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# Republic of Guinea-Bissau

## Guinea-Bissau Health Labor Market

### Analysis

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Health Nutrition Population Global Practice

Africa Region



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## Executive Summary

**1. This report provides a comprehensive diagnostic of the labor market for health workers in Guinea-Bissau.** It provides the evidence base for a new Strategic Plan for Health Workforce Development. The report analyzes three dimensions: (i) workers' demographics, motivations, aspirations and satisfaction; (ii) hours worked and its distribution across different activities; (iii) compensation, household income and consumption. Beyond this, it also calculates wage and labor supply equations. The analysis accounts for both, health professionals (doctors, nurses, midwives, technicians, etc.) and Community Health Workers (CHWs), who are treated as volunteers in the Bissau-Guinean health system.

**2. Health workforce compensation presents by far the largest share of public spending on the health sector, accounting for 66% of current spending and 60% of the government budget for health in 2018.** Despite a recent hiring spree in the public health sector, human resources remain unevenly distributed geographically and across professions. The capital, Bissau, accounts for 52% of publicly employed health professionals while accounting for about a quarter of the population. 9 times as many physicians per inhabitant work in Bissau as in Tombali, where a total of 5 doctors serve a population of around 120.000. There are also considerable gender differences between professions. While overall 68% of health workers are male, among CHWs 77% are male. An estimated 78% of doctors (the most highly paid profession) are male, while about 64% of nurses and all midwives are female.

**3. The Ministry of Public Health (MoH) is by far the most important employer for health professionals in Guinea-Bissau.** Only a negligible share (<1%) is employed outside the MoH. 19% of health workers pursue a second employment besides their employment in health. Overall, 3% pursue a second employment in health. This suggests for now a very limited role for the private sector in health, but might allow room for an expansion of private health care providers over time.

**4. Most (68%) health workers are dissatisfied or very dissatisfied with their working conditions.** This is particularly due to dissatisfaction with hours worked, amount of compensation received, timeliness of compensation received and distance from their homes to their work places (commuting time). Nevertheless, professionals report to work an average of 51 hours per week. Depending on profession, doctors, nurses and midwives spend between 63% and 70% of their time caring for patients. However, demand for health services seems to be low or hours worked are overstated, since the reported time spent per patient is close to one hour.

**5. Community health workers serve about half as many families as is expected of them.** By national policy, each CHW is supposed to attend 50 families per month. In fact, however, CHWs visit only 27 families on average. The bottleneck to implementing the 50-families per month policy appears to be that visits are insufficiently frequent, occurring on average every 3 months rather than every month. This is even though supervision of CHWs by an operational field supervisor or by a health-area responsible occurs on average more than once per month.

**6. Health workers experience a lack of administrative and specialist support as well as medicine, equipment and utensils to perform their duties properly.** While most health workers (52%) receive sufficient technical support, there is a lack of administrative support and of support from specialists, with only 26% saying they receive sufficient support from specialists. 69% say they do not receive sufficient specialist support, 63% complain about a lack of administrative support and 44% lament the lack of technical support. Only a third of providers say they have necessary utensils and equipment available to exercise their work. This share is low across all professions. For doctors, less than one-fifth have equipment necessary for their work. Only 39% of professionals say they have pharmaceutical products available to do their work. In consequence, 63% of doctors, nurses and midwives and 70% of doctors say that they frequently disobey clinical protocol due to lack of equipment and medical products.

**7. Health professionals receive an average compensation of 209 USD (122.000 XOF) per month, around 3.5 times per capita GDP on an annual basis.** Doctors receive the highest compensation (USD 353/month), followed by other health professionals (USD 231/month), midwives (USD 201/month), nurses (USD 193/month) and technicians (USD 169/month). Health professionals' official wage constitutes between 82% and 90% of total compensation. For nurses and technicians, a higher share of their total compensation comes from official wage (90%), while doctors and other health professionals are the groups with the highest share of total compensation coming from bonuses (8% and 11%, respectively). Food and other benefits constitute a negligible share of total compensation (3% at maximum). Midwives receive the highest informal payments among health professionals, corresponding to 10% of their total compensation, whereas this figure is 5% for nurses and technicians, and 3% for doctors and other health professionals. The higher the official wage, the lower is the share of informal payments out of total compensation. 36% of professionals who have been in their position for less than one year (newly contracted professionals) report that they are not salaried, most likely because they are not part of the public administration system yet. However, also 8% of professionals who have worked for over one year say they are not salaried. Work compensation for doctors and nurses corresponds to around 65% of total household income, whereas for midwives and technicians it corresponds to 40%. There are reasons to believe that either household income is underestimated (underreporting of informal payments) or consumption expenses are overstated, since 78% of health workers reported household expenditures exceeding household earnings, while only 20% reported savings.

**8. Community Health Workers receive an average total compensation of 7.200 XOF (13 USD) per month.** This is slightly below the 8.000 XOF aimed towards by national policy. 72% thereof are incentive payments, 16% are subsidies for participating in monthly coordination meetings, 9% are bonuses and 4% are informal payments. Only 25% of CHWs have a second employment. This is low, considering that work as a CHW is voluntary work and not meant as primary employment. Those CHWs who have a second employment earn an average of 18.000 XOF (32 USD) monthly in this job, considerably more than in their work as CHWs. Overall, income from work as CHW corresponds to only around 12% of total household income.

**9. There is a gender compensation gap of around 9,700 XOF (17 USD) per month in favor of men, controlling for profession, age, education, experience and region.** This

holds for main medical employment. Total earnings from health income (including secondary employment) are about 9.000 XOF (15 USD) higher for men than for women. On top of this, men are more likely to achieve high-earning positions: 78% of doctors are male, meaning that men have 3.6 times as high a chance of becoming doctors (the highest earning profession) as women. Men are also 21% more likely to be specialized than women, which has a wage premium of around 12,600 CFA (22 USD) per month. Other factors influencing earnings are having a master's degree (wage premium of around 59,000 CFA (101 USD) per month) and living in the capital Bissau (9,500 CFA per month (16 USD)).

**10. Increasing earnings has a positive effect on hours worked.** Once other factors such as experience, education, age, gender, profession and region are controlled for, the increase in hours worked is 0.24% for every 1% increase in monthly earnings. This means that at the current average annual earnings of around 573.500 CFA and average total hours worked of 1130 hours per year, each hour worked needs to bring an economic benefit of 2,125 CFA for a 1% increase in earnings to break even economically. Professionals in the capital Bissau do not work significantly more than in other regions, despite earning a premium for working in the capital.

**11. This report provides the evidence base for designing policies to tackle human resource challenges in Guinea-Bissau and will provide the basis for the next Strategic Plan for Health Workforce Development.** Although in-depth discussions and consultations with the directorate of human resources in the Ministry of Public Health and other stakeholders are necessary to further explore the findings of this report, some initial recommendations can be listed:

- To improve worker satisfaction, it is necessary to *improve general working conditions*, especially for CHWs and especially in rural areas. Economic ways to do so are by *paying salaries in a timely manner, providing better guidance on how many hours each health worker is expected to work* and by *paying an adequate bonus for overtime*;
- To retain workers, it might be possible to use external funds to incentivize staff to remain on the job. *Salary increases among publicly employed health workers are currently not an option*;
- Another way to retain workers is to *offer benefits that kick in when they have been in the job for a certain amount of time*. CHWs could become eligible for health insurance from their second or third year on the job and should be *offered a career path within the health system that goes beyond being a CHW*;
- To increase service provision, it is important to *link pay not to hours worked, but to number and type of services provided*. Currently health workers attend very few patients per hour worked;

- To improve geographic distribution of health workers, the Ministry of Health must *take account of local needs and consider workers' preferences when distributing new hires to their locations*. Currently, no formal process exists for this, resulting in an uneven distribution of health workers across regions. Even though the most recent round of hiring increased staff levels overall, it did not ameliorate regional inequities;
- To improve geographic distribution of health workers, MoH should *review the payment policy to incentivize service provision in areas with the highest need*. A new payment schedule should take account of additional income that service providers in cities can earn, beyond their official wage, and adjust wages in remote areas accordingly;
- To improve HR management on the central level, the *processes of recruitment, hiring and HR administration need to be streamlined and follow more rigorously an assessment of needs and fiscal space*. Collaboration and communication between the Ministry of Public Administration, the Ministry of Finance and the MoH is flawed. Currently, many new hires don't yet receive a salary, despite having been on the job for over half a year;
- To improve quality of service provision, donor programs and the government should *focus on providing the existing staff with medicines, equipment and supplies they need to do their work*. A large share of doctors, nurses and midwives says they frequently deviate from operational protocol because of a lack of medicine or equipment;
- Further research should *explore the demand for health services, investigate new payment schedules* and should *calculate the economic benefits of providing different health services*.

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# 1. Introduction

**This report describes the health workforce in Guinea-Bissau and analyzes factors influencing labor supply and work satisfaction.** A deficient health workforce, both in quantity and quality, has been identified as one of the main problems of Guinea-Bissau's health system and is part of the focus of the World Bank's health systems strengthening strategy. This report provides the third phase of the World Bank's diagnostic of the health sector, the first one being an overview of the health sector compiled from secondary data and the second being the Service Delivery Indicators (SDI) survey.

**Health workforce compensation presents by far the largest share of public spending on the health sector, accounting for 66% of current spending and 60% of the government budget for health in 2018.** Hence, from a financial accountability and financial management perspective, human resources for health are clearly relevant. Government spending on health workers amounted to 5.7 million USD in 2018. This is scheduled to increase to 8.2 million USD in 2019, following a new round of hiring in the health sector.

**Previous reports identified the high concentration of health workers in urban areas and the low density of health workers nationally as main problems.** In August 2018, the Ministry of Public Administration hired around 800 new health workers. This brought the density of health professionals up from 6.9 to 9.9 per 10,000 inhabitants. However, it appears that fiscal constraints were not sufficiently considered and it is not clear when and whether this new workforce will be completely integrated into public administration and receive their salary. Furthermore, contrary to previous recommendations (World Bank Group 2016), the recruitment process was not based on a deployment strategy, but was done rather *ad-hoc* without consideration for local necessities.

**Previous reports have pointed to imbalances in the skill mix and concentration of health workers in urban areas** (World Bank Group 2016). This report confirms these findings, finding especially a lack of specialists and general practitioners in the southern regions. The new hiring round has not improved the geographic distribution of workers. Still 52% of health professionals work in the capital Bissau. Previous reports point to a concentration of 44% (World Bank Group 2018) and half (World Bank Group 2016) of all health workers in the country.

**The report also complements the SDI survey, concluded in May 2018. This survey revealed that even though there are few health workers per population, the caseload of health workers is very low, 2.3 outpatient consultations per health worker per day.** In some regions, this is even below one case per day. The present survey analyzes how health workers distribute their working hours and how many patients they report to treat. Another area of complementarity is health worker's knowledge and their adherence to guidelines. The SDI survey analyzed health workers' knowledge and the inputs available to them. It showed that overall only 29% adhere to clinical guidelines, and 8 common diseases were correctly diagnosed in only 31% of cases. The present survey presents information on health workers' education for a larger sample and asks about their perception of what inputs are lacking for them to do their work satisfactorily.

The survey also explores health workers' ambitions to study/specialize in the future as well as whether they plan to leave the health work force soon.

**Another objective of this study was to gather reliable estimates for health workers income from employment as well as total household income per capita.** To understand income from employment, health workers were asked not only about their official compensation but also about other sources of income related to employment (e.g. informal payments, bonus, food and other benefits). Household income was calculated as income from employment and other activities (e.g. private enterprises, agriculture, livestock, fishing) as well as transfers received, subsidies and other revenues. This was then compared with household consumption and value of assets.

**This report provides the evidence base for a new Strategic Plan for Health Workforce Development.** It analyzes three dimensions: (i) workers' motivations, aspirations and satisfaction; (ii) total hours worked and its distribution across different activities; (iii) compensation, household income and consumption. Based on this, it can serve as the basis for defining career paths, improving allocation decisions of human resources, setting remuneration policies, levels of performance-based pay and non-monetary incentives.

**The largest limitation of the method used is that it relies purely on self-reporting.** We did not, for instance, compare stated salaries to paychecks or verify with health facilities when health workers lamented a lack of equipment or medicine. This likely creates the biggest problems for income and expenditure data, which rely heavily on recalled values, often over a period of 12 months. Another caveat is that the interview would frequently take several hours and fatigue among the interviewees was noticeable towards the end. As a general constraint, the report can almost only be used to gauge supply of health services. The only information on demand for health services comes from the self-reported number of patients treated.

The report is divided into 7 sections. Section 2 explains the health workforce survey in detail. It describes the population of health workers and the sampling methodology. Section 3 describes in more detail the health workforce characteristics. It looks at their geographic distribution, their level of education and their health status. Section 4 analyzes employment characteristics and job satisfaction, while section 5 presents information on health worker's wage, their household income, expenses and wealth. Section 6 offers more details on labor supply, gender wage gaps and factors influencing pay. Sections 7 and 8 offer discussions and recommendations following from the evidence. In the entire report, "health professional" refers to any health worker who is not a Community Health Worker (CHW). CHWs are volunteers who receive a small incentive for their work, but are not "professionals". When we want to talk about all categories of health workers, including CHWs, we simply use the term "health workers".

## **2. Health Workforce Survey**

### **2.1 Health workforce database**

Prior to the survey, no up-to-date central database for health workers existed. To draw the sample, we created two databases of health workers, one for those employed by the state, another one for Community Health Workers (CHWs). For this we collected and merged existing databases. The databases used were:

- A database created by the Ministry of Public Administration (MPA) in October 2017 but not updated since;
- Databases from each regional health directorate, updated in early 2019 to account for 800 new employees in the health sector;
- Databases from hospitals that are not part of a regional health administration, such as the National Hospital Simão Mendes;
- Databases from the four NGOs responsible for implementing the CHW program, recording which CHWs are currently active.

Merging the databases proved challenging, because no unique identifier was consistently present among them, names were frequently spelled differently in different databases and the databases recorded different variables. To merge them, we implemented an algorithm based on fuzzy string matching using the *fuzzywuzzy* library in Python. We used the database from MPA as the base database. We then went through each entry of each of the other databases. Each name was checked against each single name of the MPA database. If two entries overlapped by 95% or more, the information in the MPA database was replaced with the more updated information. If a name did not match any existing name by at least 95%, the name and accompanying information was added as a new entry to the MPA database. To avoid remaining duplications, we then manually compared each entry from the new database to its closest match in the base database (irrespective of matching score). If two entries had similar names and at least two other pieces of identifying information were identical (phone number, profession, employment), we replaced the existing data with the new entry. An exception to this were big hospitals, in which we required all three to be identical.

**The final database for health professionals had a total of 3448 entries.** Their distribution among regions and professional categories is shown in **Error! Reference source not found.**, together with the share of total employees in each cell.

*Table 2.1 Publicly employed health professionals, by profession and region.*

|                | Physician       | Nurse            | Midwife        | Mid-level technician | Other top-level professionals | Unknown or other | <b>Total</b>     |
|----------------|-----------------|------------------|----------------|----------------------|-------------------------------|------------------|------------------|
| Bafata         | 27 (1)          | 130 (4)          | 16 (0)         | 35 (1)               | 4 (0)                         | 15 (0)           | <b>227 (7)</b>   |
| Bijagos/Bolama | 8 (0)           | 111 (3)          | 4 (0)          | 22 (1)               | 2 (0)                         | 10 (0)           | <b>157 (5)</b>   |
| Biombo         | 37 (1)          | 150 (4)          | 26 (1)         | 43 (1)               | 7 (0)                         | 2 (0)            | <b>265 (8)</b>   |
| Bissau         | 196 (6)         | 649 (19)         | 55 (2)         | 364 (11)             | 89 (3)                        | 439 (13)         | <b>1792 (52)</b> |
| Cacheu         | 30 (1)          | 118 (3)          | 16 (0)         | 42 (1)               | 3 (0)                         | 9 (0)            | <b>218 (6)</b>   |
| Farim/Oio      | 27 (1)          | 102 (3)          | 16 (0)         | 35 (1)               | 4 (0)                         | 19 (1)           | <b>203 (6)</b>   |
| Gabu           | 28 (1)          | 131 (4)          | 13 (0)         | 34 (1)               | 2 (0)                         | 32 (1)           | <b>240 (7)</b>   |
| Quinara        | 9 (0)           | 98 (3)           | 7 (0)          | 23 (1)               | 1 (0)                         | 14 (0)           | <b>152 (4)</b>   |
| Tombali        | 5 (0)           | 102 (3)          | 5 (0)          | 16 (0)               | 1 (0)                         | 2 (0)            | <b>131 (4)</b>   |
| Unknown        | 21 (1)          | 9 (0)            | 0 (0)          | 18 (1)               | 2 (0)                         | 13 (0)           | <b>63 (2)</b>    |
| <b>Total</b>   | <b>388 (11)</b> | <b>1600 (46)</b> | <b>158 (5)</b> | <b>522 (15)</b>      | <b>115 (3)</b>                | <b>555 (16)</b>  | <b>3448</b>      |

\*Note: Number of employees (share of total, in percent).

As can be seen, the health workforce is heavily concentrated in the capital, accounting for 52% of health professionals.

For the CHW database, we relied on the implementing NGOs to provide us with the most updated lists. These were compiled between December 2018 and February 2019. There were 3862 active CHWs in the database across all regions. The distribution of active CHWs as of February 2019 is shown in Table 2.2.

