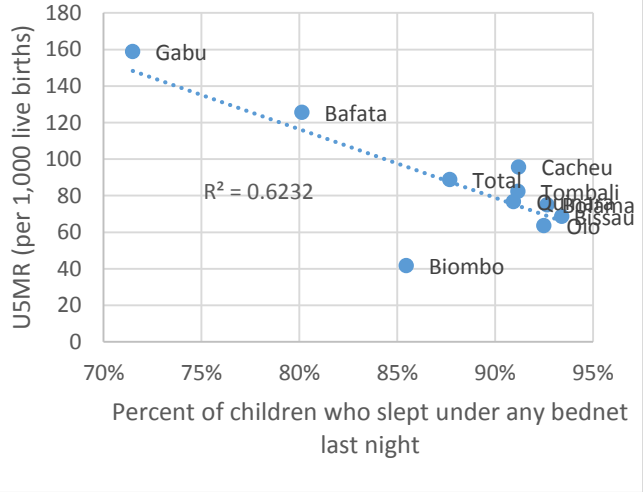
.87; -1 would imply perfect correlation). The regions with worst nutrition outcomes are Gabú and Bafatá while Biombo is better off about all other regions. Other important variables to explain U5MR variation were the percentage of children with diarrhea who received oral rehydration salt (ORS) and zinc (r=-.62) and the percentage of mothers who recognize at least one sign of pneumonia (r=-.67). When looking across regions, Gabú and Bafatá consistently underperform in nearly all potential factors child health outcomes. For example, they have lower percentage of children fully immunized (Gabú = 58%, and Bafatá = 46%, compared to the national average of 64%), lower percentage of children who slept under bednet (Gabú = 72%, and Bafatá = 80%, national average = 88%), and have higher total fertility rates (Gabú = 6.3, and Bafatá = 5.7, national average = 4.9). The relationship between poverty, bed net usage and child mortality reinforces the importance of tackling malaria. The poorest quintile of the population has a much lower U5MR (77.4 per 1,000) than the second or third quintiles (100.5 and 106.7, respectively); this counterintuitive result is likely linked to the fact that the poorest quintile has a higher rate of children who sleep under a bed net (90%) than these two quintiles (83% and 84%, r = -.92).

Figure 7: Under five Mortality, Nutrition and bed net Usage, Guinea-Bissau Regions

a) U5MR, Nutrition, and Region



b) U5MR and bed net Usage



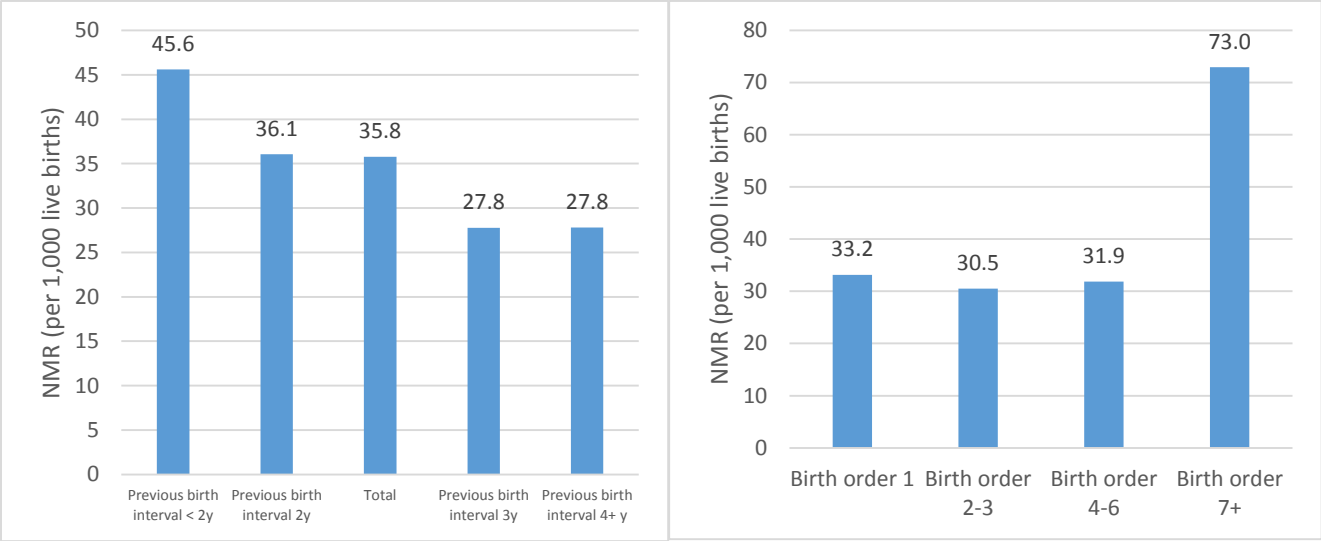
SOURCE: MICS 2014.

19. **Guinea-Bissau has a higher rate of NMR than average in West Africa.** The rate of NMR is comparable for any of the first six children born to a woman (approximately 31 per 1000 live births), but is 2.5 times higher for children born seventh or later in the birth order (Figure 8). This pattern is also true for birth spacing; children born less than two years after their previous sibling are almost twice as likely to die as if they were born at least three years after their previous sibling. These same patterns hold true for U5MR. Finally, health services utilization does not strongly correlate with regional variance in NMR. Skilled birth attendance, prenatal care, and postnatal care explain very little of the regional variation in U5MR (R^2, the square of the correlation coefficient which also represents the percent of variation explained, is less than 5% for all three). Given

constraints in the access already pointed out, quality of services, birth spacing and maternal knowledge seem to be more important factors influencing NMR.

20. Because the data available are only from one year, only correlation can be established, not causality. However, these trends, when matched with data on access to health services, payments and distribution of health care resources across regions, will contribute to defining a comprehensive picture of the health sector challenges in the country and will help to define a roadmap for improvement.

Figure 8: NMR, birth order, and birth spacing



SOURCE: MICS 2014.

3. HEALTH SERVICE DELIVERY

Key points

1) Access to health care services is significantly associated with economic status. At the household level, health seeking behavior was clearly associated with households' expenditure: 75% among the richest quintile received any form of health care, while 63% of the lowest quintile received care;

2) The bottom 40% suffered most from a significant lack of access to healthcare. Bafatá and Cacheu are the two regions with highest degrees of inequity in access to health;

3) Public health centers are the primary place for seeking care in Guinea-Bissau, 70% visited public health centers, followed by hospitals (approximately 14%);

4) Lack of medicine, costs and long waiting times were identified as the main problems faced by those accessing health services. Among those who consulted any health facility when ill, 17.4% reported "lack of medicines," 17.1% complained that the health care services were "very expensive";

5) Health care costs were reported as the main reason for not seeking health care when needed. On average, 44% of the respondents were discouraged to seek treatment by health care costs when falling ill;

6) A major managerial challenge is to streamline the statistics and the managerial information systems.

3.1. – Health Service Delivery Organization

21. **Health service delivery in Guinea-Bissau is structured around 11 districts, hierarchized among local, regional and central levels.** The local level comprises 114 sanitary areas, which are the primary locus for implementation of health sector activities through the health centers. The regional level provides technical support and coordinates the sanitary areas. This level contains an administrative structure, regional health directorate (DRS, *Direcao Regional de Saude*), and technical units such as the regional hospitals and the drugs warehouses. There are five regional hospitals in the country, their capacity varies from 60 to 100 beds. The central level is responsible for setting health policies, strategies, and regulations. Additionally, at this level is the National Hospital (*Hospital Nacional Simao Mendes*), specialized hospitals (for specific diseases or conditions, such as tuberculosis, mental health center, etc.) and satellite health centers (Republica da Guinea-Bissau, 2008a). In parallel to the public health system, there are private providers operating in the country (for-profit and for non-profit). Those private for-profit are mostly private clinics while the private non-profits are faith-based organizations and international non-governmental organizations (NGOs).[5]

[5] Data from 2007 reported 28 private for-profit providers in the Country, among these 14 were private clinics (WHO/AFRO, 2012)

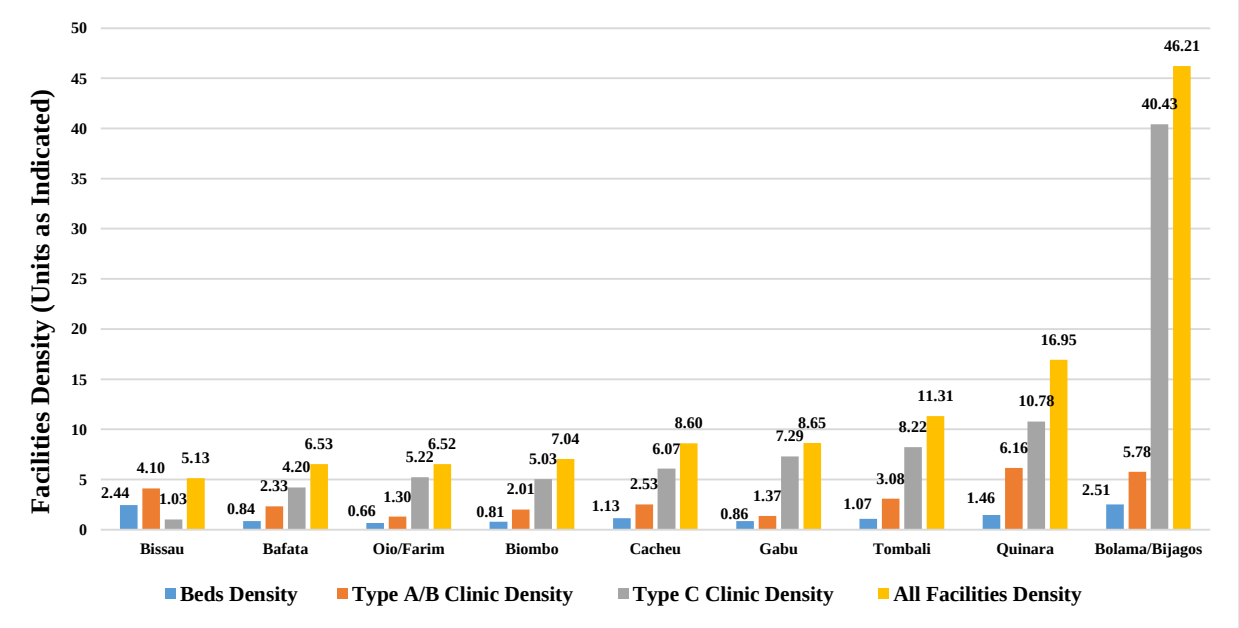
22. **Health facilities are classified into three types (A, B, and C), distinguished by their capacity to deliver more or less complex health interventions.** Health centers type A, for example, can perform surgeries. The health centers are responsible for the implementation of the *Pacote Minimo de Atividades* (minimum benefits package), which is composed of five groups of activities, such as curative activities, preventive activities, communication and health promotion. Table 3 and Figure 9 show the distribution of different types of facilities across Guinea-Bissau regions.

Table 3: Health facilities by Region - Guinea-Bissau, 2015

Region	Bissau	Bafatá	Oio/ Farim	Biombo	Cacheu	Gabú	Tombali	Quinara	Bolama / Bijagos	Total
Beds	953	181	152	80	223	188	104	95	87	**2,063**
Hospitals	2	1	1	1	1	1	1	0	0	**8**
Type A Clinics	0	0	1	0	1	0	0	1	2	**5**
Type B Clinics	4	2	1	1	1	2	2	3	0	**16**
Type C Clinics	4	9	12	5	12	16	8	7	14	**87**
Other facilities	10	2	0	0	2	0	0	0	0	**14**
Total facilities	**20**	**14**	**15**	**7**	**17**	**19**	**11**	**11**	**16**	**130**

Source: Republica da Guinea-Bissau, 2008a.

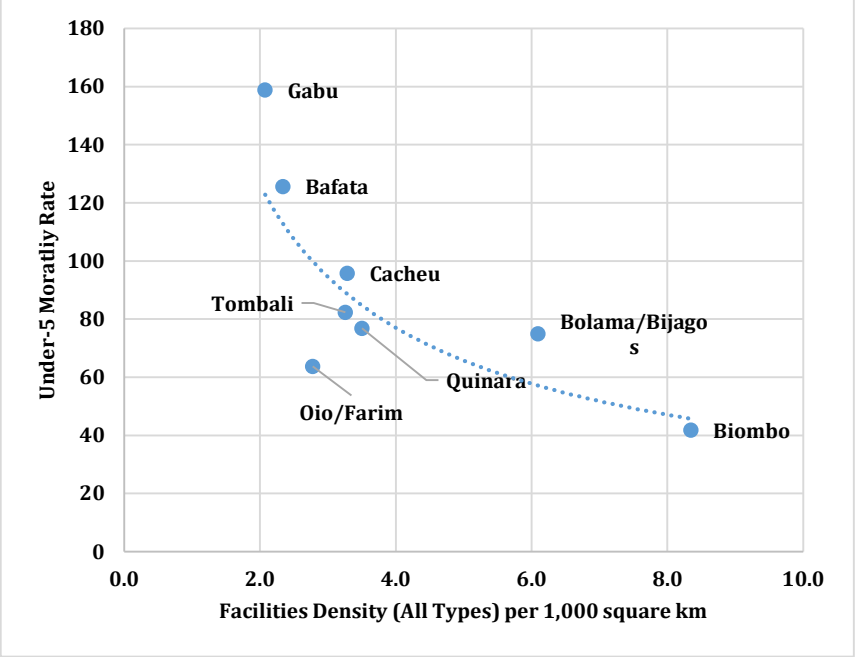
Figure 9: Distribution of health facilities by Regions, per 1,000 population - Guinea-Bissau, 2015



Source: Republica da Guinea-Bissau, 2008a.

23. **There is a wide variation in the distribution of health facilities across the country.** Hospital bed density, for example, varies from 0.56 to 2.29 and shows no association with U5MR. Bissau concentrates around 46% of the total of hospital beds, the second region with more hospital beds is Cacheu with 11% of the total hospital's beds in the country. Similarly, the concentration of any health facility (per 100,000 population) varies from 4.35 to 38.8, although the highest value (Bolama) is an outlier due to a small population. As for hospital beds, there is no association between facilities density by population and mortality. However, there is a strong association between facilities concentration by area and U5MR (Figure 10). It is interesting that Oio has a low U5MR despite a fairly low facilities density by area; this likely results from the fact that much of Oio's population resides in the city of Farim, which has a significant concentration of clinics and therefore the distance barrier is small.

Figure 10: U5MR and facilities density by area (Bissau excluded)



Source: Republica da Guinea-Bissau, 2008a; MICS, 2014.

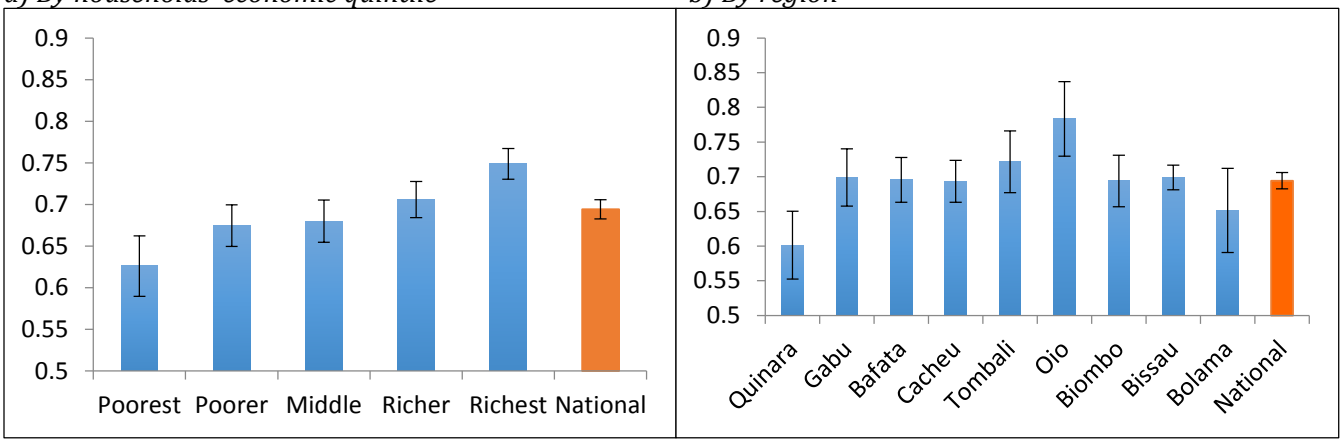
3.2 – Access to health care

24. **Access to health care services is significantly associated with economic status in Guinea-Bissau.** According to the ILAP II survey, 69.4% of people sought health care if they fell ill during four weeks before the survey. At the household level, health seeking behavior was clearly associated with household expenditure: 75% among the richest quintile received any form of health care, while 63% of the lowest quintile received care (Figure 11). After controlling for region, type of disease and household demographic characters, richer households are still significantly more likely to visit a health facility than their poorer counterparts (Table 4). A similar pattern is observed across

regions; namely, that poverty level is indicative of residents' likelihood to access healthcare. For example, among those living in the poorest region (based on the moderate poverty line, $2 per person PPP per day), Quinara, 60% accessed health care when ill, the lowest percentage in the country. On the other side, approximately 80% of those who fell ill in Oio accessed health care services, a higher proportion than those regions with less moderate poverty.

Figure 11: Health seeking behavior by households' expenditure quintile and Regions - Guinea-Bissau, 2010

a) By households' economic quintile *b) By region*



SOURCE: data from ILAP, 2010.

