

Zambia Health Sector Public Expenditure Tracking and Quantitative Service Delivery Survey

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Abbreviations and Acronyms

BCG	Bacillus Calmette–Guérin
CHA	Community Health Assistant
CHAZ	Churches Health Association of Zambia
CHE	Current Health Expenditure
CHW	Community Health Worker
DfID	U.K. Department for International Development
DHO	District Health Office
FTE	Full-Time Equivalent
GRZ	Government of the Republic of Zambia
HCFTWG	Health Care Financing Technical Working Group
HMIS	Health Management Information System
HNP	Health, Nutrition, and Population
HQ	Headquarters
HRH	Human Resources for Health
HSD	Health Subdistrict
IFMIS	Integrated Financial Management Information System
IGF	Internally Generated Fund
IUD	Intrauterine Device
IV	Intravenous
MCDMCH	Ministry of Community Development, Mother and Child Health
MCDSW	Ministry of Community Development and Social Welfare
MDG	Millennium Development Goal
MNCH	Maternal, Newborn, and Child Health
MoF	Ministry of Finance
MoH	Ministry of Health
MSL	Medical Stores Limited
MTR	Medium-Term Review
NGO	Nongovernmental Organization
NHA	National Health Accounts
NHC	Neighborhood Health Committee
NHI	National Health Insurance
OOP	Out-of-pocket
ORS	Oral Rehydration Solution
PEFA	Public Expenditure and Financial Accountability
PER	Public Expenditure Review
PET	Public Expenditure Tracking
PFM	Public Financial Management
PHO	Provincial Health Office
QSDS	Quantitative Service Delivery Survey
RAF	Resource Allocation Formula
RBF	Results-Based Financing
RHC	Rural Health Center
SARA	Service Availability and Readiness Assessment
SDG	Sustainable Development Goal

STI	Sexually Transmitted Infection
UHC	Urban Health Center
UTH	University Teaching Hospital
UNZA	University of Zambia
WHO	World Health Organization

Executive Summary

Background

Zambia's health sector has continued to evolve with the government undertaking several reforms aimed at improving the performance of the sector to achieve the Sustainable Development Goals (SDGs) and their precursor, the Millennium Development Goals (MDGs). Amid the ongoing reforms, the health sector has recorded a number of achievements but some challenges remain. This Public Expenditure Tracking and Quantitative Service Delivery Survey (PET-QSDS) assesses the financing and delivery of health services, and whether the reform objectives have been made. This was achieved by reviewing the flow of financial and other resources in the public health sector from administrative units to service delivery points at the facility level. The data were collected from administrative units, health workers, and patients to gauge the various dimensions of the health system that include financial flows, management of infrastructure, human resources for health, and patient management. Specifically, the issues which were reviewed are:

- Availability, adequacy, and timeliness of resources for service delivery;
- Implementation of some key policy reforms such as user fee removal and adherence to policy guidelines;
- Donor resource coordination, ownership, and fragmentation at the district level;
- Assessment of human resources management at the district and facility levels; and
- Comparison of staff satisfaction, absenteeism, and service delivery in districts implementing the Results-based Financing (RBF) model and non-RBF districts.

Major Findings of the 2017 PET-QSDS

The study found some improvements in certain areas while some have remained unresolved since the 2009 PET-QSDS study.

Health Care Financing

1. **Direct disbursement of the government operational grants from the Ministry of Finance (MoF) to the district health offices (DHOs) led to increased predictability of funding.** Between 2015 and 2017, the MoF was disbursing government grants directly to the DHOs, and this led to improved budget performance whereby the amounts disbursed were closer to the budget and there were minimal delays in receiving the funds. However, in 2018, the MoF reverted back to the old system of disbursing government grants to the DHOs through the Ministry of Health (MoH) which has led to increased delays in funding the DHOs while the level of funding is considerably lower than the budgets. However, this could also be attributed to the shrinking fiscal space at MoF level.

2. **While DHOs receive funds for health facilities in their jurisdiction (i.e. communities, health posts, health centers and district hospitals), it is not clear how these funds are accounted for.** Foremost, disbursement of funds from the DHOs to the health facilities in the districts (particularly health centers) is usually delayed while it is difficult to determine how much the health centers really receive. Managers at the health centers have little information on the expected and approved budget amounts. On the other hand, the DHOs spend part of the funds meant for the health centers to settle utilities and other procurements. The purchases are disbursed in-kind without monetization, making it difficult to account for the resources. This is worsened by the imprest system that makes it hard to track how much resources go to the health centers.

3. **The national budgeting and expenditure guidelines are not suitable for a resource constrained environment.** Erratic funding, and an inadequate resource envelop constrain managers at DHOs and health facilities from adhering to the guidelines even though they are familiar with them. Consequently, annual action plans are not effectively implemented as there is persistent reallocation of funding and reprioritization of activities to align to the available resources.

4. **Debt accumulation and emergence of unplanned activities affect service delivery.** The health facilities are faced with huge debts from utilities such as electricity, water, fuel, and other supplies and this is exacerbated by the introduction of new programs and treatment regimes which may not have originally been budgeted for. High and persistent debt accumulation is problematic and can adversely affect service delivery and break the fiscal information flow link if the resource requirement for settling the debt is not properly accounted for.

5. **External development assistance for health is an important source of funding for the health sector in Zambia, but vertically funded programs remain fragmented and uncoordinated.** The sources of public funds in the health sector are characterized by heavy fragmentation especially at the district levels. In the recent years, on-budget support by donors has reduced due to perceived weaknesses in the public financial management (PFM) system. A larger proportion of vertical projects remains off-budget and is channeled through nongovernmental organizations (NGOs) and aid agencies that implement programs outside the government system. The implementation of donor projects lacks transparency and accountability to the DHOs that are mandated to provide health services to their communities.

6. **Overall, rural health centers (RHCs) adhere to the free user fees policy.** The majority of patients seeking health care services at RHCs reported not paying any user fees, while the majority who visited urban health centers (UHCs) and hospitals paid. This is contrary to the free user fees policy which postulates that all services at primary health care facilities (health posts, health centers, and district hospitals) are free. Despite the majority of outpatients not paying at RHCs, there is still about 18 percent of patients who reported paying user fees. At UHCs and hospitals, about 45 percent and 60 percent of the outpatients reported paying user fees, respectively. The payments were mostly for laboratory tests, theatre, and medical reports. Payment of user fees at primary health care facilities calls for an evaluation of the implementation of the free user fees policy.

7. **RBF districts have demonstrated relatively better performance in perceived quality of health care.** In particular, patients in RBF districts were satisfied with: explanations being provided on how to take medication, receiving drugs during the visit, conducting tests, and explanation of results by the health staff. However, the RBF had no effect on staff satisfaction and absenteeism, and this suggests that incentives alone may not be able to address the main sources of staff demotivation and dissatisfaction, such as high workload and low staffing levels. Nevertheless, the RBF districts which were evaluated were only 9–12 months into implementation. Considering that facility managers in the RBF districts have financial and managerial autonomy, it is anticipated that there would be greater satisfaction of staff and improved service delivery in the long term.

Service Delivery

8. **Stock-out of drugs and vaccines remains persistent.** This study has established that essential and lifesaving drugs and vaccines are still widely unavailable with RHCs facing more shortages compared to UHCs and hospitals. The main reasons for the shortages include imperfections in the ‘push’ oriented Medical Stores Limited (MSL) drug requisition and delivery system. To bridge the gap, facilities purchase out-of-stock supplies from the open market.

9. **There is a mixed picture of the availability of basic equipment and medical apparatus in many facilities.** The survey showed a high presence of some basic equipment at all levels of the health care system. More than 90 percent of the facilities had stethoscopes (94 percent), sphygmomanometer (97 percent), weighing scale (98 percent), and thermometer (99 percent). On the other hand, the study also found that facilities lacked some of the core equipment with the most lacking equipment being x-ray (13.5 percent), audio scope (15.7 percent), microscope (48 percent), and laboratory equipment (44 percent). However, most of the equipment was in good working condition.

10. **Availability of transport at health centers is poor.** Only 43 percent of health centers have access to ambulances while the other modes of transport were not available.

11. **While staffing levels have improved, there is a persistent shortage of human resources due to absenteeism and tardiness by the available health workers.** The number of hours lost due to absenteeism and tardiness amounts to 437 days per month which is equivalent to 11.5 full-time equivalent (FTE) staff per month. This implies that manhours enough to manage 3–4 rural health centers (RHCs) are lost to absenteeism and tardiness each month. About 54 percent of the staff who missed work were absent on account of sickness, 21 percent had official permission or were on leave, while 25 percent of the employees were absent mainly on sanctioned official duties (such as outreach services and working elsewhere within the government sector) while others were absent without permission. Further, an average of 37 percent of the health workers reported late for work at least once a month.

12. **While the number of health facilities have increased, physical access to health facilities, particularly in rural areas is still a challenge.** Across all the health facilities, an average of 80 percent of the patients walk to the health facilities but a lot of time is spent walking to RHCs. About 25 percent of the patients who walk to the RHCs take an hour to half a day to reach their destination as compared to 16 percent for those going to hospitals, and 8 percent for

those going to urban health centers (UHCs). Only 25 percent of the patients going to RHCs take less than 15 minutes to reach their destination.

13. **Despite long distances, lengthy patient waiting times (average of one hour), and persistent stock-out of drugs and vaccines, the majority of the patients are satisfied with the services received at the health facilities.** The waiting times vary across the different types of health facilities with the lowest average waiting time being at the RHCs. The long waiting time at the UHCs and hospitals can be attributed to congestion due to high patient inflow, while understaffing is more prevalent at the RHCs. As a result, the length of time spent on patient care is being compromised. Nonetheless, patient satisfaction or perceived quality was found to be high in all the provinces but more so in Western Province which was implementing RBF. These results suggest that staff attitude has a greater effect on patient satisfaction than distance to the health facility, waiting times, and whether or not drugs were received at the health facility.

Policy Implications and Recommendations

The above findings have a number of policy implications for the improvement of health services delivery, as follows:

- There is need for the government to improve timeliness, and full disbursement of budgetary allocations to the DHOs and health facilities. At the bare minimum, there is need for the government to revert back to the 2015 system of disbursing operational grants directly from the MoF to the DHOs. However, the best option would be to disburse government grants directly from the MoF to district hospitals and health centers. The MoH could learn from the Zambia Ministry of Education where government grants are sent directly to the schools from the MoF, and in Uganda where health centers receive government grants directly from the treasury.
- Strengthening the capacity for financial management at all levels of the health system is critical. To facilitate this change, the integrated financial management information system (IFMIS) needs to be extended to all provinces, tertiary and secondary hospitals, DHOs, district hospitals, and health centers.
- To minimize debts, the MoH could set a threshold within which the health facilities could operate. Further, increasing the funding available to health facilities would mitigate debts and increase compliance to financial guidelines which are often not adhered to due to insufficient funding.
- Government needs to strengthen the PFM systems to attract donors to pool financial resources and use government systems. In cases where on-budget support is not feasible, reporting of donor funds could be strengthened by donors providing budget and expenditure data to the DHOs and provincial health offices (PHOs) on a regular basis. The MoH also needs to develop clear procedures on joint planning and budgeting, project implementation, and financial reporting.
- The free user fee policy has contributed to low out of pocket payments and reduced catastrophic health expenditures at household level. However, given the continued

payment of user fees at UHCs, district hospitals and some RHCs; the financial burden on households is bound to reach unsustainable levels. Thus, the government needs to ensure that the free user fees policy is strictly adhered to at all levels.

- With reference to RBF, the government needs to embed vital and least-cost elements of the RBF into the existing public health system.
- Erratic supply of drugs, vaccines and other medical supplies hinders access to quality healthcare. To avert this problem, there is need for the government to increase the budgetary allocation and expenditure on these items, and investment in procurement and distribution systems at district level. Further, there is need to strengthen the capacity of health facilities in forecasting and quantification to enhance the efficiency of the drug storage and distribution system.
- The government needs to ensure that more health centers are built in rural areas, and appropriate equipment is optimally available at each level of the health system so as to improve service delivery.
- Given that staff attitude has a huge effect on patient satisfaction, the MoH needs to ensure that health workers are adequately incentivized and motivated, and patient's charters displaying patients' rights and responsibility are available in all the health facilities.

1.0 Introduction

Zambia has undertaken a series of institutional and health financing reforms particularly in the last ten years. The main purpose of these reforms has been to improve the performance of the health sector to achieve the Sustainable Development Goals (SDGs) and their precursor, the Millennium Development Goals (MDGs). One of the major reforms was the transfer of the primary health care function (including the mother and child health program) from the Ministry of Health (MoH) to the Ministry of Community Development and Social Welfare;¹ and reversal of this decision in 2015. Further, a number of institutional reforms have been implemented over the period 2016–2018 aimed at enhancing operational efficiency and improving health service delivery. These reforms have led to an increase in the number of departments at the MoH headquarters from five in 2016 to 12 by the end of 2018. Outside the health sector, several districts have been created leading to an increase in the total number of districts in the country from 72 in 2011 to 116 in 2018.² Implementation of a number of reforms in a short period of time coupled with the creation of more districts have affected the planning process, resource allocation, and flow of funds to districts and health facilities in the health sector.

In the area of health financing, the GRZ started disbursing operational grants directly from the Ministry of Finance (MoF) to districts in 2015 aimed at increasing predictability in funding. However, this reform was reversed in 2018, when the government started to channel the resources through the MoH. Further, the National Health Insurance (NHI) Act was approved by Parliament in April 2018. This Act provides the legal mandate to establish the NHI management authority, and the NHI scheme. It is envisaged that implementation of the NHI scheme will broaden the resource base by pooling financial resources to improve strategic purchasing and service delivery. At the time of this study, the NHI scheme was not yet operational. At the health services provision level, there have been some reforms in the area of medicines and medical supplies management, storage, and distribution. For instance, there has been a program to decentralize the storage and distribution of medicines and medical supplies through the Medical Stores Limited (MSL) by creating provincial hubs.

The Zambian government and its cooperating partners (donors) have supported these reforms with strong financial commitments, and this has led to improved health outcomes in the country. For example, maternal mortality ratio declined from 591 deaths per 100,000 live births in 2007 to 398 in 2014 while the under-five mortality rate declined from 119 deaths per 1,000 live births to 75 in 2014. Amid the ongoing reforms, the health sector continues to face challenges related to the appropriate targeting of resources to priority areas, the increased clamor for transparency in resource use, and the dwindling and increased fragmentation of donor funding. In this context, appropriate evidence is necessary to inform policy making and decisions on the optimal delivery of health care services. This Public Expenditure Tracking Survey and Quantitative Service Delivery Survey (PET-QSDS) study is part of the wider objectives to gauge the efficiency and effectiveness of the Public Financial Management (PFM) reform agenda being undertaken by the Government of the Republic of Zambia (GRZ). The broad PFM reforms in Zambia, as well as sector-specific measures, are aimed at enhancing progress toward achievement of set targets. In the health sector, a number of financing and institutional reforms have been undertaken, and this

¹ This Ministry was renamed Ministry of Community Development Mother and Child Health

²At least five of the new districts were not fully functional at the time of this study.

study seeks to assess their effect on improving PFM and health service delivery. Ultimately, this PET-QSDS is expected to identify areas that require strengthening for improved resource allocation, utilization, and service delivery.

1.1 Major Findings and Policy Implications from the previous (2009) PET-QSDS

Zambia conducted its first PET-QSDS in the health sector using 2005–06 data, and the study findings were published in 2009. The survey covered five of the nine provinces in Zambia at that time. The surveyed provinces were purposively and randomly sampled to capture the rural-urban divide of the country. These included Lusaka and Copperbelt Provinces as urban regions while Southern, Northern, and Western Provinces represented the rural regions. A total of 21 districts and 150 health facilities, proportionately selected from each province in a random manner, were covered in the survey. Among the major findings from the 2009 PET-QSDS is that the MoF and the MoH had not developed a common understanding of what the sector needed or what proportion of the budget or of the gross domestic product (GDP) the sector was expected to get. In addition, the survey found that resource allocation principles favored higher levels of health care compared to primary health care services. This was perpetuated by inadequate number of health posts and health centers within the districts, which also entrenched the inequitable provincial receipt of resources, where the poorest, most remote, and least urbanized provinces received the lowest per capita releases.

The study also showed that donor financing was increasingly off-budget and skewed towards administrative rather than service delivery programs. With regards to disbursement of funds, the study showed timely release of funds from the MoH headquarters to the district health offices (DHOs) but delays in the release of funds from the DHOs to health centers and district hospitals. Further, the imprest system which 87 percent of the health facilities at district level were using was prone to delays. In addition, there were high levels of debt at the health facilities which implied that the cash-budgeting system was non-functional. It was further observed that user fees provided an additional source of income for some of the health facilities. The QSDS aspect of the survey highlighted, among other things, high staff vacancies for clinical health workers; high rates of absenteeism and dissatisfaction among human workers (partly due to heavy workloads and lack of incentives); delays in receipt of drugs; and high rates of dysfunctional medical and nonmedical equipment.

Based on the findings from the 2009 PET-QSDS, recommendations were made to the Zambian government to act on the following: (i) commit more resources to the health sector, including an increase in the size and disbursement of district grants, (ii) increase transparency and accountability in the allocation and use of resources, (iii) enhance accountability and financial management capacity at the district level, (iv) formulate an overall wage strategy; (v) improve payroll management; and (vi) implementation of reforms linking financing to results, and availability of health workers at the health facilities by enforcing rules on absenteeism and tardiness, and provision of incentives.

The results from the 2009 PET-QSDS provided baseline information and impetus for implementing some of the reforms that have taken place in the health sector over the past 10 years. For example, to improve the flow of GRZ grants to the districts, the MoF started disbursing operational grants directly from the MoF to the districts in 2015. However, the MoF reverted to

the old system of channeling funds to the districts through the MoH in 2018. On the wage strategy and payroll management, there have been several interventions to enhance payroll management and expenditure control—including the introduction of a single spine wage structure. On the other hand, some accounting systems (i.e. IFMIS and NAVISION) have been implemented to improve financial management capacity at provincial and district levels. Lastly, the MoH has been implementing Results-Based Financing (RBF) since 2008 in a number of districts aimed at linking financing to results, and improving the productivity of health workers.

1.2 Study Rationale, Objectives, and Hypotheses - 2017 PET-QSDS

The main objective of this PET-QSDS was to assess the flow of financial, material and human resources through the various levels of the public system. This resource flow is typically in the form of government and donor expenditures. The QSDS aspect of the study gathered facility-level input and output information to assess the quality and performance in resource use at the facility level. Consequently, the survey collected information about health budget allocations, transfer of funds, and expenditure at the central level, provinces, districts, and health facilities. The information was then used to explore issues such as delays in the flow of funds, leakages, and inequity in allocation of resources. Through the QSDS, timeliness of service provision, staff incentives and behavior, availability, and quality of key inputs were also analyzed.

Overall, this PET-QSDS study explores how the following are managed: budget and expenditures; human resources for health; drugs and medical consumables; and other service delivery inputs. The PET-QSDS is organized around six hypotheses. Hypotheses 1–4 focus on financial flows at the MoH, provincial, district, and facility levels with respect to allocation, release, and spending of funds. Hypothesis 5 deals with human resource for health and effectiveness of interventions aimed at improving staff performance. The focus for Hypothesis 6 is on drug supply chain management with emphasis on the availability of essential drugs and commodities at health facilities in the public sector.

- *Hypothesis 1:* There are no delays in districts receiving funds allocated to them.
- *Hypothesis 2:* Districts are adhering to budgetary guidelines from the national government and achieving high rates of budget execution.
- *Hypothesis 3:* As donors have moved toward on-budget support, the amount of off-budget support going to the health sector has reduced and district authorities are in a stronger position to account for all donor support flowing to their jurisdiction.
- *Hypothesis 4:* Health facilities in the public sector are adhering to the free user fees policy.
- *Hypothesis 5:* As a result of the RBF intervention, staff satisfaction has improved, absenteeism has reduced, and there is an improvement in health service delivery.
- *Hypothesis 6:* The extent of drug shortages at health facilities in the public sector has reduced, as a result of which facilities are able to adhere to the national guideline that they use between 4 percent and 10 percent of their budget allocations to procure drugs to address stock-outs.

1.3 Methodology

To test the above hypotheses, the PET-QSDS used data from various primary and secondary sources. The central-level administrative expenditure data were collected from the integrated financial management information system (IFMIS) of the MoH. Primary data were collected from a nationally representative sample of health facilities in Zambia at all levels of the health care system that includes primary, secondary, and tertiary levels. The survey used a multistage cluster sampling strategy involving provinces, districts, and health facilities, and within them, health workers and patients. The samplings strategy yielded 991 health workers and 2,042 exit clients randomly selected from 230 health facilities (comprising 30 hospitals, 40 urban health centers [UHCs], and 160 rural health centers [RHCs]). These units of analysis were sampled from across three provinces. The quantitative and qualitative data collection instruments were pretested before field work administration.

The sampling strategy aimed at producing a nationally representative sample. Three provinces were purposively sampled to reflect a mix of rural and urban provinces and differences in resource availability. In particular, Lusaka was chosen as an urbanized province with relatively more resources, Southern Province reflects a semi-urbanized province, while Western Province was selected to represent the most rural and least resourced province. More details on the study methodology are presented in Appendixes 1, 2 and 3.

Data cleaning and analysis were done using MS Excel and Stata software. The approach to data analysis was mainly descriptive. The core analysis was centered on providing answers to the objectives and hypotheses of the study as outlined above. To gauge the performance of the RBF in comparison with non-RBF districts on some of the key health financing and service delivery indicators, the following districts were used:

- Non-RBF districts in Lusaka Province: Chilanga, Kafue, Chongwe, and Rufunsa.
- Non-RBF districts in Southern Province: Gwembe, Siavonga, Zimba, and Namwala.
- RBF districts in Western Province: Nalolo, Senanga, Shangombo, and Kalabo.

The rest of this report is organized as follows. Section 2 describes the structure and key features of Zambia's health system. Section 3 looks at budget management, resource flows and expenditure in the public health system. Section 4 presents the key findings covering the management of health infrastructure and equipment, human resources for health, drugs and medical supplies, and patient management. Section 5 provides the discussions and conclusions.

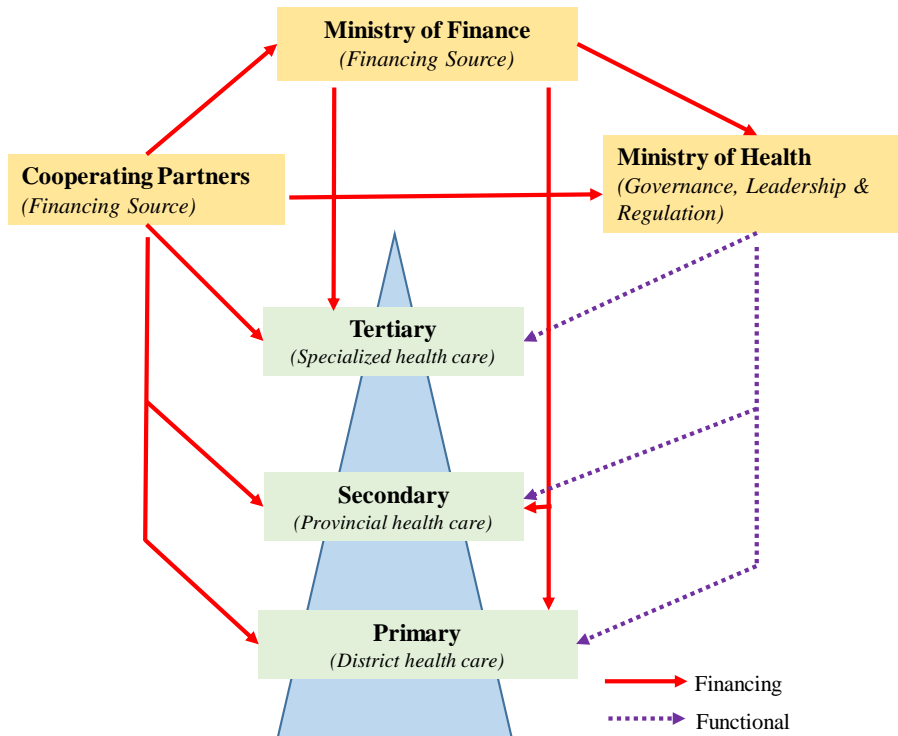
2.0 Health Care System Characteristics and Financing in Zambia

2.1 Structure of the Health System

The health care system in Zambia is organized in a pyramidal setup. At the apex, the MoH headquarters (HQ) is charged with the responsibility of policy and standards formulation, quality assurance, and resource mobilization. As Figure 1 shows, below the MoH headquarters are the provinces and districts. The provincial health offices (PHOs) serve as a link between the MoH HQ and districts and backstop provincial and district services. The PHOs supervise and provide technical, logistic, and capacity development assistance to the DHOs. PHOs are also mandated to provide second-level referral services through the general hospitals.

The DHOs are responsible for managing all health care providers under their jurisdiction. They provide leadership in the planning and management of health services; supervision and quality assurance; procurement and supply of drugs (through the MSL); and provision of technical, logistical, and capacity development support in the provision of ambulatory health services. Recently, the government introduced health subdistricts (HSDs) in Lusaka, which are administered at the health center level. The HSDs are responsible for budgeting and planning for health centers and health posts under their jurisdictions.

Figure 1: Organizational and Financing Flows in the Public Health System



Between 2015 and 2017, the MoF was sending operational grants directly to the DHOs, which would in turn remit the funds to their health centers and district hospitals. In 2018, the MoF reverted to the old system of channeling funds to the DHOs through the MoH. The disbursements

from the DHOs to health centers is imprest based,³ because most of the health centers do not have bank accounts. A substantial share of the health facility funds is retained by the DHOs as they make all the necessary procurements on behalf of the health centers and funds only get disbursed to the health centers on an imprest basis.