*Table 2.2 Community Health Workers, active as of February 2019, by region and gender.*

|              | Bafata     | Biombo     | Bolama/Bijagos | Cacheu     | Gabu       | Oio/Farim  | Quinara    | SAB        | Tombali    | Total       |
|--------------|------------|------------|----------------|------------|------------|------------|------------|------------|------------|-------------|
| Male         | 425        | 188        | 81             | 399        | 482        | 630        | 184        | 449        | 261        | <b>3099</b> |
| Female       | 63         | 59         | 31             | 68         | 77         | 70         | 23         | 349        | 23         | <b>763</b>  |
| <b>Total</b> | <b>488</b> | <b>247</b> | <b>112</b>     | <b>467</b> | <b>559</b> | <b>700</b> | <b>207</b> | <b>798</b> | <b>284</b> | <b>3862</b> |

## 2.2 Sampling and survey preparation

24 enumerators were trained between February 18<sup>th</sup> and February 22<sup>nd</sup>, 2019 to administer the survey. The survey was tested and the enumerators trained and tested via a pilot survey on February 23<sup>rd</sup> and 24<sup>th</sup> among 96 households (4 households per enumerator). Following the pilot, enumerators received feedback on their performance, small corrections to the survey were made and the four best performing enumerators were selected as supervisors. Data was collected between March 12<sup>th</sup> and April 12<sup>th</sup>, 2019. Each four enumerators were paired with one supervisor to form a team. One team of enumerators dispatched to the insular region of Bolama/Bijagos, the remaining enumerators started data collection in Bissau, due to the high concentration of health workers in the capital. After between one and two weeks of data collection in Bissau, the teams were distributed to the remaining seven regions of the country. The survey was written in Portuguese and enumerators asked the questions in Creole or Portuguese. Completed surveys were uploaded every evening to a server and checked by three researchers for completeness and consistency. If inconsistencies were found or if values were implausible, the survey was sent back to the enumerator with comments and a request for clarification or correction.

**The sample was drawn from the merged database and stratified by region and profession.** The sample included 479 CHWs and 416 health professionals, for a total sample size of 895 health workers (12% of total). This constituted an oversampling of 20% of the target, which was to interview at least 10% of all health workers. Of the sampled, 864 (97%) could be located. Reasons for not being able to reach health workers included that they had left the country (temporarily or permanently) or that their contact information was not available in our database and the health center in which they work couldn't or refused to provide enumerators with their contact information. If they could not be located, enumerators were instructed to substitute them with a worker from the same profession in the same facility or, if that is unavailable, a health worker in the same profession in the same region. In this process, 814 (91%, 362 professionals and 452

CHWs) completed the interview. Thus, 11% of the total health workforce was interviewed.

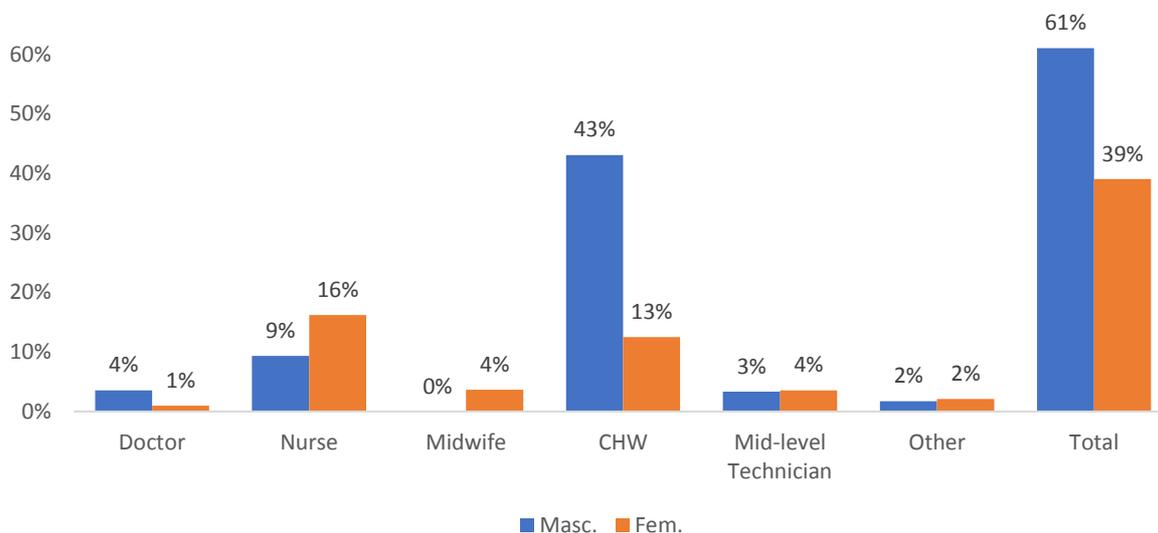
### 3. Health Workforce Characteristics

#### 3.1 General profile

The professional and gender distribution of the sample is shown in **Error! Reference source not found.** and the geographical distribution is shown in **Error! Reference source not found.**. The gender and geographical distribution corresponds relatively closely to the distribution of health workers in Guinea-Bissau, but not identically so. With 61% male in our sample, we slightly under sampled male health workers (68% of all health workers are male). This difference is statistically significant at the 1% level in a two-sided t-test. Under-sampling of male health workers falls almost exclusively on health professionals (40% male in the sample vs. 46% male in total, difference significant at 5% level in two-sided t-test), while for CHWs the gender distribution in the sample corresponds to the gender distribution in the general population of Community Health Workers (77% male).

**Regarding geographical distribution, SAB has been under sampled (33% of the sample from SAB vs. 38% of all health workers) and this difference is statistically significant at the 1% level.** No region is overrepresented by more than 2 percentage points.

Figure 3.1 Sample distribution, by profession and gender



Regarding the distribution of professions, the share of CHWs in our sample corresponds to the share of CHWs in the general population of health workers (53%). Nurses and midwives in our sample are slightly overrepresented compared to the general population of health workers, while technicians are slightly underrepresented. The percentage of doctors in our sample corresponds to the percentage in the general population.

Figure 3.2 Sample distribution, by region

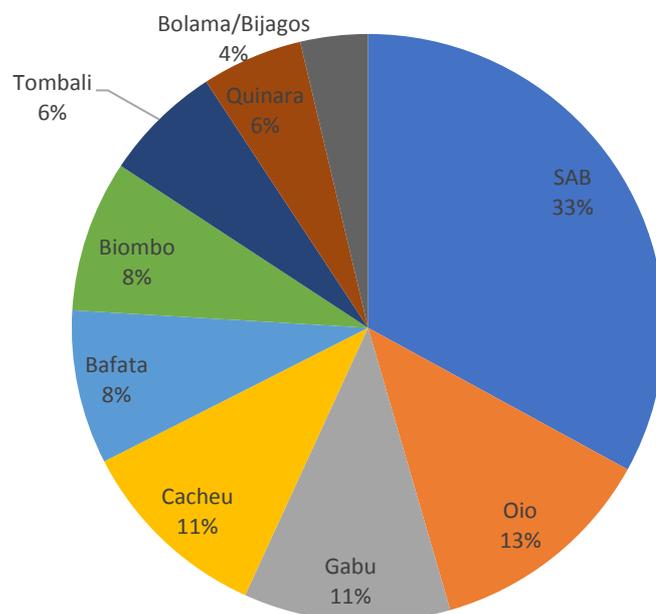


Table 3.1 shows the geographical distribution by profession. We were not able to find professionals from each category in each region. For instance, in Tombali and Bolama/Bijagos, we did not find any doctors and in Bolama/Bijagos we also did not manage to interview any midwife. This is due to the extremely low density of these professions in these regions (see **Error! Reference source not found.** above).

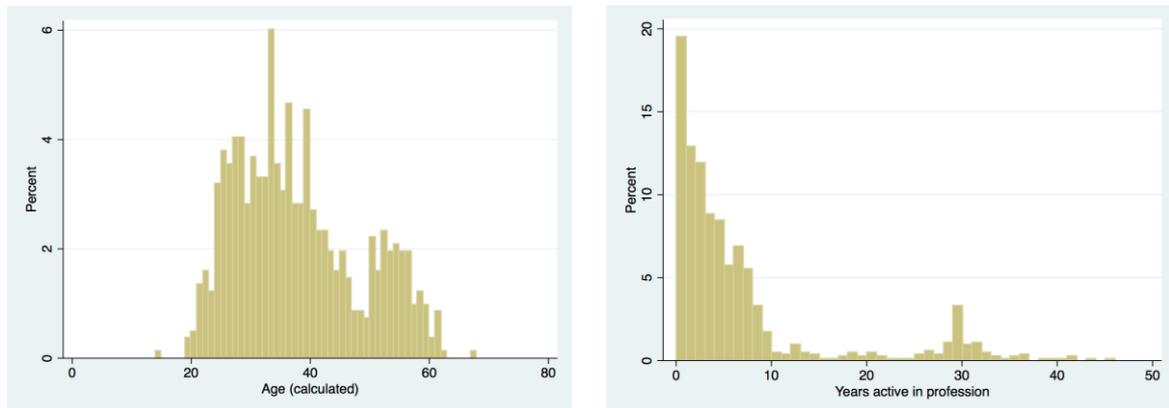
Table 3.1 Sample distribution, by profession and region

|                | Physician  | Nurse       | Midwife    | Mid-level technician | Other top-level professionals | Unknown or other | Total      |
|----------------|------------|-------------|------------|----------------------|-------------------------------|------------------|------------|
| Bafata         | 0.3        | 1.6         | 0.4        | 5.8                  | 0.4                           | 0.1              | 8.5        |
| Bijagos/Bolama | 0.0        | 2.0         | 0.0        | 1.6                  | 0.1                           | 0.0              | 3.7        |
| Biombo         | 0.3        | 3.0         | 0.5        | 3.7                  | 0.6                           | 0.4              | 8.3        |
| Bissau         | 2.7        | 9.5         | 1.7        | 11.9                 | 4.3                           | 2.9              | 33.0       |
| Cacheu         | 0.4        | 2.1         | 0.3        | 7.2                  | 0.6                           | 0.1              | 10.7       |
| Farim/Oio      | 0.4        | 1.4         | 0.4        | 10.2                 | 0.3                           | 0.0              | 12.5       |
| Gabu           | 0.5        | 2.5         | 0.1        | 7.9                  | 0.4                           | 0.0              | 11.3       |
| Quinara        | 0.1        | 1.7         | 0.3        | 3.1                  | 0.3                           | 0.1              | 5.5        |
| Tombali        | 0.0        | 2.0         | 0.1        | 4.3                  | 0.0                           | 0.1              | 6.5        |
| <b>Total</b>   | <b>4.5</b> | <b>25.5</b> | <b>3.7</b> | <b>55.6</b>          | <b>6.9</b>                    | <b>3.8</b>       | <b>100</b> |

**Error! Reference source not found.** shows the age distribution of the sample and the time they have worked in their current profession. The two distributions are clearly very different. While the time worked in their current profession spikes at 1 year and falls sharply, age is more evenly distributed, but with several spikes and troughs. The spike at

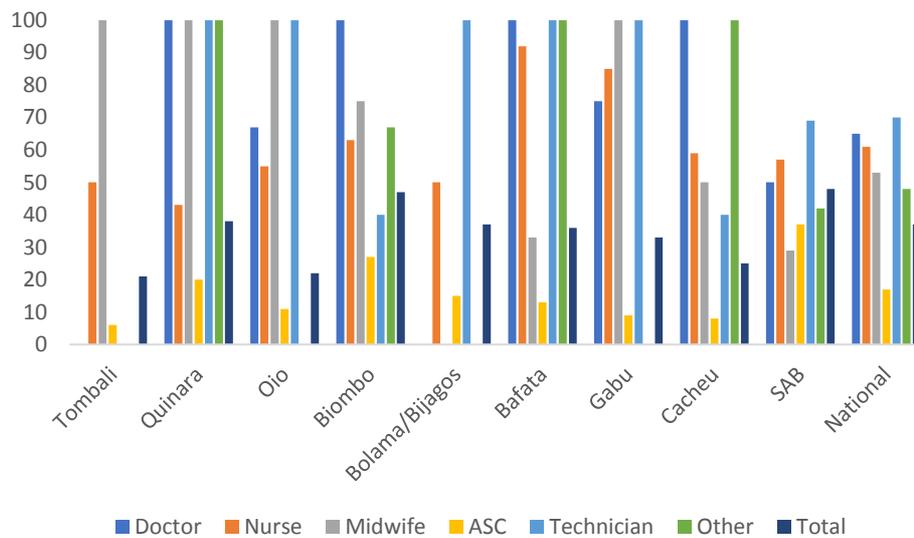
1 year in the years in current profession distribution is due to a new cohort having entered the health sector, after a three-year hiring freeze imposed by the MPA.

*Figure 3.3 Age distribution of sample and years active in profession*



In our sample, 37% are single, 36% married monogamously, 9% live in a polygamous marriage, 12% live in a factual union, 4% are widowed, 1% divorced and 0.4% separated. Regarding religion, the majority (57%) are Christian. 36% are Muslim, 3% animist, 3% follow no religion and 1% follow a different religion. All but three respondents (99.6%) are Bissau-Guinean nationals. Health workers are relatively mobile within Guinea-Bissau. Among health professionals, 61% (66% of male and 57% of female health workers) currently live in a different region than the region in which they were born. This has important implications for staff retention, since professionals working in their region of birth are more likely to remain in their jobs (World Bank Group 2018). Among CHWs, 17% (13% of male, 33% of female CHWs) live in a different region than the one in which they were born. Bissau and Biombo, the capital's adjacent region, are the regions that most attract health workers, with 48% and 47%, respectively, of health workers responding not to be native to the region, compared to 37% national average. **Error! Reference source not found.** shows the percentage of non-native residents by region and profession. If no bar is shown, no data point was available (N=0), except for "other" professionals in Tombali, where the only available observation was also born there.

Figure 3.4 Percentage of health workers who are not native to their place of residence. By profession and region



**Most common reasons for moving out of one’s region of birth were work (35% of respondents) and study (36%).** Nurses were most likely to move for work (53%), while doctors were equally likely to have moved for work and for study (33% each). Most health workers moving to Bissau and Biombo do so for study (64% and 50%, respectively). To all other regions apart from Oio, the main reason for moving was work, i.e. professionals were allocated to work in health facilities in these areas. In Oio, the main reason to move there was a partner’s work.

**An average household in our sample has around 6.2 members.** CHWs live in households with 7.3 members on average, while health professionals live in households with between 4.5 (nurses) and 5.5 (midwives) members.

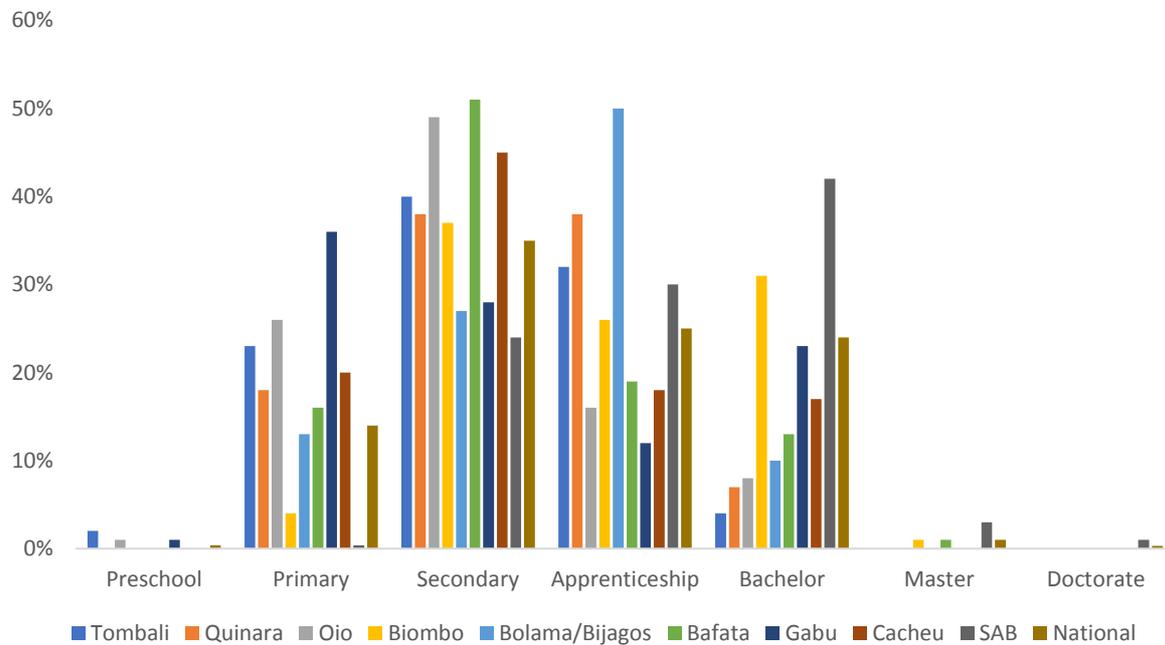
### 3.2 Education

**Figure 3.5 Highest education attained, by region shows the educational attainment (highest level of education attended) of the health workforce by region. SAB is the region with the highest educational attainment, while Tombali has the lowest.** While over 75% of health workers in Bissau have enjoyed an education above secondary school, only 35% in Tombali have done so. Overall, 50% of health workers have attended at most secondary school, 25% have attended a technical school or an apprenticeship, and 25% went to university.

**Overall, women have a higher level of education than men.** While 64% of male respondents did not receive education above secondary school, this figure is only 26% for female respondents. This is almost exclusively driven by the high percentage of male CHWs, since CHWs tend to have lower educational attainment than other professions. 87% of CHWs did not surpass secondary education. The majority (78%) of doctors have a bachelor’s degree (*licenciatura*), 14% have a master’s degree and 5% have a doctorate. Nurses and midwives usually received a technical education (52% and 50%, resp.) or pursued a bachelor’s degree (45% and 50%, respectively, started a bachelor’s degree

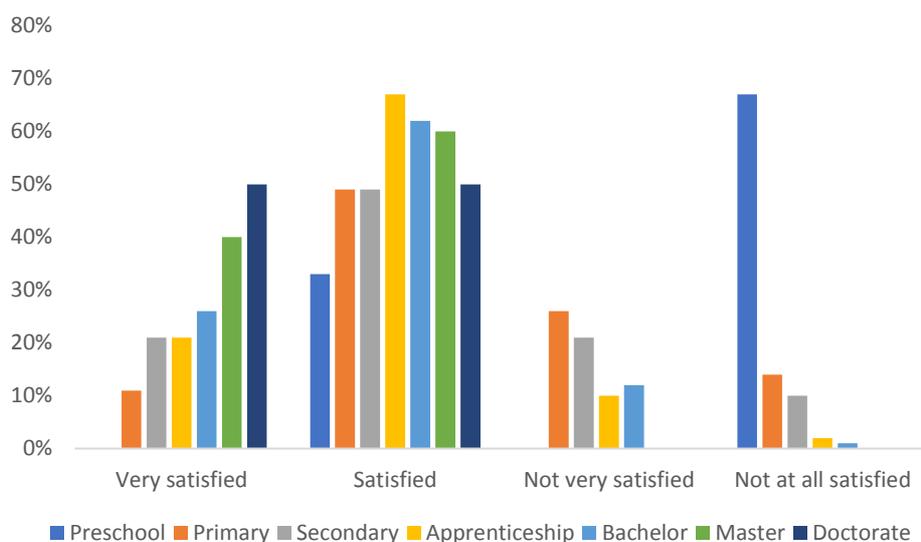
program, 42% and 40% received a degree). Among midlevel technicians, 71% received a technical education and 25% pursued bachelor studies.