25. **Logistic regression analysis is used to identify further factors that explain the observed pattern in the access to health care**. Equation (3) below models access to care against a set of variables that can potentially influence health seeking behavior, namely: household income, demographic characteristics, region, and type of disease reported. Regression (4) also models access across a set of regressors, but at the regional level, where *i* represents individuals, *j* for each region, *n* for households, *Econ* is short for households' expenditure quintiles, *Demo* is a matrix of households' demographic characters, *Disease* is a matrix of type of symptoms/illness being surveyed, and ε is error term.

$$Logit(Consult_{ijn}) = \alpha_0 + \alpha_1 Gender_i + \alpha_2 Region_j + \alpha_3 Econ_n + \alpha_4 Disease_i + \alpha_5 Demo_n + \varepsilon \quad (3)$$

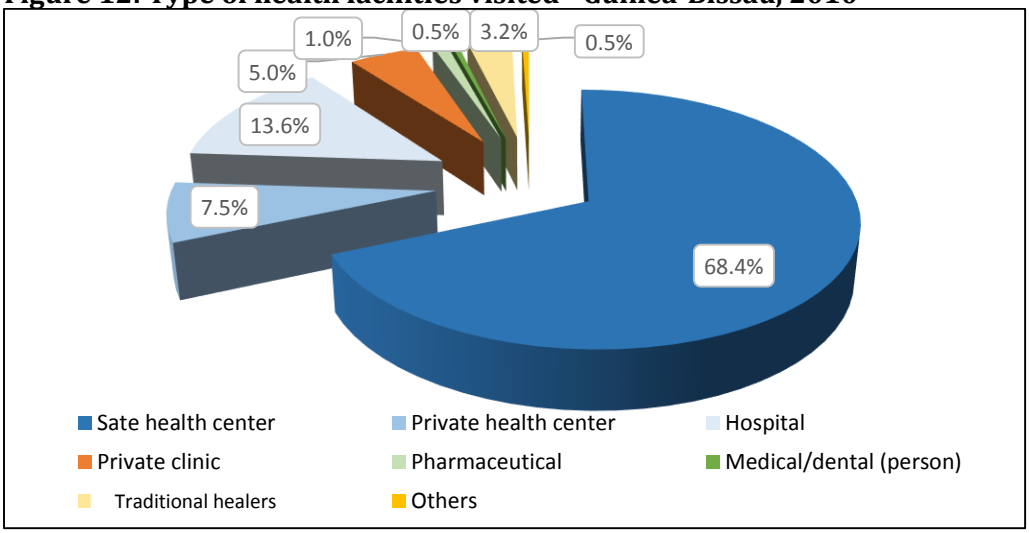
$$Logit(Consult_{in}) = \beta_0 + \beta_1 Gender_i + \beta_2 Econ_n + \beta_3 Demo_n + \varepsilon \quad (4)$$

26. **Education of household head and household size are positively associated with accessing health services.** The household head having some level of education significantly increased the chance of a household member seeking healthcare after falling ill, *ceteris paribus* (all else equal). To be exact, the odds of the "spill-over education benefit" is 42.2%, compared to those with a household head having no education at all. Additionally, household size is a significant positive predictor, although the effect is much smaller: every additional member increased the odds of seeking healthcare by 4.6%. Neither gender of the patient nor his or her household's head had any significant effect. Including a dummy variable for pregnancy did not improve the model's predictive

power (results available on demand). No disease type significantly increased patients' likelihood to visit a health facility or practitioner. Household economic status is the most important factor of healthcare-seeking behavior, and the bottom two wealth quintiles suffered most from a significant lack of access to healthcare. Among the regions, Bafatá and Cacheu are the two regions with the highest degrees of inequity in access to health, i.e. where access is more determined by economic status.

27. **Public health centers are the primary place for seeking care in Guinea-Bissau.** Among those who received healthcare, approximately 70% visited public health centers, followed by hospitals (about 14%), with the remaining seeking care in private health centers (7.5%), private clinics (5%), and traditional healers (3.2%). There is some variation across regions, but people rely most on public health centers (except Bissau, where private sector hospitals and health centers are also important places for those seeking care, altogether providing 40% of the services needed by patients in the region).

Figure 12: Type of health facilities visited - Guinea-Bissau, 2010

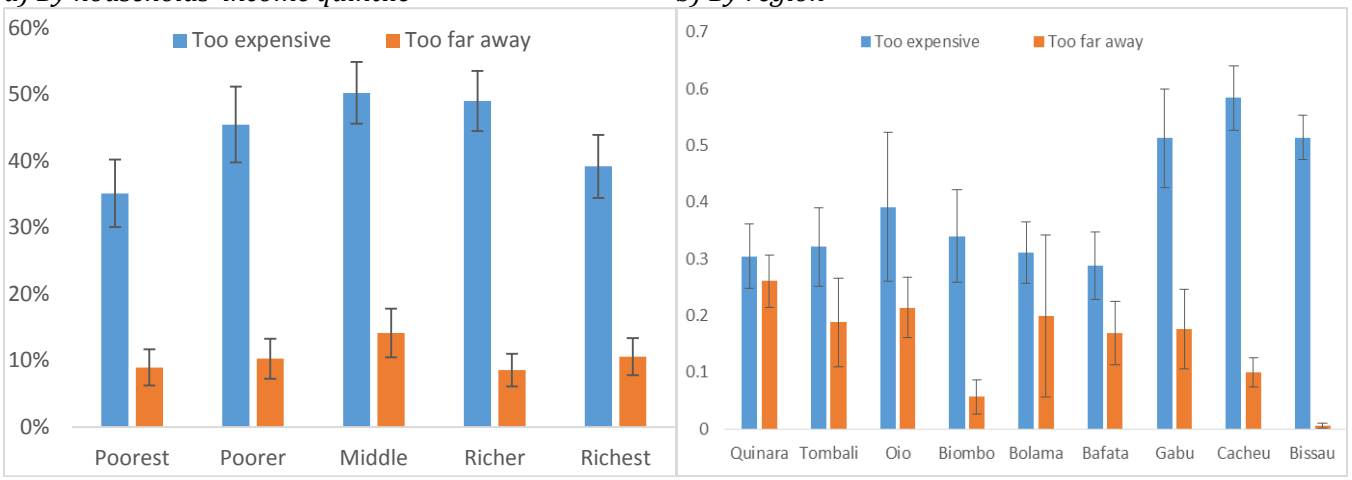


SOURCE: data from ILAP II, 2010.

28. **Health care costs were reported as the main reason for not seeking health care when needed.** On average, 44% of the respondents were discouraged to seek treatment by health care costs when falling ill (Figure 13). Surprisingly, the percentage of those reporting costs as the main barrier is higher for the richest group (39%) than for the poorest group (35%). Providers being located too far away from respondents' home was pointed as the second main reason for not seeking care when ill, reported by 10.5 % of the interviewees. Across regions, there was no evidence that relatively better-off regions have more affordable healthcare. In Cacheu (58%), Bissau (51%) and Gabú (51%), the percentage of those reporting health care costs as the main barrier to seeking care was higher than the national average. Regarding health care providers' location convenience, Quinara (26%), Oio (21%), and Bolama (20%) reported the highest rate of complaints.

Figure 13: Percentage of individuals who fell ill but did not seek care - Guinea-Bissau, 2010

a) By households' income quintile *b) By region*

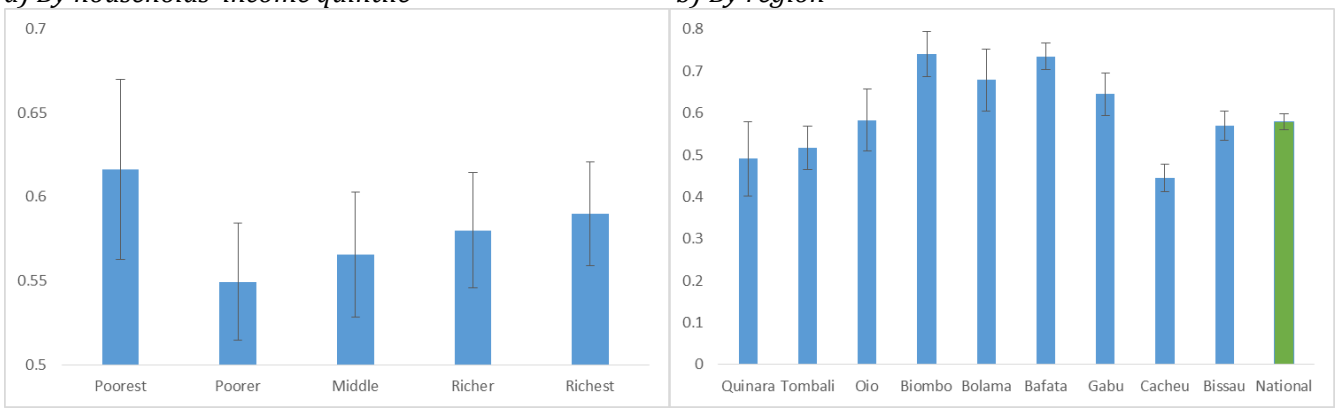


SOURCE: data from ILAP, 2010.

29. **Overall, the perceived quality of health care services is low.** Among those who ever visited any health facilities, 42% reported at least one problem with it (Figure 14). Those at the bottom of the income distribution (20% poorest) had, on average, the highest satisfaction rate. It is likely to be associated with lack of knowledge rather than the actual quality of services. Across regions, the highest percentage of individuals reporting problems with health care delivery was in Cacheu (55.5%), Quinara (50.9%) and Tombali (48.3%). Regression analysis shows that disease type didn't have any detectable influence on perceived quality of care received, while those who visited traditional healers were significantly more likely to report having problems. More specifically, they more often reported the treatment being ineffective.

Figure 14: Percentage of those having no problem with health care providers by region - Guinea-Bissau, 2010

a) By households' income quintile *b) By region*



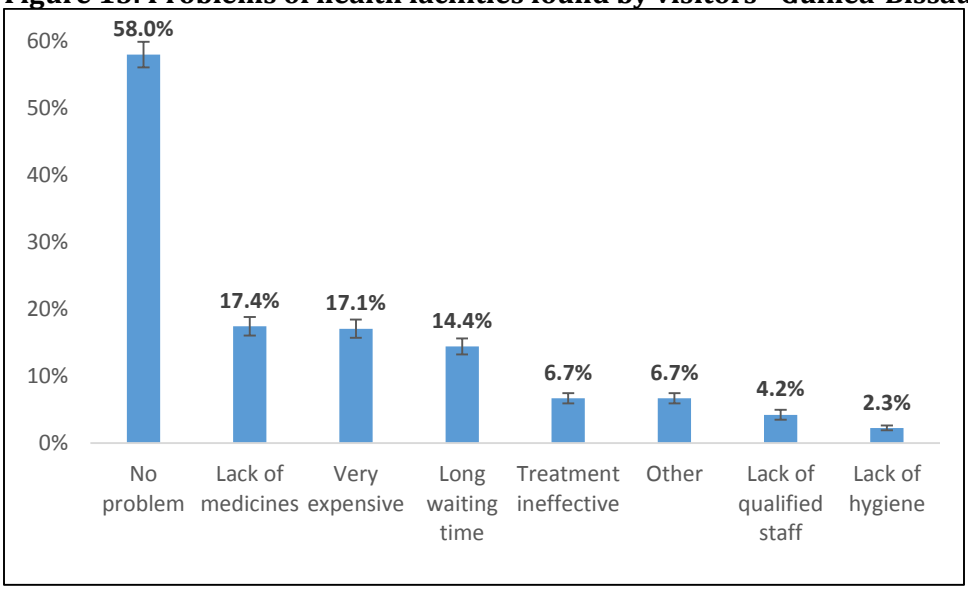
SOURCE: data from ILAP, 2010.

30. **Lack of medicine, costs and long waiting times were identified as the main problems faced by those seeking health care in Guinea-Bissau.** More specifically, among those who

consulted any health facility when ill, 17.4% reported "lack of medicines," 17.1% complained that the health care services were "very expensive," and 14.4% had to face "very long waiting times" before being treated (Figure 15). Except for the richest 20% households, all others had a similar level of dissatisfaction rates with the facilities they visited due to their lack of medicines. As regression results showed earlier, the richest households are significantly more likely to visit state health centers while the poorest households are more likely to visit traditional healers, there is no noticeable difference in waiting for time among rich and poor households (Figure 16).

31. **Interestingly, the rate of complaints about health services costs across households' economic quintiles is a reversed U-shape.** In other words, the poorest and the richest households complained less about high costs than the middle quintile. Since the bottom 20% are significantly less likely to visit state health centers and more likely to seek traditional health care, as shown in Table 4, it's likely that they couldn't afford the costs to visit formal public health centers thus were forced to use cheaper, but not better quality, health care.

Figure 15: Problems of health facilities found by visitors - Guinea-Bissau, 2010



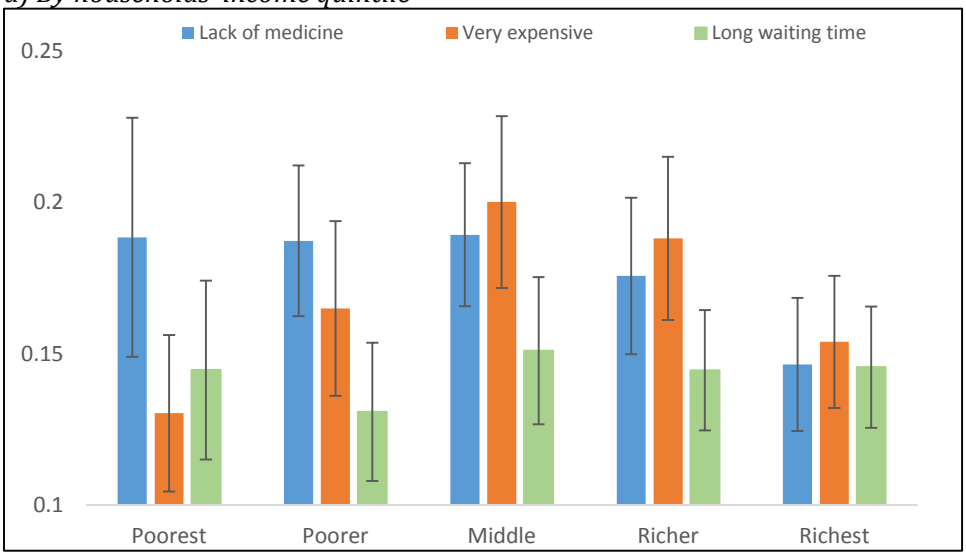
SOURCE: data from ILAP, 2010.

32. **Perceived quality varies significantly across regions.** Overall, Biombo and Bolama seem to be the two regions providing the most satisfying services, which had significantly shorter waiting time, more qualified staff, more affordable care, and sufficient medicines in stock. While these two regions are also economically better-off, the relationship between poverty rate and quality service is not linear. For instance, Bissau did not distinguish itself from Quinara, the poorest region, in four of the six indicators, except for staff quality and medicines storage. On the other hand, Quinara and Tombali seem to be the two regions with the worst health care quality overall. Residents of Quinara are more likely to face lack of medicines when visiting health facilities than those in other regions (34.6%). Residents of Tombali and Bissau are the most likely to experience long waiting time (19.6

and 18.4 %, respectively), and residents of Cacheu are the most likely to face high health care costs (35.8%).

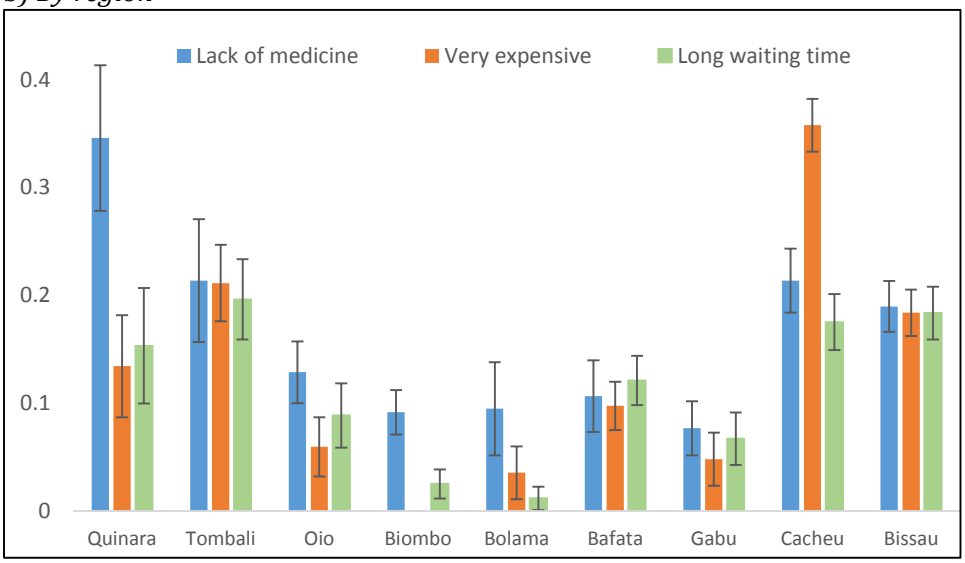
Figure 16: Main problems of health facilities found by visitors- Guinea-Bissau, 2010

a) By households' income quintile



SOURCE: data from ILAP, 2010.

b) By region



SOURCE: data from ILAP, 2010.

Table 4: Determinants of utilization conditioned to being ill – Guinea-Bissau, 2010

REGION	NATIONAL (1)	NATIONAL (2)	QUINARA	TOMBALI	OIO	BIOMBO	BOLAMA	BAFATA	GABU	CACHEU	BISSAU
FEMALE	-0.054	-0.086	-0.169	-0.26	-0.073	-0.615	0.992*	-0.04	-0.075	-0.111	-0.142
	(0.08)	(0.09)	(0.35)	(0.41)	(0.5)	(0.41)	(0.46)	(0.28)	(0.43)	(0.23)	(0.14)
INCOME QUINTILE											
POOREST						*(Omitted)*					
POORER	0.241	0.227	0.199	-1.085	-1.004	0.947	-0.492	0.732	0.319	0.354	0.049
	(0.15)	(0.15)	(0.49)	(0.9)	(0.73)	(0.66)	(0.95)	(0.45)	(0.63)	(0.34)	(0.37)
MIDDLE	0.316*	0.326*	0.886	-1.928*	-0.117	0.659	-1.154	1.188**	0.998	0.502	-0.145
	(0.14)	(0.15)	(0.54)	(0.92)	(0.91)	(0.65)	(1.05)	(0.43)	(0.63)	(0.31)	(0.33)
RICHER	0.437**	0.432**	0.498	-1.379	-0.914	1.294	0.891	1.379**	1.383	0.680*	-0.05
	(0.14)	(0.15)	(0.54)	(0.9)	(0.94)	(0.71)	(0.68)	(0.45)	(0.79)	(0.32)	(0.32)
RICHEST	0.741***	0.703***	-0.105	-1.202	-0.694	1.472*	0.415	1.462**	-0.151	1.532***	0.307
	(0.15)	(0.15)	(0.64)	(0.92)	(0.81)	(0.61)	(0.62)	(0.47)	(0.83)	(0.45)	(0.33)
REGION											
TOMBALI	0.509*	0.342									
	(0.23)	(.24)									
OIO	0.914***	0.835**									
	(0.27)	(0.28)									
BIOMBO	0.478*	0.481*									
	(0.24)	(0.24)									
BOLAMA	0.249	0.227									
	(0.25)	(0.26)									
BAFATA	0.293	0.366									
	(0.2)	(0.21)									
GABU	0.576*	0.533*									
	(0.24)	(0.25)									
CACHEU	0.434*	0.399*									
	(0.19)	(0.19)									
BISSAU	0.273	0.295									
	(0.18)	(0.19)									
HOUSEHOLD DEMOGRAPHICS											