2.2 Overview of Health Care Financing

Zambia spends approximately 4.5 percent of its GDP on health (2016). The government and donors are the two main providers of finances for the health sector. Government expenditure on health as a share of general government expenditure was 7.1 percent on average over 2013–2016 (MoH 2018d). The sector still heavily relies on external financing. In 2016, donors contributed 42.5 percent of the total current health expenditure (CHE), while government spending as a share of total CHE was 38.3 percent (MoH 2018d). Although donors provide a significant share of health financing in Zambia, most of this assistance is off-budget and managed through vertical projects. Although donors account for the larger share of total CHE, the bulk of their funds is earmarked for HIV/AIDS and sexually transmitted infections (STIs). For instance, during 2015 to 2016, an average of 70 percent of the total donor CHE was spent on HIV/AIDS and STIs (MoH 2018d). Earmarking external resources to HIV/AIDS and other diseases reduces the resource allocation capabilities of the government and the policy space to optimize funding across all programs.

The Zambian government provides free primary health services countrywide. This has helped to maintain out-of-pocket (OOP) expenditure as a share of the total CHE at low levels—which was estimated at 12.1 percent in 2016 (MoH 2018d). However, secondary- and tertiary-level hospitals charge user fees to patients who bypass primary health facilities, and at the high-cost sections of the hospitals.

2.3 RBF in Zambia

Zambia has been using output-based approaches for over two decades to finance whole or part of the public health system. This commenced in 1996 with the establishment of the Central Board of Health (CBoH) which implemented performance-based contracting for 11 years (1996–2006). In 2008 (two years after the CBoH was abolished) the MoH started implementing RBF with support from the World Bank. The RBF was initially pre-piloted at health centers in 2008 in one district (Katete) in Eastern Province of Zambia and later scaled up to 10 additional districts in April 2012. Thus, between 2012 and 2014, RBF was implemented in about 203 health centers in the 11 districts. The RBF was further scaled-up vertically and horizontally by adding more districts, district hospitals and communities through the World Bank supported Zambia health services improvement project. This project covers the five poorest provinces in Zambia (Muchinga, Luapula, Northern, North-western, and Western) and seeks to improve health delivery systems and utilization of maternal, newborn, and child health (MNCH) and nutrition services. By October 2018, a total of 58 districts and 909 health facilities (889 health centers and health posts and 20 district hospitals) were implementing RBF in the five provinces. At the community level, RBF was operational at 1,300 Neighborhood Health Committees (NHCs).

³ Under the imprest system, the DHOs hold the funds for health centers, which have to make monthly requests of their money and can only access it if they account for their previous disbursement.

2.4 Distribution of Health Facilities by Ownership and Type

The number of health facilities in the private and public sector in Zambia has been increasing over the last few years. The total number of private and public health facilities and their distribution in 2017 are outlined in Appendix 4, Table A.4. Of the tertiary facilities countrywide, the majority (60 percent) are located in Lusaka, while 30 percent are on the Copperbelt and 10 percent are in Southern Province. Further, the distribution of secondary-level facilities is biased toward Copperbelt, which accounts for close to one-third (at 26 percent) of secondary-level facilities followed by Southern Province (at 15 percent), while Eastern province has only one secondary-level hospital accounting for less than 1 percent.

Lusaka has the biggest portion of district hospitals (at 20 percent), followed by Copperbelt (at 13 percent) and Western Province (at 13 percent). Muchinga Province has the least number of district hospitals, which account for less than 1 percent of the total. With the focus of increasing primary health services and getting health services as close to the family as possible, the government has invested in the construction of health posts countrywide. Over half (52 percent) of the health posts are found in Eastern, Copperbelt, Western, and Southern Provinces, while the rest are distributed across the remaining six provinces. Overall, Lusaka and Copperbelt have the highest number of health facilities with a total of 473 and 438, respectively.

The ownership structure of health facilities is diverse. About 79 percent of the total number of health facilities in the country are owned by the government, 16 percent by the private sector, and 4 percent by the Churches Health Association of Zambia (CHAZ) (MoH 2017). Approximately 80 percent of the population utilizes public health facilities (health posts, health centers, or hospitals). Most of the health facilities that are managed by CHAZ are located in rural and hard-to-reach areas in all the 10 administrative provinces of Zambia, and this makes CHAZ a key institution in serving the poor and underserved people of Zambia. In recognition of the contribution of CHAZ, and not wanting to waste money by building new health facilities next to where CHAZ facilities already exist, the Zambian government has a Memorandum of Understanding (MoU) with CHAZ.

2.5 Health Services Provision

The formal health care system comprises public, private not-for-profit, and private for-profit providers. Most of the private not-for-profit providers are faith-based (managed through CHAZ), and financed by the government and ultimately comprise part of the public health care system. Service delivery is structured around a referral system comprising third-level or tertiary hospitals at the apex, second-level (secondary or general) hospitals, first-level (district) hospitals, health centers, and health posts at the bottom. The third-level hospitals report directly to the MoH. The second-level referral hospitals are managed by PHOs, while district hospitals and health centers (RHC, UHC, and health posts) report to the DHOs. The third and second level hospitals provide more specialized services; while district hospitals mainly provide ambulatory healthcare. Health centers and health posts mainly provide basic ambulatory and preventive care through a mix of outreach and facility-based services. At community level, there are a number of voluntary health workers and community health assistants (CHAs) who provide outreach services and other services at the health centers and health posts.

2.6 Distribution of the Health Workers

The health sector is labor-intensive and, as such, the availability and presence of various cadres of health workers are important for high-quality health service delivery. Zambia has a wide range of health care professionals serving in both the public and private health sectors. Appendix 4, Table A.5 shows that health care delivery is dominated by nurses, followed by midwives and clinical officers, while doctors are relatively few. The density of health workers increased slightly between 2016 and 2017, particularly for the frontline health workers. However, at 11 skilled attendants (doctors, midwives, medical licentiates, clinical officers, and nurses) per 10,000 population, the density of health workers is insufficient for Zambia to reach Universal Health Coverage. As a matter of fact, Zambia is one of the 31 countries in Africa (and one of the 30 low- and middle-income countries worldwide) with a density of skilled workforce lower than 22.8 per 10,000 population and a coverage of births attended by skilled attendants of less than 80 percent (WHO 2013). Based on this evidence, the importance of an adequately staffed health workforce with the right mix of medical personnel to improve health service coverage and health outcomes cannot be overemphasized.

2.7 Summary of Key Health Policy Reforms in Zambia: 2007–2018

Since 1992, the MoH has implemented health reforms aimed at strengthening the performance of the sector. Figure 2 summarizes the key health financing policy changes that have occurred between 2007 and 2018. In 2007, the government extended the user fees removal policy initiated in 2006 in rural areas to peri-urban areas and finally the entire primary health care level in 2012. The policy change was aimed at increasing the use of health services particularly among the poor. In 2009, allegations of financial irregularities in the health sector reduced donor confidence in the sector, which led to the withdrawal of support and discontinued use of the basket funding mechanism. This lack of confidence by the donors led to an increase in the flow of financial resources to the health sector through vertical programs and earmarked financing.

Figure 2: Major Events and Reforms in Health Financing in Zambia: 2007–2018

2007	<ul style="list-style-type: none">• User fee abolition policy covering rural areas extended to cover all peri-urban areas
2009	<ul style="list-style-type: none">• Withdrawal of donor support due to misapplication of funds
2012	<ul style="list-style-type: none">• User fees abolition policy removed for the entire primary health care level• Results Based Financing implemented in 11 districts countrywide
2013	<ul style="list-style-type: none">• Medical levy abolished
2015	<ul style="list-style-type: none">• Commencement of direct disbursement of operational grants from Ministry of Finance to districts
2016-2017	<ul style="list-style-type: none">• Results Based Financing implemented in 50 districts in 5 provinces
2018	<ul style="list-style-type: none">• Modalities of the introduction of the National Health Insurance Scheme commence, NHI Act No 2 enacted by parliament in April 2018

Source: Adapted from Chansa (forthcoming).

An earmarked tax, called the medical levy, charged on interest earned on savings, was introduced in 2003 and abolished in 2013. The medical levy was aimed at raising additional revenue for the health sector, and its subsequent removal reduced the financial resources available. To enhance resource mobilization and financial risk protection, the process to set up a NHI scheme was initiated by the enactment of the NHI Act in April 2018.

In terms of institutional reforms, the MoH underwent organizational realignment in 2011, whereby the primary health care function was transferred to the Ministry of Community Development and Social Welfare (MCDSW), and the MCDSW was renamed the Ministry of Community Development, Mother and Child Health (MCDMCH). All primary health care institutions and facilities including the DHO, district hospitals, health centers, and health posts were transferred to the MCDMCH. Furthermore, the Mother and Child Health Unit in the Department of Public Health at the MoH HQ was transferred to the MCDMCH. In 2015, the decision was reversed, and the primary health care function was returned to the MoH with all the supporting structures that manage primary health care. After the reintegration of the primary health structures into the MoH, the MoH was reorganized further between 2016–2018 aimed at coming up with a lean structure responsible for policy, standards, monitoring and evaluation; and strengthening service delivery. This includes split of the University Teaching Hospital (UTH) into five specialized hospitals: Women and Newborn hospital, Adult hospital, Cancer Diseases Hospital, Children’s Hospital, and Eye Hospital (MoH 2018b). Outside the health sector, the government has created additional districts thus raising the total number of districts from 72 in 2011 to 116 by the end of 2018. The creation of new districts has affected the allocation and mobilization of resources in the health sector.

In 2011, the MoH embarked on a number of infrastructure development programs aimed at improving service delivery as well as increasing access to cost-effective health care for the Zambian people. The infrastructure developments are also aimed at reducing treatment abroad and referrals to the main tertiary hospital (UTH) in the country. Major infrastructure developments include the upgrading of hospitals, construction of specialist hospitals, rehabilitation of facilities, and construction of health posts and district hospitals. With the various infrastructure developments being undertaken, there is a need for a corresponding increase in health workers to facilitate the transformation of Zambia into a nation of healthy and productive people.

3.0 Budget Management in the Health Sector

3.1 Planning and Budgeting Process

Planning and budgeting for the health sector is undertaken by the MoH, through a mixture of top-down and bottom-up approaches. The budgeting process starts with the MoF giving a budget ceiling to the MoH that subsequently communicates the ceilings to lower levels that include the PHO, general hospitals, statutory boards, and DHOs. These prepare budgets in line with the ceilings provided. Along with the DHO budget, these lower-level budgets and plans are consolidated into the district budgets and then through PHOs submitted to the MoH. The MoH uses these inputs to consolidate its ministry budget which is subsequently submitted to the MoF for review and integration into the national budget.

Following the recommendations of the 2009 PET-QSDS aimed at increasing predictability of funding at district level, between 2015 and 2017, the MoF was disbursing funds directly to the DHOs rather than through the MoH. Before this, all financial releases for the health sector were through the MoH. This reform was reversed in 2018, and a review of the budget implementation under this subsection shows that direct disbursement of the operational grant by the MoF reduced the delays and improved the consistency of receipts by the DHOs. However, the gains were reversed after the shift to the old system in 2018. In the 58 districts where RBF is being implemented, the districts receive RBF funds in addition to the GRZ operational grant. RBF funds are disbursed quarterly directly to the health facilities based on performance on a set of incentivized quantity indicators on MNCH and nutrition; and quality of healthcare. Direct funding to the health centers in the RBF districts has been made possible by means of a waiver obtained from the MoF to allow health facilities to open bank accounts despite these facilities not being mandated to receive funds. See the 2018 Public Finance Management Act (GRZ 2018).

Zambia also has a number of donors and aid agencies that implement projects at the provincial, district, and facility levels. Most of these projects are managed outside the government financial and procurement systems. The increased support of programs outside of the MoH financial management and administrative mechanisms tends to weaken the leadership and stewardship roles of the ministry and affects the capacity to develop an integrated health system.

Following the removal of user fees at all government and mission health facilities providing primary health care, only secondary and tertiary hospitals are allowed to charge user fees and to operate prepayment schemes. These hospitals are also allowed to retain and use the revenues generated from the user fees collected at their facilities. Further, the DHOs and hospitals have the mandate to procure items such as drugs and medical supplies; office supplies; and fuel, food, and linen for patients directly, depending on the procurement thresholds for each level.

This section documents the extent to which the reforms in the health sector are being adhered to and the effects on the health system and service delivery. This has been done by examining the flow of funds; pooling mechanisms; and allocation and use of funds from the government, donors, and user fees. The study also compares RBF districts (Western Province) with non-RBF districts in Lusaka and Southern Provinces to determine whether there are differences in performance in PFM.

3.1.1 Resource Allocation

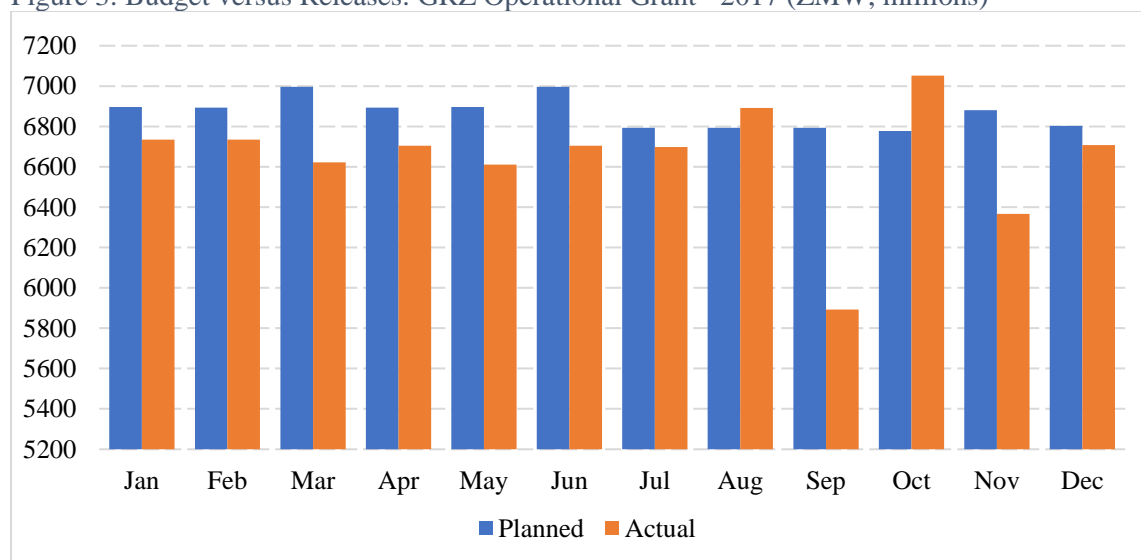
The main key budgetary expenditure items in the health sector are: personnel emoluments that include wages and salaries, operational nonwage grants, capital essential drugs, and supplies. Personnel emoluments are paid directly by the MoF to the health workers through their banks. These expenditures constitute about 62 percent of the total public health sector spending (World Bank 2018). Most of the drugs and supplies are centrally procured by the MoH and distributed by the MSL, which distributes the predetermined essential drug kits to health centers through the DHOs. Hospitals, on the other hand, make requisitions from the MSL for drugs and supplies based on needs, while capital expenditures remain the preserve of the MoH HQ.

The largest portion of government allocations disbursed to health facilities and the DHOs is the operational grant. During the budgetary process, funds are allocated from the MoH to the DHOs using a needs-based resource allocation formula (RAF) that was developed in 2004 and revised in 2009 and 2017. The 2017 RAF accounts for material deprivation using variables such as prevalence of poverty; ownership of assets; disease burden; and access to banks, markets, and fuel stations. The deprivation index is then used as a weight on district population to derive relative shares in the resource envelope. Upon receiving the operational grants, the DHOs are in turn supposed to disburse funds to communities, health posts, health centers and district hospitals under their jurisdiction. Disbursement of funds at district level is based on guidelines which outline the proportion of resources to be spent at the district office (15 percent), district hospitals (20–40 percent), health centers (45–60 percent), and the community (10–15 percent).

3.1.2 Budget Execution – Volume of Disbursements

The monthly budget disbursements depicting the extent to which budgeted amounts are released by the treasury for operational activities to all sampled DHOs in 2017 are presented in Figure 3.

Figure 3: Budget versus Releases: GRZ Operational Grant - 2017 (ZMW, millions)

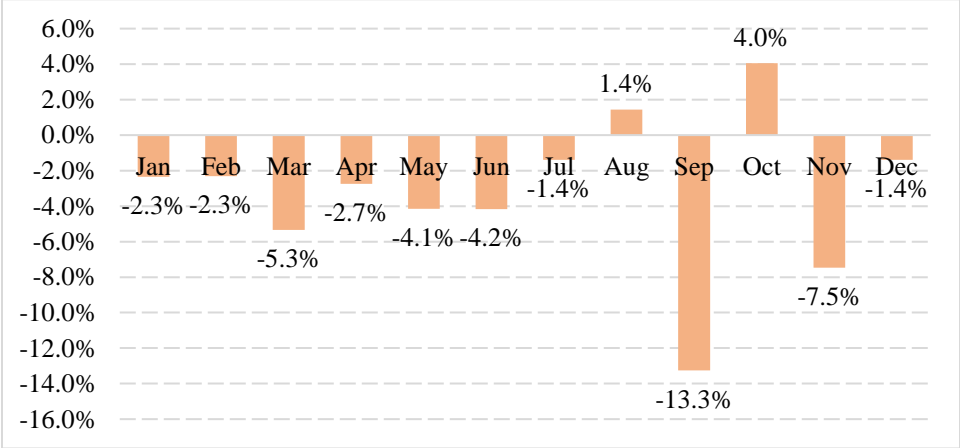


Source: Authors' compilation from survey data.

The monthly budgetary releases averaged at 96 percent for all the months. As Figure 4 shows, the exception occurred in March (5.3 percent), September (13.3 percent), and November (7.5 percent) when the deficit variation exceeded 5 percent. The releases for the months of August and October were larger than what was budgeted. This suggests that the budget releases of the MoH budget by the MoF in 2017 was relatively predictable. The observed reliability of releases against the budgetary allocations falls within the estimated annual average of 6.4 percent as observed in the Public Expenditure and Financial Accountability (PEFA) report (World Bank 2017).

The assessment of budget allocations and releases shows a similar pattern when disaggregated to provincial and district levels. Provincial data show that the deviation of releases to budgets stood at 5.8 percent for Lusaka, 0.5 percent for Southern Province, and 4.0 percent for Western Province. The relatively good budget performance in 2017, particularly in October, can partially be explained by the unusual urgency for large resource disbursements to counter the cholera epidemic that affected the health sector. The country experienced a cholera outbreak in October 2017, and by March 28, 2018, a total of 5,276 cumulative cases and 52 cumulative deaths were recorded nationally (MoH 2018a). For Southern Province, the relatively smaller variation may also be explained by the comparatively large number of mission facilities that tend to receive funding from their sponsors in addition to the GRZ grants.

Figure 4: Monthly Deviations of Releases from Budgetary Allocations - 2017



Source: Authors’ compilation from survey data.

The district-level budget releases are presented in Table 1. The emerging picture of allocations and releases to individual selected districts based on survey data are consistent with the performance of the overall budget during the 2017 financial year. A few districts such as Lusaka, Shibuyunji, Zimba, Shangombo, and Luangwa display patterns of allocations that deviate by more than 5 percentage points from the releases. The figures in Table 1 do not show any clear pattern of differences between RBF and non-RBF districts in terms of releases and allocations. A striking observation from Table 1 is the extent of discrepancies in allocations and releases between administrative and survey data. While the survey report indicates an average of 3 percent variance, administrative data show an average variance of 8 percent.

Table 1: Allocation versus Releases to Selected Districts - 2017

District	Survey Data for Selected DHOs			Administrative Data		
	Allocated A	Released B	Deviation (B - A) / A	Allocated C	Released D	Deviation (D - C) / C
Nalolo ^a	1,491,504	1,482,859	-0.6%	22,748	19,561	-14.0%
Rufunsa	1,207,296	1,207,292	0.0%	15,311	15,440	0.8%
Senanga ^a	1,710,312	1,700,410	-0.6%	15,010	13,841	-7.8%
Shibuyunji	1,086,556	872,159.00	-19.7%	5,556	5,396	-2.9%
Kalabo ^a	2,660,748	2,645,325	-0.6%	23,450	22,323	-4.8%
Shangombo ^a	1,293,696	1,185,888	-8.3%	12,165	11,140	-8.4%
Mongu	3,345,240	3,348,242	0.1%	29,114	27,284	-6.3%
Gwembe	1,388,976	1,380,936	-0.6%	17,251	14,090	-18.3%
Namwala	2,382,096	2,391,284	0.4%	22,748	19,561	-14.0%
Siavonga	1,715,232	1,708,634	-0.4%	20,730	16,626	-19.8%
Zimba	1,131,252	1,039,148	-8.1%	17,631	14,889	-15.6%
Choma	4,319,256	4,319,256	0.0%	52,007	37,182	-28.5%
Chongwe	2,910,048	2,910,044	0.0%	25,846	25,792	-0.2%
Luangwa	1,484,196	1,297,939	-12.5%	13,636	13,398	-1.7%
Kafue	2,811,192	2,811,192	0.0%	39,855	40,289	1.1%
Chilanga	2,272,416	2,272,416	0.0%	14,426	14,369	-0.4%
Lusaka	13,900,000	12,900,000	-7.2%	190,360	193,637	1.7%
Average			-3.4%			-8.2%

Source: Authors' compilation from survey data.

Note: a. Represents districts that are also implementing RBF. The figures do include the funds received through RBF. The administrative data include nonoperational budget expenditures.

Disbursement of financial resources from the DHOs to the lower levels (communities, health posts, health centers and district hospitals) is less transparent. A comparison of the releases reported by the DHOs against releases reported by a randomly selected set of health facilities across the three provinces is made in Appendix 5, Figure A.1. The figure shows that some health facilities receive less than 66 percent of their allocations. On average, 30 percent of the resources for health facilities remain at the DHOs and are spent by the DHOs on behalf of the health facilities on utilities and procurement of goods and services that are disbursed as in-kind. The weak accountability systems between the DHOs and disbursement of in-kind services to health facilities creates a potential conduit for leakages. However, part of this discrepancy can be explained by poor financial reporting especially at the lower levels, which use the imprest system. Most facility managers don't have information on the exact amounts that are managed by the DHOs on their behalf.

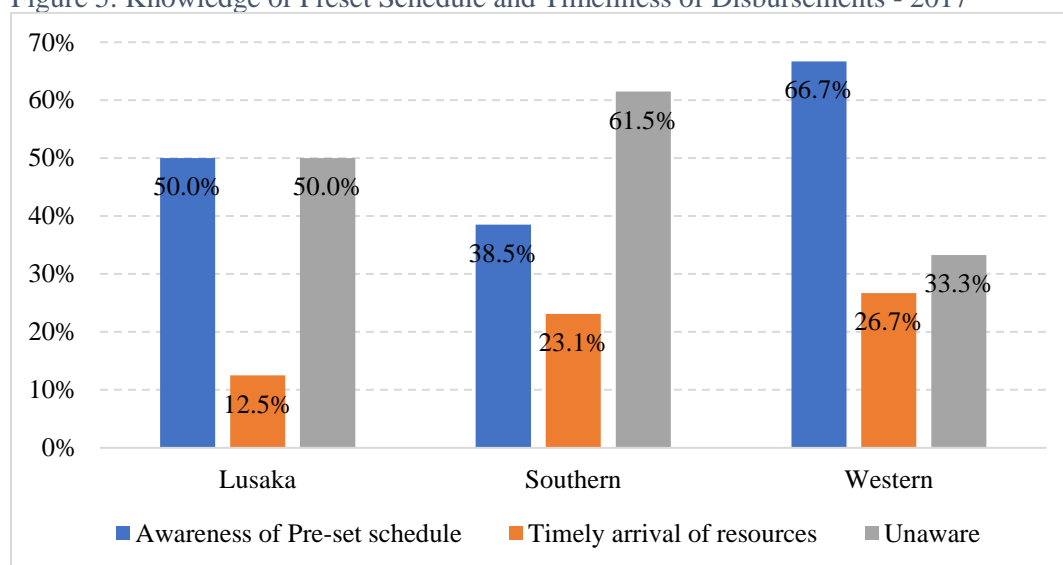
In summary, the tracking of expenditures between the DHOs and health facilities has challenges due to the opaqueness of the imprest system and the lack of accurate information on approved budgets availed to the health facility managers. Part of the individual facility budget is managed by the DHOs on behalf of the facilities. The DHOs make consolidated procurements and disburse these goods and services as in-kind support based on facility requests and needs as opposed to allocated resources. This practice creates a potential point of leakages in the resource flows.

3.1.3 Budget Execution – Timeliness of Disbursements

The survey also investigated the timeliness of transfers from the MoF/MoH to the DHOs and between DHOs and health facilities. Receiving money on time is important for effective service delivery. The survey explored whether the DHO and facility managers were aware of the timing when the government grants were supposed to be credited to their accounts and whether the money was disbursed on time and consistently. This question was asked in the context of the policy reform that shifted the disbursement responsibility from the MoH to the MoF between 2015 and 2017; and reversal in 2018. Despite receiving a significant share of their budgets, the DHO managers do not have a defined schedule or day of the month when funds are expected. The receipt of disbursements tends to be erratic. At least 47 percent of the district managers were not aware of the exact day when their DHOs were supposed to receive funding.

The awareness pattern also varied across provinces. Southern Province had the largest share of managers that were not aware of the timing of disbursement at 61.5 percent, followed by Lusaka at 50 percent and Western Province at 33.3 percent (Figure 5). The main reason provided by these managers for their ignorance was that the government does not have a preset schedule when operational grants are supposed to be received. Unlike salaries that are regular and consistent, the timing of the receipt of the operational grants tend to be erratic, unpredictable, and inconsistent. In line with those that expressed knowledge, these managers observed that during good years, they traditionally receive their grants during the first or second week of the month.

Figure 5: Knowledge of Preset Schedule and Timeliness of Disbursements - 2017



Source: Authors' compilation from survey data.