Figure 3.5 Highest education attained, by region



**Figure 3.6 Satisfaction with education received, by educational attainmen shows health workers' level of satisfaction with their studies by highest level of schooling attended. The percentage who are satisfied or very satisfied with their education increases with the level of schooling:** All respondents who pursued master or doctoral studies are satisfied or very satisfied, while only a third of respondents who stopped after preschool is satisfied, and only 50% who pursued only primary education is satisfied. Satisfaction with technical education and bachelor studies is also generally high, with only 12% and 13%, respectively, in these categories responding to be not very satisfied or not at all satisfied with the education received at this level.

Figure 3.6 Satisfaction with education received, by educational attainment



**Almost every health worker (98%) is literate in Portuguese and Kriol.** Only a small share (3%) of CHWs cannot write and read Portuguese or Kriol.

### 3.3 Medical education and specialization

**67% of health workers attended studies specifically for their medical employment.** This includes 46% of CHWs. Doctors studied most frequently at the medical faculty “Raul Diaz Arguellez” (75%) and in foreign countries (Soviet Union / Russia, Cuba, Brazil, Morocco, Senegal). For nurses, midwives and technicians, the most frequented school is the *Escola Nacional de Saúde* (ENS). 58% of nurses, 75% of midwives and 60% of technicians received their training here.

**31% of doctors and 21% of nurses are specialized.** However, among those doctors who respond to be specialized, 36% say they are specialized in “General medicine”. Bafata, Gabu and Bissau were the only regions in which specialized doctors were found. In SAB, 43% of doctors are specialized. For other regions, the percentages are not informative due to the small sample size. In Gabu, 33% of nurses are specialized, the highest nationally, compared to 4% in Biombo, 8% in Bafata, 25% in SAB and 27% in Oio. The most frequent specialization among nurses is to be a “licensed nurse” (*enfermeiro superior* or *enfermeiro licenciado*) which is a nurse with two additional years of training. 63% of nurses who responded to be specialized are specialized as licensed nurses. 13% of nurses are specialized as midwives, having broader skills than medical professionals who are only trained as midwives. Men are slightly more likely to be specialized than women (24% vs 21%), but the difference is not statistically significant.

**77% of health professionals who are currently not specialized say they intend to start specialization training in the next 12 months.** Among doctors, this reaches 88%, for nurses 75% expressed intent to start specialization. Men are more likely to say that they intend to specialize than women (85% vs. 71%). This is especially stark for doctors, where 95% of male doctors say they intend to specialize, compared to 60% of female doctors. The most common motivators to specialize are to improve performance (62%)

and to be able to improve patients' health (12%). Money seems to be a motivator for only a small minority (7%).

### **3.4 Health and family health**

**18% of interviewed health workers had health problems that did not result in hospitalization in the 30 days prior to the interview.** Women were more likely than men to have had health problems (21% compared to 16%). Among health workers with health problems, 71% were examined in a health center or by a traditional healer. Midwives and CHWs were less likely to be examined than the national average (50% and 61%, respectively). Among those who were not examined, 56% stated that it was not necessary, 33% stated that they self-medicated, 7% cited that it was too expensive or that they lacked money and 2% stated they lacked confidence. Among CHWs, 11% stated that examination was too expensive or that they didn't have money, and CHWs were the only profession to state this as a reason for not receiving a medical exam.

**The largest share (41%) of respondents with health problems listed fever or malaria as their principal health problem.** 7% listed diarrhea and 7% named blood pressure as their principal condition.

**Self-assessed health status is very mixed and varies by region.** 2% of health workers describe their health status as excellent, 62% say they are in very good or good health, 35% say their health is reasonable and 1% say they are in poor health. These numbers are similar across professions and gender. Comparing across regions, the two southern regions Tombali and Quinara have the worst health assessment: 2% of health workers in each of these regions say they are in poor health compared to 0.6% nationally and 58% and 60% say they are in reasonable health, respectively, compared to 35% nationally. In Tombali, 13% of health workers report to have had a health problem in the past 12 months for which they required hospitalization, compared to 4% of health workers nationally. However, no higher share of health workers in Tombali than the national average reports to have had a health condition which did not result in hospitalization in the past 30 days, nor do more health workers report to have had been sick or examined in the past 3 months.

**On average, health workers incur 16.983 XOF in health expenses per year for their own health conditions.** This is highest for doctors (the profession with the highest earnings), who incur on average 71.100 XOF annually in health expenses. This corresponds to around 3% of their mean annual compensation in their main employment. Community health workers incur only 10.200 XOF annually, even though they are not less nor more likely to have had health problems than other professions. This is almost 13% of the compensation received for their work as CHWs. In general, each percent increase in total annual earnings increases health expenditure by 0.23%. High out-of-pocket health expenditure is explained by the fact that only 1% of health workers are covered by health insurance.

Considering expenses incurred among all household members, households spend on average 83.900 XOF annually on health. This corresponds to 7% of total annual household income. CHWs spend only 60.400 XOF (10% of mean household income) on health, whereas nurses spend 112.300 XOF (6% of mean household income), technicians

108.700 XOF (6% of mean household income), doctors 87.900 XOF (3% of total household income) and midwives 83.300 XOF (4% of total household income).

## 4. Employment characteristics

**The vast majority of interviewees (99%) were employed by the Ministry of Health (MoH), not considering CHWs.** Two were employed with local associations and one in a private enterprise. Health workers have exercised their professions for an average of 7 years and 3 months. CHWs have been on the job for the shortest time, having worked as CHWs for an average of 4 and a half years. Health professionals worked on average 10 years and 9 months, but with large differences between professions and across regions. While midwives have worked in their current profession for an average of 15 years, doctors have been active for around 6 years and 4 months. Overall, health professionals have been in their current position for an average of 10 years. While doctors have been in their current position for 5 years on average, midwives have been in their positions for 13 years and 3 months.

### 4.1 Health Professionals

#### 4.1.1 Terms of employment

**Terms of employment for health professionals are similar for different regions, professions and gender. Error! Reference source not found.** shows the terms of employment of the main medical employment for health professionals.

*Table 4.1 Terms of employment, main medical employment.*

|  | Doctor | Nurse | Midwife | Technician | Other | Total |
|--|--------|-------|---------|------------|-------|-------|
| N  | 37     | 208   | 30      | 56         | 31    | 362   |
| Have an employment contract                                    | 92     | 91    | 90      | 93         | 94    | 92    |
| Are salaried   | 76     | 83    | 80      | 79         | 87    | 81    |
| Have a paycheck receipt  | 68     | 69    | 67      | 66         | 58    | 67    |
| Contribute to INSS   | 71     | 68    | 75      | 66         | 52    | 67    |
| % of employees who   |        |       |         |            |       |       |
| Qualify for sick leave   | 29     | 26    | 25      | 48         | 15    | 28    |
| Qualify for paid holidays                                      | 50     | 53    | 58      | 41         | 41    | 51    |
| Have taken paid holidays, past 12 months                       | 33     | 48    | 50      | 26         | 37    | 43    |
| Qualify for maternity/paternity leave                          | 7      | 39    | 46      | 32         | 30    | 35    |
| Have taken maternity/paternity leave, past 12 months           | 7      | 39    | 46      | 32         | 27    | 34    |
| Number of paid holidays over past 12 months (average)          | 18     | 26    | 22      | 20         | 25    | 24    |
| Number of days for regular maternity/paternity leave (average) | 60     | 67    | 67      | 56         | 71    | 66    |

\*Note: The questions were only asked to employees who stated they were salaried.

**Almost all (92%) health professionals have an employment contract.** We were not able to find a pattern among those reported to not have a contract. However, only two-thirds of employees report to have a paycheck receipt. A possible explanation is problems in the transmission of paycheck receipts: While 73% (N=272) of professionals in urban areas receive a paycheck receipt, only 50% (N=90) of professionals in rural areas receive a paycheck receipt. Furthermore, professionals who have been in their profession or in their current position for less than a year (N=76) are more than twice as likely to not receive a paycheck receipt as professionals who have worked for over a year. This suggests that lags in public administration are partly responsible for this.

**Not all health professionals reported being salaried.** Recently allocated personnel account for 67% of non-salaried professionals, being 7.7 times as likely to not be salaried as personnel located for more than a year.

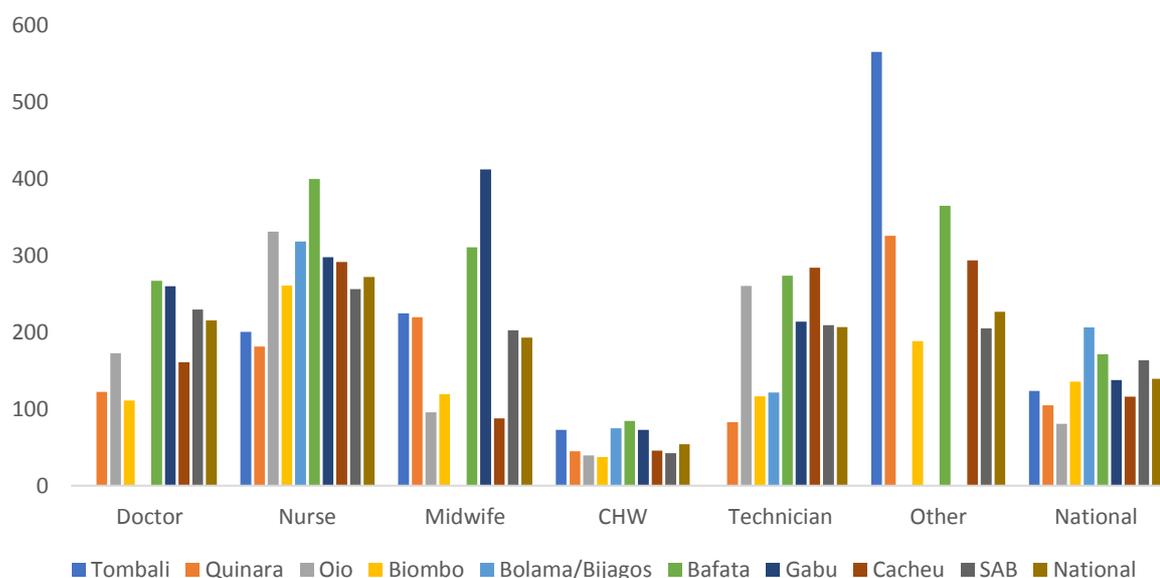
**A minority (28%) qualifies for sick leave.** Professionals in urban areas are 2.6 times as likely (33%) as professionals in rural areas (13%) to qualify for sick leave. Recently allocated professionals are slightly more likely to qualify for sick leave. Mid-level technicians are most likely to qualify for sick leave, but less likely than the national average to qualify for paid holidays.

**Overall, employment conditions are remarkably similar across professions.** An exception to this is maternity/paternity leave, which is higher in professions that are majority female, such as midwives (where 100% of workers are female) and nurses, where 64% of professionals are female.

#### **4.1.2 Time use**

**Time spent on health employment differs vastly by region and profession. Error! Reference source not found.** shows the number of 8-hour equivalent work day that employees in each profession worked over the past 12 months in their main medical employment. These were calculated from self-reported hours worked during a week, days worked per months and months worked in the past 12 months.

Figure 4.1 8-hour equivalent work days over the past 12 months. By profession and region

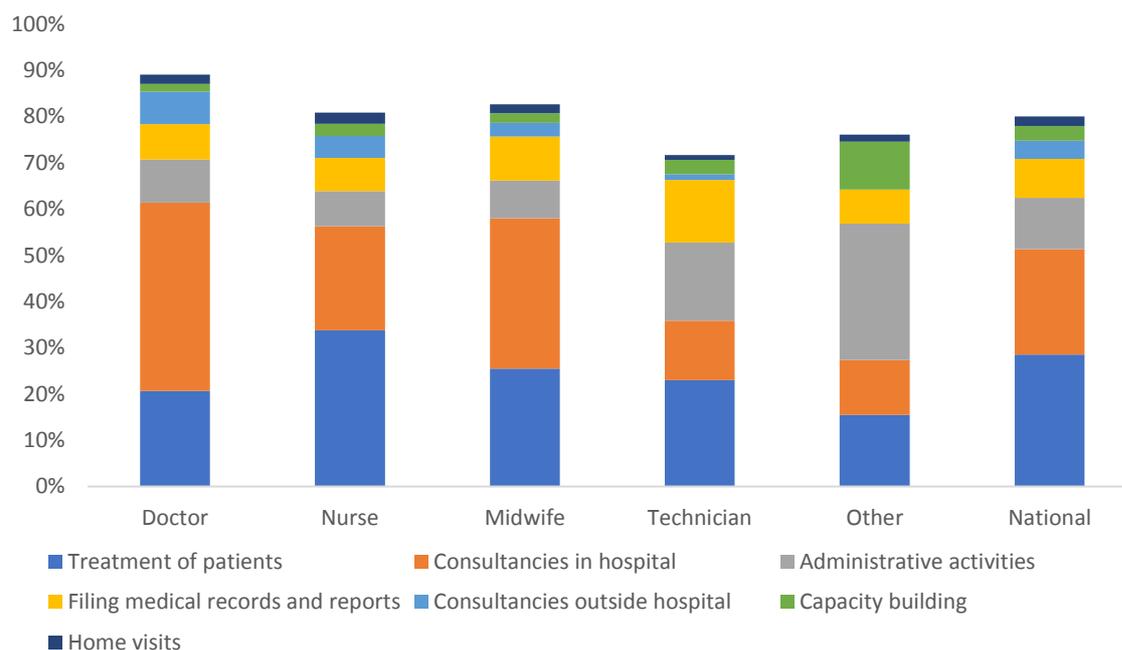


\*Note: 8-hour equivalent work days can exceed 365 if total hours worked during a year exceed 2920. It means that if these professionals worked every day of the year, they would work more than 8 hours per day.

**Health workers worked usually 10 months out of the past 12 months.** Part of this is explained by the new hires who have been employed in the health workforce for less than a year. Professionals who have been in their current position for at least one year have worked an average of 10.8 months. During an average work week, health workers work on average 4 days. CHWs work on average 3.2 days per week, technicians 4.7, nurses and midwives 5 and doctors 5.7 days. 81% of health workers work during weekends.

**There are large regional differences in hours worked.** Doctors in Bafata work more than twice as much as doctors in Quinara (267 8-hour days vs. 122 8-hour days annually). Midwives in Gabu even work more than 4 times as many hours as midwives in Oio (3300 hours annually vs. 765 hours). However, these differences very uncertain due to the small sample size in the respective categories. For instance, our sample included only one single observation for midwives in Gabu and only three observations for midwives in Oio. But even in categories with larger samples, differences in hours worked are large. While CHWs work on average 677 hours annually (85 8-hour working days) in Bafata, they work only 299 hours (37 8-hour working days) in Biombo and only 339 hours (42 8-hour working days) in SAB.

Figure 4.2 Time used for different activities, by profession



**Doctors spend 70% of their time caring for patients (time spent on consultancies, treatment and home visits), compared to 63% for nurses and midwives. Error! Reference source not found.** shows the time distribution across various activities for different professions. Over all professions, the listed activities account for 80% of total hours worked. Activities are not exhaustive, as they do not include, for instance, laboratory work. This explains why technicians' time is accounted for the least (only 72% of their time is accounted for in these activities).

**Time spent per patient appears very high.** The average time spent with patients was calculated by adding time spent on house visits, consultancies, and treatment during an average week. **Error! Reference source not found.** shows days and hours worked per week and patients attended during an average week. On average, health care providers spend around one hour and 13 minutes with each patient. This is in line with the findings in the SDI survey that the caseload per health worker is very low. Nurses spend one and a half hours with each patient. In part this is driven by 10 observations (3%, one doctor, 8 nurses, one other) who spend over 6 hours on average per patient. These providers attend very few patients (5 on average) compared to the national average and spend above average (41 hours) on patient care. Excluding these observations, average time per patient lies just below one hour (59 minutes), with doctors spending 41 minutes, nurses 75 minutes, midwives 50 minutes, and technicians and others between 28 and 29 minutes per patient.

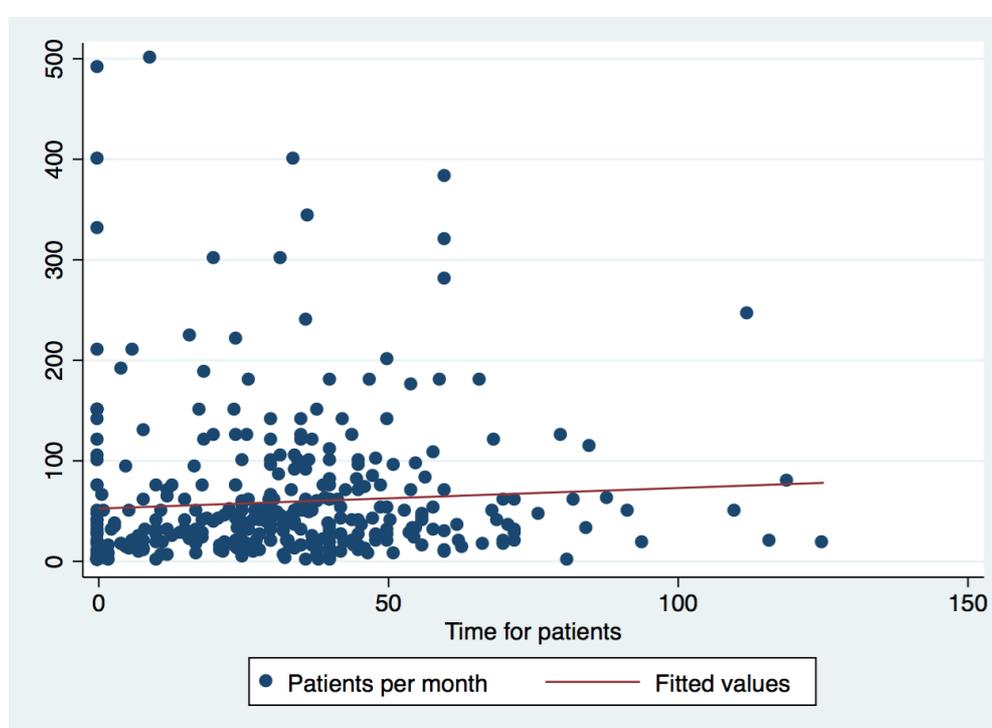
Table 4.2 Days and hours worked per week and patients attended. By profession.

|   | Doctor | Nurse | Midwife | Technician | Other | Total |
|---|--------|-------|---------|------------|-------|-------|
| N | 37     | 208   | 30      | 56         | 31    | 362   |

|  |     |     |     |     |     |     |
|--|-----|-----|-----|-----|-----|-----|
| Days worked during an average week                 | 5.7 | 5.0 | 4.9 | 4.7 | 5.1 | 5.0 |
| Hours worked during an average week                | 51  | 55  | 49  | 44  | 43  | 51  |
| Share of time worked in emergency (%)              | 46  | 36  | 25  | 35  | 36  | 36  |
| Share of time worked overtime (%)                  | 9   | 13  | 10  | 9   | 8   | 12  |
| Number of patients attended during an average week | 96  | 46  | 53  | 89  | 53  | 59  |
| Average minutes per patient attended               | 62  | 89  | 50  | 28  | 68  | 73  |

**Error! Reference source not found.** shows that there is only a very weak correlation ( $r=0.07$ ) between the total time reported to be spent with patients and the number of patients attended. This correlation is strongest ( $r=0.21$ ) for midwives.