HOUSEHOLD HEAD HAD SOME EDUCATION	0.352***	0.323***	0.076	-0.528	0.897	0.021	-0.323	0.673*	0.427	0.299	0.32
	(0.09)	(0.1)	(0.39)	(0.5)	(0.6)	(0.42)	(0.58)	(0.29)	(0.49)	(0.24)	(0.16)
HOUSEHOLD HEAD IS FEMALE	0.014	0.04	0.605	0.016	1.042	0.853	-0.513	-0.275	-1.099	-0.131	-0.075
	(0.11)	(0.11)	(0.54)	(0.74)	(0.73)	(0.45)	(0.59)	(0.41)	(0.6)	(0.29)	(0.16)
HOUSEHOLD SIZE	0.045***	0.047***	0.073*	0.178**	0.025	0.209**	0.137	0.070**	-0.019	0.093***	-0.018
	(0.01)	(0.01)	(.03)	(0.06)	(0.04)	(0.07)	(0.08)	(0.02)	(0.06)	(0.03)	(0.02)
TYPE OF DISEASE (REPORTED SUFFERING FROM THE DISEASE FOUR WEEKS PRIOR TO THE SURVEY)											
FEVER/MALARIA		-0.315	-1.977	-1.209	0.056	-0.32	-1.332	-0.134	-1.575	-0.098	0.094
		(0.2)	(1.05)	(0.71)	(1.4)	(1.18)	(1.1)	(1.54)	(0.89)	(0.44)	(0.36)
DIARRHEA		-0.535*	-2.775*	-0.699	0.4	0.093	-1.795	-1.065	-1.29	0.36	-0.518
		(0.23)	(0.18)	(0.95)	(0.26)	(1.16)	(1.59)	(1.5)	(0.85)	(0.52)	(0.42)
ACCIDENT		-0.136	0	0.927	-1.324	0	-0.437	0.001	-2.429	0.794	-0.053
		(0.28)		-1.03	-1.82		(1.53)	(1.63)	(1.5)	(0.75)	(0.47)
TOOTH PROBLEM		0.509	0.172	0	0	0.722	0	0.715	-0.14	2.038*	-0.121
		(0.29)	-1.14	(.)	(.)	-1.32	(.)	(1.56)	(1.05)	(0.83)	(0.57)
SKIN PROBLEM		-0.069	0.731	0	0	0.888	0.309	0.005	-1.204	0.431	0.167
		(0.25)	-1.15	(.)	(.)	(1.59)	(1.38)	(1.67)	(1.04)	(0.6)	(0.41)
EYE PROBLEM		0.122	-2.147	0.3	0.771	2.017	-1.424	-1.151	-1.566	0.827	0.517
		(0.25)	(1.3)	(1.03)	(1.73)	(1.41)	(1.3)	(1.73)	(1.18)	(0.52)	(0.47)
EAR/NOSE/THROAT		-0.198	0	0	0.061	0.788	-0.019	-1.275	0	0.185	-0.269
		(0.28)	(.)	(.)	(1.7)	(1.51)	(1.72)	(1.69)	(.)	(0.6)	(0.47)
OTHER		-0.064	-1.334	-0.199	1.16	0.071	-2.034	-0.138	-1.745	0.131	0.293
		(0.21)	(1.05)	(0.76)	(1.56)	(1.27)	(1.35)	(1.56)	(0.96)	(0.48)	(0.38)
CONSTANT	-0.458	0.562	11.975	2.071	-1.037	-10.26	11.226	4.58	18.691	-9.926	0.604
	(0.26)	(2.77)	(9.19)	(6.26)	(15.05)	(14.52)	(11.76)	(22.65)	(10.07)	(6.3)	(5.08)
PSEUDO R-SQUARE	0.0219	0.028	0.0796	0.1901	0.0979	0.1215	0.1768	0.1049	0.1057	0.0814	0.0205
LR CHI2(16) [B]	75.59	92.66	17.7	35.89	12.16	24.89	28.21	39.74	17.85	43.45	26.47

SOURCE: data from ILAP, 2010.

* p<0.05, ** p<0.01, *** p<0.001. [a] Quinara has been used as reference region because it has the highest absolute and extreme poverty rates in 2010, according to "*Mapping Poverty in Guinea-Bissau*" Technical report, World Bank, June 2015. [b] As suggested by the likelihood ratio chi-square, the model fit well except for Quinara, Oio and Gabu.

3.3 – Health Information System

33. **A major challenge for Guinea-Bissau is to improve its health information systems.** The role of a health statistics and information system is to generate, analyze and disseminate sound data for public health decision-making promptly; however, the timeliness and reliability of health statistics in the country needs improvements. The process of producing health statists is inefficient due to, among other reasons, insufficient funding. For these reasons, there is not a regular assessment of the quantity, cost, and coverage of health services provided.

34. **Real-time health data does not currently exist.** There is also limited demographic and health survey, which limits the ability to update key indicators such as fertility, maternal and child mortality, immunization among others. For administrative data, there is a weak referral system, and there is not an integrated system of administrative and financial information. The MINSAP does not collect data from donors, non-governmental organizations (NGOs) and private clinics. Available datasets are managed in basic statistical software packages, such as Microsoft access or Microsoft Excel. This section describes the current status of the health information systems based on interviews with staff members of the National Institute of Public Health (*Instituto Nacional de Saude Public*, or INASA), the MINSAP and field visit to health clinics.

35. **Regarding administrative records, this source of data could be grouped into three categories:** i) administrative records of personnel; administrative and financial information; ii) administrative records of epidemiologic surveillance, and iii) administrative records on health services provision (hospital production). The country so far does not have a demographic and health survey (DHS). Administrative records on personnel, basic administrative and financial issues, are managed by the ministry of health. The administrative records related to epidemiologic surveillance and health services are mainly administered by the INASA. Annex 1 summarizes the most relevant sources of data related to the health system, such as access to services, children health care from parents, practice & attitudes, such as seeking advice in a clinic, hospital or health workers, and buying medicine. The Table 5 below summarizes the main identified weaknesses of the available health information systems.

Table 5: Weaknesses of health statistics information system – Guinea-Bissau, 2016

Quality of Data	*Production Issues*
Lack of reliable health spending indicators because the absence of a system of national account	*Lack of fiscal resources to guarantee continuous statistics*
fertility, maternal and child mortality, immunization, among other key indicators must be improved through a demographic and health survey	*There is no IT master plan for the health sector. There is a lack of data preservation, security protocols, etc.* *Some administrative records are non-automated, and data are preserved in paper form without a cataloging system*
The reference and counter-reference system is weak. Forms are not timely and quality full filled.	*The majority of health centers don't have automated process. All data is registered on forms and books, with a logical sequence and order; however, there is not a preservation mechanisms or control of the quality of registration.*
Although some health forms use direct identifiers such as the initial of the patient name and some patient identification (NIPS), because there is not a unique health system patient identifier, neither a national id, it is not possible to integrate datasets and to have reliable data.	*Lack of personnel in both number and capacity*
There no data documentation. There is not a metadata system for the datasets consulted	*There is a lack of regular and integrated monitoring reports of the health system. There are monthly standalone reports by agencies and specifics health interventions, and an annual tabulate for main communicable diseases.*
Basically, there is not initiative to assess the quality of health services, beyond some basic standards of the provision such as number of doctors/nurses by inhabitants, etc.	

SOURCE: World Bank team, 2016.

4. FINANCING OF HEALTH CARE SERVICES

Key points

1) As a percentage of gross domestic product, the level of health spending in Guinea-Bissau (5.6%) is comparable to its regional (5.8%) and economic peers (5.7%), with spending generally financed by donors and through out-of-pocket payments;

2) Per capita, health expenditure (US$37.3) is close to low-income countries' average (US$36.8), but about half of the average per capita among West Africa countries (US$65.3) and approximately a third of the Sub-Saharan Africa countries average (US$97);

3) Public spending is significantly lower than its regional and economic peers. In 2014, public health spending represented merely 20% of total health spending, equivalent to US$7.6 per capita, compared to 32.4% for West Africa and 22.2% in Sub-Saharan Africa;

4) Budget execution is also a challenge, the MINSAP executes approximately half of the available budget and does more efficiently on staffing costs compared to investments (one percent of execution rates) and purchases (approximately 50%);

5) Out-of-pocket (OOP) payments for health care increase the absolute and extreme poverty headcount ratio by 1.4 and 1.1 percentage points.

4.1 – Guinea-Bissau compared to regional and economic peers

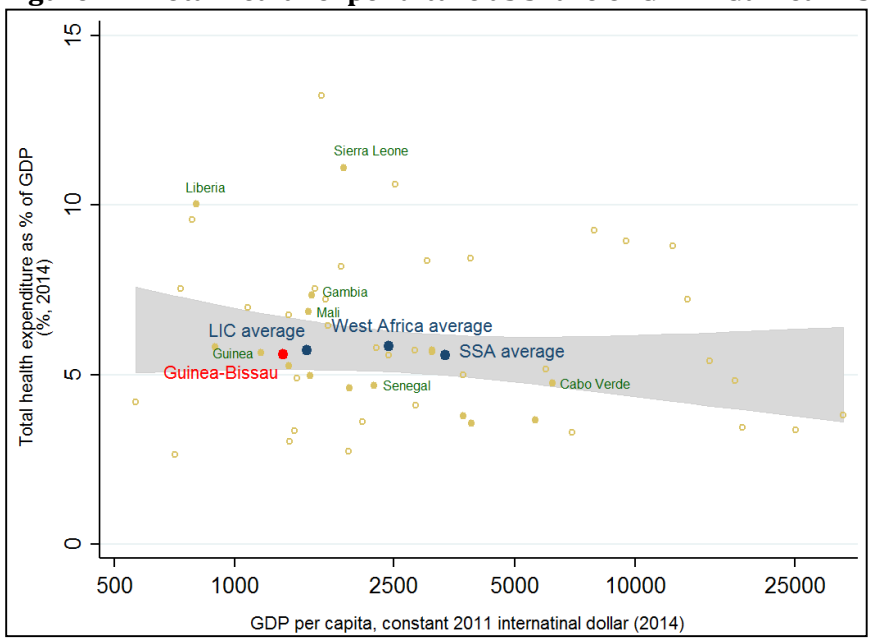
36. **Total health spending in Guinea-Bissau is comparable to its regional and economic peers, but the composition of its spending is highly problematic.** Total health expenditure (THE) in Guinea-Bissau represents 5.6% of its gross domestic product (GDP), which is close to the average of its regional and economic peers. However, the country relies more on out-of-pocket (OOP) payments and external resources to fund health services. Neither of these is a desirable means of revenue collection: high OOP payments increases the risk of exposing households to financial shocks associated with ill health (Ke Xu et al., 2003), and a continuous dependence on external resources has implications for sustainable health financing, while it also limits Guinea-Bissau's ability to plan systematically for the long term (Gottret and Schieber, 2006).

Table 6: Summary of health financing indicators - Guinea-Bissau and its peers, 2014

Country	Total health expenditure			Public health expenditure		OOP expenditure		External	Private Health Expenditure
	% of GDP	Per capita (US$)	Per capita (PPP)	% of THE	% of gov. exp.	Per capita (US$)	% of THE	% of THE	% of THE
Guinea-Bissau	**5.6**	**37.3**	**91.0**	**20.5**	**7.8**	**18.4**	**49.5**	**25.4**	**79.5**
Cabo Verde	4.8	173.3	310.1	74.7	11.7	38.5	22.2	23.6	25.3
The Gambia	7.3	30.7	118.4	68.7	15.3	5.2	17.0	64.9	31.3
Guinea	5.6	30.5	68.5	48.5	9.0	13.8	45.3	12.6	51.5
Liberia	10.0	46.3	98.3	31.5	11.9	14.2	30.7	49.1	68.5
Mali	6.9	47.8	108.1	22.9	5.6	22.8	47.7	27.8	77.1
Senegal	4.7	49.5	106.9	51.8	8.0	18.5	37.3	20.6	48.2
Sierra Leone	11.1	85.9	223.7	17.0	10.8	52.4	61.0	17.1	83.0
Low income	5.7	36.8	93.1	39.1	13.8 [b]	14.8	40.1	34.4	60.8
West Africa [a]	5.8	59.1	132.5	43.4	9.0	24.5	41.4	26.0	56.6
Sub-Saharan Africa	5.6	97.0	198.6	42.4	12.1 [b]	33.7	11.5	5.6	58.9

Source: World Development Indicators, April 2016.
[a]: Unweighted average. [b]: Latest data available.

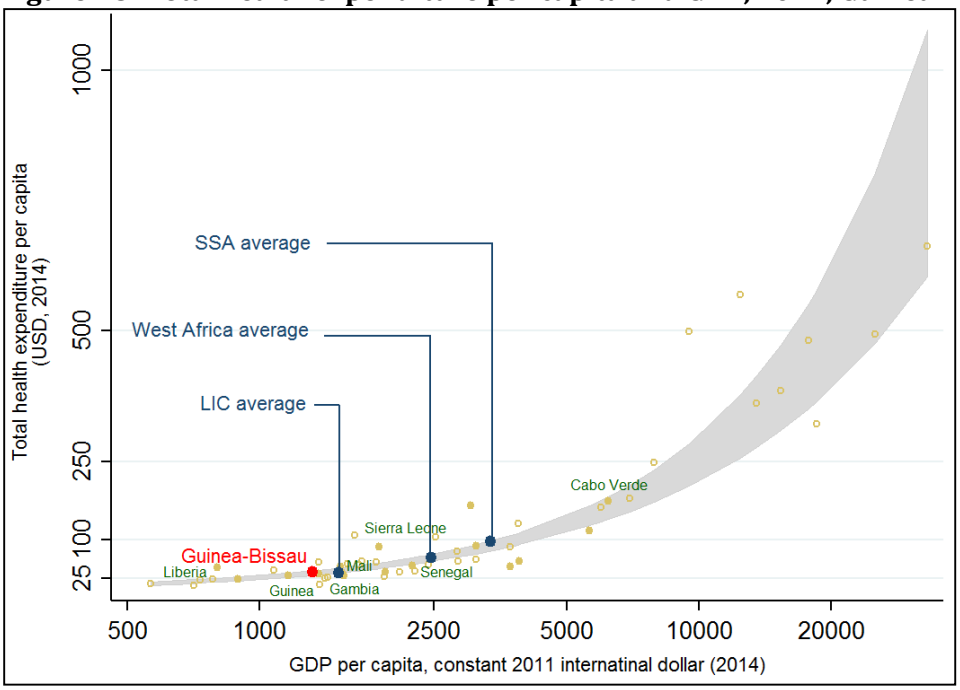
Figure 17: Total health expenditure as share of GDP – Guinea-Bissau and its peers, 2014



Source: World Development Indicators, April 2016.

37. Total health expenditure per capita in Guinea-Bissau is close to that of LICs average but lower than the average for countries of West and Sub-Saharan Africa. In 2014, Guinea-Bissau spent US$37.3 per capita on health (or US$91.0 if measured in 2011 constant international dollars), while on average LICs spent US$36.8 per capita (US$93.1 PPP), West Africa US$65.3 (US$142.3 PPP), and Sub-Saharan Africa US$97.0 (US$198.6 PPP). The increase is in line with an increase in per capita income.

Figure 18: Total health expenditure per capita and GDP, 2014, Guinea-Bissau and its peers[6]



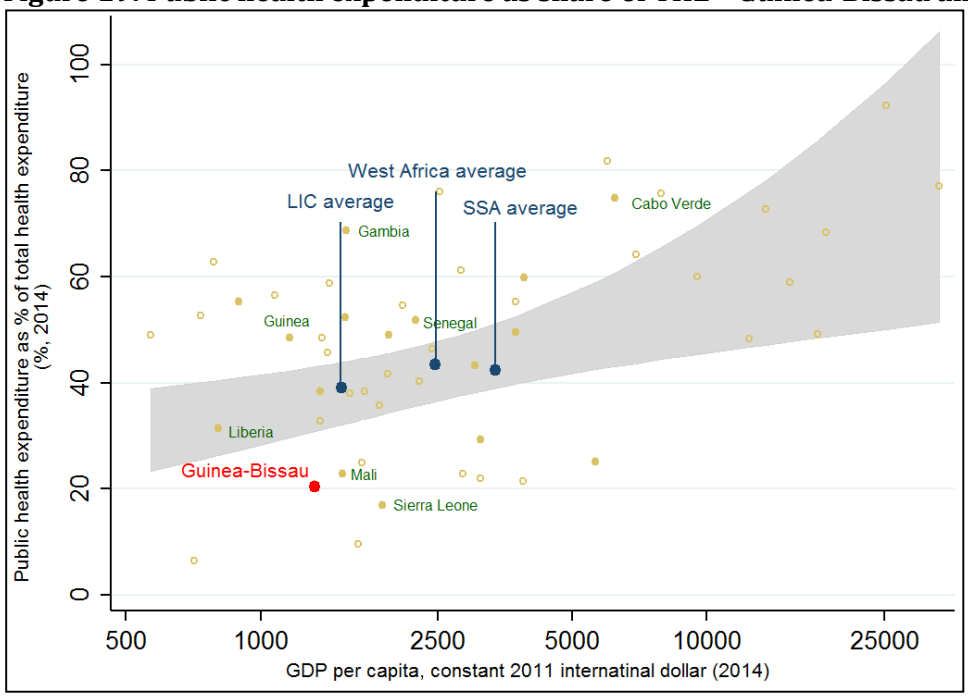
Source: World Development Indicators, April 2016.

38. **Despite the slow change in national income, Guinea-Bissau has seen an overall steady increase in per capita health spending.** More specifically, per capita health spending has more than doubled between 2000 and 2014, increasing from US$16 to US$37 (or US$57 to US$91 PPP), under the context of barely 2.7% increase in GDP per capita. Also, the growth pattern in health spending paralleled its West African peers, while the broader Sub-Saharan Africa region has seen a much faster growth rate, especially over the last ten years.

39. **Public spending on health in Guinea-Bissau is significantly lower than its regional and economic peers**. In 2014, public health spending represented merely 20% of total health spending, equivalent to US$7.6 per capita (or US$ 18.7 PPP), versus 32.4% for West Africa (US$57.5 PPP), and 22.2% for Sub-Sharan Africa (US$84.2 PPP) (Figure 19). Furthermore, only 7.8% of general government expenditure has been allocated to health, lower than regional average and far below Abuja Target of 15% (Figure 20).

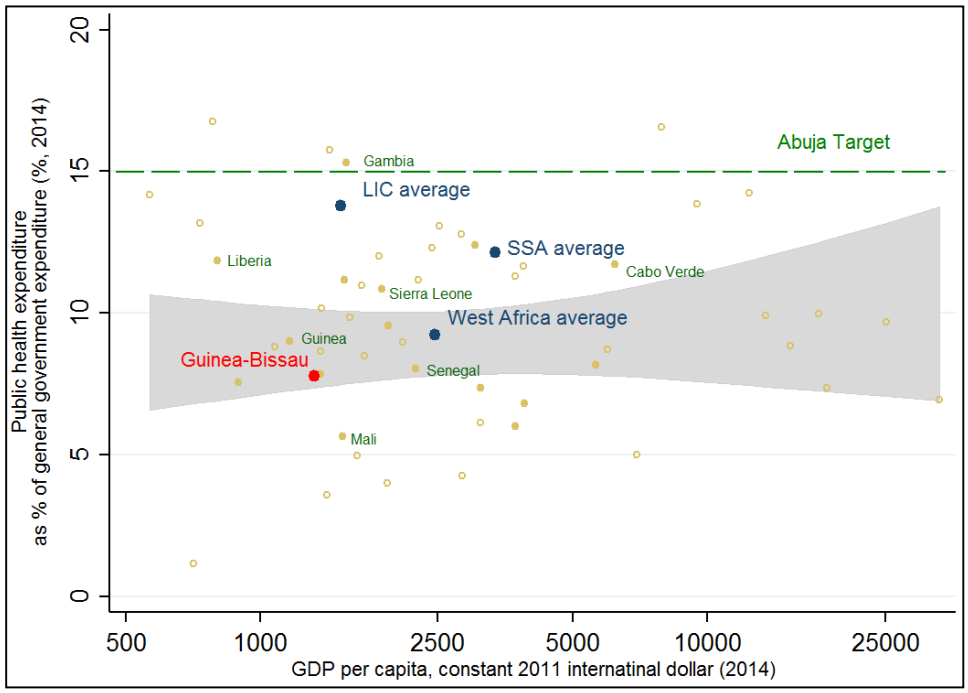
[6] Graphics 4.1 to 4.7: The *X* axis on log scale. Regression is run with all Sub-Saharan African countries, and grey area suggests 95% confidence interval. Solid circles represent West African countries, while hollow ones represent other Sub-Saharan African countries plus all LICs in other regions, namely Afghanistan, Cambodia, Haiti, Democratic People's Republic of Korea, and Nepal.