Interviews with district managers revealed that disbursement of government operational grants directly to the DHOs from the MoF had improved the level and timeliness of funding in 2017. The district managers indicated that financial releases were generally consistent and timely in 2017 but this was not the case in 2018. Among the DHOs, 33 percent reported experiencing delays of up to three times in 2017 (Table 2). Further information from the interviews with district managers revealed that 54 percent of the DHOs who experienced delays in 2017 received their grants within a month of when it was due, 26 percent received their grants within 2 months of when it was due,

and only 20 percent received their grants within 3 months of when it was due. But since 2018, information from the district managers revealed prolonged delays in receiving funds after the MoF reverted back to the old system of disbursing funds to DHOs through the MoH. While in 2017 the delays lasted up to 3 months when the MoF was transferring the monies directly to the DHOs, there were considerable delays in 2018. For example, most districts indicated that they only received the April 2018 grant in August 2018, a delay of about four months.

The longest delays in accessing funds at DHOs tend to be for new and remote districts. Interviews with managers at DHOs revealed that the delays in disbursements worsened in 2018, with most of the new districts receiving their money after five months. The prolonged delays in accessing funds at DHOs in new and remote districts could be attributed to lack of banking facilities and other amenities. In some cases, new districts rely on staff from older districts for the management of the resources—such as banking, accounting, and purchasing of goods and services. The effects of the delays in receiving the operational grants are diverse. For example, most of the new districts surveyed do not have their own district hospitals. Therefore, they have to purchase hospital-level services from neighboring districts. Long delays in receiving funds make it difficult for the districts to purchase referral services and utility services, which leads to the accumulation of debt (see Figure 6).

Despite the inadequacy and delays in receiving funds, patients are still able to access health services at neighboring district hospitals even without upfront payment for referral services by the district where they come from. The provision of referral services is subject to the referring facility/district having the necessary means to ferry the patient or the patients being able to get there using their own means. However, increased flow of patients without a matching increase in resources tends to affect service delivery at referral hospitals. Operational costs increase further when patients are transported to distant districts for specialized services. Unpredictability of remittances from the government is also a problem at secondary and tertiary hospitals.

Table 2: Number of DHOs and Number of Times the Grants are Delayed - 2017

No. of Times Delayed	No. of DHOs Experiencing Delays	Percentage
1	4	26.7
2	2	13.3
3	5	33.3
5	1	6.7
9	1	6.7
12	2	13.3
Total	15	100.0

Source: Authors' compilation from survey data.

The DHOs serve as fund managers for communities, health posts, health centers and district hospitals. In practice, the link between the DHOs and health centers (including health posts) is the weakest point in the resource flow in the public health system in Zambia. Foremost, health centers managers are not fully aware of the approved budgets and amounts that the MoF/MoH disburse for their health facilities. This is because most of the goods and services (including emergency drugs) are procured in bulk for all the health centers by the DHOs. These goods are disbursed in-kind to the health centers, often without their monetary value being communicated. This aggregation of disbursements to facilities is based on perceived need rather than approved budget

and thus provides a potential conduit for leakages and unclear disbursement of funds by the DHOs. After the goods and services are procured for the health centers, the DHOs then provide cash balances to the health centers using an imprest system. The health centers' access subsequent payments after retiring all outstanding imprests. The imprest system adds to the opaqueness of the fiscal information chain. Obscurity in the flow of resources from the DHOs to the health centers is consistent with observations from the 2009 PET-QSDS (World Bank 2009).

Table 3 summarizes the number of times, and number of health facilities that reported delays in receiving their funds (imprest) during the 2017 financial year. The results show that an average of 34 percent of the total number of sampled health facilities experienced delays. Out of these facilities, about 42.5 percent (17/40) were UHCs, 31.8 percent (51/160) were RHCs and 36.7 percent (11/30) were hospitals. The delays were more frequent at RHCs as compared to hospitals and UHCs. Of the total number of health facilities that reported the delays, about 23 percent reported experiencing delays one to two times in 2017 while 43 percent reported experiencing delays three to six times in 2017 (Table 3). The highest number of delays of about three to six times in 2017 were reported at 49 percent of the RHCs (Table 3).

Table 3: Number of Times Grants are Delayed by Health Facility Type – 2017

No. of Times Delayed in a Year	UHCs	%	RHCs	%	Hospitals	%	Total	%
1 to 2	7	41	5	9.8	6	55	18	23
3 to 6	6	35	25	49	3	27	34	43
7 to 9	1	5.9	12	24	0	0	13	17
10 to 12	3	18	9	18	2	18	14	18
Total	17		51		11		79	

Source: Authors' compilation from survey data.

In comparison to delays from MoF/MoH to DHOs, delays in funding are more prolonged within the districts between DHOs and health facilities (health centers and district hospitals). For instance, while the longest delay in receiving grants from the MoF/MoH by the DHOs was 3 months (12 weeks), interviews with managers at the health facilities revealed that in 2017, the average delay was about 13.5 weeks with a maximum delay of 36 weeks for some RHCs. The majority (77 percent) of the UHCs had delays of between 0 and 8 weeks, while the majority (67 percent) of the RHCs reported delays of 9 weeks and above. The lag for most hospitals (64 percent) was 4 weeks and below (Table 4).

Table 4: Average Period Grants are Delayed by Health Facility Type - 2017

Weeks of Delay	UHCs	%	RHCs	%	Hospitals	%
0-4	5	29.4	5	9.8	7	63.6
5-8	8	47.1	12	23.5	2	18.2
9-12	2	11.8	6	11.8	2	18.2
13-16	0	0.0	8	15.7	0	0.0
> 16	2	11.8	20	39.2	0	0.0
Total	17	100.0	51	100.0	11	100.0

Source: Authors' compilation from survey data.

Interviews were conducted with managers at DHOs to establish the reasons for delayed disbursement of funds to the lower level health facilities (health centers and district hospitals).

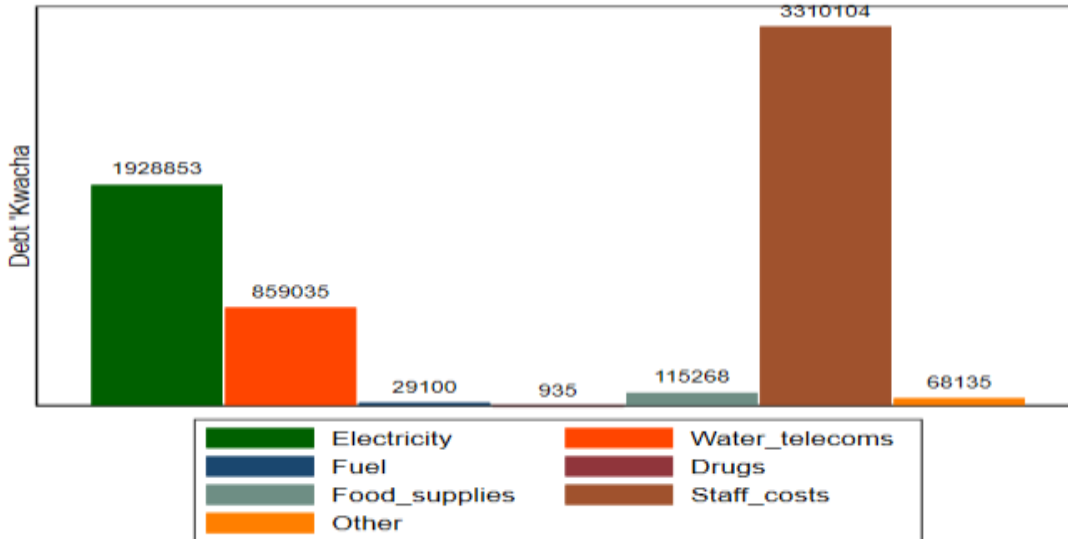
According to the DHO managers, some health facilities fail to fully retire the imprests in time. Health facilities that fail to fully account for outstanding imprests are not provided with subsequent imprests, and this is a common feature with imprest holders in remote facilities. However, it is not clear how the DHOs use the imprests when they are not claimed by the health facilities. The information gap in disbursements and accounting between DHOs and health facilities makes it hard to estimate the total amount of money that is provided to the health facilities. The discretionary power over disbursements that the DHOs have over the health centers and district hospitals promotes local capture of resources by the DHOs and opportunities for leakages. This issue was also raised in the 2009 PET-QSDS (World Bank 2009).

In summary, operations of the DHOs and health facilities are negatively affected by inconsistent levels of funding and erratic release of funds. This results in an accumulation of debt for utilities including (electricity and water bills), food for patients, cleaning materials and office supplies (see Figure 6). Information from managers at DHOs and health facilities revealed that erratic funding inhibits them from effectively implementing their annual action plans, and they often replace some of the planned activities with others which are affordable. While the DHO and facility managers endeavor to adhere to the MoH's budgeting and expenditure guidelines, adherence has been difficult due to erratic and low funding. All the managers who were interviewed had knowledge of the government's prescribed budgetary guidelines that are necessary to achieve high rates of budget execution. Despite knowing the guidelines and having structures in place to implement them, the managers observed that they do not always adhere to the guidelines.

There are number of reasons for this phenomenon. First, in cases where the resources released by the MoF/MoH are delayed and inadequate, the DHOs use their discretion to reallocate resources across health facilities and functions. Second, the DHOs tend to reprioritize spending to manage unforeseen eventualities or emergencies such as maintenance of ambulances and motorbikes, laundry facilities, water systems etc. In addition, some major activities, such as child health week, national health week, outbreak of diseases (e.g. cholera), and unforeseen increases in patient referrals, result in increased expenditures and resource reallocation. District managers also attributed the low adherence to budgeting and expenditure guidelines to the abrupt introduction of unbudgeted programs and changes in treatment regimes that result in budget amendments during the course of the financial year.

Another development observed during the survey is that subdistricts (anchored on larger health centers or hospitals) have been created in large cities like Lusaka to manage health facilities around them. These subdistricts manage all the funds and procurements for the health facilities under their jurisdiction. Although this reform is aimed at easing the administration of health care delivery, this new layer has contributed to increased delays and blurring of the flow of resources from the DHOs to subsidiary health centers. During the survey, most of the subdistrict-affiliated health facilities had little or no say in how funds are used and could not provide information on their allocations and expenditures, since records are generated and maintained by the subdistricts.

Figure 6: Distribution of Debt by Major Spending Categories - 2017



Source: Authors' compilation from survey data.

3.2 Donor Resources

Donor resources in the health sector are managed by the government in four ways: (a) direct budget support at the MoF, (b) health sector support ('basket' funding) at the MoH HQ, (c) direct support to provinces and districts, and (d) ring-fenced or earmarked support for certain programs and/or diseases. In this regard, donor funding was regarded to be on budget if it was disbursed through the government system and/or accounted for in the MoH's annual plans and budgets and financial reports. In most cases, vertical programs are implemented by donors through their aid agencies or nongovernmental organizations (NGOs) outside government budgeting and accounting systems. Most of this support is not fully integrated into the government's fiduciary and procurement systems. The National Health Accounts (NHA) survey for 2013–2016 shows that the government only managed 54 percent of the total CHE on average per year over 2013–2016 (MoH 2018d). Further, while Zambia receives a lot of funding for HIV/AIDS programs from external sources, most of it is off-budget and the government only managed 34 percent of the total HIV/AIDS expenditures between 2015 and 2016 (MoH 2018d). Thus, flow of donor funds in the health sector in Zambia is fragmented.

Donor resources that is channeled through vertical programs implemented through donor agencies or NGOs tend to be more fragmented, and less inclusive in execution. Interviews with the PHOs and DHOs revealed that the design and implementation of vertical projects plans are not made in a fully participatory manner. Districts had limited involvement in the planning of vertical programs implemented in their districts, as donors often funded the health centers and hospitals directly and not all expenditures are reported. In some cases, the PHOs collaborate with donors and their implementers to develop annual action plans. However, consultations are mainly made at the initial stages when data for project formulation are solicited for but during the implementation period the PHOs and DHOs are less involved.

Recently, the role of the PHOs has evolved to that of ‘above sides’—whereby the PHOs play a supervisory role while donors and district staff engage in planning. The final plans, execution, and accounting for the budgets are done by the donor or implementing agencies. Often, the districts have no records of the expenditures on vertical programs. Moreover, some of the donor expenditures at the district level are in kind, such as computers, medical equipment, supplies, and training workshops. During the survey, districts noted that they could only identify activities in vertical programs but had no information on their cost. Health facilities managers had the least information on donor expenditure amounts. Therefore, the study could not collect comprehensive expenditure data on vertical projects from districts, although these data. This is indicative of the existence of a black box in vertical project financing within the health system. One of the effects of non-disclosure of vertical funding is that the DHOs reduce support to facilities, especially mission facilities that are perceived to receive more external assistance. The savings from the withheld funds are then spent by the DHOs and on needy health facilities.

A smaller share of donor funding is channeled through the PHOs, and in some cases, these funds are managed by a dedicated accountant, while a larger share is spent by the donor’s implementing agents. Interviews with key program managers revealed that donor funds are often released on time and disbursements tend to depend on the availability of the dedicated accountants. Excluding in-kind expenditure, the survey estimated the total donor funding in the three provinces through vertical projects was about ZMW 8.75 million (Table 5). This value underestimates the true cash expenditure by donors in these provinces. Interviews with key program managers revealed that a large share of donor support is not reported to the districts.

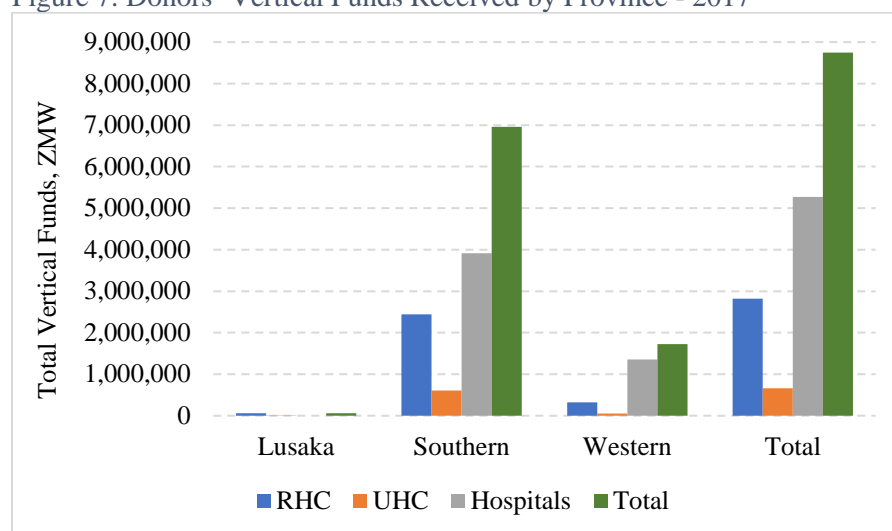
Table 5: Donors’ Vertical Funds Received by Health Facilities – 2017

Expenditure	RHCs	%	UHCs	%	Hospitals	%	All
Total amount of vertical financing received (ZMW, thousands)	2,816	32.2	663	7.6	5,271	60.2	8,750
No. of facilities that received	49	72.1	7	10.3	12	17.6	68
Average amount for each recipient facility (ZMW, thousands)	57		95		439		129
All health facilities in the survey sample	160		40		30		230
Average amount if total vertical financing was spread to all facilities in each category of sample	18		17		176		38

Source: Authors’ compilation from survey data.

The respondents indicated that a large share of donor support is reported to districts although the resources are spent at health facility level. Table 5 shows the reported donor expenditure by facility type for 2017. Most of the money is spent in hospitals (60 percent) and RHCs (32 percent), while only 8 percent is spent in UHCs. This finding is consistent with the 2009 PET-QSDS finding that, even though many of the donor programs have a public health orientation, they remain concentrated at the hospital level (World Bank 2009). A disaggregation of the vertical funds by province in Figure 7 indicates that Southern Province receives a higher proportion of vertical funds, which are often channeled to the mission hospitals.

Figure 7: Donors' Vertical Funds Received by Province - 2017



Source: Authors' compilation from survey data.

Though not fully quantified, in-kind support is a prominent feature of vertical projects as indicated in Table 6. On average, 38.3 percent (88) of the health facilities that were sampled reported having received in-kind support from donors in 2017. Most of the in-kind support is in the form of medical and capital equipment, medical and nonmedical supplies, and workshops.

Table 6: Number of Facilities by Type of In-kind Support from Vertical Programs - 2017

Type of In-kind Support	Number of Facilities	% of Total Facilities
Equipment and other capital inputs	57	24.0
Drugs, vaccines, contraceptives, and other medical supplies	39	16.0
Nonmedical supplies	22	9.6
Technical assistance	11	4.8
Workshops, conferences, review meetings, and staff training	12	5.1
Repairs and maintenance	6	2.6
Additional staff	11	4.8
Food and catering	7	3.0
Utilities, fuel, and transport	8	3.5
Total number of facilities that received in-kind support	88	38.3

Source: Authors' compilation from survey data.

3.3 User Fees and Other Internally Generated Resources

In line with the free health care policy, user fees were abolished at health centers and district hospitals in 2006, 2007 and 2012. Thus, by law, health centers and district hospitals are not allowed to charge for any services including consultation, treatment, admission, and diagnostic services. The study explored the extent to which this policy change is being implemented. Overall, the results show that RHCs are to a large extent adhering to the user fee removal policy. However, in practice, clients are required to purchase a book used to record diagnosis at all the health facilities including RHCs. The average charges for the book used to record diagnosis during consultation, at the RHCs, UHCs, and hospitals was ZMW 2, ZMW 3, and ZMW 4, respectively. Meanwhile, various forms of user fees are charged at UHCs and hospitals. In general, the majority (80 percent) of patients seeking health services at the RHCs do not pay any user fees, while the majority at the

UHCs and hospitals do pay. Table 7 shows that about half (45 percent) of outpatients at the UHCs and 60 percent of outpatients at hospitals paid user fees.

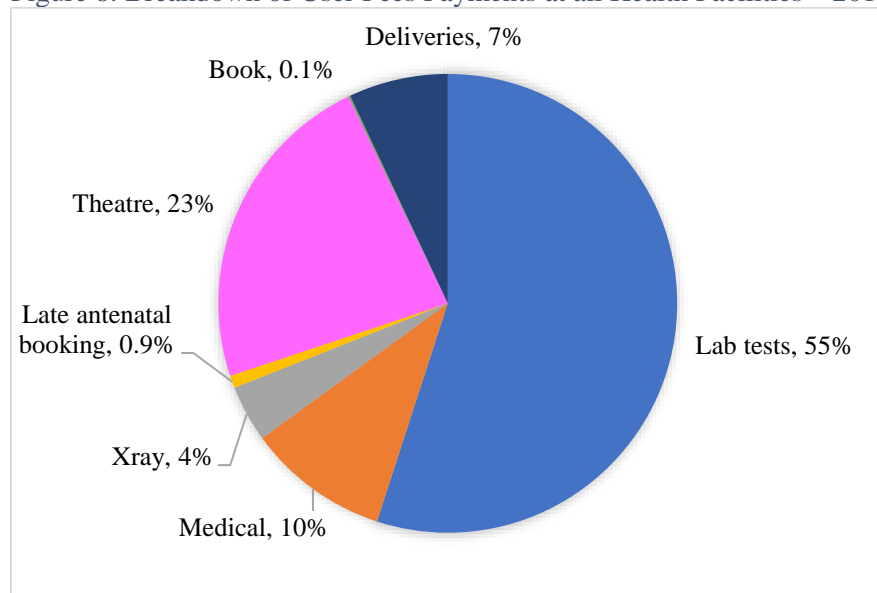
Table 7: Patient Visits and Share of Paying Patients - 2017

	RHCs	%	UHCs	%	Hospitals	%
Average number of outpatients last month	2,600	100	24,274	100	27,141	100
Average number of outpatients who do not pay	2,120	82	6,354	26	5,094	19
Average number of outpatients who pay	480	18	10,856	45	16,334	60
Average outpatient payment for low cost (ZMW)	—	—	0	—	292	—
Average outpatient payment for high cost (ZMW)	—	—	0	—	600	—
Average number of inpatients last month	40	100	1,882	100	12,548	100
Average number of inpatients who do not pay	40	100	237	13	6,619	53
Average number of inpatients who pay	0	—	1,505	80	4,386	35
Average inpatient payment for low cost (ZMW)	0	—	0	—	92	—
Average inpatient payment for high cost (ZMW)	0	—	0	—	4,400	—

Source: Authors' compilation from survey data.

A breakdown of the user fees payments is presented in Figure 8, which shows that a large proportion of the user fees paid was for laboratory tests (55 percent), theatre (23 percent), medical reports (10 percent), deliveries (7 percent), and x-ray (4 percent). These findings deviate from the 2007 user fees guidelines which state that all primary health services at health centers and district hospitals at all government and mission health facilities are free (MoH 2007).

Figure 8: Breakdown of User Fees Payments at all Health Facilities – 2017



Source: Authors' compilation from survey data.

General and tertiary hospitals, which are allowed to charge user fees in the form of referral bypass fees, cost recovery for premium services, and other services generated significant amounts of money particularly from their high-cost wings. Apart from the user fees, the other sources of internally generated funds (IGFs) at general and tertiary hospitals (and some district hospitals) are: prepayment schemes and private insurance payments, student fees at the health training

institutions, and other forms of donations from faith-based organizations and business entities. This is shown in Table 8. IGFs are managed locally by the hospitals.

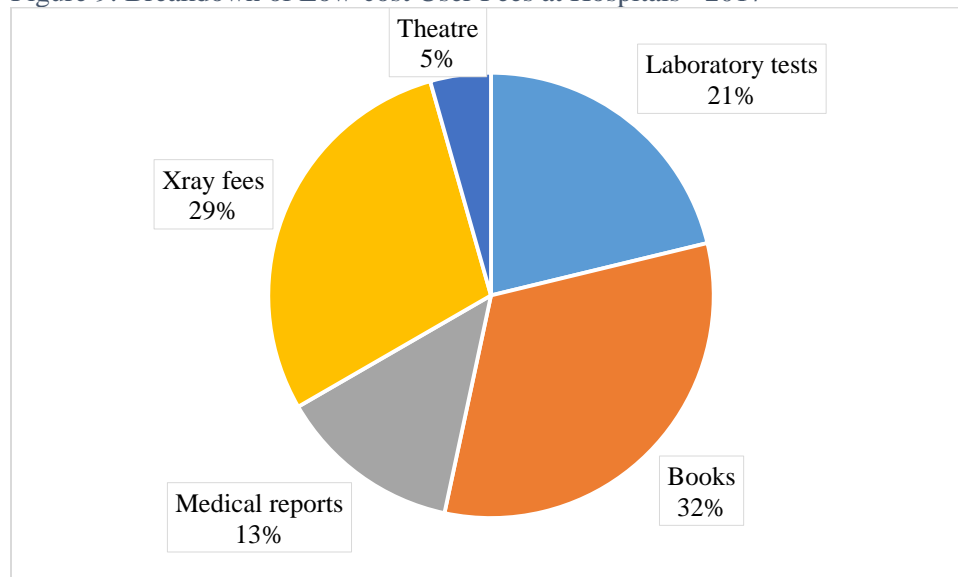
Table 8: IGFs at Hospitals - 2017

	Amount (ZMW)	Share of total IGF (%)
Low-cost user fee revenues	3,075,648	23.4
High-cost user fee revenues	5,484,013	41.6
Hospital prepayment schemes	3,130,717	23.8
Referral and medical fees	1,152,906	8.8
Revenues from training institutions	276,460	2.1
Others	48,700	0.4
Total - IGF	13,168,444	

Source: Authors' compilation from survey data.

User fees (low and high cost) are the largest source of IGFs for hospitals, accounting for more than half (65 percent) of the funds raised internally (Table 8). Individually, a larger proportion of the total IGFs (42 percent) is generated from high-cost user fees followed by hospital prepayment schemes which contributed 24 percent. A disaggregation of the specific sources of user fees revenue from the low-cost section at the hospitals (Figure 9) indicates that the highest proportion of fees (32 percent) is from buying the book used to record diagnosis during consultation with the providers. Other sources of payments are from x-ray (29 percent), laboratory tests (21 percent), medical reports (13 percent), and theatre (5 percent).

Figure 9: Breakdown of Low-cost User Fees at Hospitals - 2017

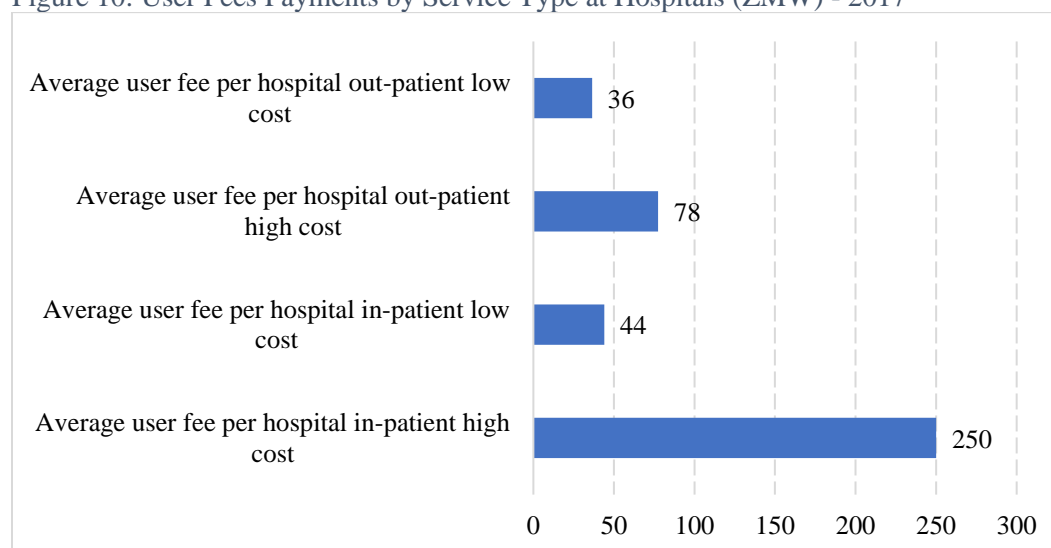


Source: Authors' compilation from survey data.