*Figure 4.3 Hours per week spent on patient care and number of patients attended*



## 4.2 Community Health Workers

### 4.2.1 General

**Community health workers work an average of 10.2 months per year, 12.5 days per month, 3.2 days per week, and 338 hours per year (42 8-hour day equivalents).** **Error! Reference source not found.** shows various characteristics of their work.

Table 4.3 Workload of CHWs, by region.

|                | N   | Family visits during an average month | Hours per working day spent on family visits | Average time per visit (hours)* | HH members visited per visit | Average time per HH member (hours) | Same family visited every ... months | Total number of families attended |
|----------------|-----|---------------------------------------|--|---------------------------------|------------------------------|------------------------------------|--------------------------------------|-----------------------------------|
| Tombali        | 35  | 18                                    | 3.2  | 3.8                             | 7.9                          | 1.0                                | 1.9                                  | 27                                |
| Quinara        | 25  | 20                                    | 2.8  | 2.7                             | 5.8                          | 2.1                                | 2.1                                  | 52                                |
| Oio            | 83  | 45                                    | 2.8  | 1.4                             | 6.8                          | 0.3                                | 2.7                                  | 137                               |
| Biombo         | 30  | 24                                    | 3.7  | 2.0                             | 4.7                          | 0.5                                | 4.3                                  | 56                                |
| Bolama/Bijagos | 13  | 25                                    | 3.3  | 3.6                             | 4.3                          | 1.5                                | 2.0                                  | 43                                |
| Bafata         | 47  | 15                                    | 4.3  | 3.5                             | 9.8                          | 1.8                                | 3.2                                  | 82                                |
| Gabu           | 64  | 23                                    | 3.6  | 3.3                             | 8.0                          | 1.6                                | 3.0                                  | 112                               |
| Cacheu         | 59  | 32                                    | 3.6  | 1.8                             | 5.0                          | 0.4                                | 2.9                                  | 50                                |
| SAB            | 97  | 22                                    | 3.6  | 2.7                             | 7.1                          | 1.1                                | 3.4                                  | 83                                |
| Female         | 102 | 26                                    | 3.3  | 2.4                             | 6.8                          | 0.9                                | 3.0                                  | 79                                |
| Male           | 350 | 27                                    | 3.5  | 2.5                             | 7.0                          | 1.0                                | 2.9                                  | 85                                |
| National       | 452 | 27                                    | 3.5  | 2.5                             | 6.9                          | 1.0                                | 3.0                                  | 84                                |

\*excludes observations with time per visit > 12 hours

**CHWs visit an average of 27 families per month, even though national policy states that each CHW should be responsible for around 50 families and visit every month.**

Only 31% of CHWs fulfill this goal of visiting 50 families per month. 39% visit less than 10 families per month and over 50% visit less than 20. However, in all but three regions, CHWs care for over 50 families in total, as calculated by the number of families visited per month and the visiting frequency. So, the problem to implementing the 50-families per month policy appears to be that visits are insufficiently frequent, occurring on average every 3 months rather than every month. In Biombo visits occur even only every four months, while in Tombali families are visited every two months on average. Gender differences between CHWs are negligibly small.

#### 4.2.2 Supervision

Table 4.4 Supervision of and coordination meetings attended by CHWs. By region and gender

|                | N   | Number of SOT or RAS supervisions per month | SOT & RAS meetings attended, past 12 months | Bonus received for monthly meetings, past 12 months | Bonus received for monthly meetings (amount per meeting, CFA) |
|----------------|-----|---|---|---|---|
| Tombali        | 35  | 1.5   | 8.5   | 4.5   | 1200  |
| Quinara        | 25  | 1.6   | 9.8   | 2.4   | 1125  |
| Oio            | 83  | 1.8   | 4.6   | 3.7   | 3031  |
| Biombo         | 30  | 1.3   | 9.3   | 9.3   | 1650  |
| Bolama/Bijagos | 13  | 2.4   | 9.2   | 8.8   | 5345  |
| Bafata         | 47  | 1.6   | 9.2   | 3.5   | 815   |
| Gabu           | 64  | 1.1   | 9.4   | 7.8   | 1695  |
| Cacheu         | 59  | 1.2   | 10.3  | 10.4  | 1659  |
| SAB            | 97  | 2.0   | 9.1   | 8.7   | 2326  |
| Female         | 102 | 2.0   | 8.8   | 7.8   | 2369  |
| Male           | 350 | 1.5   | 8.4   | 6.4   | 1879  |
| National       | 452 | 1.6   | 8.5   | 6.7   | 1988  |

**Supervision by an operation field supervisor (*Supervisor Operacional do Terreno, SOT*) or by the health area responsible (*Responsável Área Sanitária, RAS*) takes place on average more often than once per month.** While in Gabu supervision is done barely more than once per month, CHWs in Bolama/Bijagos and Bissau receive two or more supervision visits on average. Besides having supervision visits, monthly supervision and coordination meetings take place as part of the CHW program, at which news are shared and CHWs share data with their supervisors and those responsible for their health area. On average CHWs attend 8.5 of these meetings annually, which means they miss one meeting every three to four months. There are large differences between regions. In Oio, CHWs attend less than half the scheduled meetings, while in Cacheu they miss less than 2 per year. This might be because the CHW program has only recently been rolled out in Oio and it might need time to establish regular attendance.

### 4.3 Other employment

**19% of the health workforce have a second employment besides their principal employment.** This share is highest among CHWs. This is perhaps unsurprising, since officially CHWs are volunteers and it is understood that usually they will receive their main income from another source than their work as CHW. Rates of second employment are highest in Oio, where 30% of health workers have a second employment. They are lowest in the southern region of Tombali, where only 8% pursue a second employment.

**There are large gender differences, with men being almost twice as likely to pursue a second employment as women (23% vs. 12%).** This is in large part driven by 28% of male CHWs having an additional employment, compared to 17% of female CHWs. For other professions, gender differences are small.

*Table 4.5 Secondary employment characteristics. By main health profession.*

|   | Doctor | Nurse | Midwife | CHW | Technician | Other | National |
|---|--------|-------|---------|-----|------------|-------|----------|
| N   | 37     | 208   | 30      | 452 | 56         | 31    | 814      |
| Worked in other employment (%)                      | 14     | 6     | 13      | 26  | 18         | 13    | 19       |
| 2nd employment is in health workforce (%)           | 60     | 38    | 75      | 3   | 60         | 100   | 16       |
| 2nd employment - employer is MINSAP (%)             | 0      | 40    | 0       | 25  | 0          | 25    | 16       |
| Time employed in 2nd employment (years)             | 4.2    | 3.6   | 12.6    | 2.3 | 6.6        | 12.3  | 6.6      |
| Hours per average week worked in 2nd employment     | 14     | 24    | 50      | 32  | 25         | 9     | 30       |
| Days per average month worked in 2nd employment     | 12     | 21    | 22      | 21  | 14         | 12    | 20       |
| Months worked in 2nd employment over past 12 months | 7.6    | 8.4   | 11      | 7.9 | 9          | 9.5   | 8.1      |
| Months worked in more than 1 employment             | 7.6    | 6.8   | 10.8    | 6.7 | 8.1        | 9.5   | 7        |
| 8-hour day equivalents                              | 71     | 117   | 304     | 127 | 112        | 49    | 126      |
| <b>Terms of 2nd employment</b>                      |        |       |         |     |            |       |          |
| Employment contract                                 | 80     | 23    | 75      | 38  | 80         | 100   | 43       |
| Salaried  | 60     | 23    | 75      | 47  | 80         | 100   | 50       |
| Paycheck receipt                                    | 80     | 31    | 50      | 32  | 60         | 100   | 38       |
| Received informal payments                          | 0      | 0     | 25      | 3   | 10         | 0     | 4        |

|                         |    |   |   |    |    |   |    |
|-------------------------|----|---|---|----|----|---|----|
| Received bonus          | 0  | 8 | 0 | 1  | 0  | 0 | 1  |
| Received food           | 0  | 8 | 0 | 12 | 20 | 0 | 11 |
| Received other benefits | 20 | 8 | 0 | 3  | 40 | 0 | 7  |

**Among those with a second employment, 16% have this employment in the health workforce.** This means that overall 3% of health workers have a second employment in the health workforce. The majority of health workers find their second employment in a private enterprise (70%). This is also the case for those whose second employment is in the health workforce: 71% find employment with a private enterprise, most likely private clinics.

**Professionals have worked in their second employment an average of 6 years and 7 months.** This is longer than this group has worked in their health employment (5 years and 10 months). This is mainly driven by CHWs who worked in regular employment and joined the health workforce thereafter additionally. Publicly employed health workers have worked an average of 7.5 years in their second employment, compared to an average of 9.7 years in their main employment.

**Health workers work on average 15 hours less per week in their second employment than in their main profession.** While doctors with two jobs spend 19% (13.2 hours per week) of their total work time on their second employment, midwives spend 52% (46.6 hours per week) on their second employment.

**Employment conditions are fundamentally different in secondary employment compared to principal employment.** Only 43% have an employment contract, compared to 92% in their principal employment. Only 50% are salaried compared to 81% of health professionals in principal employment and only 38% have their paycheck receipt, compared to 67% in principal employment. These numbers are particularly low for nurses and community health workers, of whom only 23% and 38% have an employment contract in their second employment, only 31% and 32% have a paycheck receipt and only 23% and 47% are salaried, respectively.

#### 4.4 Job satisfaction

Error! Reference source not found. **shows satisfaction of health workers with various aspects of their work.** For each profession, the table shows whether workers responded to be satisfied or very satisfied or to be dissatisfied or very dissatisfied. The survey also offered the option “I am not sure”, which is why the responses do not always add up to 100%.

*Table 4.6 Job satisfaction across various dimensions, by profession.*

|                 | Doctor  | Nurse   | Midwife | CHW     | Technician | Other | National |
|-----------------|---------|---------|---------|---------|------------|-------|----------|
| N               | 37      | 208     | 30      | 452     | 56         | 31    | 814      |
| Variety         |         |         |         |         |            | 77 /  |          |
| Work conditions | 70 / 24 | 80 / 18 | 87 / 13 | 83 / 15 | 88 / 13    | 19    | 82 / 16  |
| Use of skills   | 24 / 76 | 32 / 66 | 23 / 73 | 30 / 67 | 29 / 66    | 74    | 30 / 68  |
|                 |         |         |         |         |            | 71 /  |          |
|                 | 76 / 24 | 92 / 7  | 93 / 7  | 91 / 7  | 84 / 16    | 23    | 89 / 9   |

|                                    |         |         |         |         |         |        |         |
|------------------------------------|---------|---------|---------|---------|---------|--------|---------|
| Colleagues                         |         |         |         |         |         | 87 /   |         |
|                                    | 86 / 8  | 93 / 5  | 90 / 10 | 93 / 5  | 95 / 2  | 10     | 93 / 6  |
| Recognition of work                |         |         |         |         |         | 74 /   |         |
|                                    | 81 / 14 | 88 / 8  | 83 / 7  | 87 / 6  | 93 / 5  | 23     | 87 / 8  |
| Hours                              |         |         |         |         |         | 74 /   |         |
|                                    | 49 / 43 | 58 / 39 | 53 / 47 | 91 / 7  | 63 / 38 | 26     | 77 / 21 |
| Compensation (amount)              | 3 / 90  | 3 / 87  | 7 / 73  | 5 / 94  | 5 / 86  | 6 / 87 | 5 / 90  |
| Compensation (timeliness)          |         |         |         |         |         | 13 /   |         |
|                                    | 14 / 73 | 15 / 77 | 23 / 63 | 11 / 88 | 11 / 80 | 84     | 13 / 83 |
| Level of responsibility            |         |         |         |         |         | 84 /   |         |
|                                    | 78 / 11 | 95 / 4  | 100 / 0 | 94 / 3  | 86 / 11 | 16     | 93 / 5  |
| Commuting time                     |         |         |         |         |         | 39 /   |         |
|                                    | 46 / 51 | 56 / 42 | 40 / 60 | 62 / 36 | 46 / 54 | 61     | 57 / 41 |
| General satisfaction               |         |         |         |         |         | 81 /   |         |
|                                    | 81 / 14 | 84 / 15 | 80 / 17 | 88 / 11 | 88 / 9  | 16     | 86 / 12 |
| General satisfaction of colleagues |         |         |         |         |         | 58 /   |         |
|                                    | 70 / 8  | 82 / 9  | 67 / 7  | 69 / 11 | 71 / 13 | 16     | 72 / 11 |

\*% satisfied or very satisfied / % dissatisfied or very dissatisfied.

**68% of respondents said they were dissatisfied or very dissatisfied with their working conditions.** While health workers are overwhelmingly satisfied or very satisfied with “soft” indicators of their work, such as variety, opportunities to use professional skills, their colleagues, recognition they receive for their work and their level of responsibility, satisfaction drops for measurable, “hard” variables such as hours, compensation and commuting time.

**21% say they are unsatisfied or very unsatisfied with hours worked. This share is higher among health professionals (39%).** It is especially high among midwives and doctors, professions in which 47% and 43% are unsatisfied with hours worked. Female respondents are less satisfied with hours worked than male respondents. While 28% of females are dissatisfied with their hours, only 17% of males are dissatisfied. However, this is driven by men being more frequently CHWs and CHWs being usually satisfied with their hours. Among health professionals, 38% of women and 40% of men are dissatisfied with their hours. Within this group, 48% would like to decrease their hours and 5% would like to increase hours worked. 47% would like to leave their hours unchanged, even though they are dissatisfied or very dissatisfied with hours worked. Overall among health professionals, 4% would like to increase their hours and 30% would like to decrease their hours. Among CHWs, 88% would not like to adjust their hours while 9% would like to increase hours worked. The overwhelming majority (87%) who would like to increase their hours worked would like to do so to improve patient care. Only 7% want to do so to increase their pay. Among those who want to reduce their hours, 39% want to reduce their stress and 48% name more free time as their motivation.

**Overall, 25% of respondents say it is probable or very probable that they will reduce the number of hours worked in the next five years.** Among nurses and midlevel technicians this reaches 39% and among doctors it reaches 35%. The correlation between being dissatisfied with number of hours worked and saying it is probable or very probable to reduce hours worked in the next five years is  $r=0.34$ . 22% of CHWs say it is probable or very probable they will leave the health workforce in the next five years, while only 5% of doctors say so.

**Dissatisfaction with compensation is very high.** 90% of health workers are unsatisfied or very unsatisfied with the amount they receive and 83% are unsatisfied with the timeliness of payment. These levels are high among all professions, but dissatisfaction is particularly high among CHWs, where 94% are dissatisfied with the amount and 88% are dissatisfied with the timeliness. Due to a process of verifying the CHWs work and submitting payment requests to a mobile-money operator, compensation frequently arrives two months or more after completion of work. Among health professionals, dissatisfaction with the timeliness of payment is a bit surprising when compared to the SDI survey results. In these, only 7% of health workers reported a delay in their last payment. It might thus be that there has been a deterioration in salary payments since early 2018, or that the SDI survey was carried out during a time in which salaries were paid on time.

**Many health workers (41%) are also unsatisfied with their commuting time.** Among health professionals, this share is 48%. It is particularly high in Bissau, where 55% of workers (71% of health professionals) are dissatisfied or very dissatisfied with their commuting time. The share is also high in Tombali (49%, 6% among health professionals and 71% among CHWs), Quinara (42%, 0% among health professionals and 76% among CHWs) and Bafata (41%, 41% among health professionals and 40% among CHWs). This is problematic since long commutes can keep health workers away from work and contribute to absenteeism.

**Even though health workers are frequently dissatisfied with “hard” indicators of their work, their general satisfaction with their work is relatively high.** Among all professions, over 80% are satisfied or very satisfied. Men and women are similarly satisfied. However, there are some differences across regions. Among CHWs, 20% in Gabu and 19% in Oio are dissatisfied or very dissatisfied, compared to none in Biombo and Cacheu. Among health professionals, satisfaction is highest in Tombali, Quinara and Biombo (none dissatisfied or very dissatisfied), and lowest in Bafata (27% dissatisfied), Bolama/Bijagos (24% dissatisfied), Gabu (21% dissatisfied) and SAB (19% dissatisfied). Whether a health worker is satisfied with her work seems to be determined mostly by soft indicators: general work satisfaction has a correlation with work variety of 0.39 and with use of professional skills and colleagues of 0.25. In contrast, the correlation between general work satisfaction and compensation amount is only 0.11 and with commuting time it is 0.16.

**Error! Reference source not found.** explores in more detail the working conditions faced by health workers. Interviewees were asked if they strongly agree, agree, disagree or strongly disagree with a given statement. The option “I am not sure” was also available.