Figure 19: Public health expenditure as share of THE – Guinea-Bissau and its peers, 2014



Source*:* World Development Indicators, April 2016.

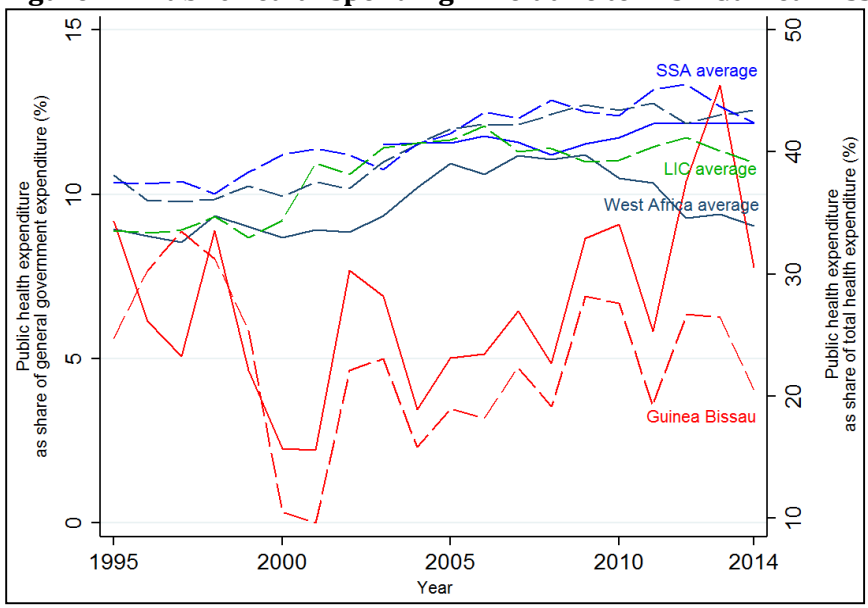
Figure 20: Public health expenditure as share of general government budget – Guinea-Bissau and its, 2014



Source*:* World Development Indicators, April 2016.

40. **Public health spending has been lower in Guinea-Bissau than the average for its regional peers in the last two decades.** Figure 21 presents the trends for both public health spending as a share of total government expenditure and as a share of total health spending for Guinea-Bissau and its economic and regional peers for the period of 1995 – 2014. For all years, Guinea-Bissau is below average for comparator countries. It marks a clear and continuous lack of prioritizing health sector of government spending. Additionally, compared to other countries, Guinea-Bissau had seen more fluctuations in public resource allocation during the period when national income stayed almost unchanged, which is not explained by most macroeconomic factors (e.g. inflation rate, GDP annual growth rate). While there seems to be some evidence that the debt and deficit levels were negatively correlated with public health spending, the relationship is too shaky to have any meaningful predictive power for future fiscal space estimates. Therefore, it may warrant a deeper understanding of factors that most influenced decision-making process.

Figure 21: Public health spending in relative terms – Guinea-Bissau and its peers, 1995-2014

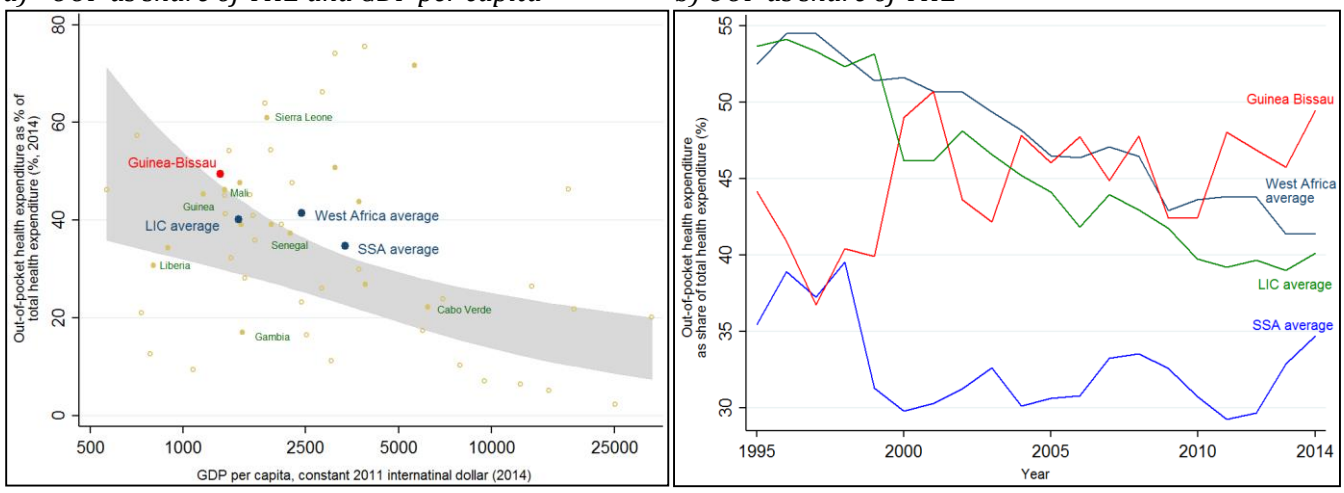


Note: Solid lines correspond to left axis, and dash lines are for right axis.
Source: World Development Indicators, April 2016.

41. **As a consequence, it's not surprising that Guinea-Bissau has a high percentage of OOP**. In 2014, OOP payments represented 50% of total health spending, while for West Africa and Sub-Saharan African this percentage was, on average, 41% and 35%, respectively. Among LICs the percentage represented 40% of THE. The percent share of OOP payments in Guinea-Bissau has been steadily higher than 45% of the THE since 2000, while its regional and economic peers, on average, have managed to decrease it below 45% of the total health expenditures (Figure 22).

Figure 22: Out–Of-Pocket Payment - Guinea Bissau and its peers, 2014

a) OOP as share of THE and GDP per capita *b) OOP as share of THE*

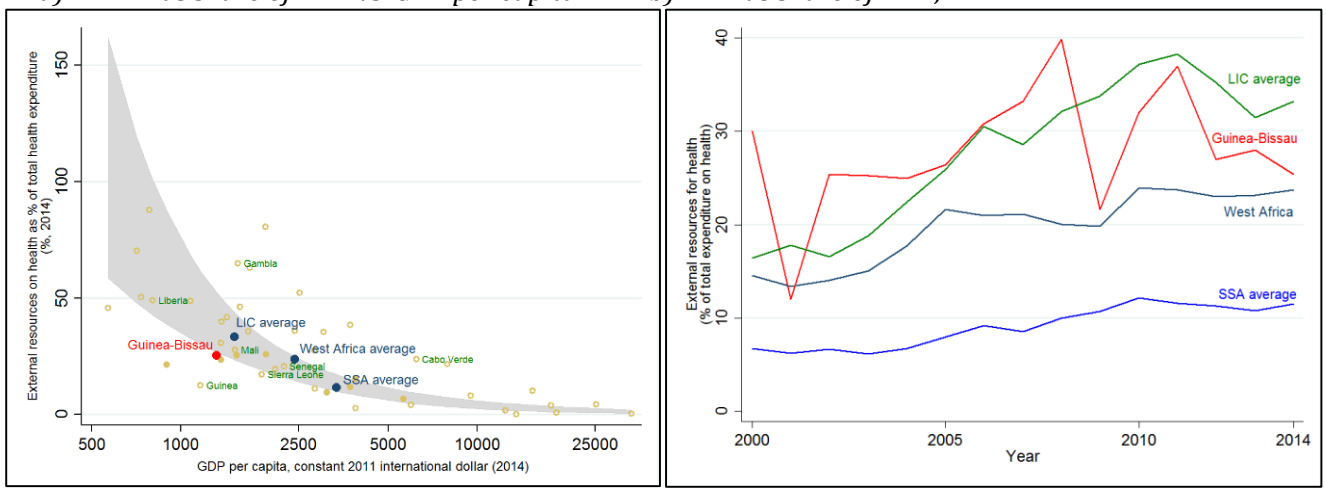


Source: World Development Indicators, April 2016.

42. **Guinea-Bissau has received a significantly higher share of development assistance for health compared to its regional and economic peers.** Both low-income and Sub-Saharan African countries have increasingly relied on domestic resources. As Figure 23 shows, more than 25% of THE in Guinea-Bissau is financed through external resources, while the average percentage is about the same for West Africa (26.0%), smaller for Sub-Saharan Africa (11.5%), and higher for LICs (34.4%). Over the past 15 years, Guinea-Bissau has relied more on external resources than have its regional peers. Donor financing is more unpredictable and often managed outside central government.

Figure 23: Development Assistance to Health (DAH) - Guinea-Bissau and its peers

a) DAH as share of THE vs. GDP per capita *b) DAH as share of THE, 1995-2014*



Source: World Development Indicators, April 2016.

4.2 – Government Health Budget

43. **As pointed out above, the government budget allocation to the health sector is relatively small in Guinea-Bissau.** In 2014, the health sector received less than eight percent of the total government budget, which represented 20.5% of the THE. In addition to being limited, government spending on health is also hugely skewed towards staff costs. In 2014, 93% of the health budget was spent to cover personnel costs, more than half of which was used to pay salaries alone. In 2015 staff costs decreased to 79% of the total government expenditures mainly due to a reduction in "other compensation," while the amount allocated to salaries continued to have accounted for 56% of the total government expenditures on health, and increased by 15% in absolute terms. It was mostly driven by an increase in the amount paid to tenured staff (32% compared to 2014), while salaries for non-tenured staff dramatically reduced (Table 7). Investment continues to be very low, which partially explains the lack of capacity of health facilities to provide quality services. Almost all recurrent costs, including medicines and other critical health inputs, are financed by donors, with a small percentage financed by user fees.

Table 7: Government Health Expenditure by categories - Guinea-Bissau, 2014/2015

	2014		2015		% change 2014-2015
	Budget Executed	%	Budget Executed	%	
Personal	3,028,102.00	93%	2,953,932.00	79%	-3%
Salaries	1,783,355.00	55%	2,091,283.00	56%	15%
Salaries of tenure staff	1,337,445.00	41%	1,958,417.00	52%	32%
Salaries of other staff	445,910.00	14%	132,866.00	4%	-236%
Other compensation	1,244,747.00	38%	862,649.00	23%	-44%
Purchasing of Goods and Services	217,973.00	7%	737,040.00	20%	70%
Investments	18,491.00	1%	65,253.00	2%	72%
Total	**3,264,566.00**		**3,756,225.00**		13%

Source: MINSAP, 2016. * Other includes a premium for remote areas practice, bonuses, and benefits, etc.

44. **Despite the limited budget allocation, the MINSAP has not been able to execute its budget entirely.** The MINSAP budget execution was approximately 50% in 2014 and decreased to 42% in 2015. The only category with high execution rates was personnel costs. It does not necessarily reflect any prioritization of health sector staffing; instead, a bare change of budget on personnel may just stem from a lack of strategic planning, and the high execution rates have just benefited from the established payment mechanism. In other areas where such mechanisms are lacking, the low execution rates indicate the limited government capacity to strategically plan and implement health policy actions in the medium and long terms. For example, in 2015, the MINSAP allocated

one percent of its budget to investments and approximately half of the funds were allocated for purchasing of goods and services.

Table 8: Government Health Expenditure planned and executed - Guinea-Bissau, 2014/5015

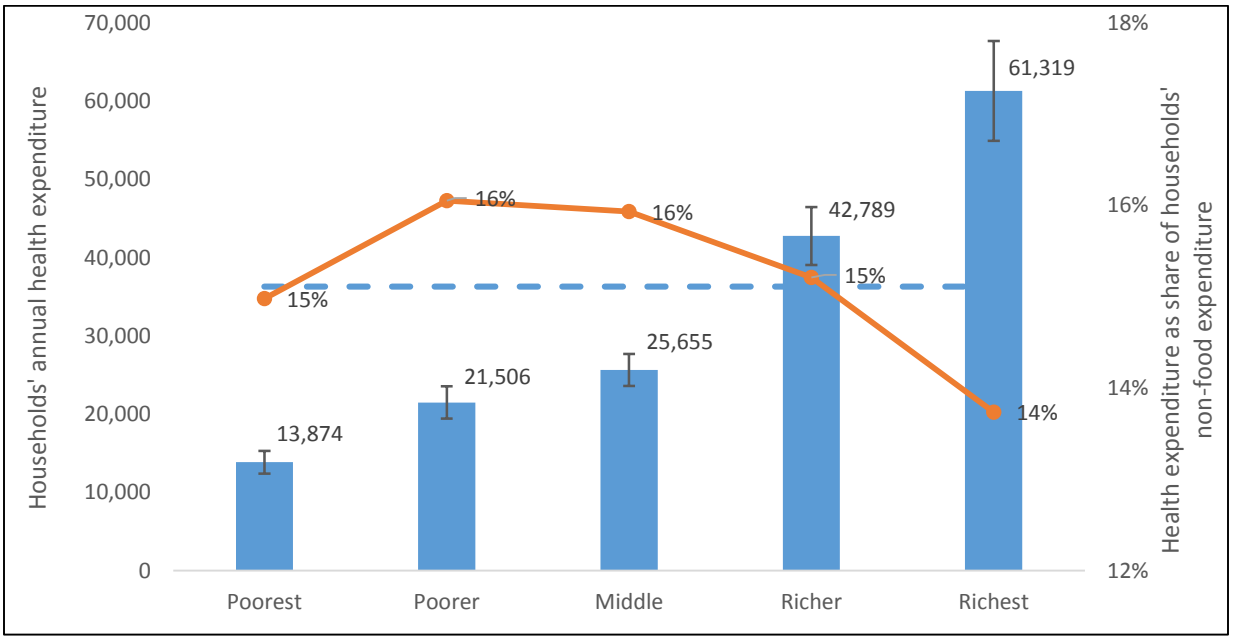
	2014			2015		
	Budget	**Executed**	**%**	**Budget**	**Executed**	**%**
Personal	3,258,772.00	3,028,102.00	92.92%	3,307,000.00	2,953,932.00	89%
Salaries	1,823,523.00	1,783,355.00	97.80%	2,152,160.00	2,091,283.00	97%
Salaries tenure staff	1,337,445.00	1,337,445.00	100.00%	2,019,294.00	1,958,417.00	97%
Salaries of other staff	486,078.00	445,910.00	91.74%	132,866.00	132,866.00	100%
Other compensation	1,435,249.00	1,244,747.00	86.73%	1,154,840.00	862,649.00	75%
Purchasing of Goods and Services	359,911.00	217,973.00	60.56%	1,306,964.00	737,040.00	56%
Investments	2,861,865.00	18,491.00	0.65%	4,368,493.00	65,253.00	1%
Total	**6,480,548.00**	**3,264,566.00**	**50.37%**	**8,982,457.00**	**3,756,225.00**	**42%**

Source: MINSAP, 2016. * Other includes a premium for remote areas practice, bonuses, and benefits, etc.

4.3 – Household health expenditures

45. **Households bear a high proportion of total health expenditures in Guinea-Bissau.** On average, households spend 15% of their non-food expenditures on health care, but this percentage varies widely across different income groups. For example, richer households spend significantly more on health care than poorer ones, but this only corresponds to a lower proportion of their total disposable budget, as demonstrated in Figure 4.8. While the poorest households spend on average less (13,874 CFA Francs) than the national average (36,307 CFA Francs), this group spends 15% of their non-food consumption to pay for health care. This percentage increases for the next three intermediate income quintiles, reaching the maximum (16%) in the second and third income quintiles and then decreasing to approximately 14% for the top quintile. In other words, as found in most other countries, OOP is regressive in Guinea-Bissau, although the degree is not large, probably due to the widespread poverty rate.

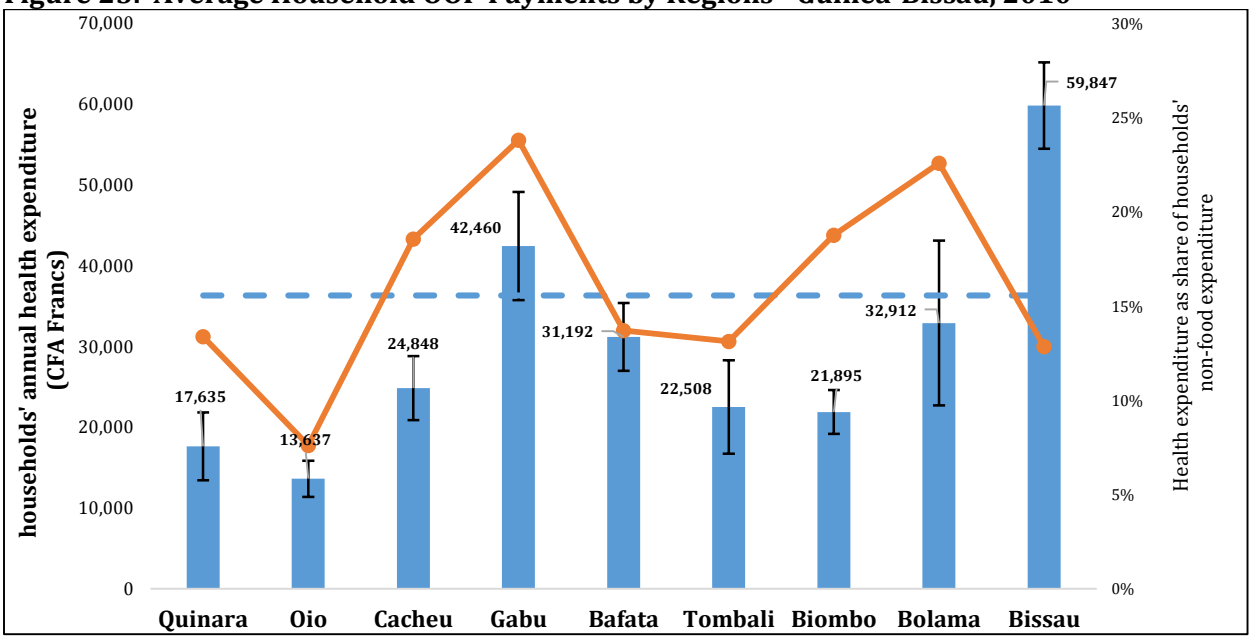
Figure 24: Average Household Health Expenditures, by household income quintile – Guinea-Bissau, 2010.