Figure 10 show that user fees were higher in the high-cost inpatient and outpatient sections of the hospitals. The user fees for inpatients in high-cost sections were more than five times higher than those in the low-cost sections of the hospitals averaging about ZMW 250 and ZMW 44, respectively. Similarly, user fees in high-cost outpatient sections were two times higher than those in the low-cost sections of the hospitals averaging about ZMW 78 and ZMW 36, respectively. User fees and other forms of IGFs are retained and used by the hospitals where they are generated. At the time of this study, Zambia had no compulsory health insurance, but the NHI Act was enacted

in April 2018 to facilitate the implementation of a compulsory NHI scheme. It remains unclear whether hospitals will continue to manage prepayment schemes in parallel with the NHI scheme once it is fully implemented.

Figure 10: User Fees Payments by Service Type at Hospitals (ZMW) - 2017



Source: Authors' compilation from survey data.

3.4 Overall Resource Availability and Expenditure by Level of Care

Regarding resource allocation at the facility level, the highest proportion of funds allocated are from the GRZ allocation. The GRZ allocations exclude personnel emoluments, which are remitted directly to staff bank accounts. In general, the results indicate that the disbursements are less than the GRZ allocations. With regard to allocations from donors, these resources are sometimes provided as in-kind allocations and the actual values are not recorded at the facility level.

Table 9: Level of Annual Resources at Facility Level by Major Sources - 2017

	RHCs	%	UHCs	%	Hospitals	%	Total (ZMW)
GRZ allocation	4,645,963	58.1	1,815,397	80.1	52,284,522	86.5	58,745,882
GRZ received	1,782,745	37.4	1,222,913	77.1	26,927,777	77.1	29,933,435
Donor on-budget allocated	3,311,855	41.4	119,912	5.3	7,862,908	13.0	11,294,675
Donor on-budget received	2,943,333	61.8	32,976	2.1	6,759,398	19.3	9,735,707
Other funds allocated	38,014	0.5	329,995	14.6	319,701	0.5	687,710
Other funds received	37,860	0.8	329,961	20.8	1,245,140	3.6	1,612,961
Total allocated	7,995,832	11.3	2,265,304	3.0	60,467,131	85.5	70,728,267
Total received	4,763,938	11.5	1,585,850	4.0	34,932,315	84.6	41,282,103

Source: Authors' compilation from survey data.

Table 9 shows the total receipts and expenditure at the facility level by major sources in 2017 in the three provinces, as captured during the survey. The results show that donors allocated ZMW 11.29 million to the three provinces. However, the releases fell short of these pledges as only ZMW 9.74 million was released. As discussed previously, the survey could not capture the vertical funds at all levels of the health care system due to the opaqueness of their flows in the financial system. Moreover, these resources are sometimes provided as in-kind allocations and the actual values are

not recorded at the facility level. It is clear from the survey that the shift from basket funding to vertical programs has increased the fragmentation and opaqueness of the resource flows in the health sector.

3.4.1 Expenditure of GRZ funds by Level of Care and Budget Lines

Table 10 reveals that in 2017, only ZMW 31.7 million (40 percent) of the overall GRZ funds that were received by the DHOs reached the health facilities (UHCs, RHCs, and district hospitals) either as direct cash transfers or in-kind support through centrally procured goods or services. Of this amount, the RHCs received 5 percent (ZMW 1.5 million), the UHCs received 3 percent (ZMW 887,941), and the district hospitals received 92 percent (ZMW 29.3 million) in 2017. Although the district hospitals provide some primary health services, this health spending pattern suggests greater attention is given to curative care as opposed to preventive and promotive health care which is primarily offered by health centers. Thus, this pattern of spending is contrary to the MoH guiding principles on primary health care.

At the hospital level, about one-fifth of the funds (17 percent) are spent on drugs and medical supplies, indicating a deviation of about 7 percent from the stipulated guidelines. At the health center level, on average, about 12 percent is spent on drugs at the RHCs and UHCs, which is a deviation from the guidelines by 8 percent. The MoH procures most of the drugs and medical supplies centrally, and they are distributed to all the health facilities by MSL. The RHCs and UHCs are also allowed to use 4 percent of their total operational grant to procure drugs when there is a shortage. Similarly, district hospitals are allowed to use 10 percent of their total operational grant to procure drugs when there is a shortage.

Table 10: Uses of GRZ Funds by Health Facilities - 2017

Expenditures	RHCs (%)	UHCs (%)	Hospitals (%)	All (%)
Allowances	8.5	2.2	4.0	4.1
Drugs and medical supplies	10.8	13.2	17.0	16.6
Nonmedical supplies	27.9	27.0	10.0	11.3
Workshops, conferences, and so on	1.8	4.7	5.7	5.5
Repairs and maintenance	12.7	11.5	6.5	7.0
Food and catering	13.5	2.7	11.7	11.5
Utilities	5.8	7.8	11.0	10.6
Fuel and transport	13.9	12.7	11.0	11.5
Payment for technical assistance consultancies	0.6	0.1	0.3	0.3
General charges	1.4	17.5	12.1	11.8
Payment of debt	1.9	0.1	2.3	2.3
Capital purchases	2.1	0.4	8.2	7.7

Source: Authors' compilation from survey data.

The other major spending categories, including purchase of food and fuel/transport, comprise a combined share of 23 percent, while about 11 percent is spent on nonmedical supplies, such as cleaning materials. Notably, about one-third of the operational grant at the RHCs and UHCs is spent on nonmedical supplies. On average, about 4 percent of the funds are spent on allowances and 6 percent on workshops and conferences.

4.0 Infrastructure, Equipment, Human Resource, and Drugs

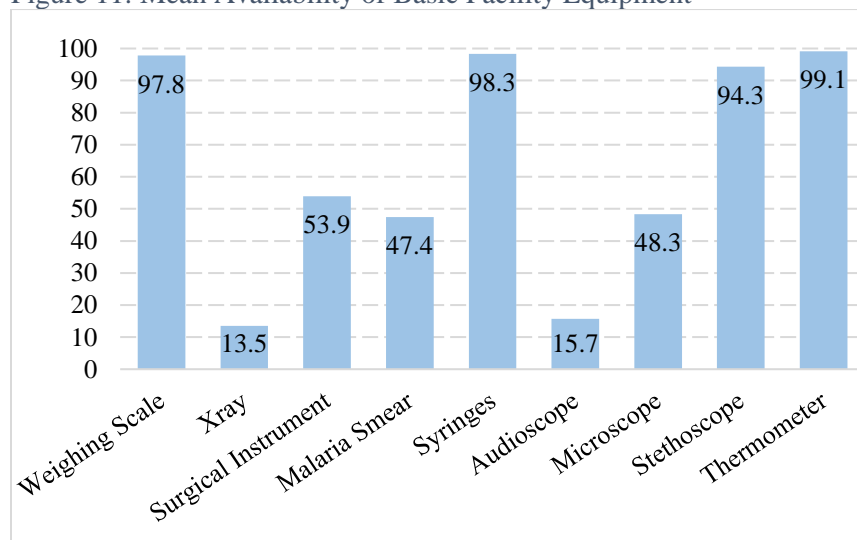
4.1 Health Infrastructure, Utilities, and Equipment

The quality of inputs that are used in the delivery of health care (including drugs, vaccines, human resources, medical equipment, physical infrastructure) are vital to the provision of quality health care. The study investigated the availability and functionality of the key inputs at all the sampled health facilities.

4.1.1 Medical Equipment

Figure 11 shows the average share of health facilities (hospitals, UHCs, and RHCs) with basic medical equipment. The results show large gaps in the availability of some of the basic medical equipment at the health facilities. Almost all health facilities reported having a thermometer (99.1 percent), stethoscope (94.3 percent), syringes (98.3 percent), and weighing scales (97.8 percent). However, only 47.4 percent had a malaria smear test and 48.3 percent had a microscope. Less than half of all the health facilities had the following: only 13.5 percent had an x-ray machine, 15.7 percent had an audio scope, 47.4 percent had a malaria smear, and 48.3 percent had a microscope.

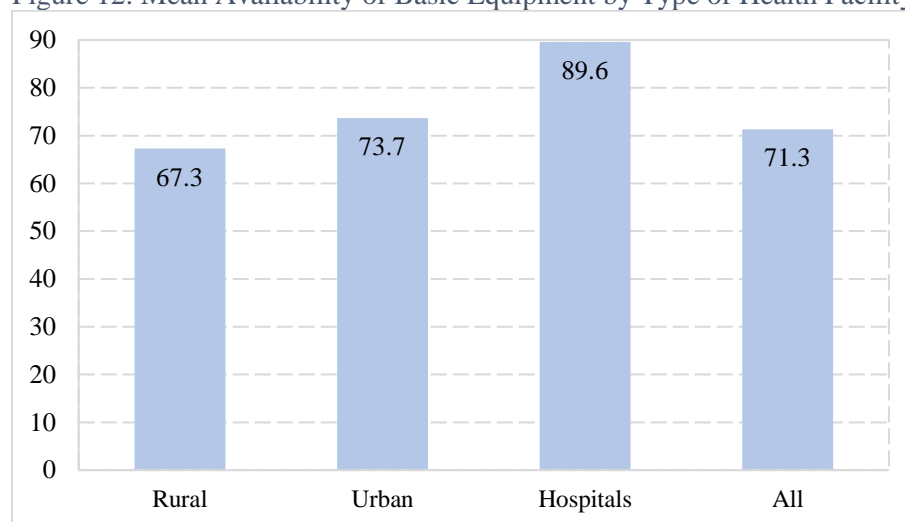
Figure 11: Mean Availability of Basic Facility Equipment



Source: Authors' compilation from survey data.

Across the different types of health facilities, there were huge variations in the presence of basic medical equipment as summarized in Figure 12. None of the health facilities had 100 percent of the basic equipment, as specified in the MoH standard equipment list. On average, the basic equipment was more available in hospitals (with an average of 90 percent) followed by urban health facilities at 74 percent. The RHCs had the smallest average share of basic equipment. This observation is consistent with findings from the Service Availability and Readiness Assessment (SARA) report (WHO 2017).

Figure 12: Mean Availability of Basic Equipment by Type of Health Facility



Source: Authors' compilation from survey data.

The gaps are greater when reviewing the presence of basic equipment by facility and equipment type. The details of the average availabilities of all the 17 sampled medical instruments are presented in Table 11. The results show that RHCs and UHCs continue to have inadequate supply of medical equipment. The least available basic equipment in the RHCs are microscopes (40.6 percent), audio scopes (9 percent), malaria smear test kits (36.3 percent), and surgical equipment (49.4 percent). A similar pattern is evident for UHCs, although the percentage of facilities reporting availability is larger. As expected, some equipment such as x-ray and blood banks are not expected to be found at the health centers. However, contrary to the MoH standard equipment norms, Table 11 shows that 1.3 percent and 7.5 percent of the RHCs and UHCs had x-ray equipment, respectively. The RHCs and UHCs also had some anesthetic equipment contrary to the standard norms. This could be explained by the fact that some of the RHCs and UHCs have evolved into mini district hospitals but the MoH has not yet reclassified them.

Table 11: Mean Availability of Medical Apparatus and Materials (percent)

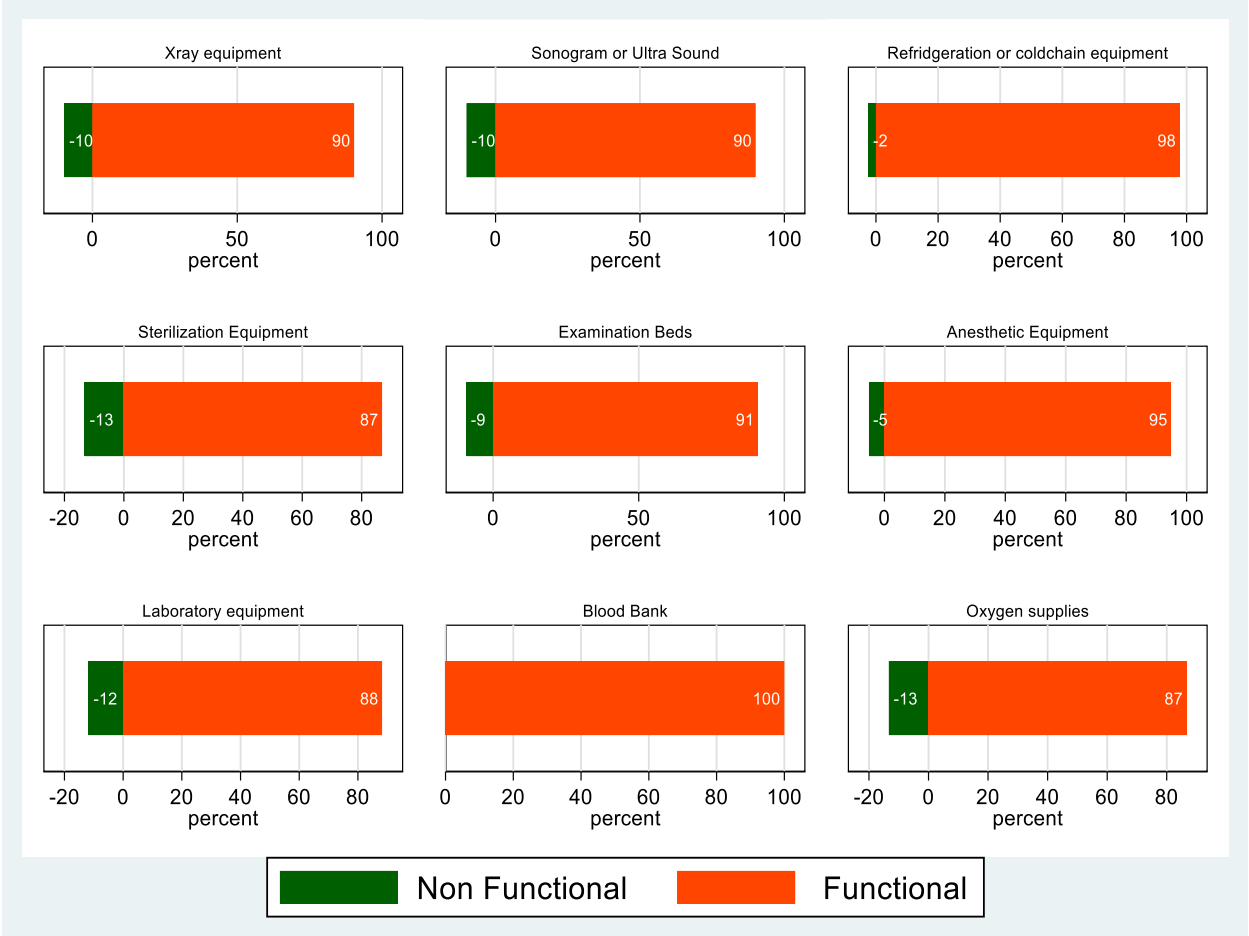
Instrument	RHCs	UHCs	Hospitals	All
X-ray	1.3	7.5	86.7	13.5
Stethoscope	94.4	92.5	96.7	94.3
Sphygmomanometer	96.3	100.0	96.7	97.0
Weighing scale	98.1	100.0	93.3	97.8
Height measuring device	70.6	90.0	93.3	77.0
Thermometer	99.4	100.0	96.7	99.1
Microscope	40.6	45.0	93.3	48.3
Audio scope	9.4	20.0	43.3	15.7
Surgical instrument	49.4	45.0	90.0	53.9
Antiseptic	62.5	65.0	86.7	66.1
Sterile gloves	96.9	97.5	96.7	97.0
Spatula	52.5	87.5	86.7	63.0
Syringes	98.1	100.0	96.7	98.3
Cat gut	87.5	82.5	86.7	86.5

Instrument	RHCs	UHCs	Hospitals	All
Gowns	64.4	65.0	93.3	68.3
Malaria smear	36.3	60.0	90.0	47.4
Urine test equipment	86.3	95.0	96.7	89.1
Refrigerator	95.6	100.0	93.3	96.1
Sterilization equipment	95.6	100.0	93.3	96.1
Examination beds	89.4	95.0	93.3	90.9
Anesthetic equipment	7.5	10.0	76.7	17.0
Laboratory equipment	34.4	47.5	93.3	44.3
Blood bank	1.3	0.0	36.7	5.7
Oxygen supplies	—	—	80.0	19.6

Source: Authors' compilation from survey data.

Medical equipment has to be functional for it to be accessible. During the survey, most of the equipment in health facilities were functional. Figure 13 shows the share of facilities that reported on the functionality of selected medical equipment. The most dysfunctional equipment included the sterilization equipment and oxygen machines (at 13 percent of the facilities), followed by the laboratory equipment at 12 percent of the facilities. Sonogram and x-ray machines were not working in 10 percent of the surveyed health facilities.

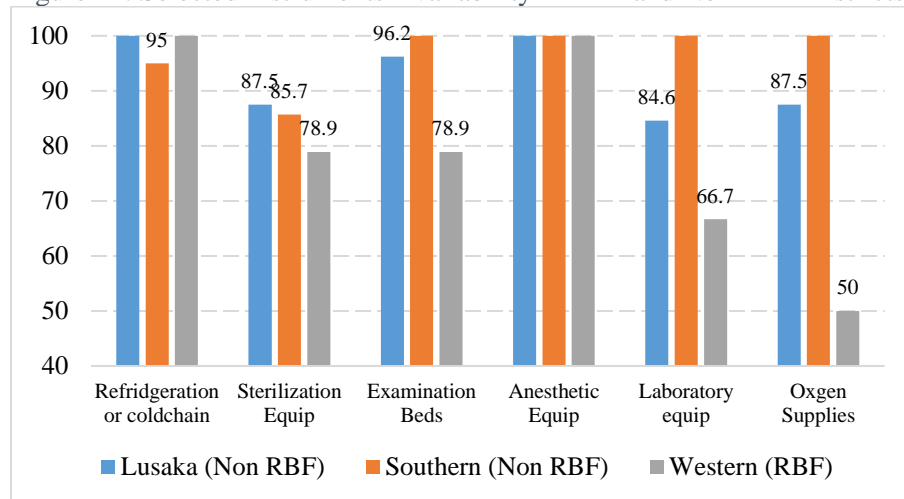
Figure 13: Share of Functional and Dysfunctional Medical Equipment



Source: Authors' compilation from survey data.

A comparison of the availability of equipment in RBF and non-RBF districts is presented in Figure 14. The results show that refrigerators and anesthetic equipment were widely available in both RBF and non-RBF districts. However, non-RBF districts in Lusaka and Southern provinces had relatively more basic equipment as compared to the RBF districts in Western Province. For example, the proportion of health facilities with laboratory equipment in the non-RBF districts in Southern Province was 100 percent, 85 percent in the non-RBF districts in Lusaka Province, and 67 percent in the RBF districts in Western Province. A plausible explanation for the difference in the availability of equipment in RBF and non-RBF districts is that a number of districts in Southern province have mission health facilities, which receive additional funding that may be used to procure additional basic equipment. Further, the RBF districts in Western Province are among the poorest in the country.

Figure 14: Selected Instruments Availability in RBF and Non-RBF Districts

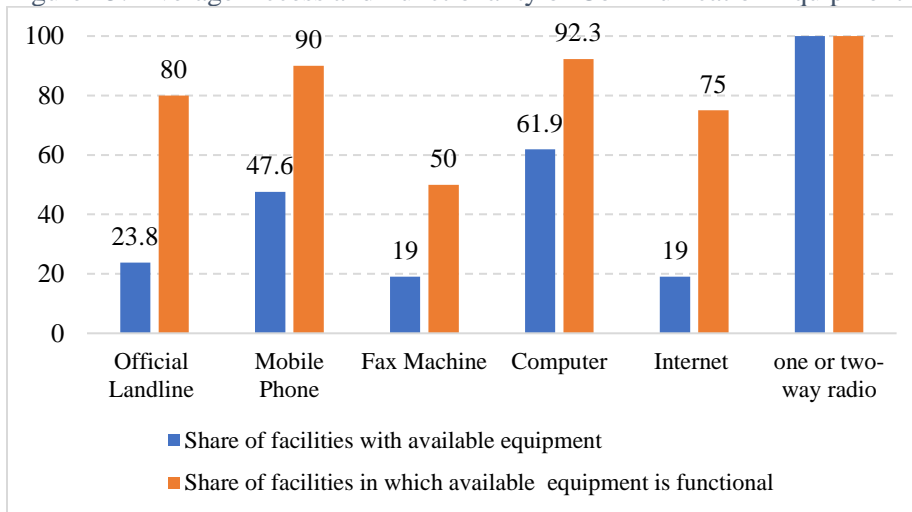


Source: Authors' compilation from survey data.

4.1.2 Communication and Transport Equipment

The survey looked at the availability and functionality of a set of basic communication equipment at the health facilities (cell phones, landlines, computer, e-mail, fax machines, and one- or two-way radio communication). Specifically, the respondents were asked to provide information on the functionality and connectivity of each of the identified communication equipment. Figure 15 shows that most of the health facilities had limited availability and poor means of electronic connectivity and communication. All of the health facilities rely on a two-way radio, which were in working condition during the survey, while 62 percent of the facilities had computers and 48 percent had mobile phones. Contrasting the relatively high spread of computers across facilities, only 19 percent of the health facilities had Internet facilities, and only 75 percent of the health facilities with Internet had connectivity. In addition to the lack of connectivity, the low levels of Internet access can be explained by the fact that most computers are dedicated to specific programs rather than general use. These findings are in line with the results from SARA report, which shows an increase in facilities with access to the Internet from 14 percent in 2010 to 19 percent in 2015 (WHO 2017).

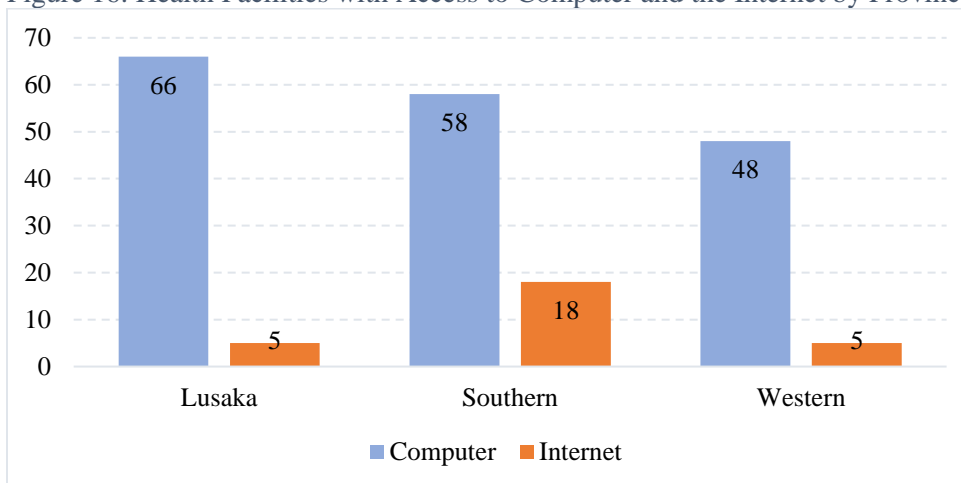
Figure 15: Average Access and Functionality of Communication Equipment



Source: Authors' compilation from survey data.

A disaggregation of access to computer and the Internet by province (Figure 16) shows variations in accessibility across the three provinces. On average, 62 percent of the facilities owned a computer, while Lusaka Province has the highest proportion (66 percent) and Western Province (48 percent) has the lowest. Access to the Internet remains low across all provinces. Southern Province reported the highest proportion of facilities with access to the Internet (18 percent), while Lusaka (5 percent) and Western (5 percent) had the lowest. Internet use was generally low because most of the facilities in the study were from peri-urban and rural areas while most of the computers at the health facilities are dedicated to specific programs rather than general use or communication.

Figure 16: Health Facilities with Access to Computer and the Internet by Province



Source: Authors' compilation from survey data.

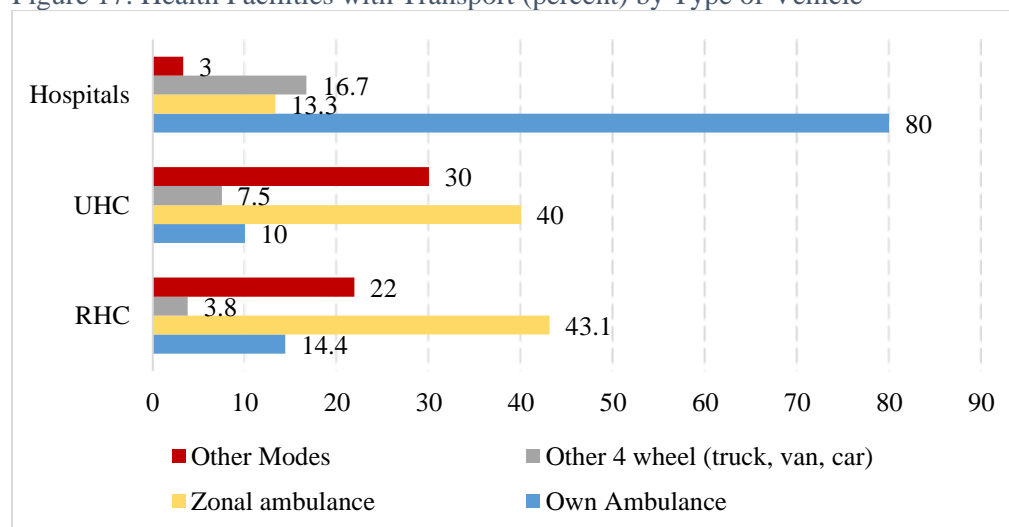
4.1.3 Electricity

The connectivity to reliable grid power supply is low, particularly in rural areas. The availability of electricity improves service delivery capacity of health facilities by increasing the operational hours and the range of services they can provide. On average, 60 percent of the facilities surveyed have access to grid electricity, which was uninterrupted and was fully working during the survey period. Only 39.5 percent of the facilities rely on solar power, which was dysfunctional in 17 percent of these facilities. As expected, the use of grid power is higher than solar power. Most of the facilities that use solar power are RHCs. The high prevalence of nonworking solar panels is a key contributing factor to limited access to quality health services in rural areas compared to urban settings. The 60 percent grid connection average is higher than the 41 percent average found in the SARA (2015) report, which could be explained by the selection of sample regions as Lusaka and Southern Provinces are more urban.