Table 4.7 Agreement with statements about working conditions. By profession.

|   | Doctor  | Nurse   | Midwife | CHW     | Technician | Other   | National |
|---|---------|---------|---------|---------|------------|---------|----------|
| N   | 37      | 208     | 30      | 452     | 56         | 31      | 815      |
| I have a good work-life balance   | 51 / 43 | 63 / 36 | 77 / 20 | 64 / 31 | 75 / 25    | 74 / 26 | 65 / 32  |
| I have a support network of individuals in the same profession                          | 78 / 19 | 66 / 32 | 80 / 13 | 50 / 48 | 55 / 43    | 61 / 35 | 57 / 40  |
| I receive sufficient administrative support in my daily work                            | 24 / 70 | 38 / 59 | 40 / 57 | 29 / 64 | 34 / 61    | 23 / 77 | 32 / 63  |
| I receive sufficient technical support in my daily work                                 | 57 / 43 | 63 / 36 | 77 / 23 | 43 / 50 | 66 / 30    | 52 / 48 | 52 / 44  |
| I receive sufficient support from specialists in my daily work                          | 43 / 57 | 30 / 68 | 47 / 50 | 19 / 75 | 39 / 57    | 42 / 55 | 26 / 69  |
| I find it difficult to take a day off when I want to                                    | 62 / 32 | 58 / 39 | 43 / 53 | 38 / 59 | 50 / 45    | 52 / 45 | 45 / 51  |
| I can take days off in case of personal emergencies                                     | 70 / 24 | 74 / 26 | 83 / 13 | 84 / 14 | 86 / 11    | 77 / 19 | 81 / 18  |
| My patients have high expectations regarding how I can help them                        | 95 / 3  | 94 / 4  | 93 / 3  | 93 / 2  | 75 / 4     | 77 / 13 | 92 / 3   |
| My patients have unrealistic expectations regarding how I can help them                 | 22 / 57 | 19 / 71 | 20 / 70 | 19 / 62 | 18 / 59    | 23 / 61 | 19 / 64  |
| The majority of my patients have serious health problems                                | 78 / 22 | 72 / 24 | 60 / 40 | 35 / 57 | 64 / 18    | 68 / 19 | 51 / 42  |
| The majority of my patients have serious social problems                                | 73 / 5  | 75 / 14 | 83 / 7  | 59 / 31 | 61 / 5     | 61 / 16 | 65 / 23  |
| I feel that I don't have the necessary skills for my daily work                         | 49 / 49 | 29 / 70 | 30 / 70 | 32 / 64 | 41 / 59    | 39 / 61 | 33 / 64  |
| I feel that I have superior qualifications to what is required for my daily work        | 78 / 14 | 84 / 12 | 93 / 3  | 73 / 19 | 91 / 5     | 100 / 0 | 79 / 15  |
| My work hours are unforeseeable   | 57 / 32 | 58 / 37 | 40 / 53 | 57 / 37 | 59 / 39    | 55 / 39 | 56 / 38  |
| I regularly receive emergency calls to return to work                                   | 78 / 22 | 58 / 40 | 23 / 73 | 71 / 28 | 52 / 45    | 65 / 35 | 65 / 34  |
| My workplace is clean   | 78 / 19 | 87 / 11 | 70 / 20 | 83 / 10 | 86 / 14    | 71 / 26 | 83 / 12  |
| My expectations in relation to my work were not met                                     | 51 / 43 | 54 / 42 | 37 / 53 | 47 / 45 | 46 / 48    | 52 / 45 | 49 / 45  |
| Utensils and equipment necessary to exercise my work are available                      | 19 / 81 | 32 / 67 | 27 / 73 | 37 / 61 | 39 / 68    | 26 / 74 | 34 / 65  |
| Pharmaceutical products necessary to exercise my work are available                     | 32 / 65 | 41 / 57 | 33 / 67 | N/A*    | N/A        | N/A     | 39 / 59  |
| I often don't follow clinical protocol for lack of equipment or pharmaceutical products | 70 / 27 | 64 / 35 | 43 / 57 | N/A     | N/A        | N/A     | 63 / 36  |

\*Note: % who agree or strongly agree / % who disagree or strongly disagree.

N/A: No answers available because the question was not asked to this group.

**The majority of health workers (65%) has a good work-life balance.** Among doctors, only half say to have a good work-life balance. Whether workers are satisfied with their work-life balance only correlates weakly with the hours worked ( $r = 0.11$ ).

**While most health workers (52%) receive sufficient technical support, there is a lack of administrative support and of support from specialists, with only 26% saying they receive sufficient support from specialists.** Among CHWs, a majority says they don't receive enough administrative, technical and specialists support.

**A higher percentage (65%) of health workers says their patients have serious social problems than say their patients have serious medical problems (51%).** The low percentage of service providers saying their patients have serious medical problems is driven by community health workers, who are more likely to do routine visits, visit pregnant women, check up on children's growth paths, etc. Among health professionals, the share reporting that their patients have serious medical problems is 70%.

**While 33% of providers report to lack basic skills for their day-to-day work, 79% of providers also say they have skills above those required for their day-to-day work.** Doctors are as likely to agree as they are to disagree (49% each) that they lack necessary skills for their work.

**In all professions with the exception of midwives, workhours are unforeseeable for a majority of employees (56%).** 65% of workers regularly get called back to work for emergencies. This is highest among doctors (78%) and lowest among midwives (23%). It is also high (71%) among CHWs. This might be because families see these as the focal point when they have a health problem.

**Only a third of providers say they have necessary utensils and equipment available to exercise their work.** This share is low across all professions. For doctors, less than one-fifth have equipment necessary for their work. Only 39% of professionals say they have pharmaceutical products available to do their work. In consequence, 63% of doctors, nurses and midwives and 70% of doctors say that they frequently disobey clinical protocol due to lack of equipment and medical products.

**Error! Reference source not found.** shows the percentage of health workers who suffered aggressions with a given frequency.

*Table 4.8 Aggression by patients and colleagues experienced by health workers. By profession.*

|   | Doctor | Nurse | Midwife | CHW | Technician | Other | National |
|---|--------|-------|---------|-----|------------|-------|----------|
| Aggression frequency – verbal aggression, threats, violence by patients or their companions   |        |       |         |     |            |       |          |
| Frequently  | 5      | 6     | 10      | 1   | 4          | 3     | 3        |
| Sometimes   | 22     | 15    | 17      | 7   | 16         | 19    | 11       |
| Occasionally  | 14     | 8     | 10      | 4   | 5          | 3     | 6        |
| Rarely  | 8      | 16    | 13      | 6   | 5          | 16    | 9        |
| Never   | 51     | 55    | 50      | 83  | 70         | 58    | 71       |
| Aggression frequency – physical aggression, threats, violence by patients or their companions |        |       |         |     |            |       |          |
| Frequently  | 0      | 1     | 3       | 0.2 | 0          | 0     | 0.5      |
| Sometimes   | 3      | 2     | 10      | 1   | 5          | 3     | 2        |

|   |    |     |    |     |     |    |     |
|---|----|-----|----|-----|-----|----|-----|
| Occasionally  | 11 | 3   | 3  | 0.4 | 0   | 0  | 2   |
| Rarely  | 3  | 1   | 3  | 0.2 | 2   | 0  | 1   |
| Never   | 84 | 93  | 80 | 98  | 93  | 97 | 95  |
| Aggression frequency – verbal aggression, threats, violence by colleagues   |    |     |    |     |     |    |     |
| Frequently  | 3  | 2   | 3  | 0   | 2   | 0  | 1   |
| Sometimes   | 8  | 6   | 7  | 3   | 11  | 13 | 5   |
| Occasionally  | 11 | 5   | 7  | 1   | 2   | 3  | 3   |
| Rarely  | 3  | 4   | 7  | 2   | 4   | 13 | 3   |
| Never   | 76 | 82  | 77 | 94  | 82  | 71 | 88  |
| Aggression frequency – physical aggression, threats, violence by colleagues |    |     |    |     |     |    |     |
| Frequently  | 0  | 0.5 | 0  | 0   | 0   | 0  | 0.1 |
| Sometimes   | 3  | 0   | 3  | 0.2 | 0   | 3  | 0.5 |
| Occasionally  | 5  | 2   | 0  | 0   | 0   | 0  | 1   |
| Rarely  | 0  | 1   | 0  | 0.4 | 0   | 3  | 1   |
| Never   | 92 | 96  | 97 | 99  | 100 | 94 | 98  |

\*Note: Shown are percentages of professionals who experience aggressions with a given frequency. Frequently:  $\geq 1$  time per week. Sometimes: a few times per month. Occasionally: A few times per semester. Rarely: A few times per year.

**Although most health workers do not suffer any aggressions, almost 30% experience verbal aggressions by patients at least a few times a year.** 14% experience verbal aggressions even a few times per month. Half of doctors and midwives experience verbal aggressions a few times per year and 27% experience them a few times per month. 13% of midwives experience physical aggression a few times per month. Verbal and physical aggression comes more frequently from patients than from colleagues. 12% of service providers experience verbal aggression by colleagues at least a few times per year. Among doctors and midwives this is 24% and 8% of doctors experience some physical aggression by colleagues each year.

## 5. Health Worker Compensation

This section provides information on (i) health worker income from employment, (ii) household income and (iii) household expenses. As previously mentioned, our sample consists of 814 health workers, of which 362 are health professionals (37 doctors, 208 nurses, 30 midwives, 56 technicians and 31 other professionals) and 452 are CHW.

### 5.1 Income from primary employment in the health sector

**78% of health professionals reported a positive official wage.** Out of the 362 health professionals, 285 reported a positive wage, 10 reported a zero wage and 67 reported not to be salaried, in which case they were not asked about official income from their primary employment. All health professionals were asked about estimated values of informal gratifications from patients (in cash or in kind), bonuses, food and other benefits received. Total compensation from employment is the sum of official wage, informal payments, bonus, food and other benefits.

**Doctors receive, on average, a total compensation of twice as much as technicians.** Highest compensation is observed for doctors (USD 353/month), followed by other health professionals (USD 231/month), midwives (USD 201/month), nurses (USD

193/month) and technicians (USD 169/month). **Error! Reference source not found.** details information on monthly compensation from first employment for the 285 health professionals who reported a positive wage.

*Table 5.1 Monthly compensation from primary employment in health sector. By profession.*

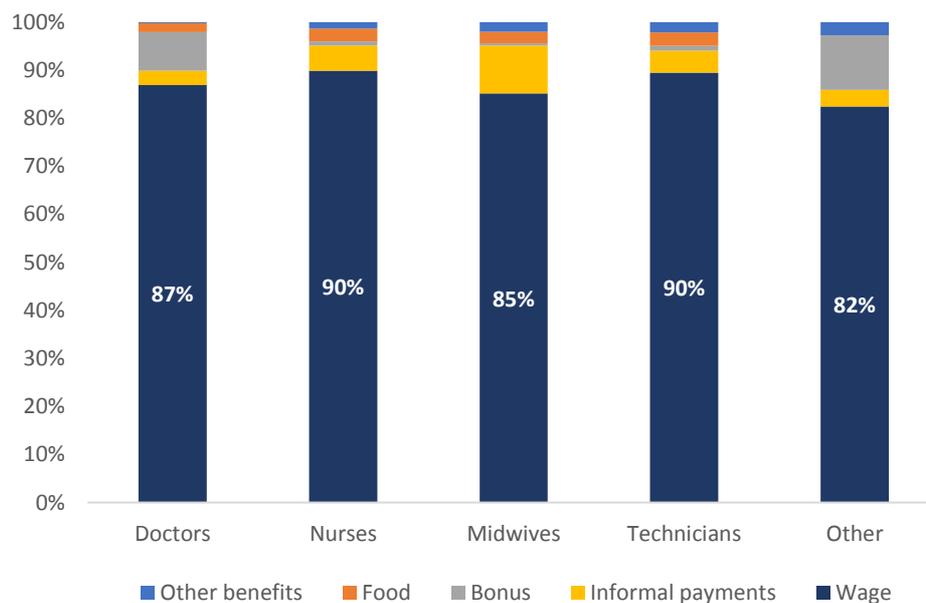
|                            | N          | Mean, CFA      | Min, CFA      | Max, CFA       | Mean, USD  |
|----------------------------|------------|----------------|---------------|----------------|------------|
| <b>Doctors</b>             | <b>26</b>  | <b>205,718</b> | <b>190</b>    | <b>646,667</b> | <b>353</b> |
| Wage                       | 26         | 178,764        | 190           | 270,158        | 307        |
| Informal payments          | 26         | 6,077          | 0             | 51,071         | 10         |
| Bonus                      | 26         | 16,603         | 0             | 416,667        | 28         |
| Food                       | 26         | 3,812          | 0             | 36,000         | 7          |
| Other benefits             | 26         | 462            | 0             | 12,000         | 1          |
| <b>Nurses</b>              | <b>170</b> | <b>112,760</b> | <b>6,000</b>  | <b>412,167</b> | <b>193</b> |
| Wage                       | 170        | 101,445        | 95            | 392,000        | 174        |
| Informal payments          | 170        | 5,928          | 0             | 139,048        | 10         |
| Bonus                      | 166        | 949            | 0             | 30,000         | 2          |
| Food                       | 167        | 3,011          | 0             | 50,000         | 5          |
| Other benefits             | 169        | 1,512          | 0             | 45,833         | 3          |
| <b>Midwives</b>            | <b>21</b>  | <b>117,290</b> | <b>11,947</b> | <b>214,578</b> | <b>201</b> |
| Wage                       | 21         | 100,017        | 8,869         | 159,378        | 172        |
| Informal payments          | 21         | 11,728         | 0             | 99,578         | 20         |
| Bonus                      | 21         | 512            | 0             | 4,000          | 1          |
| Food                       | 20         | 2,796          | 0             | 29,333         | 5          |
| Other benefits             | 21         | 2,371          | 0             | 32,083         | 4          |
| <b>Technicians</b>         | <b>41</b>  | <b>98,735</b>  | <b>15,000</b> | <b>217,544</b> | <b>169</b> |
| Wage                       | 41         | 88,420         | 15,000        | 150,000        | 152        |
| Informal payments          | 41         | 4,505          | 0             | 108,631        | 8          |
| Bonus                      | 39         | 994            | 0             | 20,000         | 2          |
| Food                       | 41         | 2,725          | 0             | 32,000         | 5          |
| Other benefits             | 41         | 2,140          | 0             | 43,452         | 4          |
| <b>Other professionals</b> | <b>27</b>  | <b>134,853</b> | <b>12,375</b> | <b>544,980</b> | <b>231</b> |
| Wage                       | 27         | 111,198        | 12,000        | 250,000        | 191        |
| Informal payments          | 27         | 4,643          | 0             | 60,000         | 8          |
| Bonus                      | 27         | 15,308         | 0             | 398,314        | 26         |
| Food                       | 27         | 0              | 0             | 0              | 0          |
| Other benefits             | 27         | 3,704          | 0             | 100,000        | 6          |
| <b>National</b>            | <b>285</b> | <b>121,649</b> | <b>190</b>    | <b>646,667</b> | <b>209</b> |
| Wage                       | 285        | 107,444        | 95            | 392,000        | 184        |
| Informal payments          | 285        | 6,042          | 0             | 139,048        | 10         |
| Bonus                      | 279        | 3,771          | 0             | 416,667        | 6          |
| Food                       | 281        | 2,738          | 0             | 50,000         | 5          |
| Other benefits             | 284        | 1,778          | 0             | 100,000        | 3          |

**Midwives receive the highest informal payments among health professionals.** Even though official wages of midwives are slightly lower than those of nurses, their final compensation is higher due to a higher level of informal payments from patients. Informal payments correspond to 10% of total compensation for midwives, whereas this figure is 5% for nurses and technicians, and 3% for doctors and other health professionals. The higher the official wage, the lower is the share of informal payments

out of total compensation. Across all professions, informal payments make up 5% of compensation.

**Health professionals' official wage constitutes between 82% and 90% of total compensation.** Nurses and technicians face a higher share of their total compensation coming from official wage (90%). Doctors and other health professionals report the highest share of total compensation coming from bonuses (8% and 11%, respectively). Food and other benefits constitute, each, only a maximum of 3% of total compensation.

*Figure 5.1 Share breakdown of total compensation. By profession.*



**Most health professionals who failed to report a positive official wage have worked in their first employment for 1 year or less.** More specifically, 9 out of the 10 health professionals that reported a zero wage and 46 out of 67 health professionals that reported not to be salaried have been in their post for 1 year or less. It is possible that these professionals are still not in the public administration system and might still not have received their salaries. They might compensate for this absence of a salary by charging higher user or more frequent user fees.

**Higher informal payment from patients do not make up for the foregone wage.** Doctors who report zero wage or do not report an official wage receive higher payment from patients. This is not the case for other professions (nurses, midwives, etc.). The sum of informal payments, bonus, food and other benefits correspond to only 12% of the total compensation of doctors who receive a positive wage. This figure ranges between 0% and 30% for the other groups of health professionals. Thus, it is likely they are not reporting the total income generated from this employment (e.g. user fee charges). As it is discussed later, total household expenses might be a more reliable source of estimation of household income.

**CHWs are officially remunerated according to three different components.** First, they receive a monthly incentive of 120 CFA for every household visited up to a maximum

of 6,000 CFA per month (corresponding to 50 households). Indeed, the CHW received an average of 5,143 CFA as incentives. However, the maximum level of incentives received is 12,000 CFA, which is twice as high as the maximum established level of 6,000 CFA. The second component refers to the monthly subsidy in case of attendance to supervisory team meetings, usually of 1,500 CFA per month. The reported average amount is 1,151 CFA but reaches up to 9,375 CFA. Finally, CHW also receive a biannual bonus of up to 12,000 CFA based upon performance. Thus, the maximum possible monthly bonus is 2,000 CFA, far above the reported average of 625 CFA. CHWs were also asked about informal payments from patients for which they reported a not very significant average of 289 CFA (4% of the total compensation).