SOURCE: ILAP (2010). Dashed line represents national average.

46. **Household health expenditures also varies widely across different regions.** Households in Bissau, the richest region, not surprisingly, spend more in absolute terms than any other region and almost the double of the national average (59,847 CFA Francs). On the other extreme of the distribution, households in Quinara and Oio, two regions with the highest prevalence of extreme poverty, spend in absolute terms less than half of the national average. When the OOP health payments as a share of non-food household expenditures are taken into consideration, the picture is less straightforward and raises some concerns: households in Gabú and Cacheu, regions with high levels of extreme poverty, spend on average 24% and 19% of their non-food consumption on health care, respectively. The other two regions where households also spend a high share of the non-food consumption on health are Bolama and Biombo, both with intermediate levels of extreme poverty. The fact that extreme poverty, as a proxy of regional wealth, is not associated with the size of the share of household non-food expenditures indicates that other health service delivery factors may influence the level of OOP payments and/or the access to health care services.

Figure 25: Average Household OOP Payments by Regions - Guinea-Bissau, 2010

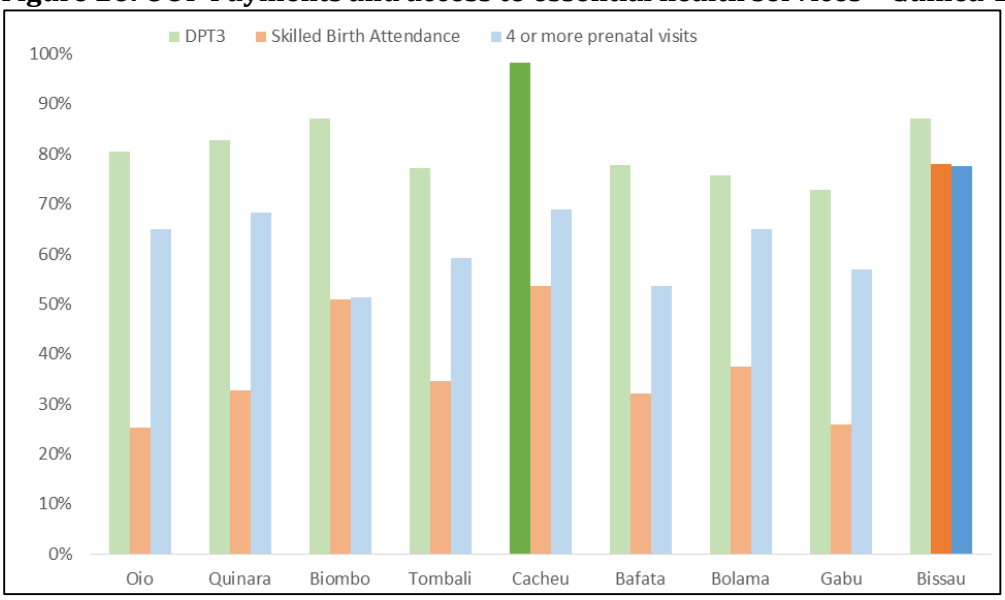


SOURCE: ILAP (2010).

Note: Dashed line represents national average. Regions are ranked by their extreme poverty rates (percent of the population living with less than $1 a day) from the highest to the lowest, based on poverty mapping report (World Bank, 2015).

47. **OOP payments do not result in improved access to health services** (Figure 4.10). For example, the number of deliveries assisted by a qualified health professional is low in the regions with high OOP payments (Gabú and Bafatá), except Bissau, where the rate of assisted deliveries is the highest in the country. Similarly, the percentage of pregnant women with four or more antenatal visits is higher in the regions with relatively low OOP payments (Quinara and Oio). Regarding DPT3 coverage, Guinea-Bissau has relatively high immunization rate (82.1%) and those regions with relatively lower OOP payments have higher rates of DPT3 coverage.

Figure 26: OOP Payments and access to essential health services – Guinea-Bissau, 2010

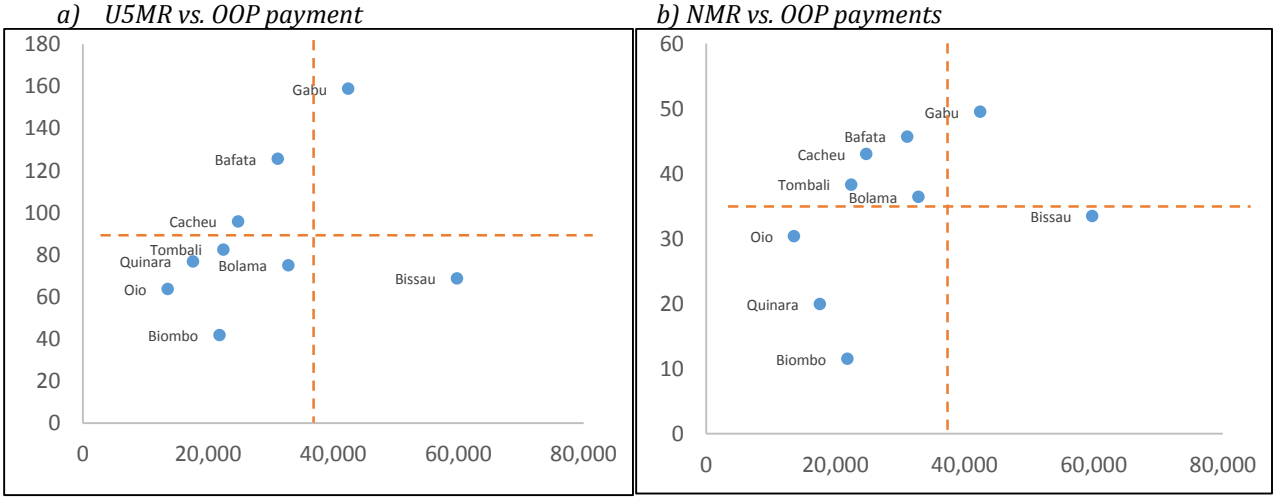


SOURCE: ILAP (2010) and MICS (2015).
Note: Regions are ranked ascendingly by the level of OOP payments. Highlighted bars represent the highest regional coverage rate for a specific service.

48. **Similarly, higher OOP is not associated with improved health outcomes.** Oio, Quinara, and Biombo are the regions with the lowest neonatal and child mortality rates and households at these regions make relatively lower OOP payments for health. On the opposite, households in Gabú and Bafatá spend more on health care through OOP payments and face higher-than-average mortality rates (Figure 27). Nonetheless, this should be interpreted with caution since only two indicators were available for comparison, and there might be several factors affecting health status across regions.

Figure 27: OOP payments and Child Health Outcomes by Regions - Guinea-Bissau, 2010

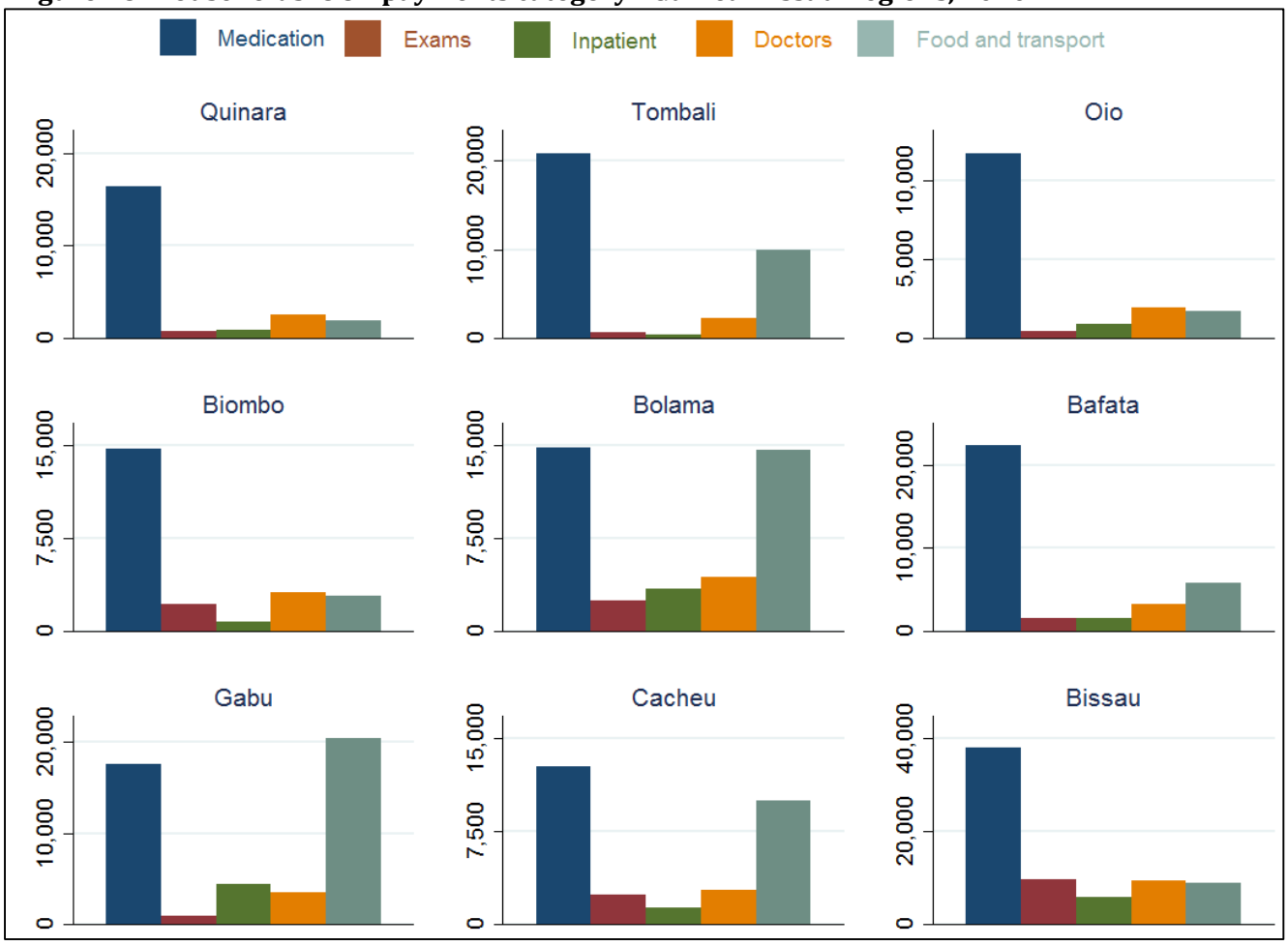
a) U5MR vs. OOP payment *b) NMR vs. OOP payments*



SOURCE: ILAP (2010) and MICS (2015).
Note: Dashed lines represent national average.

49. **Decomposition analysis reveals that the majority of the OOP payments are for medications, and that is uniform across all regions of the country.** Households in Gabú, Bolama, and Cacheu, spent more OOP on food and transportation costs that occurred during seeking healthcare, yet less than 20 % of those who fell ill in these regions cited the location inconvenience as the reason for not seeking care. Surprisingly, households reported paying low to the negligible level of consultation fees to health workers (probably because ILAP 2010 inquired only about formal payments or user fees, not those under the table). The similar pattern existed in both rural and urban areas: medication is the biggest source of healthcare costs. Interestingly, the urban population on average, excluding Bissau, spent similarly on food and transport costs compared to their rural counterparts. The main difference comes from the other three components: in urban areas, people spent more on medical exams, doctor consultations, and inpatient services than rural areas.

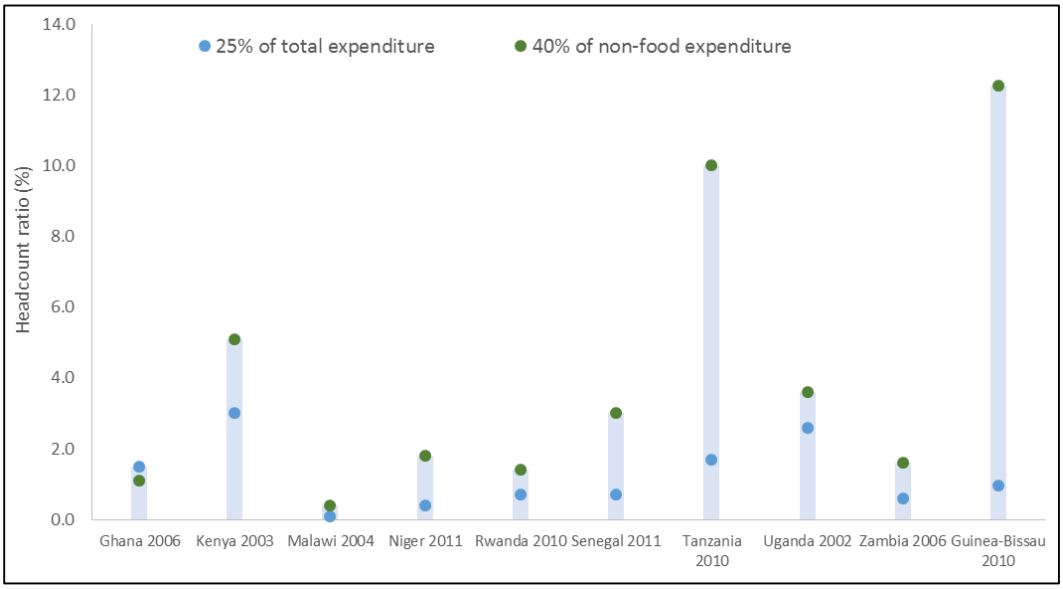
Figure 28: Households' OOP payments category - Guinea-Bissau Regions, 2010



SOURCE: ILAP (2010).

50. **Approximately 12% of the households incurred catastrophic health expenditures.** Catastrophic health expenditures occur when a household allocates more than 40% of the households' non-food expenditures to health care (O'Donnell, et al., 2007). The Table 1 and Table 2 in Annex 2 provide the estimates for different thresholds of the household budget and income groups. Compared to other sub-Saharan African countries with data over past decade, Guinea-Bissau spent a similar share of the total household budget on health, but the highest share of non-food expenditure on health (Figure 29).

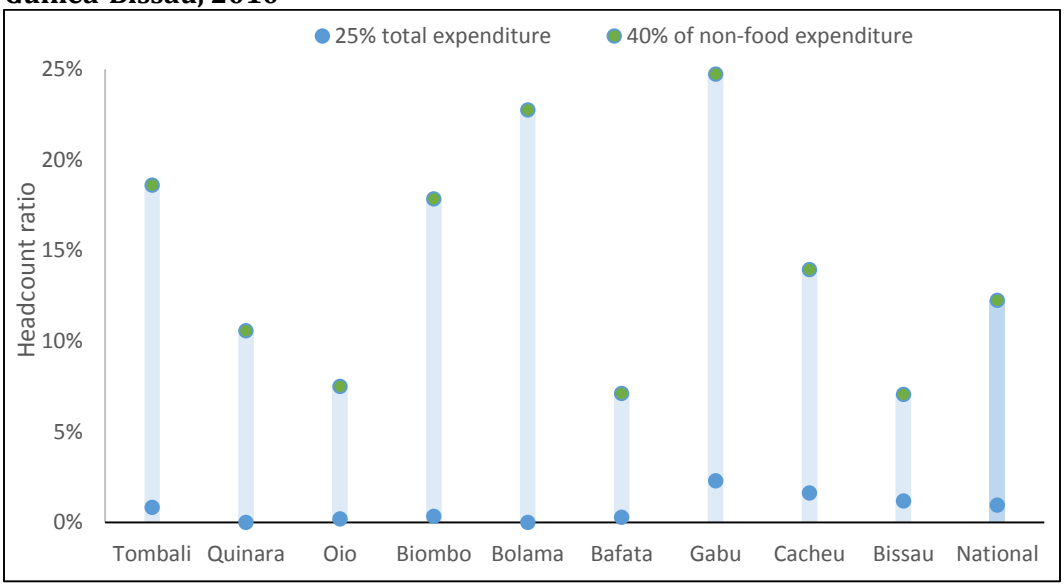
Figure 29: Percent of households experiencing Catastrophic Health Expenditures using two thresholds - Guinea-Bissau and Selected Sub-Saharan countries



SOURCE: ILAP II (2010), global monitoring report for other countries' data.

51. **The incidence of catastrophic payments is higher in Gabú, Bolama and Biombo than other regions**. Approximately 25% of the households in Gabú spent more than 40% of their non-food expenditure, which is the highest rate in the country (Figure 4.13). Although households in Bissau have higher OOP payments, the incidence of catastrophic payments is quite low. The incidence of catastrophic expenditures does no vary significantly across income groups. Catastrophic payments are more common among households in rural areas (16%) than in urban areas (11.3%).

Figure 30: Percent of households experiencing Catastrophic Health Expenditure across Regions - Guinea-Bissau, 2010



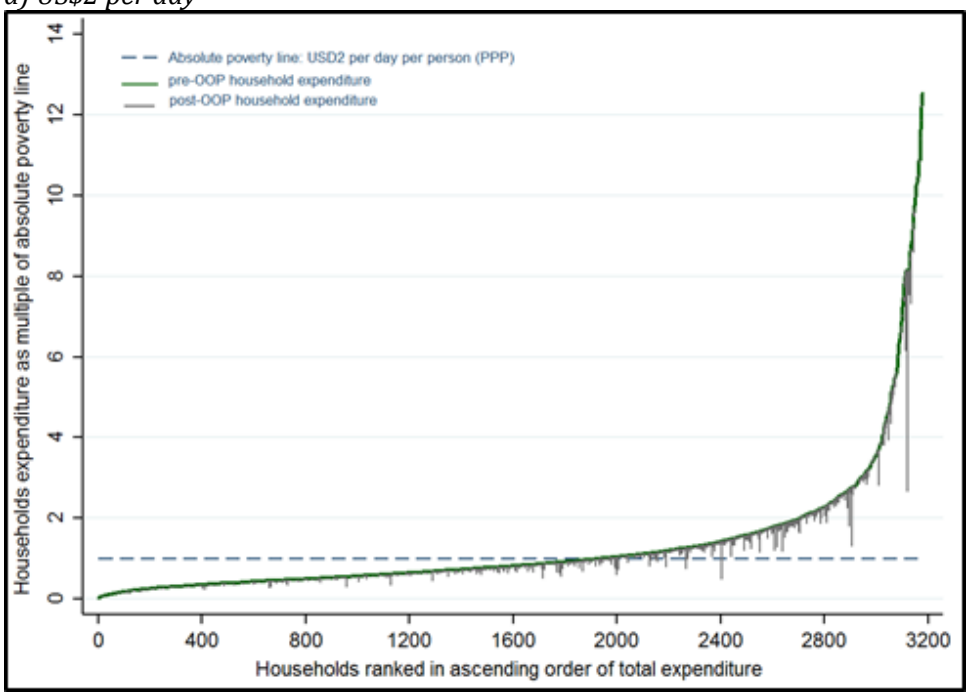
SOURCE: ILAP II (2010).