4.1.4 Availability of Transport

The availability of vehicles or transport services is limited. Transport services are critical for health delivery in a vast country like Zambia where some areas have no nearby health facilities. Further, critical conditions that cannot be managed by lower-level facilities are referred to higher-level facilities. The MoH stations ambulances and other modes of transport at individual hospitals and zonal points that health facilities can request when needed. The mean availability of specific transport modes to health facilities by facility type is presented in Figure 17. Most health facilities face serious transport challenges, especially health centers. Huge gaps in mean transport availability between health centers and hospitals exist. The majority of the hospitals have their own ambulances (80 percent), while 17 percent have access to four-wheel drive vehicles and 13 percent have access to zonal ambulances. Only 3 percent of hospitals use other modes of transport.

Figure 17: Health Facilities with Transport (percent) by Type of Vehicle



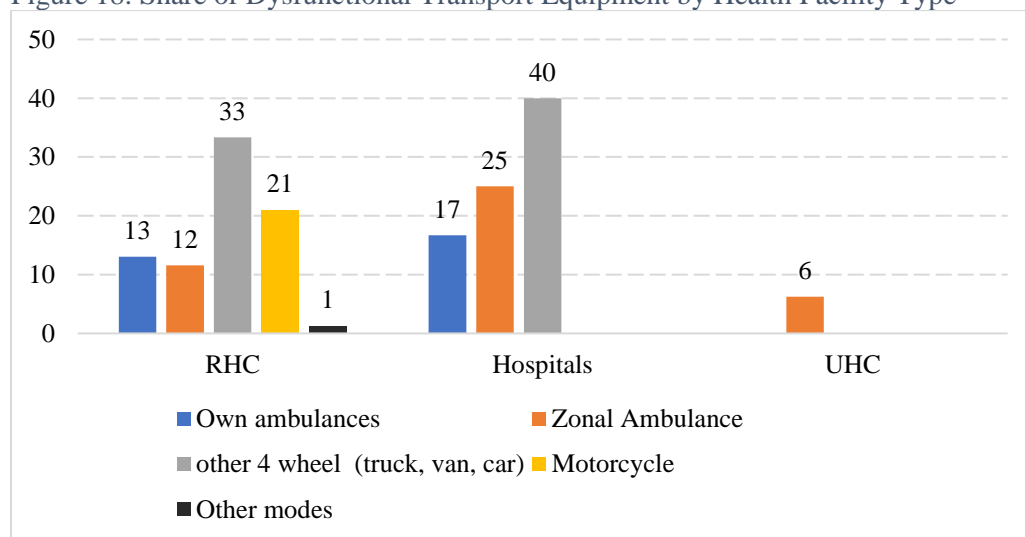
Source: Authors' compilation from survey data.

In contrast, health centers rely mostly on zonal ambulances, with 43 percent at the RHCs and 40 percent at the UHCs. Only 14 percent of the RHCs and 10 percent of the UHCs have their own ambulances. More RHCs (14 percent) also depend on motor cycles compared to the UHCs (5

percent) and hospitals (3 percent). The other mode of transport category includes bicycles and animal-drawn vehicles and was more prominent in RHCs (22 percent) and UHCs (30 percent).

The serious transport problems experienced by the UHCs and RHCs is exacerbated by the number of nonworking vehicles and modes of transport. On average, 33 percent of four-wheel drives, 12 percent of zonal ambulance, and 13 percent of own ambulances were not working at RHCs compared to only 6 percent of zonal ambulances at UHCs (Figure 18). A significant share (40 percent) of four-wheel drive vehicles in hospitals were also dysfunctional. The high number of dysfunctional vehicles is a hindrance to the provision of quality health services.

Figure 18: Share of Dysfunctional Transport Equipment by Health Facility Type

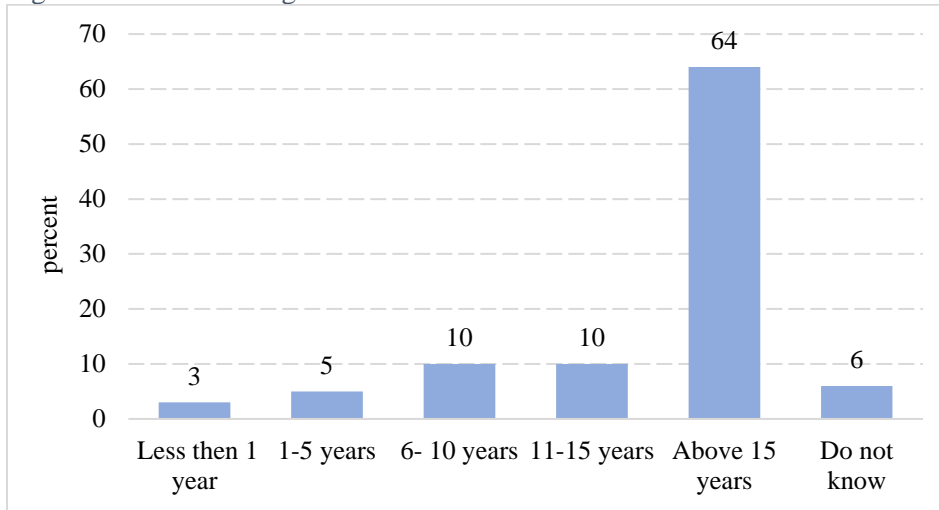


Source: Authors' compilation from survey data.

4.1.5 Building Infrastructure and Patient Amenities

In 2011, the government identified physical infrastructure as one of the major bottlenecks to delivering quality health care as close to the family as possible. In particular, infrastructure was deemed to be insufficient or inappropriate and inaccessible due to geographic factors for the sparsely distributed populations in rural areas. Since then, the government has increased its capital expenditure budget to increase the capacity and quality of the infrastructure. The results show that most of the health facilities are old but have been renovated and are in fair condition. About 74 percent of the health facilities have been in existence for more than a decade, while 64 percent were 15 years and above (Figure 19). About 6 percent of the facility managers did not know the age of their facilities, while only 8 percent of the surveyed health facilities were built during the past 5 years. Despite the aging condition, most of the health facilities were in a good physical state due to periodic renovations. The survey found that 33 percent of the facilities had been renovated within the previous 1-year period, while 40 percent had been renovated in the previous 5 years. Together, 90 percent of the health facilities had received a facelift in the previous 10 years.

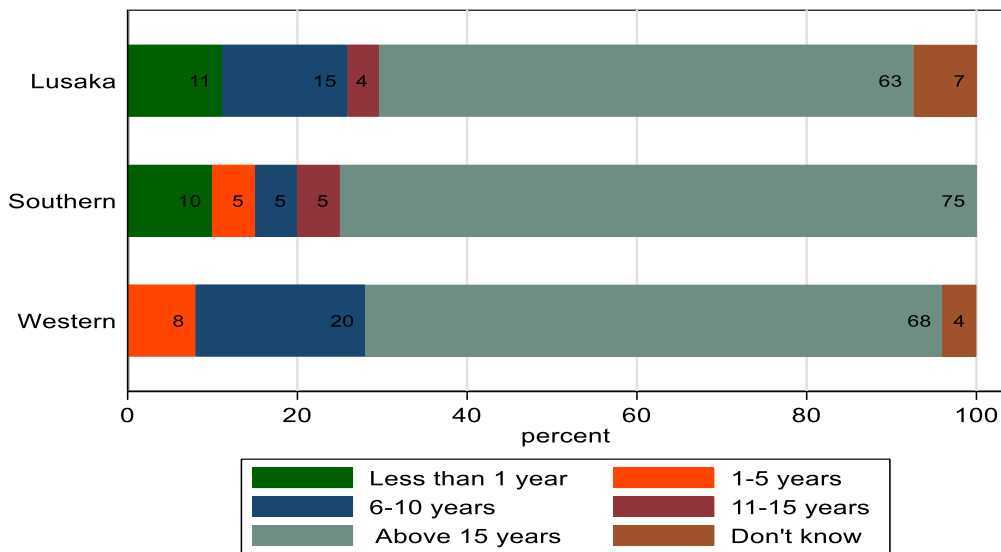
Figure 19: Estimated Age of Health Facilities



Source: Authors' compilation from survey data.

Figure 20 compares the average age of facilities in RBF and non-RBF districts. It is important to note that the share of old facilities (above 15 years) dominates in all districts. Approximately 68 percent of the health facilities in the RBF districts in Western Province were above 15 years, which is relatively similar to the non-RBF districts in Southern Province (75 percent) and Lusaka Province (63 percent). The non-RBF districts had a slightly larger share of new health facilities that are less than 1 year old in comparison to the RBF districts, with Southern at 10 percent and Lusaka at 11 percent while Western had less than 1 percent of new facilities.

Figure 20: Age Comparisons between RBF versus Non-RBF Districts, by Province



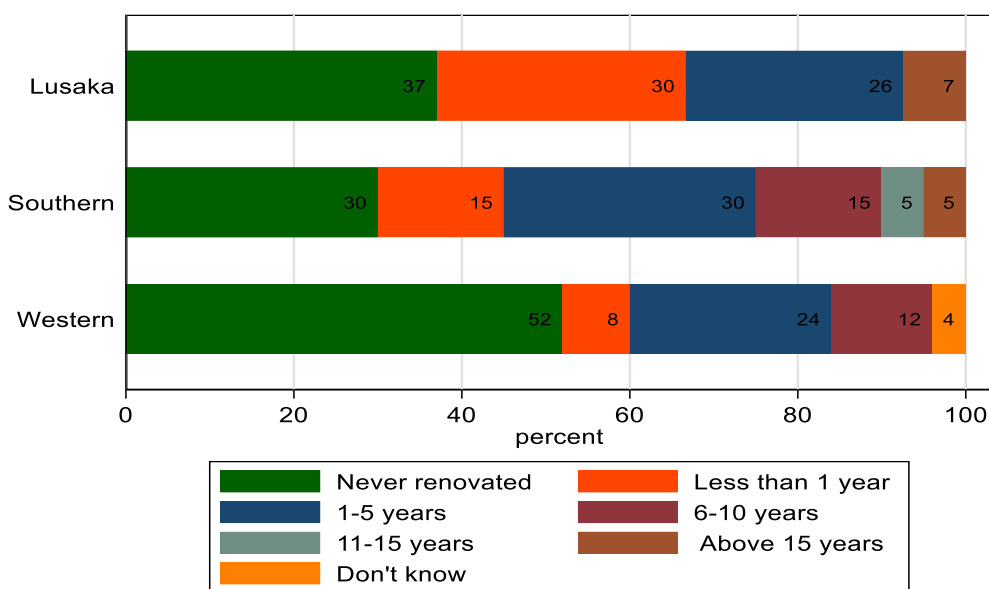
Source: Authors' compilation from survey data.

Note: Only data from the subsample of the RBF and non-RBF districts are included.

Figure 21 shows the distribution of the last period of renovation of facilities in the subsample of the RBF and non-RBF districts. The emerging picture suggests that more facilities have been renovated in the non-RBF districts compared to the RBF districts. For example, 50 percent of the

health facilities in the RBF districts have never been renovated in comparison to 30 percent of facilities in Southern and 35 percent in Lusaka. While 30 percent and 15 percent of the facilities in the non-RBF districts in Lusaka and Southern Provinces, respectively, were renovated within the previous 12 months of the survey, only 8 percent were renovated in the RBF districts in Western Province. This is despite the fact that the RBF districts receive additional funds based on performance. However, the RBF districts in Western Province generally earn relatively lower funds, which would not be adequate to embark on infrastructure projects. As a way forward, there is need for the MoH to implement equity-enhancing measures to improve allocation and use of RBF funds in rural and hard-to-reach areas. In addition, it is critical for health facility managers in the RBF districts to use at least 60 percent of the RBF earnings for renovations and other service delivery activities as stipulated in the RBF guidelines.

Figure 21: Comparison of Last Renovation for RBF versus Non-RBF Districts, by Province

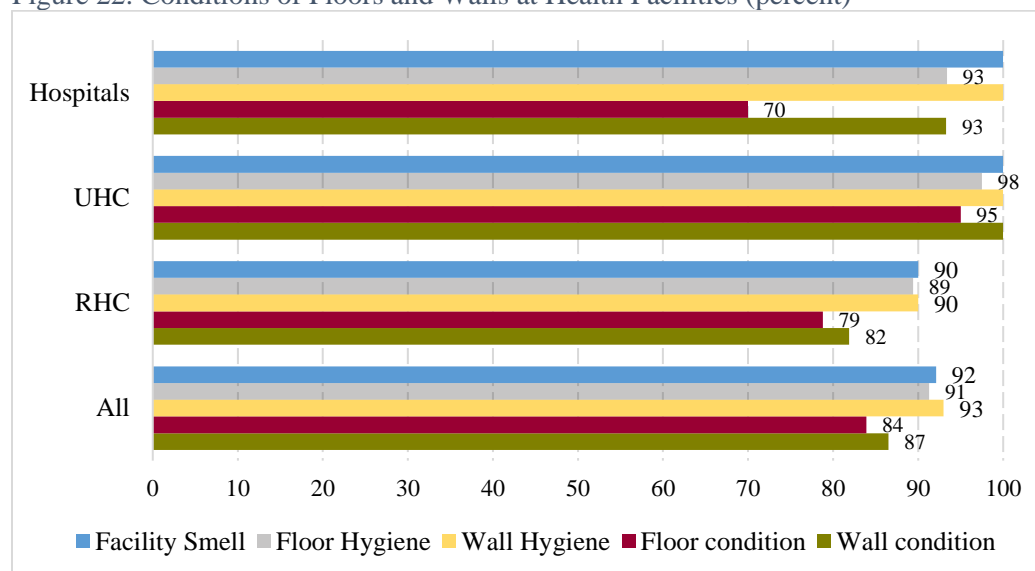


Source: Authors' compilation from survey data.

Note: Only data from the subsample of the RBF and non-RBF districts are included. At the time of the survey, Western Province was implementing the RBF while Lusaka and Southern Provinces were not.

The survey also looked at the condition of floors and walls and their general appearance based on the enumerator's observations. The results are presented in Figure 22. On average, facilities (more than 80 percent) had floors and walls that were in good condition. However, the analysis by facility type shows some gaps between the hospitals and health centers. Only 70 percent of the hospitals had good floors, while 79 percent and 95 percent of the RHCs and UHCs had good floors, respectively. Generally, RHCs had relatively poor conditions of walls and hygiene as compared to UHCs and hospitals.

Figure 22: Conditions of Floors and Walls at Health Facilities (percent)



Source: Authors' compilation from survey data.

A detailed decomposition analysis of conditions of floors and walls by facility type (Table 12) shows gaps across the health facilities. The results reveal that more than 50 percent of the RHCs were rated as average across all indicators, while the majority of UHCs (more than 60 percent) scored well on most of the indicators. Similarly, most of the hospitals (more than 70 percent) were rated as being good. This points to the need for increased capital expenditure, particularly on maintenance, in rural areas across the country.

Table 12: Conditions of Floors and Walls at Health Facilities

Status	RHCs	UHCs	Hospitals	Total
<i>Condition of Floors</i>				
% Good state of repair	26.3	60	70	37.8
% Average	52.5	35	26.7	46.1
% Poor state of repair	21.3	5	3.3	16.1
<i>Condition of Walls</i>				
% Good state of repair	25.6	62.5	70	37.8
% Average	56.3	37.5	23.3	48.7
% Poor state of repair	18.1	0	6.7	13.5
<i>Hygiene of Floor</i>				
% Clean	33.1	60	76.7	43.5
% Average	56.3	37.5	16.7	47.8
% Dirty	10.6	2.5	6.7	8.7
<i>Hygiene of Wall</i>				
% Clean	32.5	52.5	73.3	41.3
% Average	57.5	47.5	26.7	51.7
% Dirty	10.0	0.0	0.0	7.0
<i>Smell in Facility</i>				
% Clean and disinfected	47.5	65.0	76.7	54.3
% Average	41.9	35.0	20.0	37.8
% Unclean, musty, and dirty	10.6	0.0	3.3	7.8

Source: Authors' compilation from survey data.

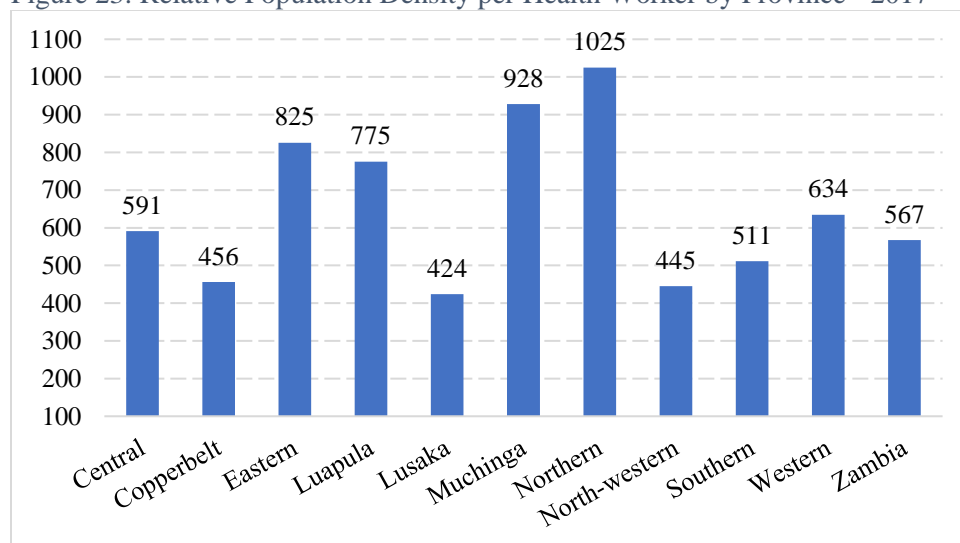
4.2 Human Resources

4.2.1 Staffing and Human Resources Management

The health sector is labor intensive, and an optimal mix of the various health cadres is essential for quality service delivery. The workload faced by health workers is influenced by a number of factors such as the utilization rate, the distribution of health workers, and the worker-population density at the health facilities. Identification of deficits and imbalances in the human resource availability, production, and distribution is essential in the assessment of human resources in terms of quality of service delivery. This section provides an analysis of the human resources in the context of staffing levels, workload, and perceptions of health workers on quality of service provision including absenteeism and tardiness.

Data from secondary sources (Figure 23) shows geographical inequities in the distribution of health workers by province. It reveals inequalities in the distribution of health personnel, taking into account the population in each region. Some rural provinces (Central, Eastern, Luapula, Muchinga, Northern, and Western) are clearly in need of more health workers based on the average population per health worker (Figure 23). However, it is expected that provinces with more hospitals such as Lusaka, Copperbelt, and Southern tend to have more health workers and this explains the low population per health worker in these provinces. For example, the population per health worker in Lusaka and Copperbelt Provinces is half of the health worker rates in the Muchinga and Northern provinces.

Figure 23: Relative Population Density per Health Worker by Province - 2017



Source: Authors' compilation from MoH Human Resources data.

Table 13 presents the background information on the staffing levels in the health facilities. During the survey, most of the managers at the health facilities indicated that they were not sure of the staff establishments for their health facilities. The lack of clarity on the staff establishment arose from the existence of frozen positions, which are positions that the facility cannot employ staff for even if the post is vacant. Generally, hospitals have larger establishments across cadres compared to health centers. On average, 42 percent of staff across all the facility types are non-clinical and non-administrative. The RHCs had a relatively higher percentage of staff in non-clinical, non-

administrative posts at 48 percent, compared to about 35 percent and 41 percent for the UHCs and hospitals, respectively (Table 13). The results also show the average number of staff per health facility. The RHCs have 4.5 clinical workers and 4.5 nonclinical workers giving a total of 9, whereas the UHCs have an average of 17 clinical staff and 10 nonclinical staff giving a total of 27. On the other hand, hospitals have an average of 103 clinical staff and 81 nonclinical staff giving a total of 184.

Table 13: Established Posts and Average Number of Actual Staff by Type of Job - 2017

Facility Type	Variable	Clinical Staff	Non-clinical and Non-administrative Staff	Administrative Staff
RHC	<i>Establishment</i>	749 (45%)	799 (48%)	123 (7%)
	<i>Actual</i>	725 (48%)	718 (48%)	62 (4%)
	<i>Share filled (%)</i>	96.8	89.86	50.41
	<i>Average number of workers</i>	4.53	4.49	0.39
UHC	<i>Establishment</i>	779 (57%)	471 (35%)	108 (8%)
	<i>Actual</i>	681 (59%)	407 (35%)	63 (6%)
	<i>Share filled (%)</i>	87.42	86.41	58.33
	<i>Average number of workers</i>	17.03	10.18	1.58
Hospitals	<i>Establishment</i>	4,148 (52%)	3,377 (42%)	521 (6%)
	<i>Actual</i>	3,079 (53%)	2,423 (41%)	323 (6%)
	<i>Share filled (%)</i>	74.23	71.75	62.00
	<i>Average number of workers</i>	102.63	80.77	10.77
Total	<i>Establishment</i>	5,676 (51%)	4,647 (42%)	752 (7%)
	<i>Actual</i>	4,485 (53%)	3,548 (42%)	448 (5%)
	<i>Share filled (%)</i>	79	76	60
	<i>Average number of workers</i>	19.5	15.43	1.90

Source: Authors' compilation from survey data.

Although the MoH recruited several health workers in 2016 and 2017 and vacancy rates have declined significantly, there are still staff vacancies that need to be filled. Analysis of the individual level distribution of health cadres by staff establishment, actual staff in-post, and vacant positions is presented in Table 14. The results show that health facilities, especially hospitals, have high rates of staff vacancy. Overall, approximately 21 percent of clinical positions are not filled and 24 percent of nonclinical and non-administrative positions are also vacant, partly due to unavailability of funds by the MoF to provide treasury authority to the MoH to recruit health workers for these positions. The percentages of vacant posts are 25 percent and 28 percent for clinical and nonclinical staff, respectively, in hospitals. Further, the results show huge variations in vacancies across the different types of health workers and by province. Overall, the vacancy rates are high (above 40 percent) for medical doctors, medical licentiates, dentists, and administrative staff at RHCs and UHCs (Table 14).

It is important to note that staffing levels are worsened by the fact that a significant number of health workers actually work in health facilities other than the ones where they are posted or supposed to work. For example, the study found that some health workers are designated to be

working at some UHCs and RHCs in Chongwe and Luangwa districts but they are in fact working at UTH. This trend masks the real situation with respect to staffing levels at the health facilities whereby staff establishments at the RHCs and UHCs are filled but the health workers are not on the ground and working elsewhere. Notably, the majority of medical specialists, general physicians, dentists, pharmacists, nurses, and midwives practice in urban areas. Rural facilities are understaffed and, in some instances, are managed by unqualified staff (MoH 2018b).

Table 14: Established, Filled, and Vacancy Rates

	RHCs			UHCs			Hospital		
	No. of Established Posts (x)	No. of Filled Posts (y)	Vacancy Rate (%) $(y - x / y) \times 100$	No. of Established Posts (v)	No. of Filled Posts (r)	Vacancy Rate (%) $(v - r / v) \times 100$	No. of Established Posts (q)	No. of Filled Posts (p)	Vacancy Rate (%) $(q / p) \times 100$
Doctors	9	3	-67	18	4	-78	476	295	-38
Clinical officers	169	140	-17	119	100	-16	379	328	-13
Medical licentiates	17	5	-71	8	2	-75	38	30	-21
Midwives	197	171	-13	256	210	-18	629	464	-26
Nurses	357	406	14	378	365	-3	2,626	1,962	-25
Environmental health officers	143	115	-20	74	60	-19	92	76	-17
Pharmacists and pharmaceutical technicians	54	24	-56	50	30	-40	256	203	-21
Health assistants	129	70	-46	13	3	-77	48	96	100
Dentists and dental technicians	16	4	-75	17	9	-47	116	80	-31
Lab, x-ray, and related technicians	42	41	-2	62	46	-26	441	324	-27
Physiotherapists, occupational, and related staff	8	22	175	17	16	-6	264	207	-22
Administrative staff	123	62	-50	108	63	-42	521	323	-38
Other staff	407	442	9	238	243	2	2,160	1,437	-33

Source: Authors' compilation from survey data.

The survey explored the time that the health workers report for work. The results revealed high levels of late reporting by health workers. On average, 36.8 percent of the health workers reported late for duty during the month preceding the survey (Table 15). Across the different types of health facilities, the majority of the health workers were late at the hospitals (48.4 percent) as compared to 37.1 percent at the UHCs and 33.7 percent at the RHCs (Table 15).

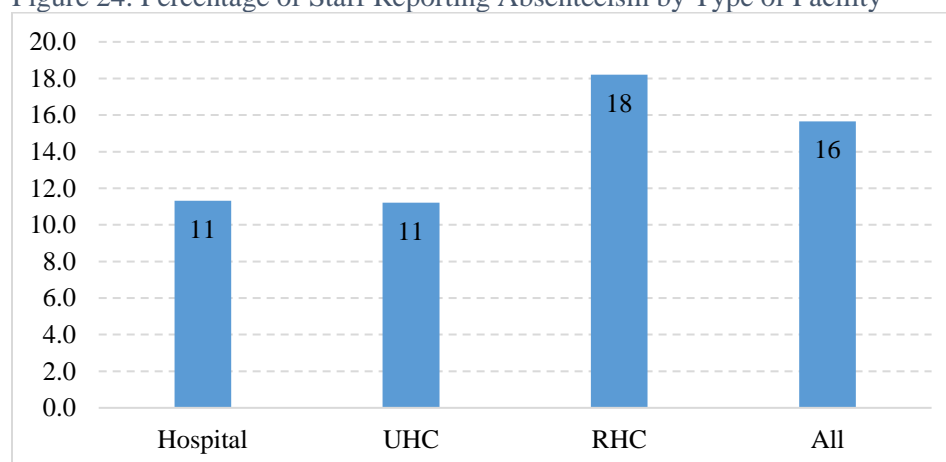
Table 15: Number of Staff Reporting Late and Number of Times Late

	Hospitals	UHCs	RHCs	Overall
Number of staff interviewed	159	205	626	990
Staff who were late at least a day	77	76	211	364
Proportion reporting being late (%)	48.4	37.1	33.7	36.8
Number of staff reporting late at least 2 times	39	37	84	160
Number of staff reporting late 3–5 times	26	34	89	149
Number of staff reporting late more than 5 times	12	15	38	55

Source: Authors' compilation from survey data.