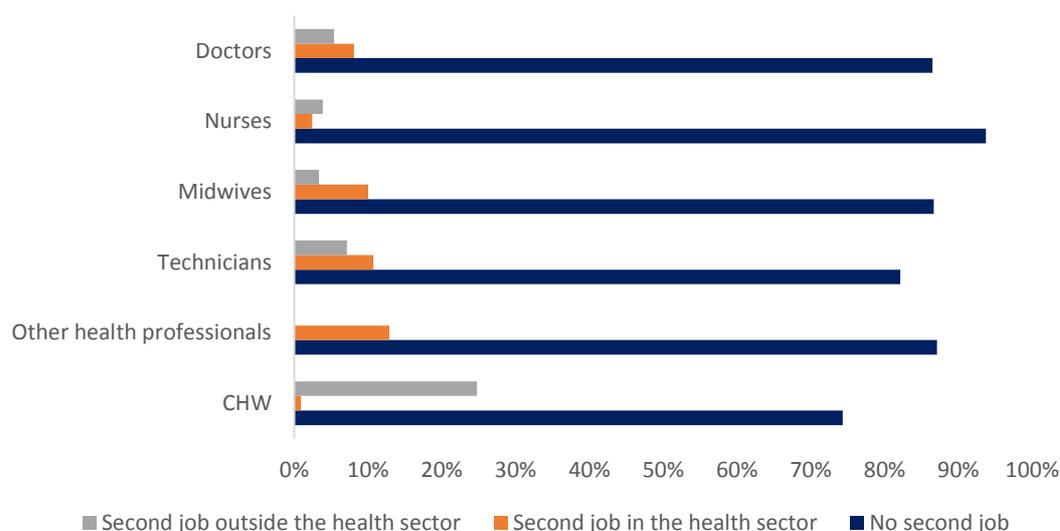
*Table 5.2 Monthly compensation for CHW.*

|                   | N   | Mean, CFA | Min, CFA | Max, CFA | Mean, USD |
|-------------------|-----|-----------|----------|----------|-----------|
| Incentives        | 451 | 5,143     | 0        | 12,000   | 9         |
| Subsidies         | 450 | 1,151     | 0        | 9,375    | 2         |
| Bonus             | 452 | 625       | 0        | 12,000   | 1         |
| Informal payments | 452 | 289       | 0        | 40,000   | 0         |
| <b>Total</b>      | 452 | 7,192     | 0        | 48,483   | 13        |

## 5.2 Income from secondary employment

**As mentioned in Section 4, out of 814 health workers interviewed, 152 (19%) report to have another job, of which only 25 (3%) are in the health sector.** 25% of CHW report to have another job, of which less than 1% is in the health sector. The share of health professionals with another job is 13% for doctors, 6% for nurses, 13% for midwives, and 18% for other health professionals. Most of these have their second job in the health sector, except nurses.

*Figure 5.2 Distribution of secondary employment. By profession*



**Official wage in secondary employment is only higher than that of the first reported job in the health sector for CHW and technicians.** Wage for secondary employment is 5 times higher for CHWs and 18% higher for technicians. Only half of employees with a second job report being salaried and, thus, only report information of informal payments, bonus, food and other benefits.

*Table 5.3 Monthly compensation. By profession.*

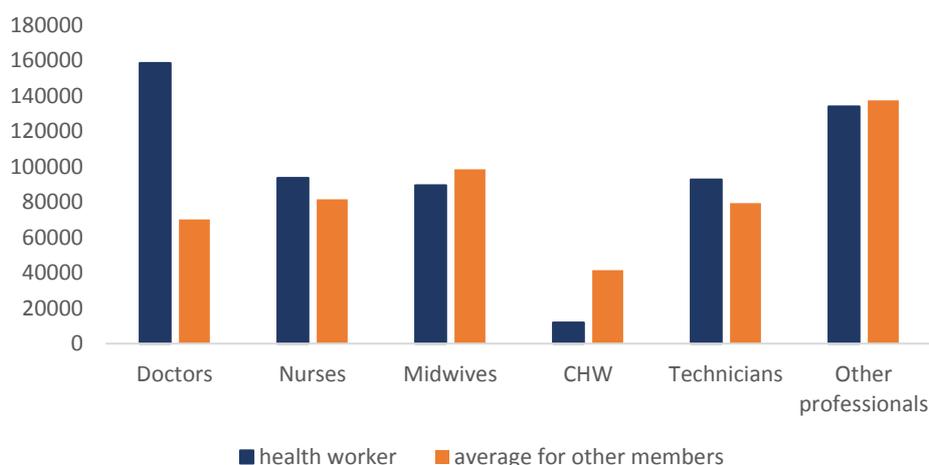
|                            | N          | Mean, CFA     | Min, CFA     | Max, CFA       | Mean, USD  |
|----------------------------|------------|---------------|--------------|----------------|------------|
| <b>Doctors</b>             | <b>5</b>   | <b>50,144</b> | <b>0</b>     | <b>210,000</b> | <b>86</b>  |
| Wage                       | 3          | 73,573        | 220          | 210,000        | 126        |
| Informal payments          | 5          | 0             | 0            | 0              | 0          |
| Bonus                      | 5          | 0             | 0            | 0              | 0          |
| Food                       | 5          | 0             | 0            | 0              | 0          |
| Other benefits             | 5          | 6,000         | 0            | 30,000         | 10         |
| <b>Nurses</b>              | <b>13</b>  | <b>10,801</b> | <b>0</b>     | <b>91,667</b>  | <b>19</b>  |
| Wage                       | 3          | 34,583        | 11,250       | 75,000         | 59         |
| Informal payments          | 13         | 0             | 0            | 0              | 0          |
| Bonus                      | 13         | 1,282         | 0            | 16,667         | 2          |
| Food                       | 13         | 615           | 0            | 8,000          | 1          |
| Other benefits             | 13         | 1,231         | 0            | 16,000         | 2          |
| <b>Midwives</b>            | <b>4</b>   | <b>55,650</b> | <b>0</b>     | <b>121,349</b> | <b>95</b>  |
| Wage                       | 3          | 68,889        | 45,000       | 105,417        | 118        |
| Informal payments          | 4          | 3,983         | 0            | 15,933         | 7          |
| Bonus                      | 4          | 0             | 0            | 0              | 0          |
| Food                       | 4          | 0             | 0            | 0              | 0          |
| Other benefits             | 4          | 0             | 0            | 0              | 0          |
| <b>Technicians</b>         | <b>10</b>  | <b>94,880</b> | <b>0</b>     | <b>504,000</b> | <b>163</b> |
| Wage                       | 7          | 104,536       | 23,750       | 354,000        | 179        |
| Informal payments          | 10         | 800           | 0            | 8,000          | 1          |
| Bonus                      | 10         | 0             | 0            | 0              | 0          |
| Food                       | 10         | 1,000         | 0            | 6,000          | 2          |
| Other benefits             | 10         | 7,253         | 0            | 50,000         | 12         |
| <b>Other professionals</b> | <b>4</b>   | <b>89,083</b> | <b>6,000</b> | <b>183,333</b> | <b>153</b> |
| Official compensation      | 4          | 89,083        | 6,000        | 183,333        | 153        |
| Informal payments          | 4          | 0             | 0            | 0              | 0          |
| Bonus                      | 4          | 0             | 0            | 0              | 0          |
| Food                       | 4          | 0             | 0            | 0              | 0          |
| Other benefits             | 4          | 0             | 0            | 0              | 0          |
| <b>CHWs</b>                | <b>116</b> | <b>18,370</b> | <b>0</b>     | <b>150,000</b> | <b>32</b>  |
| Official compensation      | 55         | 34,689        | 3,000        | 150,000        | 59         |
| Informal payments          | 116        | 358           | 0            | 21,667         | 1          |
| Bonus                      | 116        | 8             | 0            | 875            | 0          |
| Food                       | 116        | 1,552         | 0            | 65,179         | 3          |
| Other benefits             | 116        | 126           | 0            | 6,667          | 0          |
| <b>National</b>            | <b>152</b> | <b>26,643</b> | <b>0</b>     | <b>504,000</b> | <b>46</b>  |
| Official compensation      | 75         | 47,028        | 220          | 354,000        | 81         |
| Informal payments          | 152        | 431           | 0            | 21,667         | 1          |
| Bonus                      | 152        | 115           | 0            | 16,667         | 0          |
| Food                       | 152        | 1,303         | 0            | 65,179         | 2          |
| Other benefits             | 152        | 876           | 0            | 50,000         | 2          |

### 5.3 Household income

Household income was computed as the sum of income from employment of all household members, transfers received, other revenues such as pensions and scholarships, as well as profits/losses from enterprises, agriculture, livestock and fishing. Any value in each of these categories greater than USD 20.000 per year or lower than USD 10.000 per year (in case of losses from enterprise, agriculture, livestock and finishing) were treated as missing information. There were 21 such values. Note that losses in agriculture, livestock and fishing could also be explained by household production for self-consumption.

**Significant differences in compensation between health workers and other members in their household is observed for doctors.** Of the health workers who share the household with at least another member (90%), of which 44% have worked in the past 12 months and 30% are salaried. The graph below shows the average monthly compensation from employment for health workers and the other members in the household who are active in the labor market. Interpretation to this graph should be taken with caution given the small sample of doctors and the fact that income can be generated by other household members through enterprise, agriculture, livestock or fishing.

*Figure 5.3 Monthly employment compensation of health worker and other members in the labor market. By principal respondent's profession*



**Doctors and other health professionals have the highest average income per capita, followed by nurses, midwives, technicians and CHW. Error! Reference source not found.** shows the mean (in CFA and USD), the minimum and the maximum (in CFA) as well as the mean as a multiple of the GDP in Guinea-Bissau. Although the averages are reasonable, the minimum and the maximum values are concerning (even after the elimination of outliers, as mentioned above). Income per capita is negative when losses from enterprises, agriculture, livestock or fishing are higher in magnitude than income from employment, transfers received and other sources.

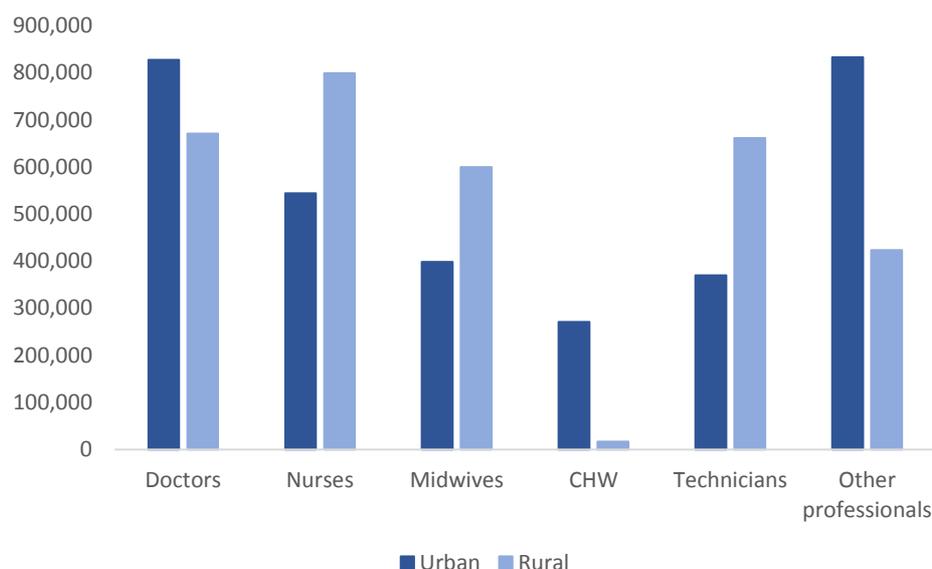
*Table 5.4 Annual per capita household income. By profession.*

|         | N   | Mean, CFA | Min, CFA | Max, CFA  | Mean, USD | Mean/GDP |
|---------|-----|-----------|----------|-----------|-----------|----------|
| Doctors | 37  | 793,734   | 0        | 9,945,000 | 1,361     | 1.9      |
| Nurses  | 208 | 615,295   | -26,333  | 3,926,072 | 1,055     | 1.5      |

|                     |     |         |            |           |       |     |
|---------------------|-----|---------|------------|-----------|-------|-----|
| Midwives            | 30  | 465,674 | -61,725    | 2,292,000 | 799   | 1.1 |
| CHW                 | 452 | 108,407 | -2,689,000 | 3,273,527 | 186   | 0.3 |
| Technicians         | 56  | 427,289 | -76,900    | 2,016,000 | 733   | 1.0 |
| Other professionals | 31  | 793,242 | 63,125     | 3,517,321 | 1,360 | 1.9 |

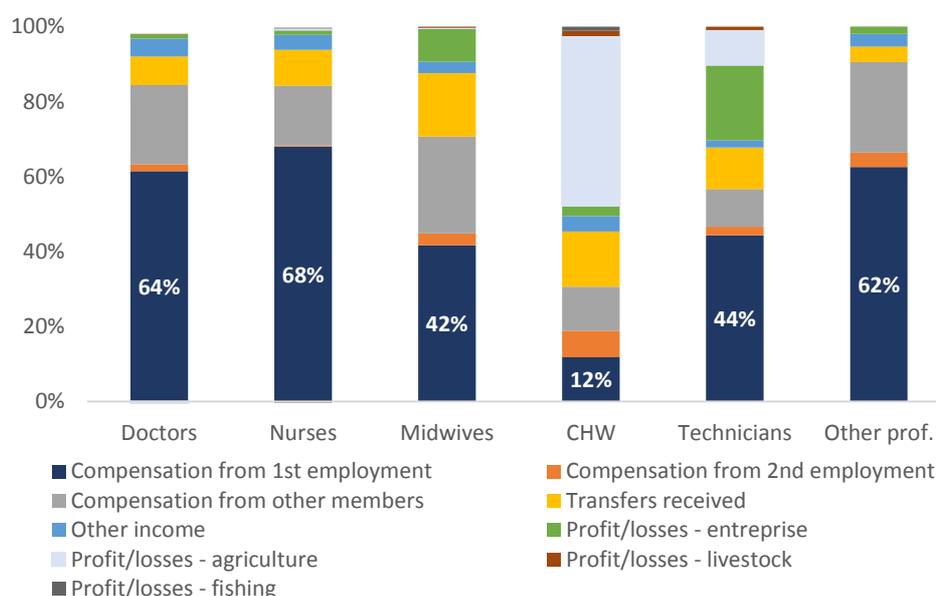
**Income per capita varies significantly across urban and rural areas.** Whereas doctors, other professionals and CHW seem to present a higher household income per capita in urban areas, the opposite holds for nurses, midwives and technicians.

*Figure 5.4 Annual per capita household income. By urban/rural.*



**Around 80% of household income per capita come from employment compensation in the household, except for technicians and CHWs.** Health workers' compensation from the main job in the health sector correspond to around 65% for doctors, other health professionals and nurses, 40% for midwives and technicians and 12% for CHW. Other household members' employment compensation represents, on average, 22% for doctors, other professionals, nurses and midwives and 11% for technicians and CHW. The share of transfers received is higher than 10% for all health workers, except for doctors and other professionals. Profits from agriculture corresponds to almost half of CHW's household income per capita.

Figure 5.5 Contribution of different income sources to annual per capita household income. By profession.



## 5.4 Household expenses

Household expenses were computed as the sum of expenses for education, health care, food, transfers sent (e.g. remittances) and other expenditures (festivities, acquisition of assets, etc.). Any value greater than USD 3.000 per year for expenses with education, health and meals (outside the household) or greater than USD 10.000 per year for expenses with remittances, food and the remaining other expenses were replaced to missing. There were 43 such values.

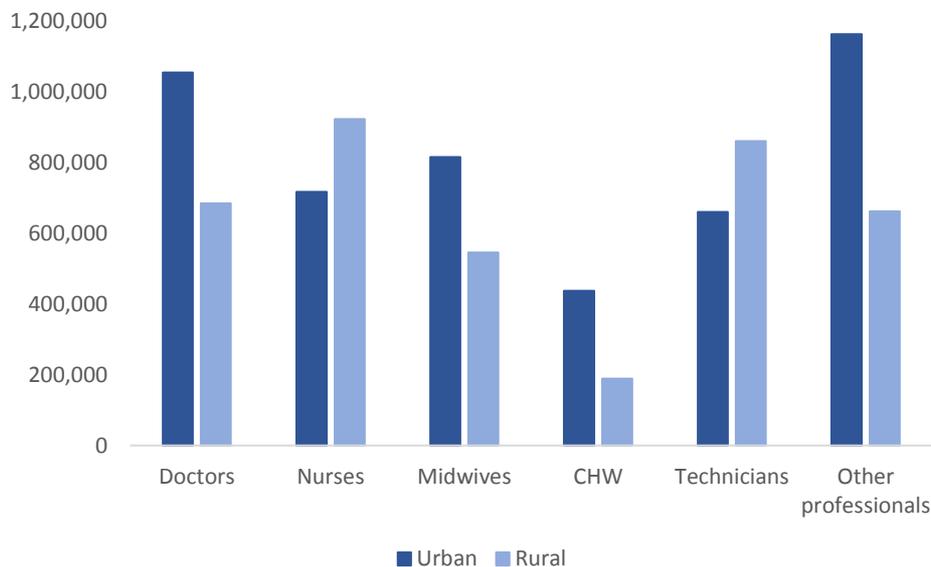
**A similar relative pattern observed for per capita household income is again observed for household expenditures per capita.** However, doctors and other health professionals are now further apart while nurses and midwives are closer together. Doctors, other health professionals, midwives and CHW present a higher level of per capita household expenditure in urban areas whereas nurses and technicians show the opposite.