52. OOP payments for health care increases the absolute and extreme poverty headcount ratio by 1.4 and 1.1 percentage points.[7] It means that about 1.1 percentage of the population (~15,000 people) are pushed into extreme poverty due to health care payments. The estimate of the poverty gap (the shortfall of the total population under the extreme poverty line) rises by about 6.4%. The normalized poverty gap also increases from 11.06% to 11.77. The mean poverty rate also increases by 2.9%. It suggests that the rise in the poverty gap resulted in both more households being brought into poverty and a deepening of the poverty of the already poor. Figure 31 provides a visualization of the extent of the impoverishing effect of OOP payments for health national level. Households in the upper middle part of the distribution are at greater risk of being "pushed into poverty" due to healthcare payments. The poor spent less in absolute terms, but the OOP health expenses further exacerbated their level of poverty. At the moderate poverty line, the pattern is roughly the same except that all the changes are on smaller scales.

[7] The headcount ratio is the proportion of a population that exists, or lives, below the poverty line.

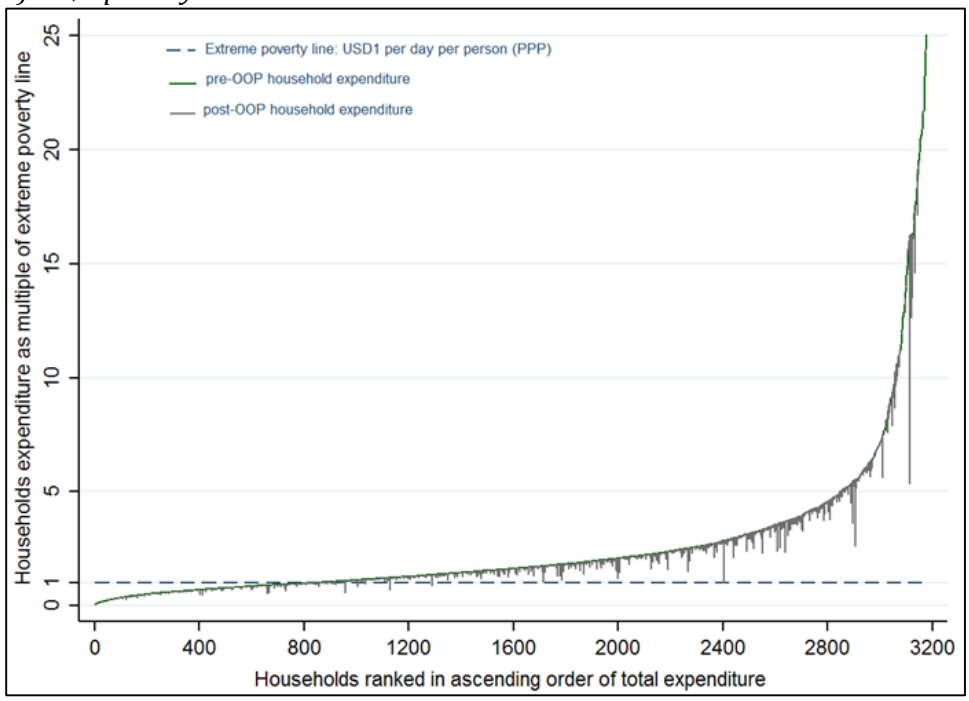
Figure 31: Effect of Health Payments on Pen's Parade of the Household Consumption Distribution – Guinea-Bissau, 2010

a) US$2 per day



SOURCE: ILAP II (2010).

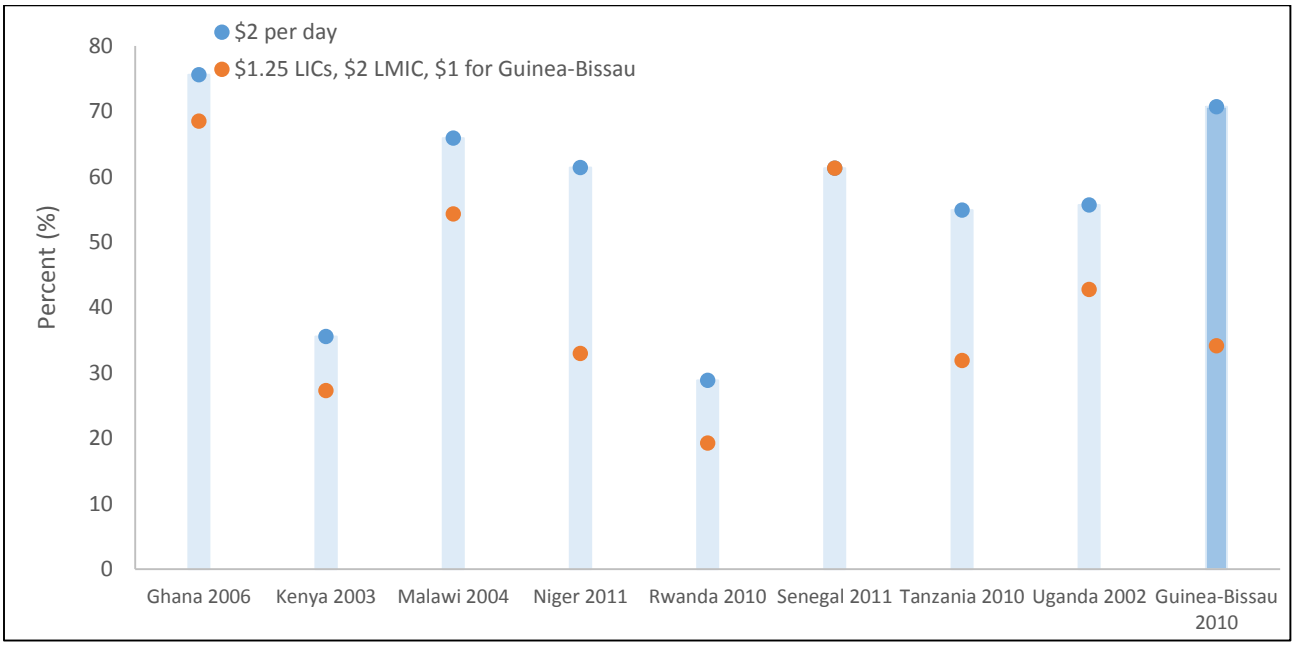
b) US$1 per day



SOURCE: ILAP II (2010).

53. **The impoverishing effect of health spending in Guinea-Bissau, against $2 per day poverty line, is higher than most of its regional peers**. Although Ghana seems to have an even higher headcount ratio for impoverishing health spending, the available data were from more than a decade ago, having been documented before the National Health Insurance Scheme scaled up nationally that would probably have resulted in improved financial protection for the Ghanaian population. For more recent years, i.e. data recorded over last five years, Guinea-Bissau lags far behind Rwanda and is slightly behind Niger, Senegal, and Tanzania (Figure 32).

Figure 32: Households "pushed or further pushed into poverty" due Health Care Payments - Guinea-Bissau and Selected Sub-Saharan African countries



SOURCE*:* ILAP II (2010), Global Monitoring report.

5. HEALTH WORKFORCE ANALYSIS

Key points

1) The country's health system faces persistent challenges related to the inadequate supply of health workers. The density of doctors, nurses, and midwives is 0.98 per 1,000 population, well below various recommended targets (for example, 2.28 or 4.45 per 1,000 population by the WHO);

2) Across the country, health workforce density is uneven. The regions of Bolama, Bissau, and Biombo, have higher density of clinical staff, while the regions with the highest mortality burden, Gabú, and Bafatá, face critical shortages;

3) Average clinical health worker salary varies minimally by region, and there is currently no correlation between higher pay and working in regions with greater disease burden or remote areas;

4) High rates of attrition among students is one of the biggest obstacles to increasing the supply of health workers. Quality of training is not idea, with, for example, high student/faculty ratio;

5) The process of selecting and hiring health workers need to be rationalized, to take into account the short and long terms fiscal impacts and be based on a clear deployment strategy (particularly for those posts outside Bissau).

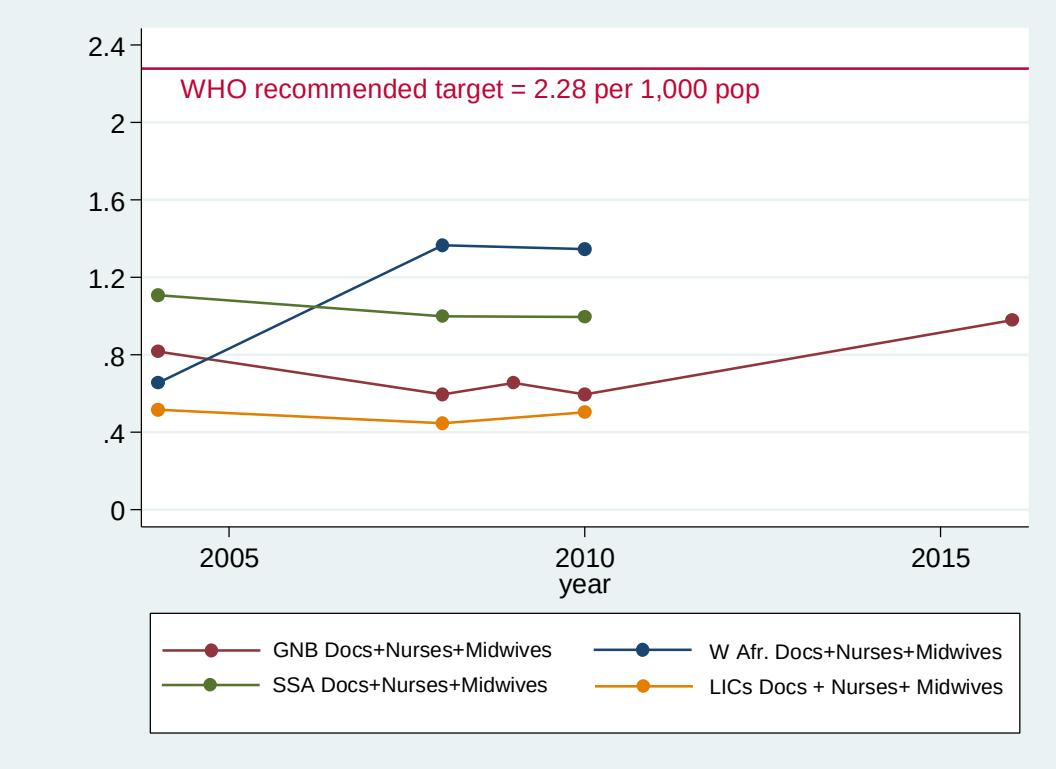
54. **The country's health system faces persistent challenges related to the inadequate supply of health workers.** There are both absolute and relative shortages of health workers. Firstly, there are relatively low numbers of health workers to fulfill population needs – there were 1.23 health workers per 1,000 population in the country in 2016 (0.98 per 1,000 population, taking into account only doctors, nurses, or midwives), much below the 2.3 per 1,000 population suggested by the WHO to deliver essential maternal and child health services (WHO, 2006). Secondly, the available health workers are concentrated in urban areas, and vast, remote regions are left without a minimum health team; and, finally, there are imbalances in the skill mix with shortages of critical cadres and specialties – such as midwives, surgeons, obstetrician, and gynecologists. Additionally, health workers' salaries are low compared to regional standards, and the government has not been able to pay workers regularly due to lack of funds. The non-payment, combined with the inadequacy of medicines and equipment, adversely affect staff motivation and may result in deterioration of the quality of public service and incentivize under-the-table payments, which tend to affect the poor (Einarsdóttir, 2011) disproportionately.

5.1 – The Supply and Composition of the Health Workforce

55. The clinical health workforce density in Guinea-Bissau is lower than the average for its regional peers, but above the average for its economic peers. Cross-country comparison of health workers is always a challenge given that the data are unevenly reported. The clinical health

workforce employed by the MINSAP represents 85% of the total; the remaining 15% are administrative and supporting staff. Of the clinical labor force, the largest share is the nursing workforce (50%), followed mid-level cadres (19%) and physicians (12%). There is an acute shortage of midwives, according to MINSAP data there were only 141 hired by the public sector in 2015. The density of doctors, nurses and midwives per 1,000 population is 0.98 (red line in Figure 5.1 below) and represents 36% of the minimum recommended by the WHO (WHO, 2006). The density of nurses to 1,000 population is 0.61, 0.12 for doctors and 0.08 for midwives (the black line in Figure 33).[8] There is an acute shortage of specialists, only 29% of the total of doctors are specialists (or 51 doctors), with acute shortages of critical specialties such as pediatricians, obstetricians, and gynecologists.

Figure 33: Clinical Health Workforce Density over time - Guinea-Bissau and its peers, 2000/2015

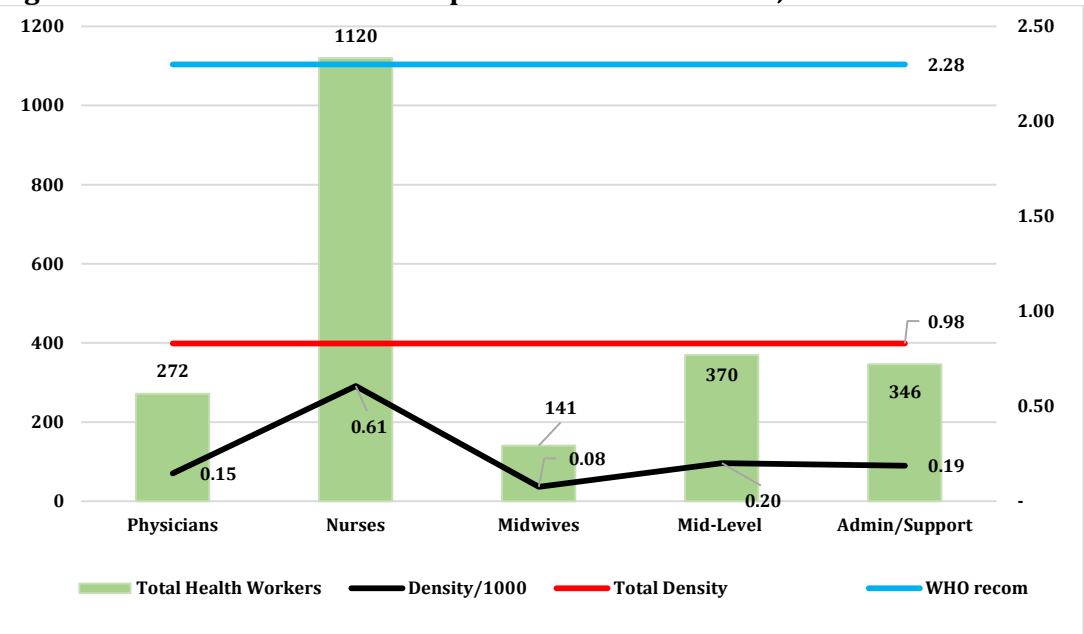


SOURCE: WDI, 2016.

56. **Since 2010, there has been a modest increase in the clinical workforce.** At the current rate of increase, Guinea-Bissau will reach the recommended target of 2.28 per 1,000 only by 2037.[9] This estimate was calculated using the average rate of increase from 2010-2016. During this time, the number of both physicians and nurses grew at similar rates.

[8] These estimates include physicians and nurses from the Brigada Médica Cubana (Cuban Brigade).
[9] Recently the WHO proposed a higher health worker to population density, 4.45 per 1,000 population (WHO, 2015.

Figure 34: Health Workforce Composition - Guinea-Bissau, 2016



SOURCE: MINSAP, 2016.

57. **The distribution of the health workforce is highly uneven.** More than half of Guinea-Bissau's health workforce practices in the capital Bissau. Considering only the number of doctors, nurses, and midwives, the regions of Bolama, Bissau, and Biombo have the highest health workforce density, 1.99, 1.48 and 1.24 respectively. On the other side, the regions with the highest mortality burden, Gabú, and Bafatá, face critical health worker shortages with population densities equal to 0.42 and 0.50 per 1,000 population, respectively. While there is a significant correlation between U5MR and health workforce density, when controlling for two key variables, namely childhood malnutrition and maternal education, the correlation of health worker density with child mortality is not statistically significant.

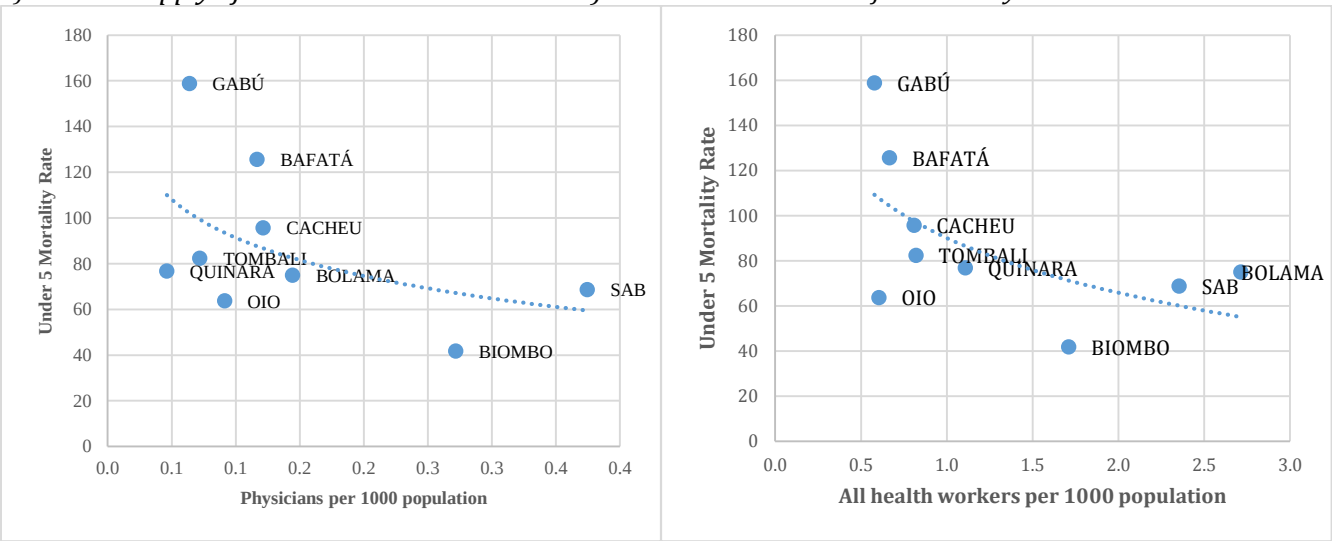
Table 9: Distribution of the Health Workforce - Guinea-Bissau, 2016

Cadre	Gabú	Oio	Bafatá	Tombali	Cacheu	Quinara	Biombo	Bolama	Bissau	Total
Doctors	14	21	25	7	24	3	27	5	146	272
Midwives	4	8	8	6	16	4	16	3	76	141
Nurses	91	91	95	59	94	53	104	74	459	1,120
Others	18	19	15	8	26	12	23	12	237	370
Admin/Support	11	4	10	2	10	9	1	8	286	346
Total	**138**	**143**	**153**	**82**	**170**	**81**	**171**	**102**	**1,209**	**2,249**
Density 1000 pop	**0.42**	**0.44**	**0.50**	**0.62**	**0.57**	**0.78**	**1.24**	**1.99**	**1.48**	**1.22**

SOURCE: MINSAP, 2016. These data include health workers from the *Brigada Médica Cubana*.