Each facility's person in charge was asked for information on each member of staff who had ever been absent from their stations in the three months before the survey and the reasons for staff absence. Only a smaller share of staff (estimated at 5 percent) were reported to be absent at the time of the visit. The responses were triangulated by the self-reported interviews of health workers, who were asked to indicate if they had been absent from work at least once within the previous month before the survey. The responses from the health worker interviews revealed higher levels of absenteeism than those estimated by the persons in charge. Figure 24 shows these self-reported levels of absenteeism. The percentage of staff who reported having been absent was estimated at 11 percent for staff in hospitals and UHCs, while 18 percent of the RHC staff were reported as having been absent during the same period (Figure 24).

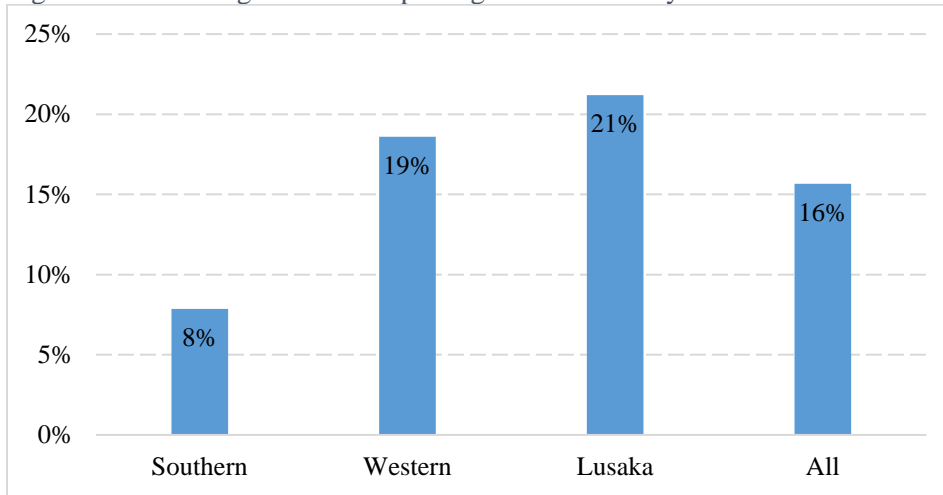
Figure 24: Percentage of Staff Reporting Absenteeism by Type of Facility



Source: Authors' compilation from survey data.

Figure 25 further shows a comparison of absenteeism by province. The results shows that Southern province (non-RBF) had the lowest share of absenteeism at 8 percent in comparison to 19 and 21 percent in Western province (RBF) and Lusaka province (non-RBF), respectively (Figure 25).

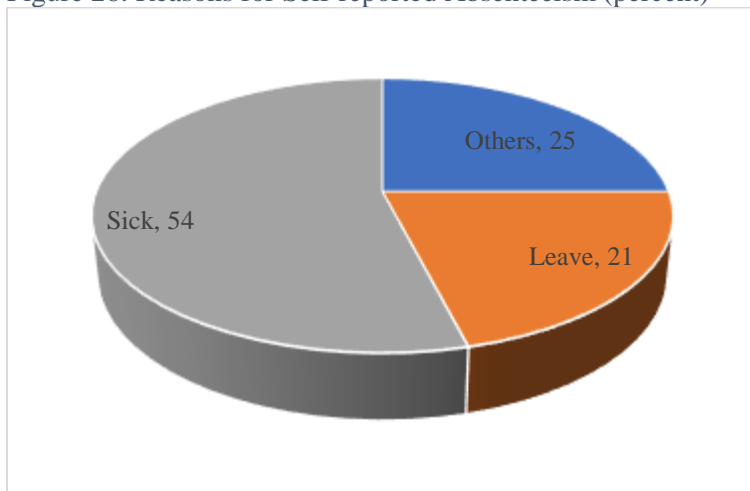
Figure 25: Percentage of Staff Reporting Absenteeism by Province



Source: Authors' compilation from survey data.

The health workers that missed work were absent for several reasons. Figure 26 shows that 54 percent of the staff who missed work were absent on account of sickness. About 21 percent had official permission or leave, while a quarter (25 percent) of the employees were absent mainly on sanctioned official duties, such as outreach services, working elsewhere within the government sector or absent without permission. It is important to note that while working outside the duty station and conducting outreach are deemed as being absent, these are normally operational duties at the health facilities and part of health service delivery. However, it must be pointed out that the idea is to assess the availability of health workers, and thus absenteeism cannot but justified on grounds of being genuine or not. What is important is how absenteeism affects service delivery, and if the health workers who are absent are somehow contributing to operational duties at the health facilities (and health service delivery), then this is justified. Going forward, the DHOs and facility managers could reduce absenteeism by granting less time off, ensuring close staff supervision, and redeploying staff to facilities with staff shortages.

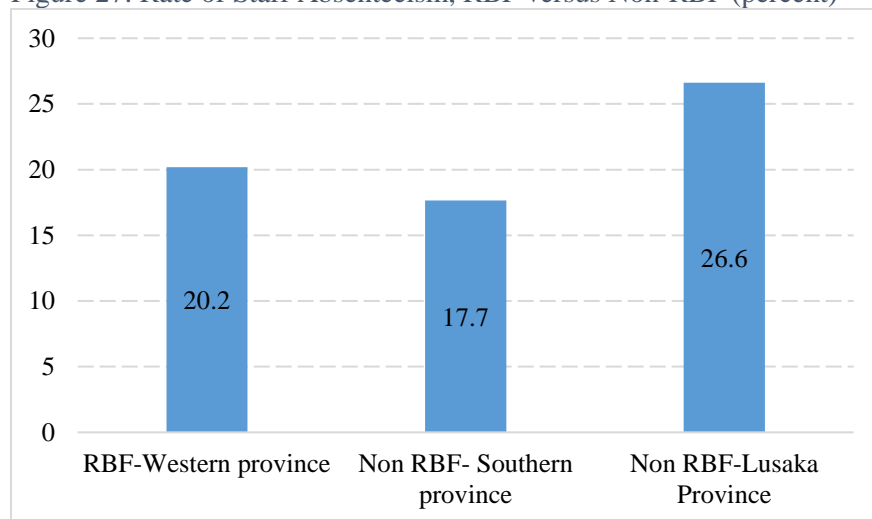
Figure 26: Reasons for Self-reported Absenteeism (percent)



Source: Authors' compilation from survey data.

Figure 27 compares the absenteeism rates in the RBF districts in Western Province and the non-RBF districts in Southern and Lusaka Provinces. The results show that absenteeism is lowest in the Southern province (non-RBF) at 18 percent but comparable to Western Province (RBF) at 20 percent but high in Lusaka Province (non-RBF) at 27 percent.

Figure 27: Rate of Staff Absenteeism, RBF versus Non-RBF (percent)



Source: Authors' compilation from survey data.

4.2.2 Full-time Equivalent Staff and Tardiness

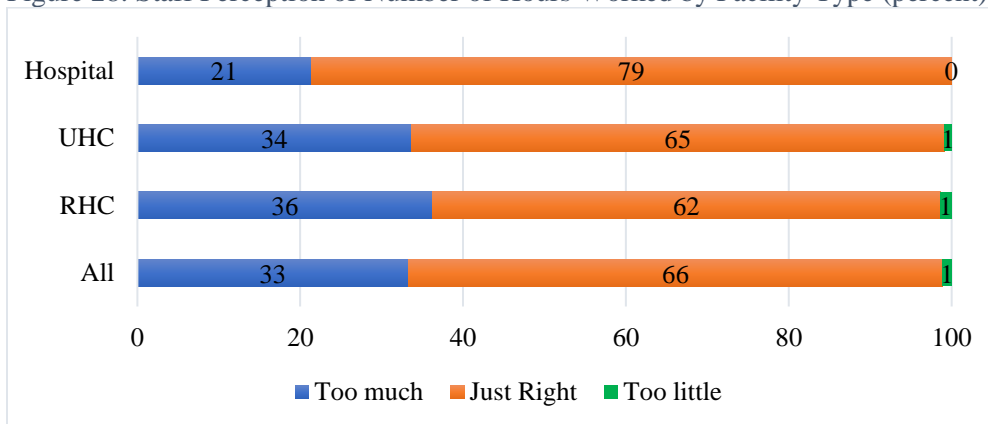
All staff who reported being absent from work in the last three months were asked to indicate how many days they were absent. The rate of self-reported absenteeism translates to 761 days in three months or 254 days per month. In addition to absenteeism, an average of 37 percent of the workers indicated having reported late at least once in the past month, which translates to a total of 366 staff. Assuming an average of one-hour of tardiness due to late reporting, this translates to 183 days lost per month. Thus, the total number of days lost due to absenteeism and tardiness amounts to 437 days per month or 1.2 days per staff per month. These estimates are much lower than the findings of the 2009 PET-QSDS (World Bank 2009) which found a loss of 4,108 working days per month. More details on the full-time equivalent (FTE) staff productivity losses by provinces and districts are provided in Appendix 5, Table A.6. The results show large variations in FTE productivity losses across provinces and districts with Western Province having the highest loss at 4.93 FTE staff per month followed by Lusaka at 4.19 FTE staff per month, and Southern Province with the least loss at 2.39 FTE staff per month (Appendix 5, Table A.6).

There are also differences in FTE staff productivity losses across the different types of health facilities. The average FTE staff productivity loss is estimated at 1.15 FTE staff per month for hospitals, 0.82 FTE staff per month for UHCs, and 9.56 FTE staff per month for RHCs. The main reasons for the high variations in FTE staff productivity losses (particularly in rural areas, RHCs) includes: time taken by health workers to travel to access salaries due to lack of banking services in their area, attending workshops and meetings, following up various activities at district and provincial offices, and personal issues. Productivity losses can increase patient waiting times, and limit access to healthcare services by the population. As such, having staff in-post is not a means to an end if they are not physically available to provide health services.

4.2.3 Staff Workload

Figure 28 shows the perceptions of health workers on the number of working hours. In general, health staff are expected to work for 40 hours a week. However, some of them tend to work longer hours, often attending to emergencies in facilities with inadequate staffing especially rural areas. The majority (66 percent) of health workers consider their hours of work to be appropriate. On the other hand, approximately one-third of the workers feel that the number of working hours is too long. A disaggregation at the facility level indicates that 36 percent of staff in the RHCs feel that the working hours are too long compared to 34 percent at the UHCs and 21 percent at the hospital level. These ratings, however, indicate some improvements in the working hours from the previous (2009) PET-QSDS, in which 47 percent of the workers reported the hours of work to be too much and only half found the hours to be just right.

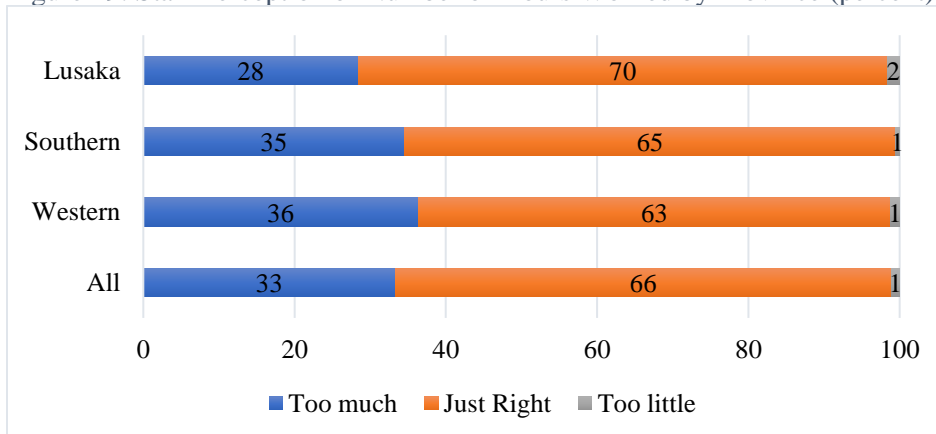
Figure 28: Staff Perception of Number of Hours Worked by Facility Type (percent)



Source: Authors' compilation from survey data.

The decomposition of the perceptions of the number of hours worked at the provincial level is presented in Figure 29. The pattern does not deviate from the facility-level responses. Almost 66 percent of the health workers in each province found the working hours to be appropriate or just right. On average, Western Province has the highest share (36 percent) of workers who perceived their workload to be high, followed by Southern (35 percent) and Lusaka (28 percent).

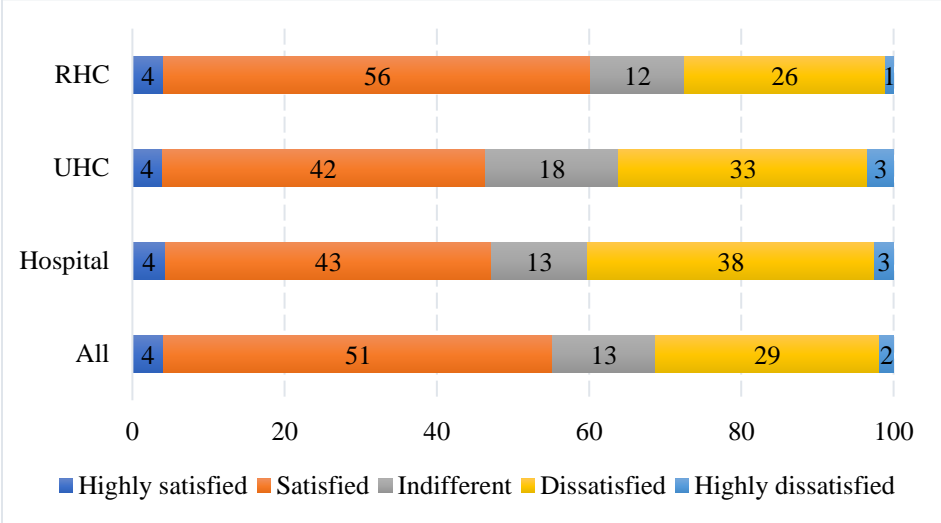
Figure 29: Staff Perception of Number of Hours Worked by Province (percent)



Source: Authors' compilation from survey data.

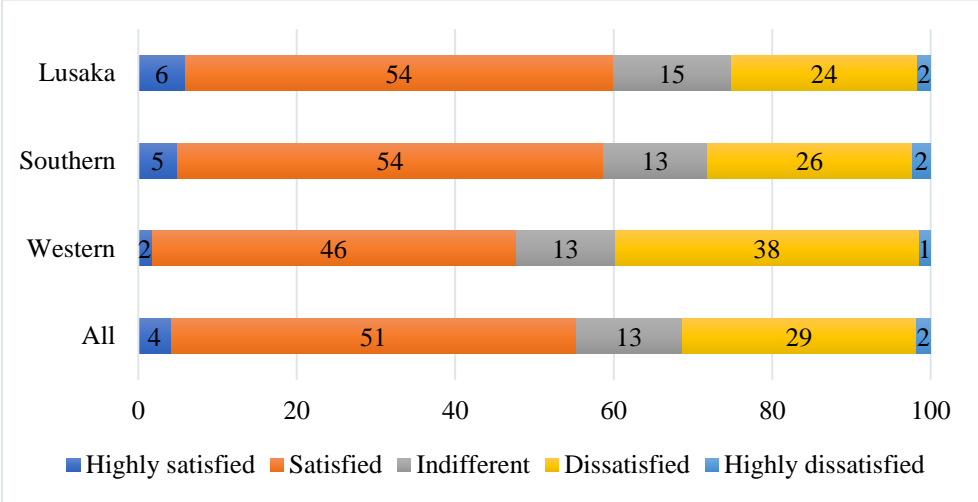
A bad working environment can have a negative impact on staff morale, and this can affect service delivery. Figure 30 and 31 shows the extent to which staff felt satisfied about working in their health facility. The proportion of health workers who were either satisfied or highly satisfied was 55 percent across all the health facilities, 47 percent at hospitals, 46 percent at UHCs, and 60 percent at RHCs (Figure 30). Figure 31 shows the level of satisfaction of health workers by province. The largest share of satisfied and highly satisfied health workers was in Lusaka Province (60 percent), Southern Province (59 percent), and Western Province (48 percent).

Figure 30: Level of Staff Satisfaction by Facility Type (percent)



Source: Authors' compilation from survey data.

Figure 31: Level of Staff Satisfaction by Province (percent)

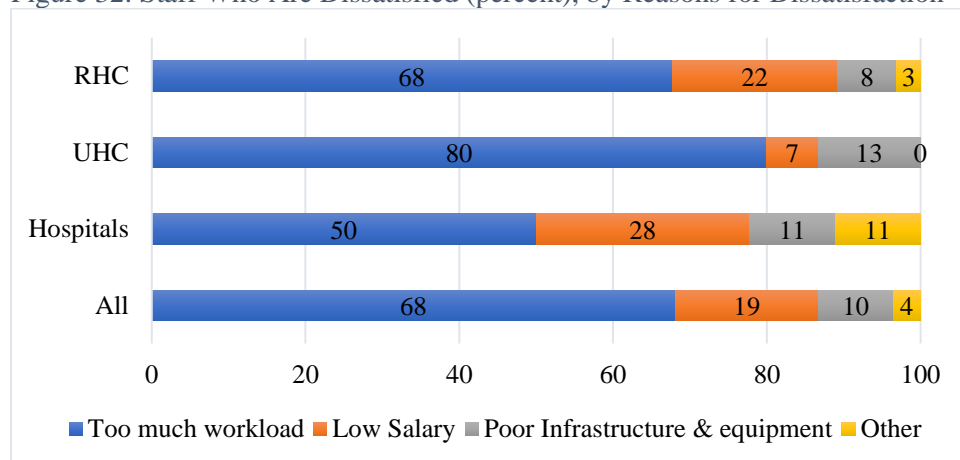


Source: Authors' compilation from survey data.

Dissatisfaction among health staff was caused by factors such as having too much workload (extending from patient care to administrative duties), low salaries, and poor infrastructure and equipment (Figure 32). The main reason for dissatisfaction among health workers was too much workload. Overall, 68 percent of the health workers indicated that they were dissatisfied due to too much work particularly at UHCs (80 percent), followed by RHCs (68 percent), and hospitals (50

percent) (Figure 32). Heavy workload suggests that staffing levels are insufficient or some of the workers in-post do not work as much as others. The second major reason for staff dissatisfaction was low salaries. Overall, 19 percent of the health workers indicated that the salaries were too low (Figure 32). However, health workers in Zambia are generally better paid as compared to health workers in the Sub-Saharan Africa region, but the key problem is the high cost of living in Zambia which renders the salaries insufficient.

Figure 32: Staff Who Are Dissatisfied (percent), by Reasons for Dissatisfaction

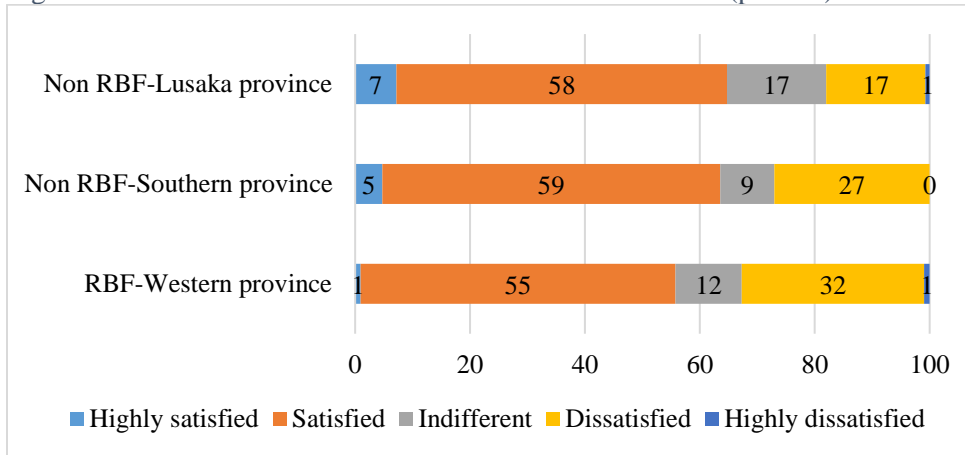


Source: Authors' compilation from survey data.

Figure 33 compares the level of satisfaction of health staff in the RBF and non-RBF districts. About 56 percent of the health workers in the RBF districts in Western Province reported being satisfied or highly satisfied as compared with 65 percent in the non-RBF districts in Lusaka Province and 64 percent in the non-RBF districts in Southern Province. The main reason for staff dissatisfaction in the RBF districts was high workload (60 percent) (Figure 34). While the workload is usually higher in urban areas due to the higher staff-to-population ratio (due to higher population densities in urban areas), some rural areas also have high staff workload particularly for specific skilled personnel such as doctors, midwives, and clinical officers who are in short supply. Further, the RBF normally leads to increased utilization of health care services and increased workload which for small facilities is not commensurate to the compensation from the RBF individual bonuses. Recent evidence from an evaluation of the RBF in Zambia indicates that remuneration or incentives alone may not be able to address the main sources of staff demotivation and dissatisfaction such as high workload and low staffing levels (Shen et al. 2017).

The other sources of staff dissatisfaction such as poor infrastructure and equipment were only reported in the non-RBF districts in Lusaka Province (20 percent) and Southern Province (35 percent) (Figure 34). This is ironic because the data that was reported earlier in this report showed that RBF facilities are worse equipped than the non-RBF facilities. However, facility managers in the RBF districts have autonomy over financial resources and are able to plan for supplies that may not be available. This autonomy over resources helps them address some challenges at the facility level, given that the grant alone may not be sufficient. Thus, the level of satisfaction on infrastructure and equipment exhibited in the RBF facilities could be attributed to having financial and managerial autonomy over resources and ability to plan for supplies.

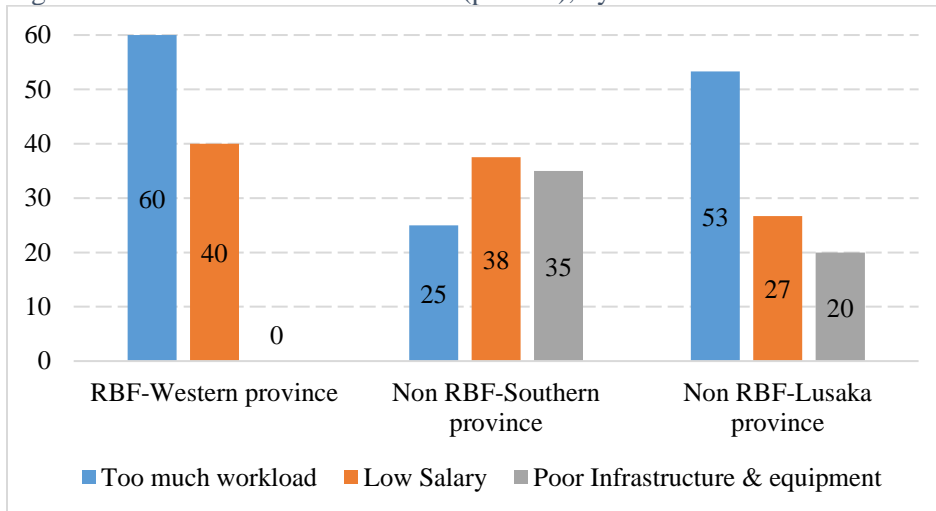
Figure 33: Level of Staff Satisfaction: RBF versus Non-RBF (percent)



Source: Authors' compilation from survey data.

Figure 34 further shows that RBF districts have a greater proportion of health workers (40 percent) expressing dissatisfaction with work due to low salaries, followed by staff in non-RBF districts in Southern Province (38 percent) and Lusaka Province (27 percent). Although this finding is surprising, it is plausible that the performance incentives received by the health staff through the RBF do not constitute a significant portion of the salary so as to offset the effect of low salaries. As such, the negative effect of lower salaries relative to workload and working hours, particularly in the rural areas, may outweigh the gains from the RBF individual bonuses.

Figure 34: Staff Who Are Dissatisfied (percent), by Reasons for Dissatisfaction



Source: Authors' compilation from survey data.

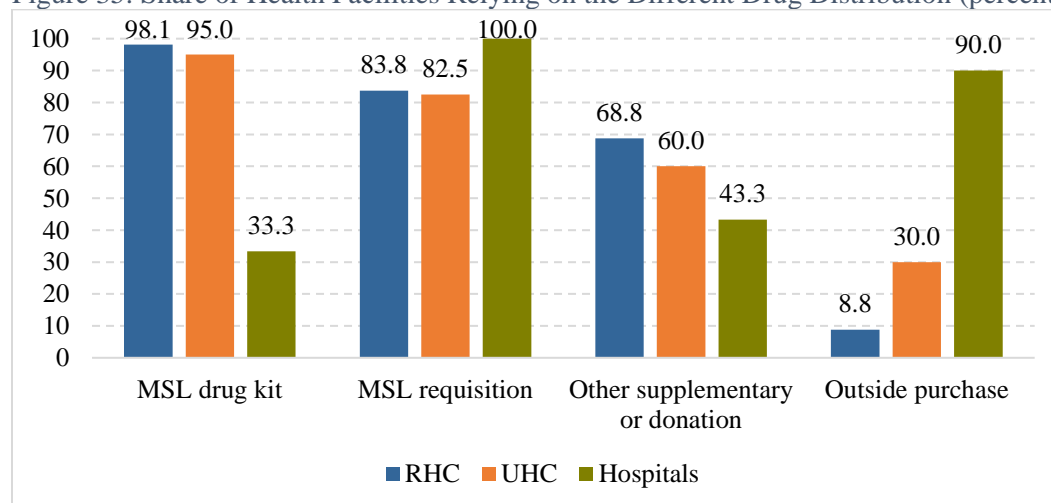
4.3 Medicines

4.3.1 Distribution and Management of Medicines and Medical Consumables

This section documents the availability of drugs and medical supplies in the public health facilities that are provided by the MoH through the MSL, donors (through donations from various sources), and procurements by the health facilities themselves using a portion of their operational grant. Generally, the bulk of the drugs and medical supplies at public health facilities are procured by the MoH HQ, while the storage and distribution functions are undertaken by the MSL. The MSL periodically delivers drugs and medical supplies to health facilities through the newly introduced regional hub distribution system. However, at the time of this study, some provinces and districts were not yet part of the regional hub distribution system, and the old system was being used.