Table 5.5 Annual per capita household expenditure. By profession.

|             | N   | Mean, CFA | Min, CFA | Max, CFA | Mean, USD | Mean/GDP |
|-------------|-----|-----------|----------|----------|-----------|----------|
| Doctors     | 37  | 975,894   | 143,393  | 5,028,08 | 1,674     | 2.3      |
| Nurses      | 208 | 775,638   | 7,821    | 6,980,91 | 1,330     | 1.8      |
| Midwives    | 30  | 726,496   | 146,246  | 2,131,83 | 1,246     | 1.7      |
| CHW         | 452 | 278,719   | 0        | 2,078,02 | 478       | 0.7      |
| Technicians | 56  | 700,245   | 173,280  | 3,524,96 | 1,201     | 1.7      |

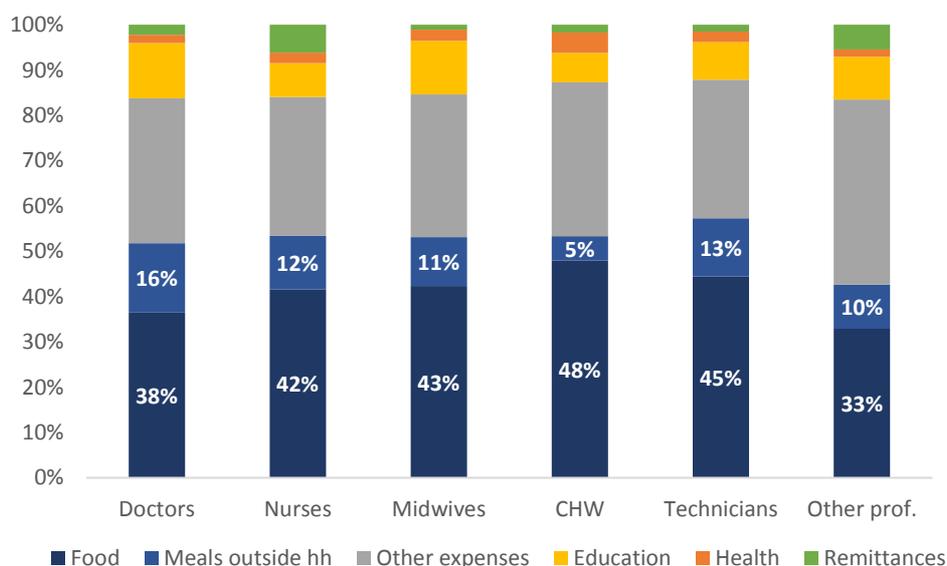
|                     |    |           |         |          |   |       |     |
|---------------------|----|-----------|---------|----------|---|-------|-----|
| Other professionals | 31 | 1,116,233 | 138,881 | 3,588,19 | 2 | 1,914 | 2.6 |
|---------------------|----|-----------|---------|----------|---|-------|-----|

Figure 5.6 Annual per capita household expense. By urban/rural.



**Food and meals represent around 50% of all household expenses, except for other health professionals.** The graph below also shows a significant percentage of the household expenses coming from other expenses, which comprise festivities, alcohol, clothes, products, etc.

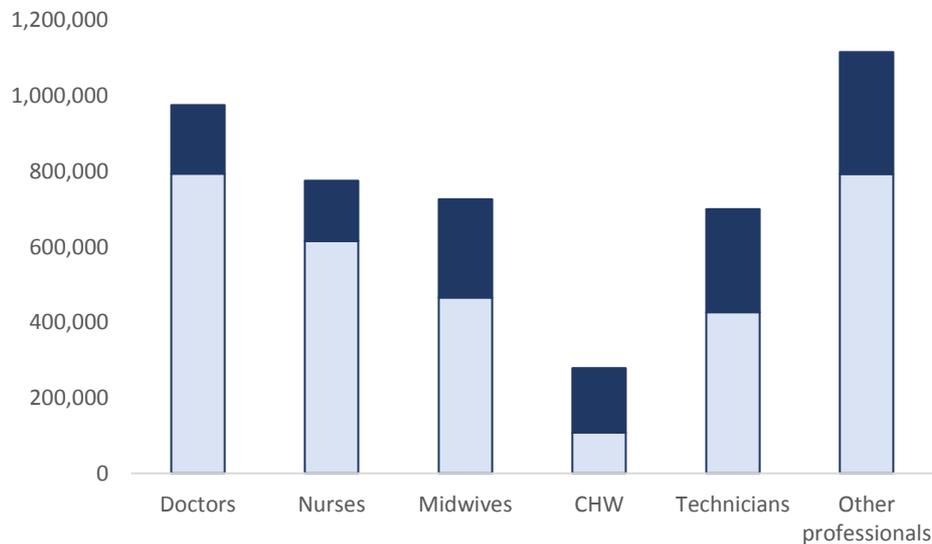
Figure 5.7 Share of annual per capita household expenditure. By expenditure type and profession.



**On average, household expenditure per capita is greater than household income per capita for all health worker groups.** Per capita household expenditure was, on average, 30% higher than per capita household income for doctors, nurses and other

health professionals, 60% for midwives and technicians and more than 150% higher for CHW. The difference is depicted in the incremental dark blue fractions of the bars in the graph below.

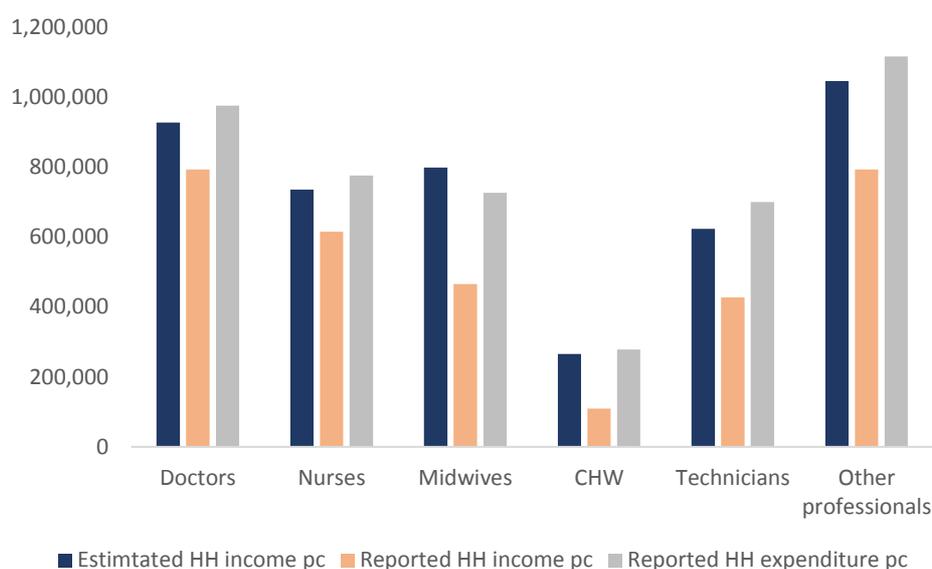
*Figure 5.8 Annual per capita household income and expenditure. By profession.*



**In terms of the whole distribution, 78% of all health workers had household expenditure per capita higher than household income per capita.** Whereas this figure lies below the average for health professionals, it reaches 84% for CHW. Interestingly, the figure also reaches 84% when we restrict the sample of health professionals to those who report to be unsalaried or to receive a zero official wage.

**Over 80% of health workers do not have savings.** This implies that the reported household income was most likely underestimated for most of the sample. We, therefore, use household consumption per capita to estimate household income per capita in case of no savings and reported household income per capita otherwise.

Figure 5.9 Estimated household income per capita, reported household income per capita and reported household expenditure per capita (annual). By profession.



**On average, household income per capita is higher than Guinea-Bissau GDP per capita for all health worker groups except CHW.** According to our estimations, doctors and other health professionals face a household income per capita that is over 2 times the average income per capita in the country. The estimated household income per capita for nurses, midwives and technicians is approximately 50% higher than the average income per capita in Guinea-Bissau, whereas it is around 40% lower for CHW.

Table 5.6 Estimated annual household income per capita. By profession.

|                     | Mean, CFA | Mean, USD | Mean/GDP |
|---------------------|-----------|-----------|----------|
| Doctors             | 927,915   | 1,591     | 2.20     |
| Nurses              | 735,785   | 1,262     | 1.74     |
| Midwives            | 799,119   | 1,370     | 1.89     |
| CHW                 | 265,547   | 455       | 0.63     |
| Technicians         | 623,468   | 1,069     | 1.48     |
| Other professionals | 1,046,577 | 1,795     | 2.48     |

**The low ratio of household income per capita to GDP per capita for CHW is driven by those in rural areas.** In urban areas, CHWs' household income per capita is in line with the average GDP per capita. Income per capita as a multiple of GDP per capita for doctors and other health professionals reduces significantly in rural areas. Except for CHW, life standards across groups seem to be very similar in rural areas.

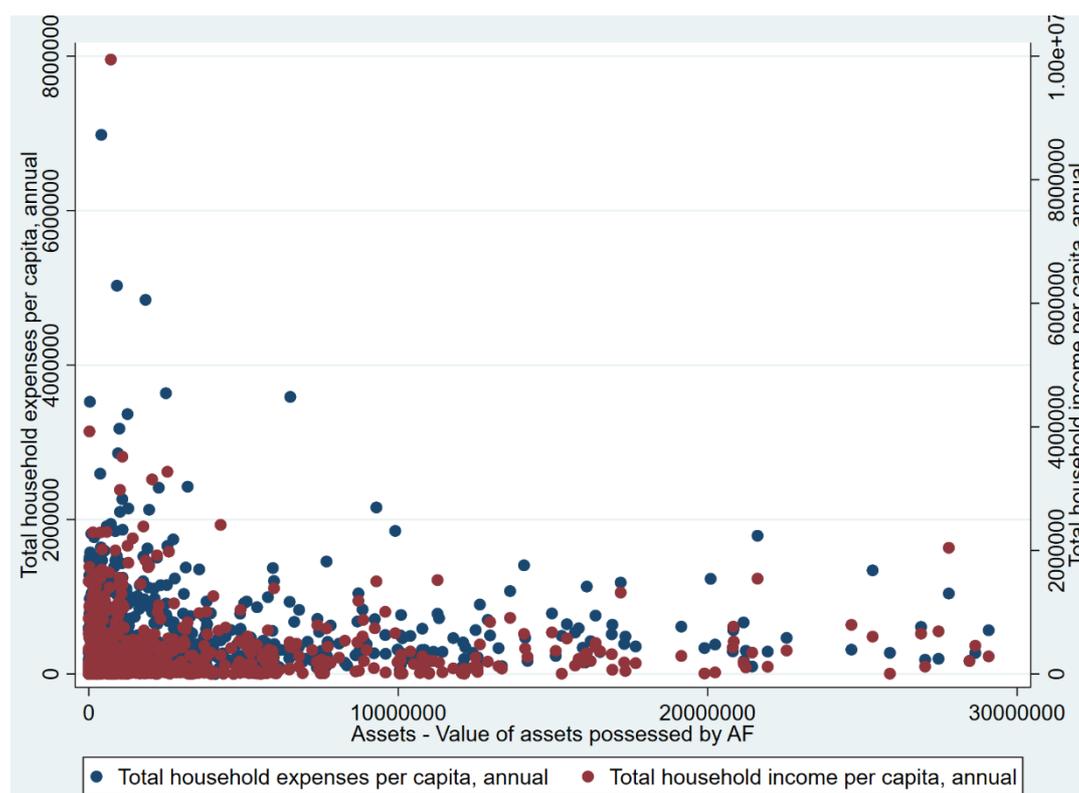
Table 5.7 Estimated annual household income per capita. By urban/rural and profession.

|         | Mean, CFA | Mean, USD | Mean/GDP |
|---------|-----------|-----------|----------|
| Urban   |           |           |          |
| Doctors | 981,038   | 1,682     | 2.32     |
| Nurses  | 721,926   | 1,238     | 1.71     |

|                     |           |       |      |
|---------------------|-----------|-------|------|
| Midwives            | 806,150   | 1,382 | 1.91 |
| CHW                 | 413,395   | 709   | 0.98 |
| Technicians         | 621,783   | 1,066 | 1.47 |
| Other professionals | 1,090,626 | 1,870 | 2.58 |
| <hr/>               |           |       |      |
| Rural               |           |       |      |
| Doctors             | 735,347   | 1,261 | 1.74 |
| Nurses              | 771,628   | 1,323 | 1.83 |
| Midwives            | 785,057   | 1,346 | 1.86 |
| CHW                 | 182,159   | 312   | 0.43 |
| Technicians         | 630,364   | 1,081 | 1.49 |
| Other professionals | 635,453   | 1,090 | 1.51 |

**The relationship between value of assets and reported income (as well as expenses) per capita is shaky.** The scatterplot below shows that the reported value of assets is not positively correlated with the reported level of income and expenditure per capita. The correlation coefficients are -0.014 and -0.015, respectively. Given the more detailed questions on income and expenses, these are assumed to be more reliable source of information of life standards.

*Figure 5.10 Relationship between reported income (as well as expenses) per capita and reported value of assets.*



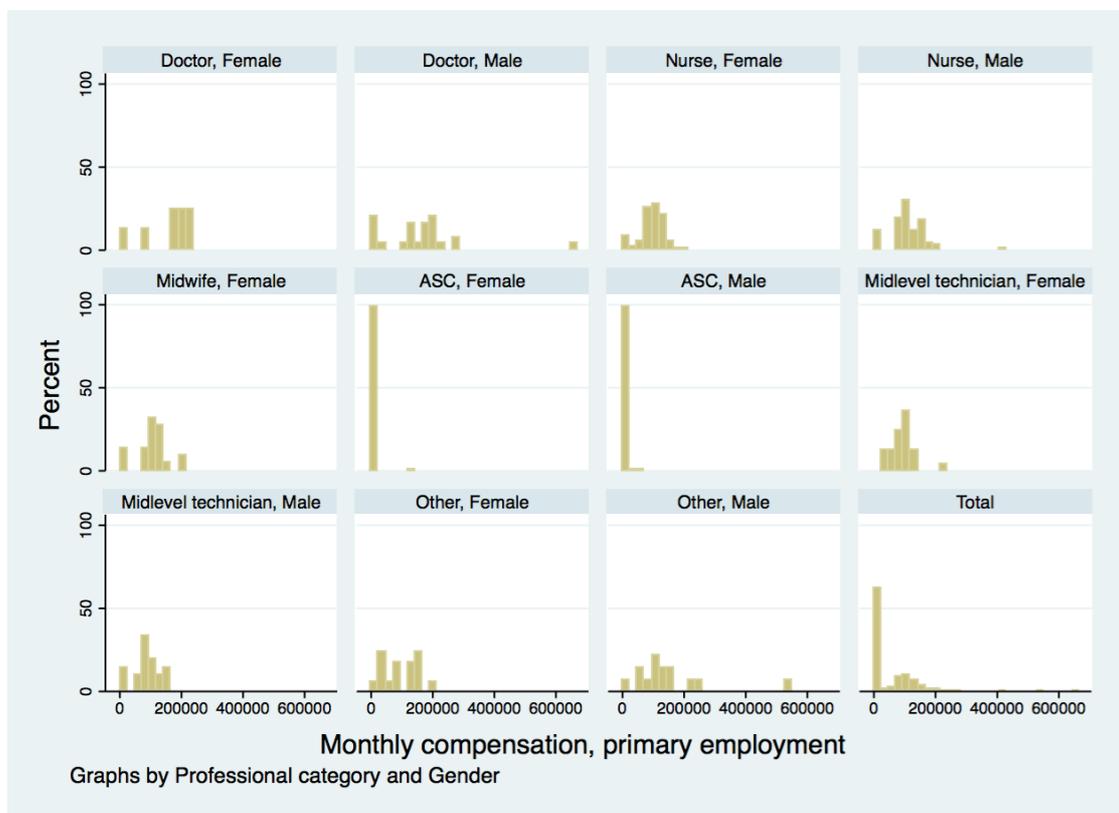
## 6. Wage equations & Labor Supply

### 6.1 Wage equations

The survey data allows to calculate compensation differences between professions, gender-pay imbalances and differences in earnings between regions.

**Without any control variables, men earn around 33,100 CFA less per month than women in their primary health profession.** This is because there are many more male CHWs than female CHWs and CHWs are by far the lowest earning profession. Once profession is controlled for, men earn around 8,530 CFA (close to 15 USD) more per month than women and this difference is significant at the 1% level. Figure 6.1 shows the wage distribution for primary medical employment by profession and by gender.

Figure 6.1 Histograms of monthly compensation for primary medical employment. By gender and profession.



**Controlling for education, experience, locality, age and profession, men earn 9,724 CFA more per month in their main medical employment than women.** This difference is statistically significant at the 1% level. Total earnings from health income (including secondary employment) are about 8,974 CFA higher for men than for women, controlling for the above-mentioned factors, and this difference is statistically significant at the 1% level. On top of this, men are more likely to achieve high-earning positions. For instance, 78% of doctors are male, meaning that men have 3.6 times as high a chance of becoming doctors (the highest earning profession) as women. Men are also 21% more likely to be specialized than women, which has a wage premium of around 12,600 CFA (22 USD) per month.

**Each year of experience in a given profession brings on average a compensation gain of 620 CFA (1 USD) per month.** However, this is only statistically significantly different from 0 in some specifications. It holds only when considering total compensation for work in the health sector and not when considering only earnings from the primary health employment.

**When we control for whether a health worker is a health professional or a CHW, instead of for all professions, men earn on average 11,900 CFA (around 20 USD or 23% of overall average compensation) more per month** (see column 2 of **Error! Reference source not found.**). This is driven by health professionals: Male professionals in the health sector earn on average 137,770 CFA per month from their primary medical employment, compared to 109,974 CFA per month for women, a male wage premium of 27,796 CFA (48 USD or 23% of average monthly earnings). Among CHW, men also earn slightly more than women, but the wage premium is only around 600 CFA (8% of monthly earnings). Gender alone explains 6% of overall wage variation. Together with whether an individual is a community health worker and whether (s)he is a male CHW, the model explains 68% of wage variation. The full model, controlling for experience, age, education, profession and region, explains 75% of wage variation.

**All these results are driven by salaries in primary employment for health professionals being higher for men than for women.** Across all professions (not considering CHWs), men's salary is on average 25,500 CFA higher per month than women's. Total compensation for primary medical employment is around 17,000 CFA higher for men. The fact that female doctors earn about 8,000 CFA more than male doctors is diluted by the much larger group of nurses, for whom men's salaries are around 24,500 CFA higher. For "other" professionals the difference in earnings between men and women is even 51,000 CFA per month, of which 14,000 are attributable to salaries.

**Error! Reference source not found.** shows results from regressions of monthly earnings on various factors. Only those who reported a positive salary and CHWs were included.