Figure 35: U5MR and Density of Health Workers

a) U5MR Supply of Doctors *b) U5MR and Health Workforce Density*



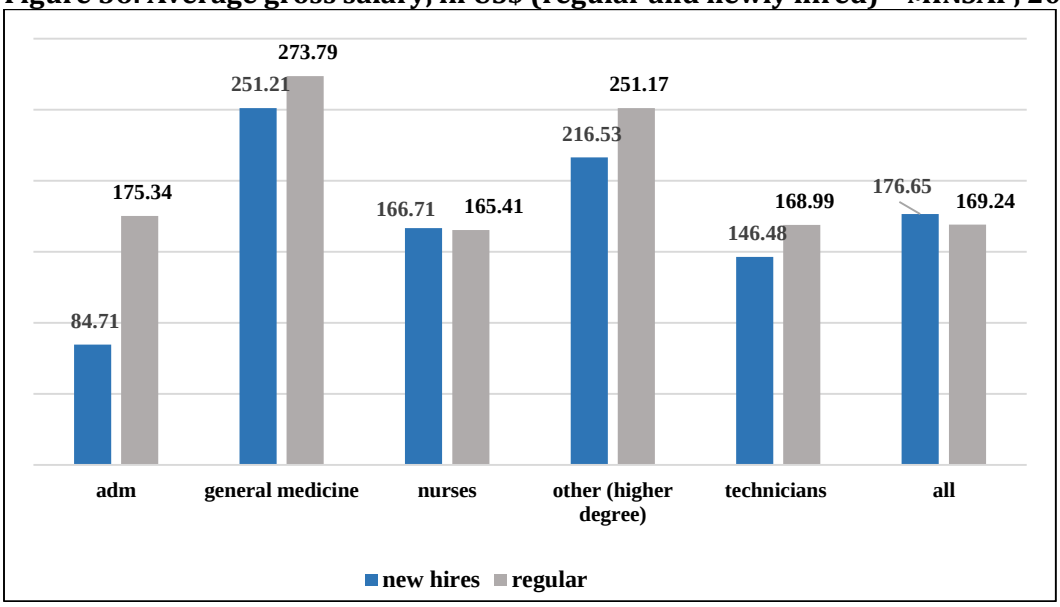
SOURCE: MINSAP, 2016 and MICS, 2014.

5.2 – Health Sector Wage Bill

58. **The health sector wage bill is estimated in 2.676 billion CFA Francs (US$4.64 million)**. The health workforce average monthly salary is 95,546 CFA Francs (US$165) compared to a monthly GDP per capita in 2014 was 23,395 CFA Francs, US$40.5. In other words, the average health worker made a salary four times higher than the country's GDP per capita. Among clinical cadres, specialist physicians are the best-paid category (average net salary of 153,694 CFA Francs), followed by general physicians (144,980 CFA Francs) and nurse specialists (113,059 CFA Francs). Annex 3 contains a full description of the salaries ranges from the public health system in Guinea-Bissau.

59. **The wage bill has been increasing steadily in the recent years and that mostly due to the expansion of the public health workforce.** For example, in the period of 2014/15, the MINSAP contracted 301 new staff (*novos ingressos*). Among them, 188 were nurses, 41 other health professionals with a higher degree, 39 technicians, and 28 medical doctors. Compared to the salary of regular staff (*efetivos*), the new hires' salaries were slightly higher (four percent higher on average), but with variations across cadres – see figure 36. The total monthly wage bill for that year was 233,370,138.00 CFA Francs (or US$392,218.72) with an average salary equal to 102,220.82 CFA Francs (or US$171.80).

Figure 36: Average gross salary, in US$ (regular and newly hired) – MINSAP, 2014/15



SOURCE: MINSAP, 2014/15.

60. **Average clinical health worker salary varies minimally by region, and there is currently no correlation between higher pay and higher disease burden.** For example, there is virtually no regional variation in the salary of nurses and midwives. Attracting health workers to rural and remote areas often requires the implementation of a basket of incentives, including both monetary and non-monetary (Araujo and Maeda, 2013). Using existing data on health workers, it is possible to calculate how many health workers would be needed to reach the WHO-recommended target of 2.28 clinical health staff per 1,000 population, and how much it would cost. Assuming trained personnel were available, for Guinea-Bissau to meet its health workforce needs, it would require hiring 2,525 new health workers (358 physicians, 1,665 nurses and midwives, and 502 associate health professionals). Assuming the cost of training estimated by Russo and Ferrinho (2009), only for producing the additional number of health workers would be necessary US$11.3 million plus an additional yearly cost of US$5.14 million to maintain these health workers - an 111% increase in current spending. Because the population is expected to grow over time, a multi-year plan to add health workers will likely need to include an even larger number of new health workers needed.

5.3 – Health Workforce Training Capacity

61. **Five institutions have health professionals training programs in Guinea-Bissau.** They offer training in medicine, nursing, midwifery, and technicians (Table 10). These five institutions are: the Universidade Lusófona da Guiné, with a large nursing program (1,833 currently enrolled students); the Universidade Jean Piaget; the Faculdade de Medicina (Medical School), which offer training in medicine and nursing; the Escola Nacional dos Quadros Tecnicos da Saude, which offer training for mid-level cadres and midwives; and the Liceu Politecnico SOS Herman, which offer training in public health and environmental sanitation.

62. **One of the major challenges for many of the students who begin training in health fields do not finish their schooling.** While there is an adequate student: faculty ratio of all enrolled students, there is significant attrition as the students' progress through their training. For example, at La Universidad Lusófona da Guiné, despite all of the enrolled students in the advanced nursing program, only 47 graduated with a certificate in 2013. The number of enrollees drops precipitously from year one to year four, under current enrollment. The same pattern can be seen with other cadres, for example, laboratory technicians. The reason for this is unclear and should be investigated further, but clearly, plays a large role in the size of Guinea-Bissau's health workforce.

Table 10: Health Professionals' Training Programs in Guinea-Bissau – Guinea-Bissau, 2016

School	Discipline	Program Length (years)	Total Faculty	Total number of students	Potential graduates per year	Student/Faculty Ratio
Universidad Lusofona da Guiné	Advanced nursing	4	61	1833	458	30.0
Universidade Jean Piaget	Medicine	6	9	132	22	14.7
Universidade Jean Piaget	Advanced nursing	4	8	109	27	13.6
Liceu Politecnico SOS Herman (Saude Publica)	Public health, environment, and sanitation	3	1	90	30	90.0
Faculdade de Medicina	Medicine	6	45	150	25	3.3
Faculdade de Medicina	Specialist physician	2	66	30	15	0.5
*Escola Nacional dos Quadros Tecnicos da Saude**	General nursing	3	-	472	157	-
*Escola Nacional dos Quadros Tecnicos da Saude**	Laboratory technician	3	-	52	17	-
*Escola Nacional dos Quadros Tecnicos da Saude**	Pharmacy technician	3	-	48	16	-
*Escola Nacional dos Quadros Tecnicos da Saude**	Radiology technician	3	-	32	11	-
*Escola Nacional dos Quadros Tecnicos da Saude**	General midwifery	3	-	89	30	-

SOURCE: World Bank, 2016.

5.4 – Health Workforce Policies

63. **The MINSAP has prepared a National Plan for Human Resources for Health development (NPHRH II) for the period of 2008-17, but it has not been yet implemented.** The NPHRH II is one of the eight priority areas of the National Health Development Plan (Plano Nacional de Desenvolvimento Sanitario 2008-2017, PNDS) and focuses on six priority areas (Republica de Guinea-Bissau, 2008b): 1) Strengthening governance, administration, and management of health personnel; 2) Establish principles of practice of health professionals consistent with the traditional values of Guinean society; 3) Improving working conditions and staff motivation; 4) Improving training capacity; 5) Operationalization of the NPHRH II. The NPHRH II suggests an increase of 34% in the number of employed health workers with a corresponding increase of 80% in the health sector wage bill for the period of 2007-2017. Currently, the MINSAP absorbs all new graduates from medical, nursing and other mid-level cadres training programs, although it still may not fulfill the country's need given the shortage of health professionals, particularly in rural areas, and the current hiring policy is not based on any rigorous assessment of the needs on the ground.

64. **Clinical staff salaries are compressed, between 69,745 CFA Francs and 153,694 CFA Francs, and there are limited allowances and negligible pension schemes**. Doctors who are allocated to an island or remote area, receive a one-time installation allowance. Health insurance is provided as an in-kind benefit. Other allowances include transportation, meals and housing, and per diem is sometimes provided for service missions. Non-contractual or intangible rewards such as support for studying abroad for doctors and nurses is sometimes provided. Table 5.4 summarizes the remuneration policy.

Table 11: Health workforce compensation policies – Guinea-Bissau, 2016

		Contractually provided		Non contractual/ intangible
		Monetary	**In kind**	
Current reward	**Base reward**	• Salary • Payment based on seniority • Employer's pension contribution	• Health insurance	• Job stability for "efectivos." • Eventual support for study-trip abroad for doctors and nurses
	Allowance	• One-time installation allowance, as needed	• Transportation, meals, and housing per Diem is seldom provided for service missions. • Telephone is covered if included in the budget	

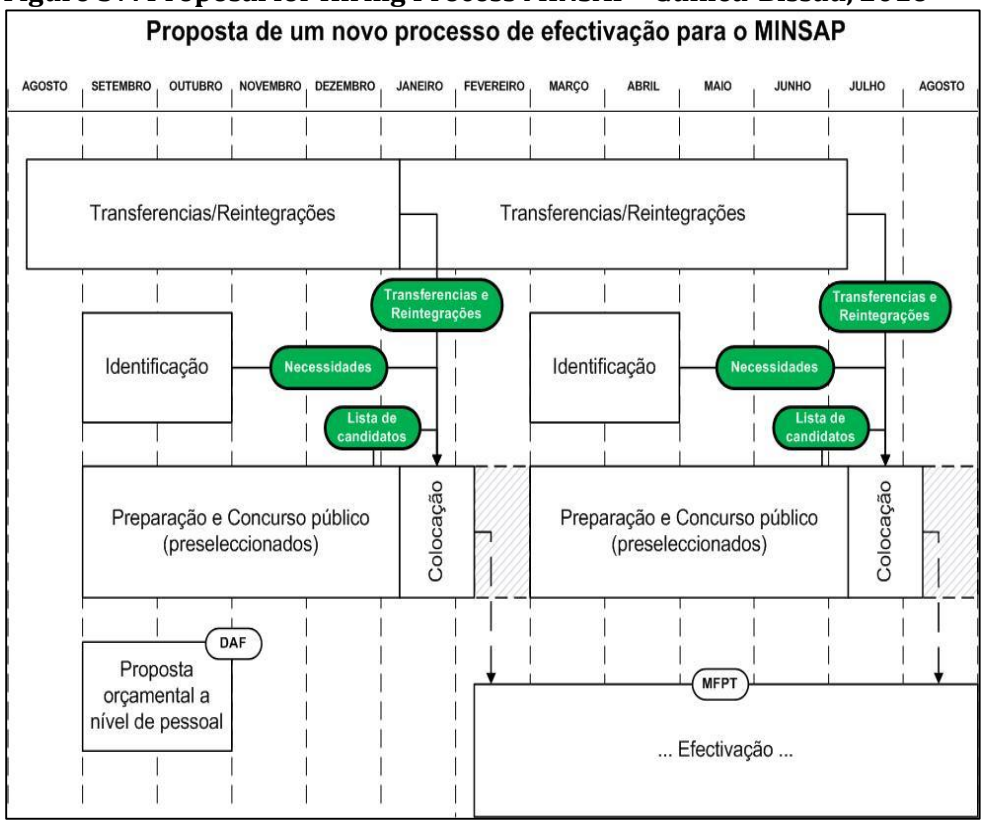
SOURCE: World Bank team.

65. **The processes of recruitment, promotion, training and compensate health workers are inefficient.** The three unions in the health sector (doctors, nurses and technicians) frequently halt the delivery of service. The recruitment and hiring processes run according to available resources, personnel request, and technical and administrative needs of technicians from the MINSAP. Newly graduated candidates coming from different national health national training schools or from abroad are automatically contracted within the MINSAP. These processes are inefficient as they are not based on needs assessment neither look at the existing fiscal space to balance the demand and supply sides of the "hiring market."

66. **The European Union and the World Bank organized a workshop with key stakeholders to analyze current hiring practices and propose are reform. Each stakeholder could identify the main challenges, for example, the MINSAP** described a lack of coordination between the ministry and training institutions regarding planning the number of health workers needed. They also described the absence of a standard validation process from the Ministry of Education for health certificates issued abroad. The Ministry of Finance reported that the hiring process of health workers was done without having a budget allocation secured. Likewise, the biggest challenge for Ministry of Civil Service where the lack of authorization requests from the MINSAP for opening public tenders ("*Concurso Publico*") and delays on delivering the information on budget approval from the Ministry of Finance. In addition to these issues, as described earlier, the main challenge is that the recruitment and hiring processes are not well organized and often occurs randomly without any budgetary or needs to be based planning. Based on the discussions, a new framework for the hiring process was defined: the recruitment and hiring processes could take place in an organized manner twice a year according to the needs of each level of the health system: Regional of Heath, the MINSAP, the reference hospitals, and in accordance with the newly graduated professionals (nationally and abroad). Based on this idea, participants estimate that the first round of hiring could be done in September and the second one in March. MINSAP can, therefore, implement the recruitment and hiring processes twice yearly, according to the existing needs, instead of using multiple small and inefficient processes.

67. **The redesigned process will simultaneously identify and match the supply with the demand for health workers.** The regional heat directors will start identifying needs by collecting information, creating a list of needs that allows us to have an estimate of positions needed by the month of October. At the same time, the tender process '*Concurso Publico*' would create a list of candidates, identifying their regional preferences. Figure 37 shows the new process as it was defined in the workshop. It clearly shows how doing several activities simultaneously can streamline the process.

Figure 37: Proposal for Hiring Process MINSAP - Guinea-Bissau, 2016



Source: Workshop with Government of Guinea-Bissau, European Union, and the World Bank team.

6. DISCUSSION AND RECOMMENDATIONS

6.1 – Discussion

68. **This report identified key health system challenges to expand the coverage of essential services to the population of Guinea-Bissau.** Low levels of public spending on health, high dependency on external financing, high household OOP payments, acute shortages of health workers (particularly for key specialties), mal-distribution of the existing health workforce are the main challenges documented in this report. Despite the obstacles, Guinea-Bissau managed to make progress in extending immunization coverage and reducing infant and child mortality. On the other side, the extremely high rate of maternal mortality means that more investments on health infrastructure are necessary. At the same time, the growing burden of chronic diseases in addition to the high prevalence of malaria, HIV, and tuberculosis, indicates that the country is probably in the early years of experiencing a double burden of diseases. As observed in other countries, this trend tends to manifest itself further as the population gets older if no proper interventions are put in place.

69. **Addressing health financing and health workforce challenges will require medium- and long-term strategies, but there are alternatives to improve health service delivery and extend health care coverage in the short run.** Reducing dependency on external resources for financing health care is likely unrealistic in the short term since the limited fiscal capacity is unlikely to change soon. On the other side, immediate actions are possible to reduce OOP payments which result in impoverishment and blocks the poorest households to seek care when needed. The findings from this report indicate that OOP payments mostly cover costs related to medicines, indirect costs (food and transportation) and physicians' fees. Improve purchasing and distribution of medicines seem, therefore, essential to reducing the burden of payment on Guinean-Bissau households. Additionally, it is critical to improving supply-chain mechanisms to increase the availability of drugs and eliminate corruption practices (selling drugs, for example). Improved human resources management and accountability systems have the potential to reduce absenteeism and under-the-table payments. The experience of recent health sector projects, such as the EU-Saude and PIMI, demonstrates that adequate incentives and functioning monitoring systems improve health workers' productivity and expand access to essential health services. There is also scope to extend health service delivery through non-state organizations, such as social enterprises.

7 **The findings of this report provide the evidence base for developing targeted interventions.** For example, the analysis shows that factors such as malnutrition and low levels of maternal education are determinants of the observed level of child health outcomes in the country. Interventions to control these risk factors, and to improve these outcomes, prove to be relatively simple, effective and at low cost. Additionally, the analysis identified the regions where households

face the biggest challenges in accessing health services. Gabu and Bafata, two of the poorest regions and with worst child health outcomes, have high levels of OOP payments and the lowest levels of bed nets usage. In Gabu households face high indirect costs (with transportation and food) and medicines while in Bafata costs of medicines is by far the largest health expenditure item. Gabu also faces the lowest density of health workers to the population in the country, almost a third of the national density and almost five times less than the region with the highest (Bolama).

70. **Additional data will be necessary to draw a complete picture of the health system's challenges in Guinea-Bissau.** On the supply side, data that are currently lacking include the number of health workers present to work at PHC centers, the availability of equipment and supplies, and the capacity and knowledge of health workers to deliver the services they are expected to deliver. On the demand side, it is important to identify the main barriers household faces when seeking and using health services. For example, anecdotal evidence suggests that cultural norms play a role for pregnant women to deliver at formal health providers. The role of informal payments on the health care-seeking behavior also needs to be clarified, as well as providers' behavior. Available survey data provides an indication of the burden of health care payments on the household budget, but the survey was not designed to measure informal payments for health care services accurately. In the second phase of this diagnostic, the World Bank team will implement a Service Delivery Indicator (SDI) survey.[10]

6.2 – Recommendations: strategic view of the health sector

Health Financing

- **Improve donors' coordination**. The MINSAP needs to play a central role in coordinating donors' efforts, by identifying national priorities and requesting donors to act accordingly given their comparative advantages. It will require investments in capacity building at the MINSAP;

- **Improve MINSAP budget planning and execution**;

- **Apply a medium-term expenditure framework to develop a three-year plan**. This expenditure framework consists in identifying the infrastructure, goods, and services needed for the period of three years, including costs estimates. This would be a powerful instrument to match needs with available fiscal and donor resources;

[10] SDI a new Africa-wide initiative that collects actionable data on service delivery in schools and health facilities–has been launched by the World Bank in partnership with the African Economic Research Consortium and the African Development Bank (http://www.sdindicators.org/about)

- **Improve the public resource tracking system**. There is an urgent need to strengthen regulation of informal payment and to rationalize the purchase and distribution of medicines.