Figure 35 shows the drug distribution systems used by health facility location and type. All facilities use a combination of the four distribution systems. The majority of the RHCs and UHCs (98 percent and 95 percent, respectively) rely on the kit distribution system and about 83 percent of the RHCs and UHCs make requisitions from the MSL. Hospitals, however, use demand-driven distribution systems through direct requisitions from the MSL of their medicines (100 percent) and outside purchases (90 percent). Only a third of the hospitals (33 percent) received medical kits from the MSL.

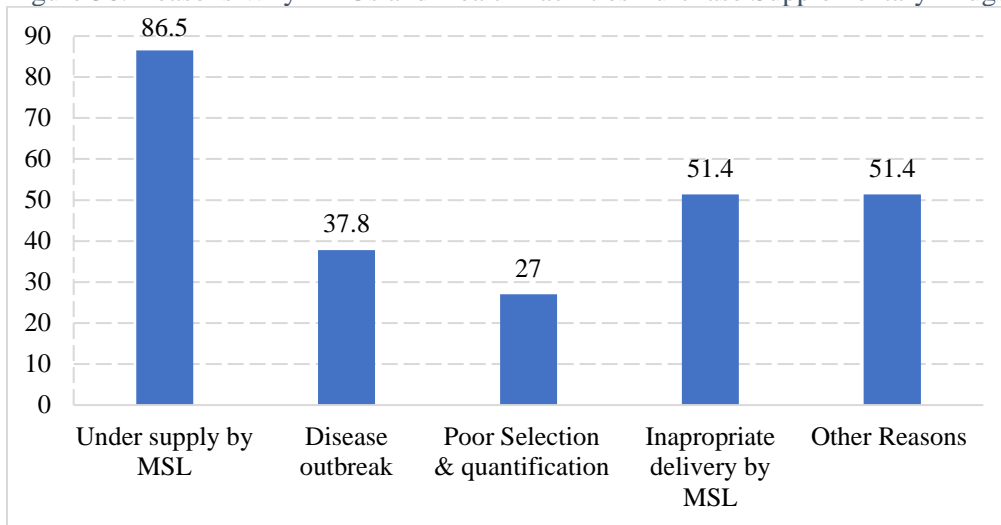
Figure 35: Share of Health Facilities Relying on the Different Drug Distribution (percent)



Source: Authors' compilation from survey data.

There are various reasons why health facilities and DHOs supplement the drugs delivered by the MSL. The key reasons for supplementing the MSL requisition and kits deliveries are presented in Figure 36. The majority (87 percent) of the providers purchase supplementary drugs because the drugs kits and MSL supplies are inadequate given the disease burden and catchment population. This reason is followed by the inappropriateness (51 percent) of the MSL drug deliveries due to a mismatch between the disease burden and available drugs, disease outbreaks (37.8 percent) which increase utilization and stockout of drugs, poor selection and quantification (27 percent) by health facilities, and other reasons (51.4 percent). A number of the facility managers who were interviewed indicated that they had made requests for the revision of the drug kits to ensure that more appropriate drugs are procured.

Figure 36: Reasons Why DHOs and Health Facilities Purchase Supplementary Drugs



Source: Authors' compilation from survey data.

The drug delivery system remains too centralized and riddled with several challenges such as delays in deliveries and not receiving the requests at all. Less than 10 percent of the providers received their requisition on time, while only 21 percent received their requisition in accordance with the request made. According to the interviews, 51 percent of the DHOs and facilities that made requisitions to the MSL did not receive their orders about 6 times, while 27 percent did not receive their requisitions 9 times in 2017. The other option is for the DHOs and health facilities to procure drugs separately using the drug budget allocation. However, this is often not possible, particularly at the facility level, due to inadequate funds.

4.3.2 Availability of Essential Drugs, Vaccines, and Other Medical Supplies

The survey examined the availability of essential drugs, vaccines and contraceptives. The results are presented in Tables 16 and 17 and show that UHCs are better stocked than the RHCs and hospitals. Overall, the RHCs (78 percent) reported having at least one missing drug during the survey period followed by hospitals (76 percent) and the UHCs (57 percent). However, there were variations in both the period and type of drug stock-outs across the facilities. Cotrimoxazole was the least available drug with 31 percent of the RHCs not having the drug, 33 percent of the UHCs, and 30 percent of the hospitals (Table 16). This was followed by Paracetamol with 19 percent of the RHCs not having the drug, 8 percent of the UHCs, and 10 percent of the hospitals. Coartem was the most available drug across the health facilities with about 94 percent of the RHCs having the drug, 97 percent of the UHCs, and 90 percent of the hospitals (Table 16).

Although fewer health facilities are affected by individual drug stock-outs, the stock-out periods tend to be prolonged ranging from 9 weeks for UHCs to 17 weeks for RHCs and 18 weeks for hospitals. There were some differences in the stock-out periods across drugs and health facility types. For the health facilities with stock-outs, the longest stock-out period was for Cotrimoxazole which was out of stock for 36 weeks in the RHCs, about 14 weeks in the UHCs, and 30 weeks in the hospitals (Table 16). The stock-out period for vitamin A was 14 weeks in hospitals, 19 weeks at the UHCs, and 32 weeks at the RHCs. Further, iron folate was out of stock for 21 weeks in the hospitals that didn't have it while Coartem was out of stock for 44 weeks (Table 16).

Table 16: Health Facility Reporting Essential Drugs and Vaccines Are Not Available

Drugs	RHCs		UHCs		Hospitals	
	% Reporting Drug Not Available Today	Average Time of Stock-outs (weeks)	% Reporting Drug Not Available Today	Average Time of Stock-outs (weeks)	% Reporting Drug Not Available Today	Average Time of Stock-outs (weeks)
Coartem	5.6	9.0	2.5	12.0	10.0	44.0
Panadol	18.8	7.2	7.5	8.7	10.0	2.0
Cotrimoxazole	30.6	36.0	32.5	13.7	30.0	30.0
Oral rehydration solution (ORS)	7.5	19.8	10.0	2.3	10.0	2.0
Vitamin A	11.3	31.9	7.5	18.7	10.0	14.0
Iron folate	11.9	7.4	10.0	5.5	13.3	21.0
Insulin	3.1	24.2	0.0	0.0	6.7	17.0
Dextrose and other intravenous (IV) fluids	12.5	31.8	12.5	28.8	23.3	28.4
Phenergan	3.1	23.0	2.5	1.0	13.3	12.0
Diazepam/valium	3.8	24.3	0.0	—	6.7	50.5
Hydrocortisone	6.9	9.2	12.5	6.8	6.7	2.0
Lignocaine	6.9	4.5	5.0	7.5	3.3	2.0
Suturing materials	3.8	4.7	5.0	30.0	16.7	36.2
Bacillus Calmette–Guérin (BCG) vaccine	9.4	8.4	15.0	6.2	—	—
Oral poliovirus vaccine (OPV)	5.0	6.4	0.0	—	—	—
DPT–HepB–Hib vaccine	6.9	6.0	2.5	7.0	—	—
Measles vaccine	4.4	12.1	0.0	—	—	—
Pneumococcal conjugate vaccine (PCV)	6.3	7.3	2.5	8.0	—	—
Rotavirus vaccine	2.5	9.5	0.0	—	—	—

Source: Authors' compilation from survey data.

For the other essential drugs (insulin, dextrose, phenergan, and diazepam), stock-outs were more at the hospitals as compared to the RHCs and UHCs. However, for the health facilities that reported stock-outs for insulin, dextrose, and phenergan, the stock-out periods were longer at RHCs than at the UHCs and hospitals. However, the stock-out period for dextrose and other IV fluids is generally prolonged in most of the health facilities; and stood at 32 weeks for RHCs, 29 weeks for UHCs, and 28 weeks for hospitals (Table 16). The longest stock-out period for a single drug was for diazepam at the hospitals which lasted for 51 weeks. Suturing materials were also out of stock for extended periods of time at UHCs (30 weeks) and hospitals (36 weeks).

Table 16 also shows the share of the facilities that experienced stock-outs for vaccines and the length of the stock-out periods in weeks. The stock-out of vaccines was only reported at the UHCs and RHCs since vaccines are mostly provided at these facilities. Of the health centers that experienced stock-outs of individual vaccines, the UHCs were better stocked with vaccines than the RHCs. With the exception of BCG vaccine that was reported to be out of stock in 15 percent of the UHCs, less than 3 percent of the UHCs had stock-outs of the other vaccines. On the other

hand, 9 percent of the RHCs reported stock out of BCG, and stock-out of the other vaccines at about 5 percent of the RHCs. The average length of time for the stock-outs for BCG was 8 and 6 weeks at RHCs and UHCs, respectively. Further, while there were no stock-out of measles vaccines at UHCs, about 4 percent of the RHCs had no measles vaccine and the stock-out lasted about 12 weeks.

For contraceptives, the results show that stock-outs were more at RHCs and UHCs as compared to the hospitals (Table 17). However, for the health facilities that reported stock-out of contraceptives, the stock-out periods were more prolonged at the hospitals and RHCs.

Table 17: Health Facilities Reporting Stock-outs of Contraceptives (percent)

	RHC		UHC		Hospitals	
	% Reporting Contraceptive Not Available Today	Average Time of Stock-outs (weeks)	% Reporting Contraceptive Not Available Today	Average Time of Stock-outs (weeks)	% Reporting Contraceptive Not Available Today	Average Time of Stock-outs (weeks)
Condoms	8.75	7.0	5.0	1.0	6.67	1
Pills	15.00	16.4	10.0	3.8	6.67	45
Injectable	18.75	14.5	32.5	16.5	3.33	60
Intrauterine device (IUD)	1.25	4.0	2.5	4.0	0.00	—
Norplant	6.25	10.6	2.5	2.0	3.33	90
Total	160.00	—	40.0	—	30.00	—

Source: Authors' compilation from survey data.

4.4 Clinical Care and Patient Management

At the center of health service provision is the desire to provide the best care for patients. As described by ElationHealth, “*Quality in healthcare means providing the care the patient needs when the patient needs it, in an affordable, safe, effective manner. Quality healthcare also means engaging and involving the patient, so the patient takes ownership in preventive care and in the treatment of diagnosed conditions.*”⁴ There are several ways of evaluating quality of health services. This could be achieved by looking at the level and adequacy of the services supplied, demand for health services, patient satisfaction, and health outcomes. In this section, we look at the perceptions of the patients or level of satisfaction of the patients who received healthcare from public health facilities in Zambia in 2017. The patient survey that was used in this analysis had a number of questions on physical access to health facilities, reasons for choosing health facilities, and patients’ perceptions on the quality of health services they received.

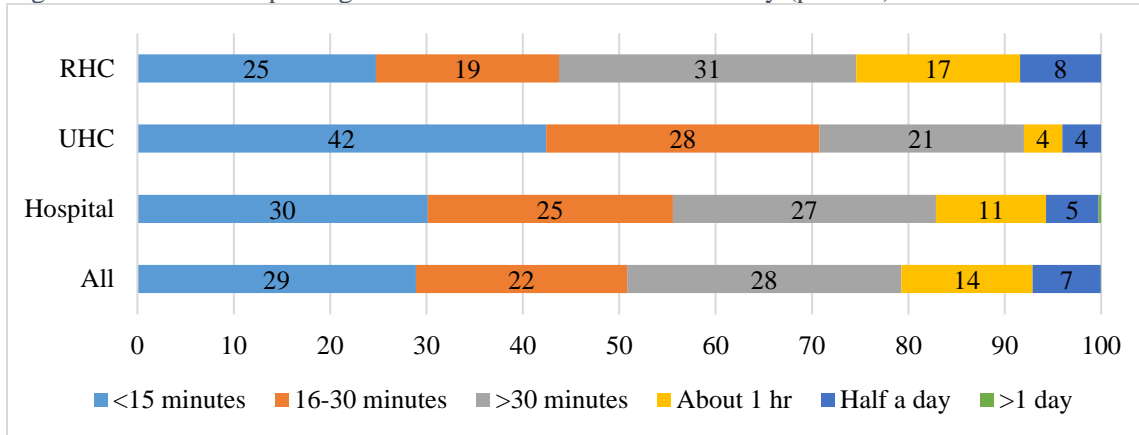
4.4.1 Client Perceptions on Access to Health Services

Figure 37 presents the average time taken by clients to reach their preferred facility. Only 29 percent of the patients take less than 15 minutes to get to the health facilities of their choice. Across the health facilities, 42 percent of the patients take less than 15 minutes to get to UHCs of their choice as compared to 30 percent of the patients going to hospitals and only 25 percent for those

⁴ <https://www.elationhealth.com/healthcare-innovation-policy-news-blog/quality-healthcare/>

going to RHCs. A larger share of patients (25 percent) take an hour to half a day to get to RHCs as compared to 16 percent for those going to hospitals and 8 percent for those going to UHCs. This suggests that distance to UHCs is shorter than for hospitals and RHCs and that physical access for people in rural areas is still a challenge.

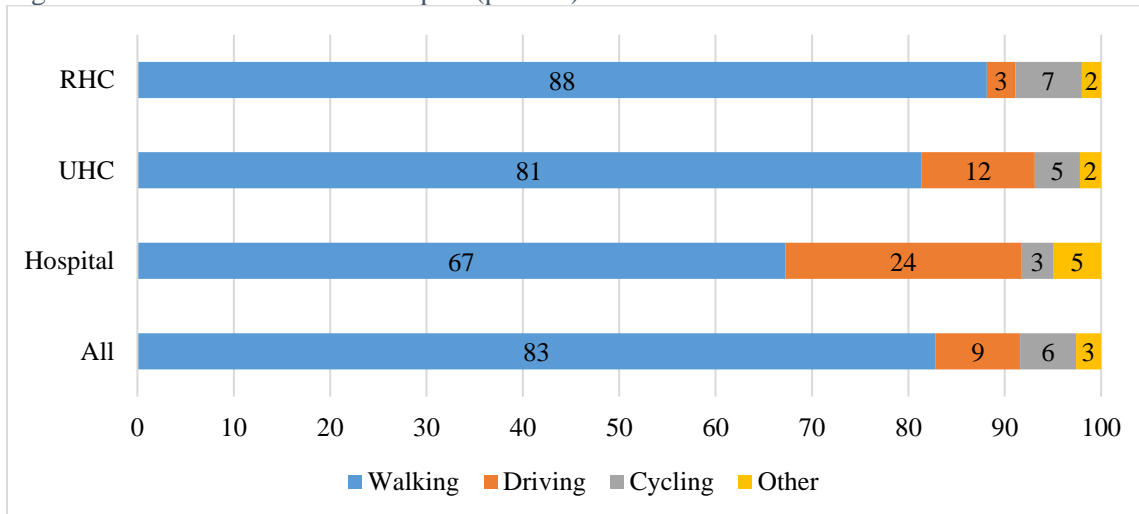
Figure 37: Patients Reporting the Time Taken to a Health Facility (percent)



Source: Authors' compilation from survey data.

In general, the patients referred to hospitals are more likely to incur transport costs than those seeking care at health centers. As shown in Figure 38, most of the patients (83 percent) walk to their preferred health facility particularly for those going to RHCs (88 percent) compared to those going to UHCs (81 percent) and only 67 percent for those going to hospitals. About 32 percent of the patients attending hospitals use some form of transport including cars, buses and bicycles.

Figure 38: Patients' Mode of Transport (percent)



Source: Authors' compilation from survey data.

On average, most of the patients spent about an hour waiting to be attended to by the physicians (Table 18). The waiting times vary across the different types of health facilities with the average waiting time being the lowest in the RHCs (55 minutes) and slightly longer for UHCs (62 minutes) and hospitals (61 minutes). Most of the respondents (74 percent) observed that the waiting time was reasonable but the proportion was lower for those attending UHCs (67 percent). In other

words, about a third of the patients attending UHCs said that the waiting time was too long. The long waiting time in the UHCs and hospitals can be attributed to congestion at the facility due to high patient inflow, while the issue of understaffing is more prevalent in the RHCs.

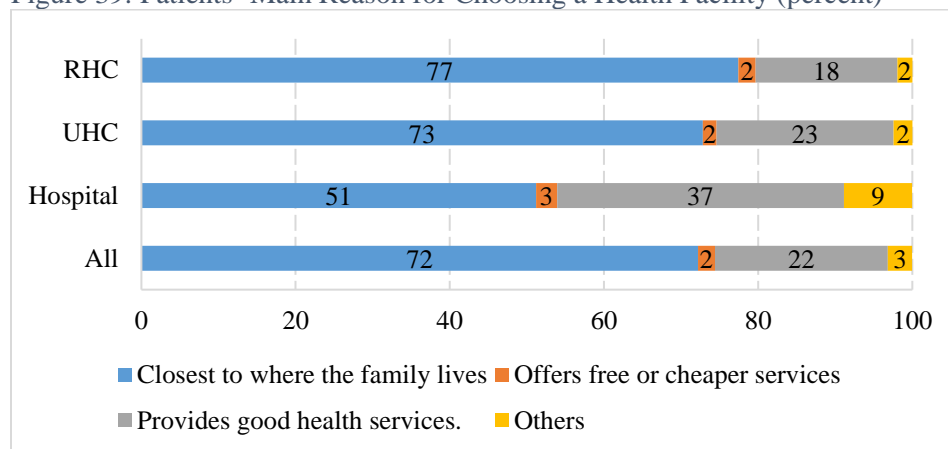
Table 18: Waiting Time of Patient in Minutes

Waiting Time	RHCs	UHCs	Hospitals	All
Average waiting time (minutes) of patients	55.2	61.7	60.9	57.6
Maximum waiting time (minutes) reported	500	460	300	500
% who said waiting time is reasonable	76.1	67.3	72.2	73.6
% who said waiting time is too long	23.8	32.6	27.7	26.3

Source: Authors' compilation from survey data.

Patients are influenced by a number of factors in choosing their health care providers. The survey findings presented in Figure 39 show that the distance or proximity to the facility explains the patients' provider choice, especially in the RHCs (78 percent), UHCs (73 percent), and hospitals (51 percent). About 37 percent of the patients preferred going to hospitals based on the belief that good and quality services are provided at the hospitals.

Figure 39: Patients' Main Reason for Choosing a Health Facility (percent)



Source: Authors' compilation from survey data.

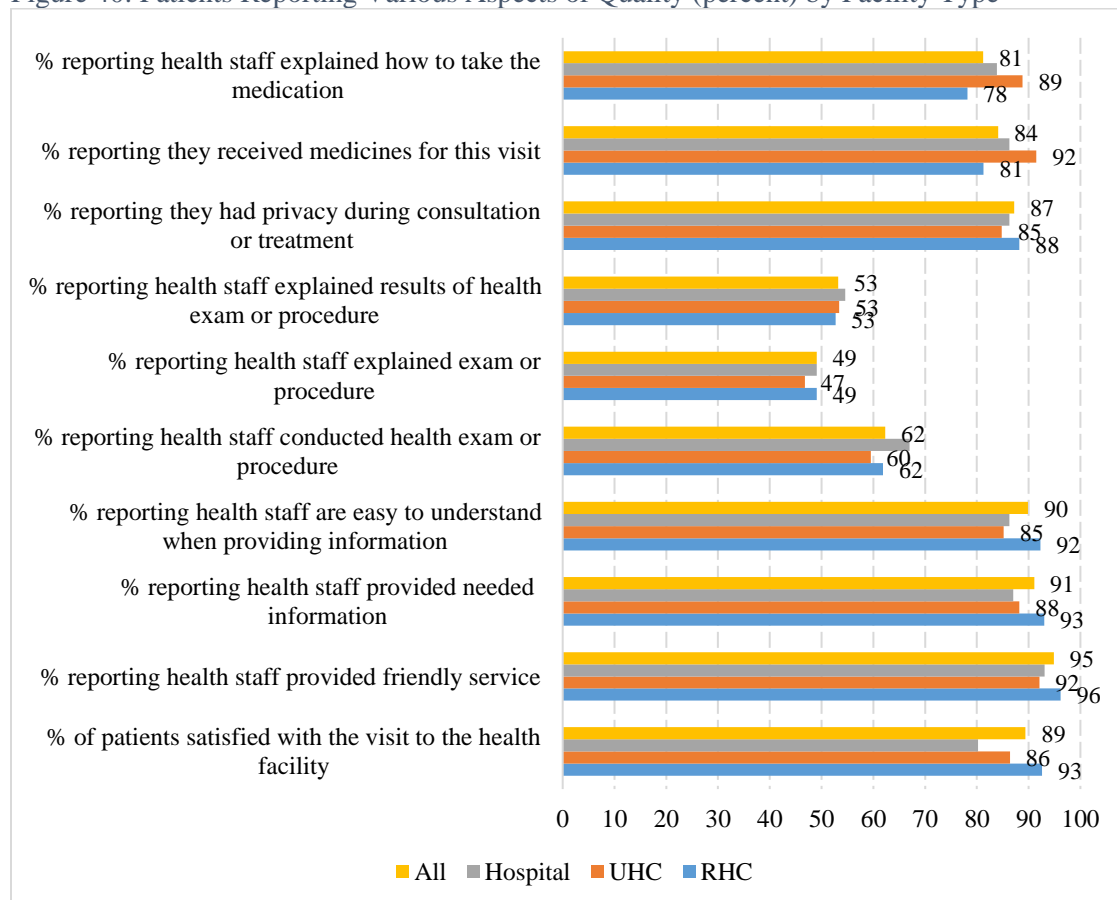
4.4.2 Client Perceptions on Quality of Health Care

Figure 40 shows the quality of care provided as reported by patients seeking care at the facility. Overall, the quality indicators exhibit a similar pattern across the UHCs, RHCs, and hospitals. Although the survey yielded mixed results, about 89 percent of the patients were satisfied with the services received at their preferred health facility. Specifically, the health workers were highly rated on friendliness (95 percent), providing needed information (91 percent), and privacy during consultations (87 percent). However, only 49 percent of patients reported that the health staff explained the examination or procedure and only 53 percent received an explanation of the results. Further, only 62 percent of the patients reported that the health staff had conducted a health examination or procedure.

Patient satisfaction levels seem to be driven by factors other than whether or not drugs were received at the health facility. Waiting time and staff attitude seem to influence satisfaction levels.

Of those who reported reasonable waiting time, above 90 percent were satisfied with the services compared to 75 percent among those who felt waiting time was too long. Similarly, the proportion of satisfied patients among those who received a friendly service is almost twice as much as those who reported receiving unfriendly service. Unexpectedly, there is no variation in satisfaction levels based on whether or not the patient received the medicines. This could explain why satisfaction levels remain high even among persistent drug stock-outs in health facilities.

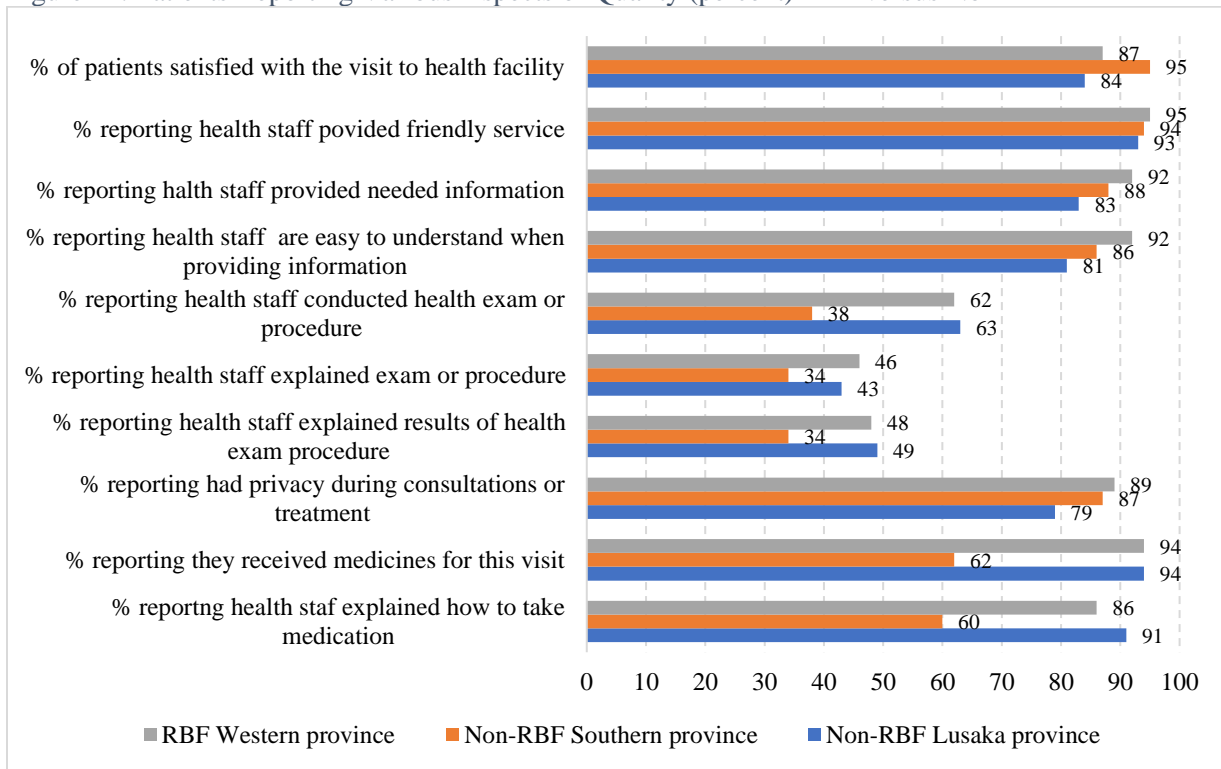
Figure 40: Patients Reporting Various Aspects of Quality (percent) by Facility Type



Source: Authors' compilation from survey data.