*Table 6.1 Factors influencing monthly earnings from main health employment and earnings from all health employment.*

|                         | Monthly compensation, main medical profession |                         |                        | Monthly compensation, health employment |                        |                        |
|-------------------------|---|-------------------------|------------------------|---|------------------------|------------------------|
| Male                    | 9,724***<br>(3,130)                           | 11,906***<br>(3,162)    | 8,526***<br>(2,994)    | 8,974***<br>(3,427)                     | 11,531***<br>(3,498)   | 7,645**<br>(3,255)     |
| Years in profession     | 431<br>(320)                                  | 503<br>(331)            | 198<br>(160)           | 620*<br>(351)                           | 695*<br>(366)          | 267<br>(174)           |
| Years in current job    | -153<br>(323)                                 | -335<br>(333)           | -                      | -299<br>(354)                           | -508<br>(369)          | -                      |
| Primary school+         | 209<br>(20,290)                               | 134<br>(21,014)         | -                      | 481<br>(22,215)                         | 236<br>(23,249)        | -                      |
| Secondary school+       | 1,291<br>(20,169)                             | 982<br>(20,890)         | -                      | 1,750<br>(22,083)                       | 1,239<br>(23,112)      | -                      |
| Vocational training+    | -536<br>(20,664)                              | -3,877<br>(21,389)      | -                      | -812<br>(22,624)                        | -5,702<br>(23,665)     | -                      |
| Bachelor+               | 8,026<br>(20,749)                             | 12,243<br>(21,474)      | -                      | 6,069<br>(22,717)                       | 10,912<br>(23,759)     | -                      |
| Master+                 | 67,373***<br>(23,936)                         | 98,354***<br>(24,409)   | -                      | 59,071**<br>(26,206)                    | 96,417***<br>(27,006)  | -                      |
| Doctorate+              | 29,897<br>(41,269)                            | 85,024**<br>(41,920)    | -                      | 14,942<br>(45,184)                      | 78,382*<br>(46,379)    | -                      |
| Is specialized          | 14,812**<br>(5,988)                           | 21,577***<br>(5,850)    | 18,454***<br>(6,060)   | 12,643*<br>(6,556)                      | 18,547**<br>(6,473)    | 16,351**<br>(6,588)    |
| Age                     | 1,409**<br>(963)                              | 1,145<br>(996)          | -                      | 1,652<br>(1,055)                        | 1,290<br>(1,102)       | -                      |
| Age-squared             | -18<br>(12)                                   | -14<br>(13)             | -                      | -20<br>(13)                             | -16<br>(14)            | -                      |
| Nurse**                 | -57,191***<br>(8,307)                         | -                       | -77,379***<br>(7,687)  | -68,876***<br>(9,096)                   | -                      | -87,060***<br>(8,358)  |
| Midwife**               | -49,423***<br>(11,351)                        | -                       | -67,335***<br>(11,056) | -52,147***<br>(12,428)                  | -                      | -68,287***<br>(12,020) |
| CHW**                   | -   | -                       | -                      | -                                       | -                      | -                      |
| Midlevel technician**   | 156,095***<br>(9,345)                         | -102,620 ***<br>(5,499) | 181,067***<br>(7,605)  | -168,980***<br>(10,232)                 | -106,694***<br>(6,084) | 190,731***<br>(8,268)  |
| Other profession**      | -69,151 ***<br>(9,979)                        | -                       | -88,622***<br>(9,306)  | -80,958***<br>(10,926)                  | -                      | -97,901***<br>(10,117) |
| SAB                     | -41,272 *<br>(10,228)                         | -                       | -52,278***<br>(10,096) | -40,356***<br>(11,198)                  | -                      | -49,652**<br>(10,976)  |
|                         | 8,195**<br>(3,263)                            | 10,932***<br>(3,630)    | -                      | 9,459***<br>(3,573)                     | 10,932***<br>(3,630)   | -                      |
| N                       | 737   | 737                     | 737                    | 737                                     | 737                    | 737                    |
| R <sup>2</sup>          | 0.7455  | 0.7254                  | 0.7265                 | 0.7230                                  | 0.6949                 | 0.7102                 |
| Adjusted R <sup>2</sup> | 0.7391  | 0.7201                  | 0.7239                 | 0.7160                                  | 0.6890                 | 0.7070                 |

Note: Coefficient (standard error). \*, \*\*, \*\*\*: significant at the 10, 5, 1% level. +Measures highest educational level attended. Omitted category: Pre-school. \*\*Omitted category: Doctor.

**There is a robust and economically significant premium to having a master's degree of around 59,000 CFA (101 USD) per month, as compared to having only pre-school education, even once profession and experience is controlled for.** Other education levels do not significantly influence earnings after controlling for profession. However, having a degree higher than secondary education influences earnings through other factors, such as the profession one ends up in (regression not shown). Having attended secondary school or primary school as compared to only pre-school does not significantly influence earnings through these or other factors.

**There is also an economically and statistically significant premium to being specialized of around 13,000 CFA (22 USD) monthly.** This premium is maintained even when controlling for region, education and experience. In contrast, staying in a given profession for an additional year does not have a consistent effect on earnings. If anything, the effect is small (between 190 and 620 CFA per month, less than 1.2% of earnings) and it is only marginally statistically significant.

**Living in the capital Bissau (SAB) has a positive effect on earnings, significant at the 1% level when considering all health income.** Controlling for other relevant factors, the effect is around 9,500 CFA per month (16 USD, 18% of average earnings). For the main health employment the effect is around 8,200 CFA per month (14 USD or 16% of average earnings from primary health employment).

**Most of the factors analyzed above are not significant predictors for household consumption, household consumption per capita, household spending on food or household spending on non-food items.** The only statistically significant variables in these regressions are being a CHW (reduces consumption by *ceteris paribus* by 346,000 CFA annually per capita), being "other" professional (increases consumption by 274,100 CFA) and being specialized (increase by 233,433 CFA annually). Living in some regions other than SAB can also have a statistically negative effect on household consumption. Food expenditure is highest in SAB, but otherwise not influenced by the above factors. Possibly this is because expenditures are measured with larger error than earnings.

## **6.2 Labor Supply**

**Not controlling for other factors, increasing monthly earnings by 1% increases hours worked in the main medical employment by 0.58% (95%-confidence interval 0.54 - 0.62).** Thus, earnings have a positive effect on hours worked, as expected. Monthly earnings alone explain 51% of hours worked. Once other factors such as experience, education, age, gender, profession and region are controlled for, the increase in hours worked is 0.24% for every 1% increase in monthly earnings. This means that at the current average annual earnings of around 573,500 CFA and average total hours worked of 1130 hours per year, each hour worked needs to bring an economic benefit of 2,125 CFA for a 1% increase in earnings to break even economically. **Error! Reference source not found.** shows results for labor supply equations.

*Table 6.2 Factors influencing hours worked in main health profession and hours worked in any health profession.*

|   | Log of hours spent on main health employment |                      |                     | Log of hours spent on health employment (incl. secondary employment) |                      |                     |
|---|--|----------------------|---------------------|--|----------------------|---------------------|
| Log of monthly compensation, health employment      | 0.238***<br>(0.038)                          | 0.250***<br>(0.038)  | 0.579***<br>(0.021) | -  | -                    | -                   |
| Log of monthly compensation, main health employment | -  | -                    | -                   | 0.247***<br>(0.038)  | 0.259***<br>(0.037)  | 0.581***<br>(0.021) |
| Male  | 0.127*<br>(0.070)                            | 0.154**<br>(0.069)   | -                   | 0.123*<br>(0.070)  | 0.151**<br>(0.069)   | -                   |
| Years in profession                                 | -0.002<br>(0.007)                            | 0.006*<br>(0.004)    | -                   | -0.001<br>(0.007)  | 0.006*<br>(0.004)    | -                   |
| Years in current position                           | 0.005<br>(0.007)                             | -                    | -                   | 0.006<br>(0.007)   | -                    | -                   |
| Highest educ. primary school+                       | -0.574<br>(0.464)                            | -0.608<br>(0.464)    | -                   | -0.582<br>(0.465)  | -0.609<br>(0.466)    | -                   |
| Highest educ. secondary school+                     | -0.372<br>(0.461)                            | -0.473<br>(0.461)    | -                   | -0.370<br>(0.462)  | -0.463<br>(0.462)    | -                   |
| Highest educ. vocational training+                  | -0.406<br>(0.472)                            | -0.497<br>(0.473)    | -                   | -0.406<br>(0.474)  | -0.493<br>(0.474)    | -                   |
| Highest educ. Bachelor+                             | -0.597<br>(0.474)                            | -0.671<br>(0.475)    | -                   | -0.584<br>(0.475)  | -0.656<br>(0.476)    | -                   |
| Highest educ. Master+                               | -0.638<br>(0.544)                            | -0.720<br>(0.546)    | -                   | -0.636<br>(0.546)  | -0.717<br>(0.547)    | -                   |
| Highest educ. Doctorate+                            | -0.070<br>(0.938)                            | -0.029<br>(0.942)    | -                   | -0.102<br>(0.941)  | -0.062<br>(0.944)    | -                   |
| Is specialized                                      | -0.009<br>(0.133)                            | -0.007<br>(0.133)    | -                   | -0.026<br>(0.134)  | -0.011<br>(0.134)    | -                   |
| Age   | 0.058***<br>(0.022)                          | -                    | -                   | 0.053**<br>(0.022)   | -                    | -                   |
| Age-squared   | -0.001**<br>(0.000)                          | -                    | -                   | -0.001**<br>(0.000)  | -                    | -                   |
| Nurse**   | 0.162<br>(0.167)                             | 0.189<br>(0.167)     | -                   | 0.160<br>(0.168)   | 0.187<br>(0.168)     | -                   |
| Midwife**   | -0.116<br>(0.239)                            | -0.078<br>(0.239)    | -                   | -0.095<br>(0.240)  | -0.056<br>(0.240)    | -                   |
| CHW**   | -<br>1.195***<br>(0.209)                     | -1.189***<br>(0.210) | -                   | -1.179***<br>(0.209)   | -1.173***<br>(0.210) | -                   |
| Midlevel technician**                               | -0.116<br>(0.203)                            | -0.062<br>(0.203)    | -                   | -0.100<br>(0.203)  | 0.047<br>(0.202)     | -                   |
| Other profession**                                  | -0.072<br>(0.209)                            | -0.053<br>(0.210)    | -                   | -0.097<br>(0.210)  | -0.077<br>(0.210)    | -                   |
| SAB***  | -0.113<br>(0.073)                            | -0.140*<br>(0.072)   | -                   | -0.099<br>(0.073)  | -0.123*<br>(0.072)   | -                   |
| N   | 758  | 758                  | 758                 | 762  | 762                  | 762                 |
| R <sup>2</sup>                                      | 0.5862                                       | 0.5812               | 0.5030              | 0.5888   | 0.5843               | 0.5070              |
| Adjusted R <sup>2</sup>                             | 0.5755                                       | 0.5721               | 0.5024              | 0.5782   | 0.5754               | 0.5063              |

Note: Coefficient (standard error). \*, \*\*, \*\*\*. significant at the 10, 5, 1% level. +Omitted category: Pre-school.

\*\*Omitted category: Doctor. \*\*\*Omitted category: SAB

**CHWs work significantly less (1.2% fewer hours) than other professions, even controlling for monthly earnings, experience, education and region.** In some specifications men work on average more than women in their primary employment, but this difference is not economically relevant. Experience, as measured by years in profession does not significantly correlate with hours worked once other factors are controlled for. Neither does whether a professional is specialized. Some regions, such as Bolama, Bafata and Gabu have significantly more hours worked compared to SAB, controlling for other factors. Biombo has significantly less hours worked. However, these region effects do not appear to be economically significant, ranging from around 0.6% for the region of Bafata to -0.2% for Biombo. The wage premium in SAB (analyzed above) is sustained without professionals in the capital working significantly more hours.

## 7. Discussion & Recommendations

**This report analyzed the health workforce and the health labor market in Guinea-Bissau.** We confirm and update most findings by previous reports and add some new aspects, previously uninvestigated. The findings of this report provide the basis for a National Strategic Plan for Health Workforce Development grounded in evidence.

**As previously observed in the SDI survey, providers' workload is quite low.** Professionals spend almost one hour per patient. Hours worked per working day are relatively high and several professionals report to work 7 days a week. Community Health Workers usually conduct less visits than mandated by national policy.

**Timeliness of payments and its amount is a serious problem.** This holds especially for newly contracted professionals, many of whom have not yet gotten paid. The treasury's finances are seriously strained. The most recent hiring round has not followed a needs-based procedure and it seems that it did not sufficiently take fiscal constraints into account. The SDI report found an absenteeism rate of 34% among all facilities in Guinea-Bissau. Dissatisfaction with salaries and long commuting time contribute to this.

**Official wage seems to be by far the most important component to household income for health professionals.** On the other hand, household consumption was reported to be much greater than household income even though 80% of households report to have no savings to make up for the difference between the two. The sources that drive this difference deserve further investigation. Another relevant point that was raised by this study was the variation between income (and expenditure) per capita between rural and urban areas which does not follow a pattern between health professions. Whereas doctors and other health professionals seem to be better off in urban regions, the opposite holds for nurses and technicians. It even seems to be the case that living standards of doctors and other health professionals are worse than those of nurses and technicians in rural areas.

Below we outline the most important recommendations:

### **Policy recommendations**

Improving worker satisfaction:

- In light of high dissatisfaction, it is necessary to *improve general working conditions*, especially for CHWs and especially in rural areas, where their living standards are around 60% worse than the national average. This is a necessary step in reducing absenteeism and retaining workers.
- Many health professionals complain about working too many hours. The current bonus for night-shift overtime is 750 CFA for an entire night. It might be possible to increase satisfaction with hours worked by *formalizing how many hours each health professional is expected to work* and by *paying an adequate bonus for overtime*. Paying for overtime might also incentivize health workers to leave their second job. This could increase concentration and quality on their primary employment.

#### Retaining workers:

- It is necessary to retain trained staff, especially nurses and midlevel technicians. Within these professions, 39% say it is probable or very probable they will reduce their hours worked over the next five years. Due to a strained treasury, *pay increases among publicly employed health workers are currently not an option, but it might be possible to use external funds to incentivize work*.
- NGOs implementing the CHW program report a high rate of drop outs. A first step that can be done at low or no cost is to *improve timeliness of payments*. In light of a funding gap of 1.6m USD from November 2019 to October 2020, *increasing pay is not a viable option at this moment*, but should be considered for the future.
- Another way to retain workers is to *offer benefits that kick in when they have been in the job for a certain amount of time*. For instance, CHWs could become eligible for health insurance from their second or third year on the job onwards. 11% of CHWs with health problems are not examined because it is too expensive for them, so this might indeed incentivize them to remain in their roles.

#### Increasing service provision:

- The number of patients attended is only very weakly correlated with hours worked and the number of patients attended per hour worked is low. It is thus important to *link pay not to hours worked, but to number and type of services provided*.

#### Improving distribution (geographic and across professions):

- The Ministry of Health must *take account of local needs when distributing new hires to their locations*. It would also be wise to *consider workers' preferences* on where to work, as this might increase worker retention. For neither does a formal process exist. Even though the most recent round of hiring increased staff levels overall, it did not ameliorate the regional inequities.
- Compensation is currently not linked to place of work. If anything, health care providers in the capital earn *more* than their counterparts in isolated regions. This is despite the fact that the state pays an isolation premium (*prémio de isolamento*) for providers living in remote areas. This means that there are little to no incentives to provide services in isolated regions or regions with high disease burden. It thus seems necessary to *review the payment policy to incentivize service provision in the areas with the highest need*. Relatedly, it does not seem attractive

to be a doctor in rural areas, since for instance nurses are higher compensated than doctors in rural areas. A new payment schedule should take account of additional income that service providers in cities can earn, beyond their official wage, and adjust wages in remote areas accordingly.

- *Taking account of all sources of income* is also important for recruiting nurses and midwives. Currently, it does not seem attractive for midwives to invest to become nurses, since higher informal payments for midwives make up for lower official wages.

#### Improving quality:

- One response to dissatisfaction with salary amounts is to *offer other benefits*. This could possibly cost less than increasing salaries and might offer similar incentives to work. For CHWs, one solution to incentivize performance might be to *offer a career path within the health system that goes beyond being a CHW*. This could include becoming a technician at a health center or being offered a scholarship to study for a medical degree for the best performing workers.
- CHWs represent an important part of the health system, both in terms of the number of families they reach and financially. This implies that a large part of the Bissau-Guinean population receives access to health services through low-skilled health workers (87% of CHWs did not surpass secondary education). To improve their training and possibly retain them for longer time, one might consider a *hierarchical training program*: All CHWs receive the basic training they currently receive, but if they stay on the job for long enough, they become eligible for further, advanced training programs. A certain level of training might then qualify CHWs to become supervisors of other CHWs, possibly with an appropriate increase in pay.
- A large share of doctors, nurses and midwives says they frequently deviate from operational protocol because of a lack of medicine or equipment. Donor programs and the government should *focus on providing the existing staff with the tools to do their work*. An analysis of the costs for implementing the strategic plan for health sector development (PNDS III 2018 – 2022) shows a funding gap of around 3.8m USD for maternal health services after the expiration of the European Union program PIMI II in 2021. This funding gap falls almost exclusively on medicine and supplies for maternal and child health services. To avoid further deviations from protocol, it is of utmost importance to *mobilize resources* for this purpose.

#### Improving HR management and administration:

- A significant share of employees says they are not salaried or report to have received zero wage. This points to flaws in public administration and the link between the Ministry of Public Administration, the Ministry of Finance and the MoH. The *processes of recruitment, hiring and HR administration need to be streamlined and follow more rigorously an assessment of needs and fiscal space*.

#### Recommendations for further research:

- *The economic benefits of providing an additional hour of health services should be calculated.* Our analysis shows that increasing pay by 1% might be cost effective if an additional hour of medical services creates an economic value of at least 4 USD. It should be *assessed which services provide the largest gain and incentivize providers to conduct these services.* Furthermore, once a new hiring round takes place, *the economic benefit that each profession at the current level of employment provides should be calculated and considered for the composition of the new cohort.*
- It would be important to *follow up with the workers who reported zero wage* after a certain time, to see if they were integrated into the public administration system and receive their pay. It would also be important to dig deeper into how they compensate for not being paid.
- Community Health Workers are very dissatisfied with their payment. This might contribute to the target of 50 family visits per month not being met. It might also be that this target is too ambitious for volunteers. A new payment schedule is currently being implemented and it would be important to *investigate if and how the new schedule affects the number of families visited.*
- Demand for health services appears to be low. Even though reported hours worked are relatively high, the number of patients per hour is very low. This report analyzed the supply of health services. *An accompanying survey should research the demand for health services among the general population.*