Health workforce

- **Adopt and implement the newly designed processes and timelines for planning, recruitment, and hiring of health workers** proposed as a result of the recent workshops with the Government of Guinea-Bissau, the EU, and the World Bank;

- **Strengthen health workforce policies by revising the current the national health workforce plan (NPHRH II).** It includes defining clear career pathway for different health workers, revision of the remuneration policy to implement performance-based pay and introduce non-monetary incentives;

- **Develop strategies to monitor and tackle absenteeism and improve the quality of services**. In the short term, the SDI survey will provide a benchmark for future monitoring and evaluation;

- **Develop quality assurance mechanisms to improve the quality of health professionals' training**. For medical and nursing schools, define standards of training; and for health professionals, define standards of competencies;

- **Improve coordination between the MINSAP and the Ministry of Education to define better policies for training health workers.** It entails an agreement on investments decisions, such as the provision of scholarships for training abroad.

Implement Community-Based Primary Health Care Service Delivery:

- **Scale up community-based primary health care service delivery model in the entire country**, building upon the existing experiences;

- **It will involve coordination and care provision by integrated frontline PHC teams** composed primarily of paid community health workers, auxiliary nurses and clinical officers, trained midwives, with the support of graduate nurses and physicians;

- This service delivery model can be implemented in the short-term, at lower cost, through public and private initiatives (social enterprises, for example).

Health Information Systems

- **Develop, in coordination with the National Statistical Office (NSO), an inventory of health statistical operations (administrative data, surveys, etc.)**. This inventory must describe, for every statistical operation, information such as: name, periodicity, methodology, main variables collected, geographical scope, main indicators related, among others;

- Define, in coordination with the NSO and the civil registry agency, a strategy to address the issue of individual identification;

- Strengthen information systems for disease surveillance and rapid response to disease outbreaks, for both human and animal health.

Cross-sectoral health inputs

- Leverage expertise and resources from international sources, such as the Global Fund, to address the critical challenges of HIV, malaria, and tuberculosis, including quick wins such as the distribution of mosquito bed nets;

- Develop an investment plan to implement a package of well-validated high-impact, low-cost interventions that will significantly reduce maternal and child mortality in the short-term. These include continued distribution of bed nets, water and sanitation access improvements, immunizations, contraception and promotion of birth spacing, and acute malnutrition treatments.

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Annex 1: Main sources of health sector data – Guinea-Bissau, 2016

Source of data	Examples
Population census and vital statistics	• ***Población census of 2009*** "*Republica da Guiné-Bissau - Recenseamento Geral da Populaçao e Habitaçao* 2009[11]" main demographic variables: gender, age, disability, etc. • ***Vital statistics:*** *births, deaths, marriages, divorces. These data are not updated and there is statistical sub register, there is a lack of integration of datasets among the civil registry[12], the NSO and the Health Ministry. The vital registries are incomplete usually the population department of United Nations estimated the number.*
Surveys:	• ***ILAP 2002 and 2010*** *"Inquérito Ligeiro sobre as Condições de Vida da População". More than 40 questions analyzing user's medical consultation issues (lack of qualified personnel, lack of medicines, delays, etc.* • ***Situational analysis on problematics of social minorities 2012*** *"Analise situacional sobre a problematica das monirias sexuais (HSH, Lesbicas, Transsexuais e Travesti) em contacto com o VIH". This survey has 346 on the following aspects: socio-demographic; social, sexual practices, heterosexual relationships; VIS-SIDA; health service access and interpersonal communications)* • **Poverty assessment survey 2010–*"Inquerito Ligeiro para a Avaliação da Pobreza".*** *This survey has 30 variables related to health access services, and quality of services from users' perspective.* • **Parental Behavior Survey in Guinea-Bissau 2015**. *"Inquérito sobre Comportamento Parental na Guiné-Bissau". Variables relates to children health care from parents* • **Quantitative on Knowledge, Attitudes and Practices (KAP) 2002**. "Quantitativo sobre os Conhecimentos Atitudes e Práticas (CAP*)". This surveys has variables related to practice & attitudes, such as seeking advice in a clinic, hospital or health workers, buying medicine, etc.* • **Child Labor Conditions Survey 2013** (including variables related to health expenses[13]) • **Survey by Multiple Indicator Cluster** 2006, 2010 & 2014? "*Enquête par Grappes à Indicateurs Multiples" Information on the Child Birth Registration in civil status , Vitamin A, breastfeeding, treatment of diseases, malaria, Immunization, Anthropometry.* • ***Mini communitarian surveys (INASA)*** *to assess the impact of specific health interventions*
Administrative Records: Administrative and financial information	• ***Human resources of the health sector database****. The ministry of health manage the information related to payroll and allowance for health workers.* • *Financial data*
Surveillance	• **Weekly surveillance epidemiological alert system (INASA)** *(Notifiable Cólera Disenterias Sarampo Tosse Convulsa Meningite Febre-amarela Paralisia Flácida Aguda(PFA) Tétano neonatal Gripe Não Sasonal (Gripe aviária (H5N1) e Gripe A (H1N1) Febre Hemorrágica Viral (Ébola), among other*) *Sentinel surveillance for HIV prevalence[14]* • **Form to collect data and prepare monthly and quarterly reports of Tuberculosis (INASA)** include variables of sex, # cases, # deaths, age groups, etc.

[11] A documented version of the Census data can be found in the NSO catalogue: http://www.stat-guinebissau.com/
[12] There is a plan of biometric national identity card; however the coverage is still low.
[13] These variables can be consulted at: http://www.stat-guinebissau.com
[14] Based on interviews with INASA staff there are some issues with the timeliness and reliability of HIV records.

Health services provision	• **Expenses by type for health center (EMI[15]).** *Medicine, equipment, transport, vehicle maintenance, communication, payroll, etc.* • **Number of medical consultations by type for health center (EMI).** • **Health center monthly-report of (INASA).** *Includes maternal and child care, children care 0-59 months, laboratory test and synthesis of cases of illness and deaths* • **Hospital monthly-report.** *Includes women care, births; child care, laboratory test, hospital beds, consultancies, services (*ophthalmology orthopedics, etc.) *and an illness bulletin and deaths. There is a specific form for the Simon Mendes Hospital*

SOURCE: World Bank team, 2016.

[15] EMI is a NGO working on the management of the health system; however, its data and information is not yet integrated to the health information system

Annex 2: Incidence and intensity of catastrophic health payments in Guinea-Bissau, 2010

Table 1: Catastrophic health payments defined as share of total household expenditure – Guinea-Bissau, 2010

	Threshold budget share, z				
Head count (H)	*5%*	*10%*	*15%*	*20%*	*25%*
Poorest	18.15%	8.33%	4.15%	1.64%	0.93%
	(2.04%)	(1.48%)	(1.02%)	(0.62%)	(0.48%)
Poorer	15.07%	6.17%	3.01%	1.69%	1.00%
	(1.71%)	(1.20%)	(0.91%)	(0.63%)	(0.46%)
Middle	13.83%	4.68%	1.81%	0.81%	0.23%
	(1.67%)	(0.99%)	(0.56%)	(0.32%)	(0.16%)
Richer	15.09%	6.97%	5.03%	2.78%	1.70%
	(1.55%)	(1.16%)	(1.08%)	(0.70%)	(0.58%)
Richest	11.45%	5.13%	3.10%	1.47%	0.91%
	(1.41%)	(1.01%)	(0.70%)	(0.42%)	(0.34%)
Total	14.72%	6.26%	3.42%	1.68%	0.95%
	(0.86%)	(0.58%)	(0.43%)	(0.27%)	(0.20%)
Overshoot (O)	1.02%	0.53%	0.30%	0.18%	0.12%
	(0.09%)	(0.07%)	(0.05%)	(0.04%)	(0.03%)
Mean positive overshoot (MPO)	6.86%	8.47%	8.73%	10.72%	12.08%

Table 2: Catastrophic health payments defined as share of households' capacity to pay

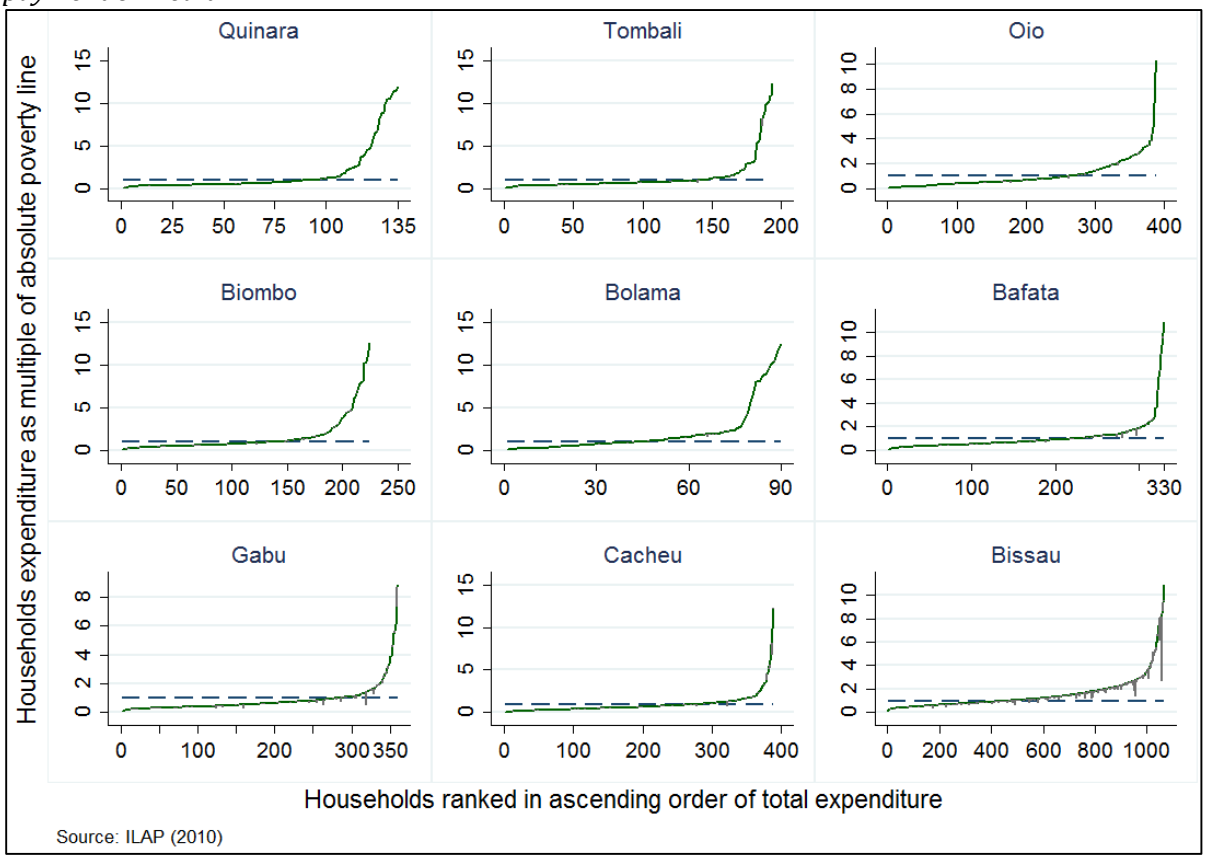
	Threshold budget share, z					
Head count (H)	*15%*	*20%*	*25%*	*30%*	*35%*	*40%*
Poorest	35.14%	32.05%	26.29%	20.84%	15.49%	13.78%
	(2.75%)	(2.69%)	(2.66%)	(2.35%)	(2.06%)	(1.87%)
Poorer	36.00%	28.47%	21.15%	18.27%	16.14%	12.22%
	(2.51%)	(2.36%)	(1.89%)	(1.85%)	(1.86%)	(1.58%)
Middle	35.25%	28.88%	22.67%	17.91%	13.74%	11.18%
	(2.38%)	(2.29%)	(2.04%)	(1.85%)	(1.59%)	(1.43%)
Richer	37.84%	29.07%	22.74%	18.36%	14.77%	11.76%
	(2.00%)	(1.97%)	(1.86%)	(1.79%)	(1.73%)	(1.53%)
Richest	31.32%	25.87%	20.37%	17.44%	14.03%	12.30%
	(2.31%)	(2.22%)	(2.05%)	(1.99%)	(1.75%)	(1.73%)
Total	35.11%	28.87%	22.65%	18.57%	14.84%	12.25%
	(1.37%)	(1.29%)	(1.17%)	(1.06%)	(0.94%)	(0.84%)
Overshoot (O)	7.33%	5.80%	4.57%	3.60%	2.82%	2.22%
	(0.41%)	(0.36%)	(0.31%)	(0.26%)	(0.23%)	(0.19%)
Mean positive overshoot (MPO)	21.52%	20.91%	21.35%	20.85%	20.96%	20.43%

Table 3: Measures of poverty based on expenditure gross and net of spending on healthcare - Guinea-Bissau, 2010

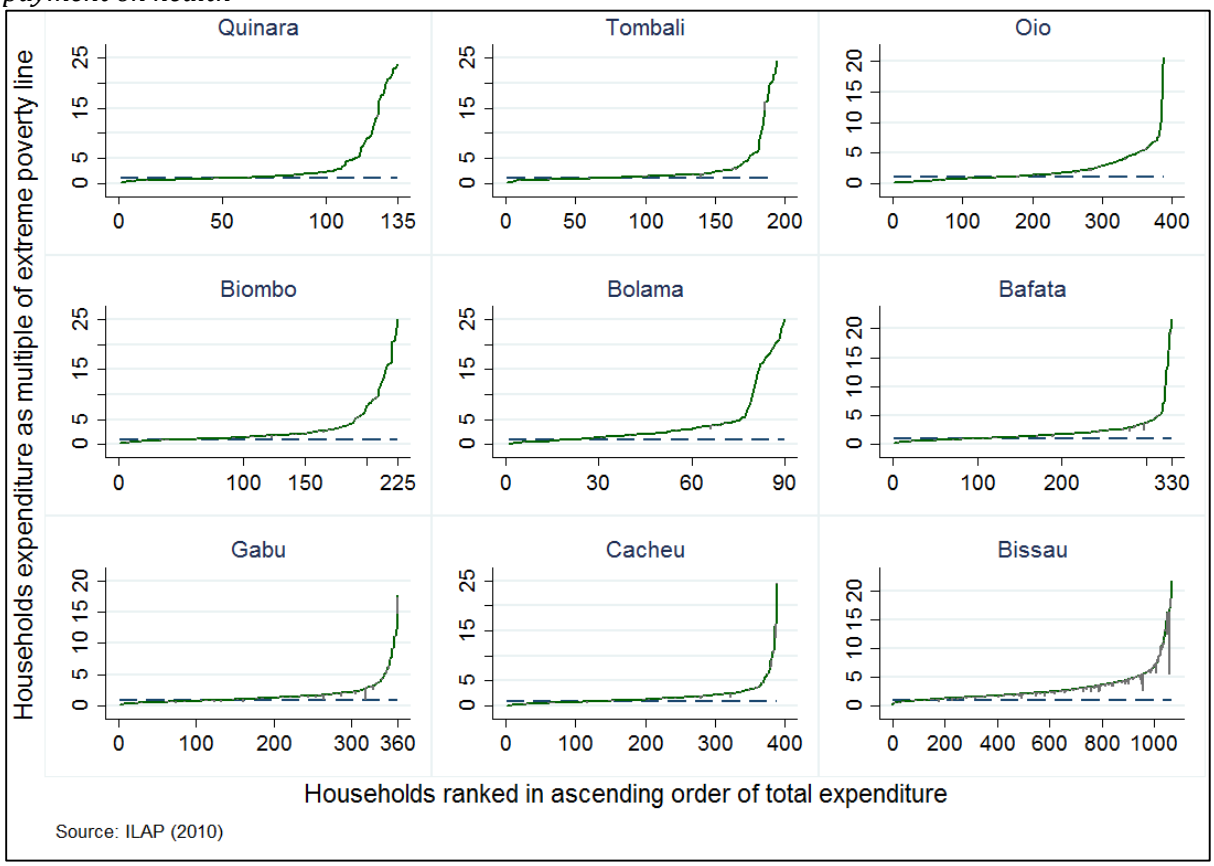
Absolute poverty line: per capita expenditure below $2 a day (2010 PPP)				
	Pre-payment	Post-payment	Percentage point change	Percentage change
Poverty headcount	69.34%	70.70%	1.36%	1.97%
	(1.26%)	(1.24%)	(0.22%)	
Poverty gap ('000 XOF)	71.223	73.695	2.472	3.47%
	(2.083)	(2.072)	(0.141)	
Normalized poverty gap	32.28%	33.40%	1.12%	3.47%
	(0.94%)	(0.94%)	(0.06%)	
Normalized mean poverty gap	46.55%	47.24%	0.69%	1.47%
	(0.77%)	(0.77%)		
Extreme poverty line: per capita expenditure below $1 a day (2010 PPP)				
	Pre-payment	Post-payment	Percentage point change	Percentage change
Poverty headcount	33.05%	34.18%	1.12%	3.40%
	(1.46%)	(1.47%)	(0.22%)	
Poverty gap ('000 XOF)	12.233	13.015	0.783	6.40%
	(0.736)	(0.758)	(0.070)	
Normalized poverty gap	11.06%	11.77%	0.71%	6.40%
	(0.67%)	(0.69%)	(0.06%)	
Normalized mean poverty gap	33.47%	34.44%	0.97%	2.90%
	(1.00%)	(0.99%)		

Figure 2: Effect of Health Payments on Pen's Parade of the Household Consumption Distribution, by region – Guinea-Bissau, 2010

Panel A: Absolute poverty line ($2 per day per person) used to assess the impoverishing effects of out-of-pocket payment on health



Panel B: Extreme poverty line ($1 per day per person) used to assess the impoverishing effects of out-of-pocket payment on health



Annex 3: Health Workers' Salaries and Health Wage Bill - Guinea-Bissau, 2015

Cadre	Average Net Salary	Total Wage Bill	%
National Leadership Positions	235,664	1,178,320	0.5%
General Physicians	144,980	27,981,121	12.5%
Specialist Physicians	153,694	9,221,640	4.1%
Gen. Phys. Brig. Cubana	308,073	1,848,438	0.8%
Spec. Phys. Brig. Cubana	308,073	6,161,460	2.8%
Midwives	91,839	13,041,094	5.8%
Specialist Nurses	113,059	4,974,578	2.2%
Nurses	91,834	95,507,828	42.8%
Nurses Brig. Cubana	308,073	924,219	0.4%
Auxiliary Nurses	71,375	4,568,021	2.0%
Health Associate Professionals	104,491	7,732,327	3.5%
Auxiliaries (Mid-level cadres)	69,745	3,696,499	1.7%
Technicians	87,709	22,015,067	9.9%
Other Professionals	109,658	8,443,635	3.8%
Other Professionals Brig. Cub.	308,073	924,219	0.4%
Other Associate Professionals	95,493	2,196,334	1.0%
Admin	105,861	3,810,992	1.7%
Support	32,144	6,878,895	3.1%
Total	**95,546**	**223,003,307**	**100.0%**

SOURCE: MINSAP, 2016.