A comparison of the results of indicators on perceived quality in the RBF and non-RBF facilities reveals that patients were relatively satisfied with services in the RBF districts in the Western Province compared to the non-RBF districts in the Lusaka and Southern Provinces (Figure 41). A higher proportion of patients in the RBF districts reported having had a friendly service, explanation and provision of needed information, privacy during consultation, explaining of the procedures, and receiving medicines. This result is in support of the findings by Friedman et al. (2016), which show that the RBF can have a positive impact on patient satisfaction. However, the results also show that the non-RBF districts in Lusaka Province outperformed some RBF districts in Western provinces on some of the indicators on perceived quality (Figure 41).

Figure 41: Patients Reporting Various Aspects of Quality (percent) RBF versus Non-RBF



Source: Authors' compilation from survey data.

5.0 Discussion and Policy Implications

This section presents the key messages and policy implications arising from the survey results. The key hypotheses that the study sought to answer centered around the timeliness of grant disbursements, adherence to budgetary and expenditure guidelines, donor funding and alignment, and whether the incentive-based RBF system has contributed to improved accountability and health service delivery. The key findings and policy implications are highlighted below.

Direct disbursement of the operational grant by the MoF reduced delays and improved predictability of funding to DHOs. Between 2015 and 2017, the MoF had been disbursing operational grants directly to provinces, the DHOs, hospitals, and other health spending agencies. In 2017, the disbursements were found to be consistent and about 96 percent of the budgeted funds were disbursed to the DHOs. However, with regards to the actual timeliness of funding, about 33 percent of the DHOs experienced delays in receiving their grants at least three times in 2017. However, according to the interviewees, this was an improvement compared to the time when the MoF was disbursing GRZ operational grants to the DHOs through the MoH. In 2018, the government reverted back to the old system of disbursing the operational grants to the DHOs through the MoH which led to a drastic reduction in amounts received, and increased delays of about four to five months. However, reductions in the operational grants and delays in the disbursement of the funds could also be attributed to the reduction in fiscal space at the MoF. The arising policy implication from this finding is the need for the government to revert back to the 2015 system of disbursing funds to DHOs directly from the MoF. An essential element for this policy recommendation is for the government to extend the IFMIS to all districts, hospitals and health centers.

The national budgeting and expenditure guidelines are not suitable for a resource constrained environment. Erratic funding, and an inadequate resource envelope constrain the DHOs from adhering to the national budgeting and expenditure guidelines. Most managers at DHOs and health facilities are familiar with the guidelines but find it hard to adhere to them. The DHOs also have established structures in form of financing committees and receive financial guidelines and supervision from the PHOs to foster adherence to the guidelines which are aimed at achieving high rates of budget execution. However, the district managers observed that they do not always adhere to the guidelines due to erratic funding which forces them to reallocate resources to more critical functions and services within the districts. Secondly, the DHOs do not have contingency budget lines. Thus, costs for unbudgeted emergencies such as disease outbreaks, deficits in national program undertakings (such as child and national health weeks), stock-out of essential drugs, and maintenance of broken-down ambulances and motorbikes are financed by reallocating resources across budget lines in violation of the guidelines. Consequently, annual action plans are not effectively implemented.

The survey shows that accounting for money at district level is a huge challenge primarily due to lack of clarity about expenditures incurred at the DHO level. Firstly, most health facility managers do not have sufficient information on their approved budgets. This complexity is worsened by the imprest system that makes it hard to track how much resources go to health centers. Secondly, the DHOs spend part of the resources for the health facilities to procure goods on behalf of the health facilities. The purchased goods are delivered to facilities in-kind, without monetization. To

improve accountability, the MoH extend the IFMIS to lower levels of the public health system with the MoF directly disbursing the resources to district hospitals and health centers.

There is huge debt at most of the DHOs and health facilities which is affecting service delivery. Most of this debt is from utilities (electricity, water), allowances for staff, food for patients, and the introduction of new programs, which may not have originally been budgeted for. To minimize the debts, the MoH needs to set a threshold on debt accumulation, and compel the DHOs to prioritize debt servicing. At the same time, there is a need to strengthen oversight to ensure adherence to set expenditure guidelines as outlined earlier.

Donor funding continues to flow to the districts as off-budget support with minimal coordination and use of government systems. Evidence shows that a larger proportion of the off-budget support is channeled through local and international NGOs that directly implement programs outside existing government systems. Most of the off-budget support is concentrated at the hospital level, despite having large public health components. Whereas the volume and number of donor support for specific programs, such as Reproductive Neonatal and Maternal Child Health, in some districts has increased, the results also indicate that funding in other districts has reduced. This is explained by the fact that donor support is channeled to the districts as vertical projects with minimal involvement of government, and weak inter-donor coordination. As revealed by district-level managers, there is limited participation of the DHOs in donor-funded vertical project design, budgeting, and implementation. Often, districts are only consulted during the initial phases, while the actual planning is done by the donors.

To mitigate this problem, there is need to strengthen donor coordination particularly at district level. This includes putting in place donor coordination mechanisms that facilitate regular reporting on budgets and expenditure to ensure geographical balance in resources distribution from vertical projects. The government could create one entry point for donor support, regardless of whether support is channeled through the government as internal funds or managed by an external agency such as an NGO. Furthermore, there is need for the government to develop a policy to ensure that only those donor programs that are captured by the district action plans are implemented.

The majority of patients seeking health care services at RHCs reported not paying any user fees, while the majority who visited UHCs and hospitals paid. The result is consistent with the findings reported by Masiye, Kaonga, and Kirigia (2016) that 77 percent of patients who visited primary health care providers are not incurring any expenses. However, considering that some user fees are still being paid at primary health facilities (UHCs and district hospitals), this is contrary to the free user fees policy. This calls for an evaluation of how the policy is being implemented. The government needs to ensure that the free user fees policy is strictly adhered to at all levels to protect patients from catastrophic health expenditures. The Zambia Household Health Expenditure Survey of 2014 estimated that about 6 percent of households that faced illness or injury incurred catastrophic health expenditures (MoH 2014).

RBF districts have demonstrated relatively better performance in terms of perceived quality of health care. The evidence from this survey suggests that the RBF has resulted in some gains in some measures of patient satisfaction similar to findings from the impact evaluation of the Zambia pilot RBF project (2012–2014) by Friedman et al. (2016). This includes: explanation on how to

take medication, receiving drugs during the visit, conducting tests, and explanation of results by the health staff. However, the RBF districts performed lower than the non-RBF districts on staff satisfaction and absenteeism. Low salaries and high workload continue to be a major source of dissatisfaction among health workers in both the RBF and non-RBF districts. The results suggest that incentives alone may not be able to address the main sources of staff demotivation and dissatisfaction, such as high workload and low staffing levels. However, health facilities under the RBF have the autonomy to use the additional resources to address existing needs, which could lead to greater satisfaction in the long term.

A key policy question is how to integrate some of the key elements of the RBF with the current mode of input-based line-item budgeting, which is the main mode of provider payment in the health sector in Zambia. It is well established that input-based financing is inefficient, and countries are moving toward mixed forms of provider payments that are linked to outputs (McIsaac et al., 2018). It is critical to understand which elements of the RBF can actually be integrated at affordable costs into the existing government system.

The government needs to enhance its efforts in improving basic infrastructure and equipment across the health care system, especially in primary health care facilities in rural areas. The majority of the surveyed health facilities were constructed more than 15 years ago, the infrastructure was in a good state of repair and is frequently renovated. However, most of the facilities lack some of the basic medical, communication, and transport facilities that are essential for service delivery. Primary health care providers, especially in rural areas, lack several amenities such as stable power supply and have poor communication facilities (often rely on a two-way radio), while official mobile phones, fax machines, and internet services remain scarce, despite the high presence of computers. These facilities do not have adequate transport of their own, while the pool of zonal ambulances is not widespread while a number of the zonal ambulances are not functional.

A number of health facilities do not have an adequate complement of basic medical equipment. The average availability of basic medical equipment stood at 67 percent for the RHCs, 74 percent for the UHCs, and 90 percent for hospitals. While some basic medical equipment were generally available across facilities, other vital medical equipment were scarce. For example, less than half of all health facilities had the following: only 13.5 percent had an x-ray machine, 15.7 percent had an audio scope, 47.4 percent had a malaria smear, and only 48.3 percent had a microscope. This equipment was the least available in the RHCs. There is a need to increase budgetary allocation to fund acquisition of new, and maintenance of existing, basic medical equipment in facilities to improve service delivery.

Stock-outs of drugs and vaccines across the health facilities are frequent and persistent. This study has established that essential drugs and vaccines are still widely unavailable with rural health facilities facing more shortages than facilities in urban areas. As a result of persistent stock-out of drugs, health centers and hospitals are not adhering to the requirement that they only spend a maximum of 4 percent and 10 percent of their operational grants on drugs, respectively. The over expenditure on drugs could be explained by imperfections in the MSL drug requisition and delivery system. Less than 10 percent of the providers indicated that they received their requisition on time, while only 21 percent received the correct requisition.

The persistent drug shortages are attributable to a number of factors such as inadequate budgetary allocations for drug procurement. The Public Health Expenditure Review reports that in 2016, about 16 percent of the total health sector budget was spent on drugs, which is half of the average spent in African countries (World Bank 2018). Compounding the low budgetary allocation is the fact that budget releases have often been lower, resulting in a build-up of arrears for suppliers of pharmaceutical products. Furthermore, inefficiencies and logistical challenges in the drug supply chain have been a key factor behind frequent drug stock-outs. The current drug distribution system is associated with inequalities in the distribution of drugs, for example, some facilities run out of a particular drug while there are facilities reporting expiry of the same drug. The rational drug use study found that the presence of expired medicines averaged 2.1 percent for the set of 13 tracer products (MoH 2018c). Therefore, there is need for increased expenditure on drugs and investments in drugs logistics management and supply.

The findings show that health facilities, especially the RHCs, still experience very high rates of staff vacancy, particularly for critical skills. Although the MoH recruited a number of health workers in 2017, the public health system is still characterized by high vacancy rates for all cadres at various levels of the health system. On average, 21 percent of clinical positions are not filled. Further, the results show huge variations in vacancies across the different types of health workers, and by provinces. Overall, the vacancy rates are high (above 50 percent), for medical doctors, medical licentiates, and dentists.

The relatively high staff vacancy rates are exacerbated by the erosion of the actual availability of staff as a result of absenteeism and tardiness. The study finds that an average of 16 percent of health workers reported to have been absent from work at least once during the previous three months. Another 37 percent of the health workers reported late for work at least once during the month before the survey. These rates of absenteeism and tardiness translate to a loss of 437 days per month which is equivalent to 11.5 full-time equivalent (FTE) staff per month. Absenteeism and tardiness negatively affects service delivery. Therefore, the government needs to address this problem by monitoring staff performance on a regular basis, and providing incentives to increase motivation and satisfaction. As part of the package, the working environment also requires some improvement.

Physical access to health services continues to be better for patients in urban areas compared to their counterparts in rural areas. The survey gauged patients' perceptions on access to health services based on measures such as time taken to reach the facility, waiting times, and quality of services provided. Across all the health facilities, an average of 80 percent of the patients walk to the health facilities but a lot of time is spent walking to RHCs. About 25 percent of the patients who walk to the RHCs take an hour to half a day to reach their destination as compared to 16 percent for those going to hospitals, and 8 percent for those going to UHCs. Only 25 percent of the patients going to RHCs take less than 15 minutes to reach their destination. Further, most of the patients across all the health facilities reported waiting for an hour before being attended to. The long waiting time at the UHCs and hospitals can be explained by congestion due to high patient inflow, while the issue of understaffing is more prevalent at the RHCs. To address this problem, the government needs to build more health centers in rural areas, and while staffing levels need to be increased.

Despite long distances, lengthy patient waiting times, and persistent stock-out of drugs and vaccines, the majority of the patients are satisfied with the services received at the health facilities. Patient satisfaction or perceived quality was found to be high in all the provinces but more so in Western Province which was implementing RBF. These results suggest that staff attitude has a greater effect on patient satisfaction than the other factors i.e. distance to the health facility, waiting times, and whether or not drugs were received at the health facility. Henceforth, apart from providing the required health systems inputs (drugs, human resources etc) the MoH needs to ensure that health workers are adequately incentivized and motivated, and patient's charters displaying patients' rights and responsibility are available in all the health facilities.

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Appendix 1: Survey Methodology

To test the hypotheses for the study, the PET-QSDS used data from various primary and secondary sources at the national, provincial, district and health facilities. Central-level expenditure data were collected from the IFMIS at the MoH HQ and through an extensive review of relevant secondary documents and official reports. The primary data collection process employed a multistage sampling strategy involving the selection of provinces, health facilities, and health workers and patients as explained below.

Survey Population and Areas

This study used a nationally representative sample of health facilities in Zambia at all levels of the public health care system that includes primary, secondary, and tertiary levels. The survey used a multistage cluster sampling strategy involving provinces, districts, and health facilities, and within them, health workers and patients. Three provinces were purposively sampled to reflect a mix of rural and urban provinces and differences in resource availability. In particular, Lusaka was chosen as an urbanized province with relatively more resources, the Southern province reflects a semi-urbanized province while the Western province was selected to represent the most rural and least-resourced province. Further, the Western province was selected to allow for a comparison of financing and health service delivery between the RBF and non-RBF districts. The sampling strategy yielded 230 health facilities (30 hospitals, 40 UHCs, and 160 RHCs) while 991 health workers and 2,042 exit clients were randomly selected.

Selection of Sample Health Facilities

The team collected data from all the districts in the selected provinces. Districts varied in terms of resource endowments, mix of rural and urban areas, and availability of complementary services such as banks, fuel stations, and other social amenities. A total of 36 districts were surveyed including 8 districts from Lusaka province, 13 districts from Southern province, and 15 districts from Western province. In the third stage, health facilities were randomly selected by strata within each district to account for the rural-urban divide using the 2017 list of health facilities in Zambia (MoH 2017). To ensure representativeness of the various levels of the referral system, the sampling strategy involved a stratified selection of hospitals and health centers separately. Typically, each district has one district hospital, while provincial centers host one provincial or second-level hospital. Thus, almost all district hospitals in the sampled districts were surveyed. Some districts such as Nkeyema, Sikongo, Pemba, Sinazongwe, Nalolo, Chilanga, and Shibuyunji do not have district hospitals. More than 3 hospitals were surveyed in Lusaka yielding a total of 30 hospitals for inclusion in the analysis.

The districts served as the sampling clusters for health centers. The sampling approach aimed at surveying 30 percent of the health facilities, which were randomly selected by strata within each district. To account for the rural-urban dichotomy, 60 percent of the health facilities were drawn from rural areas and the remaining 40 percent from urban areas. In districts that are entirely rural, only the RHCs were surveyed. A total of 200 health centers were selected. Adding these to the above-mentioned 30 district and provincial hospitals selected for inclusion in the study sample, data were collected from a total of 230 health facilities. These health facilities represent approximately 10 percent of the 2,385 public and mission health facilities in Zambia. This sample

size is deemed to be sufficient to allow for comparisons of differences in functionality and resource endowments across provinces in Zambia. The summary distribution of the surveyed health facilities and the DHOs by province is presented in Table A.1.

Table A.1: Distribution of the Survey by Province and Type of Health Facility

Province	Hospitals Visited	UHCs Visited	RHCs Visited	Total Facilities Sampled and Visited	No. of DHOs
Lusaka province	9	15	34	58	8
Southern province	11	17	60	88	13
Western province	10	8	66	84	15
Total	30	40	160	230	36

Selection of Patients for Exit Interviews

Patient exit interviews were conducted with a sample of patients visiting the sampled health facilities during the survey. The sampling procedure involved picking every third to fifth patient in the queue, depending on the utilization level at each health facility. Before undertaking each interview, consent was sought from the patients. In each facility, 5–15 patients were chosen, yielding a total of 2,042 client exit interviews.

Selection of Health Workers

Between two and five health workers were interviewed from each health facility. In facilities that had more than five health workers, a simple random sampling procedure was used in selecting the sample of staff from the official staff establishment for the health facility. Only staff present at the time of the survey were interviewed. Managers at the health facilities and DHOs were also interviewed.

Secondary Data

In addition to the primary data, the study also made use of secondary data. This data was obtained from the MoH and other institutions including the MoF, World Health Organization, and the World Bank.

Appendix 2: Districts Sampled for the 2017 PET-QSDS

Table A.2: Surveyed Provinces by Districts

Province	District
Lusaka	Lusaka
	Chilanga
	Chirundu
	Chongwe
	Kafue
	Luangwa
	Rufunsa
	Shibuyunji
Southern	Chikankanta
	Gwembe
	Kazungula
	Livingstone
	Mazabuka
	Monze
	Namwala
	Pemba
	Siavonga
	Sinazongwe
	Zimba
	Choma
	Kalomo
Western	Mwandi
	Kalabo
	Kaoma
	Limulungu
	Luampa
	Lukulu
	Mongu
	Mulobezi
	Nalolo
	Nkeyema
	Senanga
	Sesheke
	Shangombo
	Sikongo
Sioma	

Appendix 3: Survey Tools

Description of the Surveys Tools

Data for the PET-QSDS were collected using five different types of questionnaires. These questionnaires are presented in Table A.3 and include (a) PHO questionnaire, (b) DHO questionnaire, (c) health facility questionnaire, (d) patient questionnaire, and (e) staff questionnaire. The PHO and DHO questionnaires focused on collecting information on the flow of resources (financial, human and material) from the sources (MoF, MoH, and donors) to the end users. The data collection tools included questions on the flow of funds to health centers and district hospitals, drug supplies, human resources for health, and support from donors and nongovernmental organizations. All these questionnaires were pretested for consistency and clarity before the survey.

Table A.3: Overview of the PET-QSDS Instruments, Respondents, and Content

Questionnaire Type	Primary Respondent	Description of Key Information collected
PHO	Provincial Health Director	Health facility information, human resources, and accounts (donor and government).
DHO	District Health Director	District-level information, pharmaceutical, human resources, and financial and nonfinancial resource flows. Qualitative information on perceptions of the nature and effect of resource flows on service delivery.
Health facility questionnaire	Health Facility Managers	General information on drugs and supplies, financial and nonfinancial resources, infrastructure and availability of equipment, supplies, drug stocks etc. Perceptions on the quality of infrastructure, and functionality of medical equipment etc.
Health facility staff questionnaire	Health workers	Information on working conditions, operating hours, workload, health worker satisfaction, reporting, and self-reported absenteeism.
Client or patient exit poll	Patients or clients accompanying the patients	Mode of travel and time taken to reach health facilities, waiting time before being attended to, and patient perceptions on staff attitudes and perceived quality of services provided.

Data Collection and Analysis

All data were collected electronically using tablets, programmed using an online data collection application called SurveyToGo, through in-person interviews at the PHOs, DHOs, and health facilities in the sample. The use of tablets was relatively efficient and allowed for easy transfer of data to the analysis software. To ensure data quality, all data collection activities were closely supervised by a senior researcher, who also conducted daily checks and cross-checked all data uploaded to a remote cloud server (primary server) at the end of each field day. All ethical guidelines and codes of conduct were strictly adhered to throughout the fieldwork. As an example, a written consent form was provided to all the study participants before the interviews, and participants were given adequate information on what their participation meant and that their

participation in the survey was completely voluntary. In particular, interviewers were instructed to read the consent form to the participants, and only to undertake the interview after the participants agreed and signed the consent forms.

Data cleaning and analysis was done using MS Excel and Stata software. The approach to data analysis was mainly descriptive. The core analysis was centered on providing answers to the objectives and hypotheses of the study. In addition, information from the interviews was incorporated with findings from the quantitative analysis aimed at providing more context to the findings. Comments and suggestions that were obtained from various stakeholders during preliminary results validation meetings were also addressed in subsequent analyses.

Appendix 4: Distribution of Health Facilities and Health Workers in Zambia

Table A.4: Distribution of Health Facilities in Zambia by Province

Province	No. of Health Facilities by Levels of Care							Total Health Facilities
	TLHs	SLHs	FLHs	Clinics	UHCs	RHCs	HP	
Central	0	2	8	6	37	108	105	266
Copperbelt	3	9	13	11	216	56	130	438
Eastern	0	1	9	0	11	163	135	319
Luapula	0	2	8	0	7	135	65	217
Lusaka	6	4	19	0	279	66	99	473
Muchinga	0	4	2	0	10	70	53	139
Northern	0	3	5	0	13	94	69	184
North-Western	0	2	11	0	12	155	68	248
Southern	1	5	9	0	58	169	106	348
Western	0	2	13	0	16	145	123	299
Zambia	10	34	97	17	659	1161	953	2931

Source: MoH (2017).

Note: TLH = third-level hospital; SLH = secondary-level hospital; FLH = first-level (district) hospital; UHC = urban health center; RHC = rural health center; HPs = health posts.

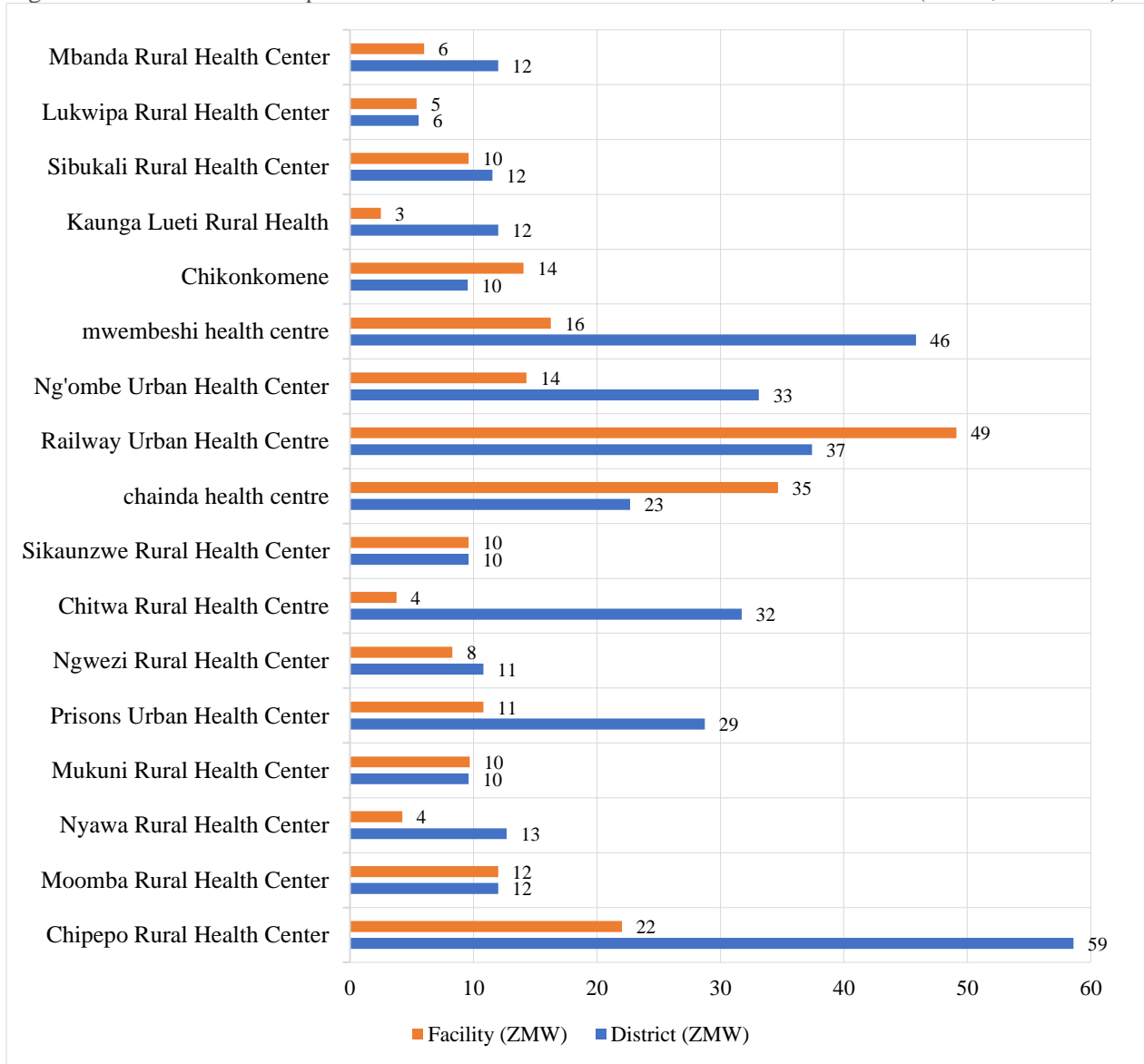
Table A.5: Health Workers In-post and Distribution per 10,000 Population

Staff Category	Staff In-post 2016	Per 10,000 Population 2016	Staff In-post 2017	Per 10,000 Population 2017
Clinical officer	1,814	1.1	2,617	1.6
Dentist	312	0.2	428	0.3
Doctor	1,514	1.0	1,856	1.1
Nurse	11,666	7.3	14,616	8.9
Midwife	3,141	2.0	3,432	2.1
Environmental	1,796	1.1	2,016	1.2
Laboratory	921	0.6	1,602	1.0
Nutrition	202	0.1	404	0.2
Pharmacy	1,159	0.7	1,570	1.0
Radiography	419	0.3	602	0.4
Physiotherapist	432	0.3	623	0.4
Teaching	0	0.0	448	0.3
CHA	720	0.5	1,262	0.8
Other health worker (admin)	19,254		19,033	
Total	43,350		50,509	

Source: MoH (2018b) and MoH human resources database.

Appendix 5: Disbursements at Health Centers and FTE Staff

Figure A.1: Variances in Reported Disbursements between DHO and Health Centers (ZMW, thousands)



Source: Authors' compilation from survey data.

Table A.6: FTE Staff Productivity Loss Per Month by District and Province

Province	District	FTE
Lusaka	Chilanga	1.08
	Chirundu	0.08
	Chongwe	0.48
	Kafue	0.71
	Luangwa	0.39
	Lusaka	0.47
	Rufunsa	0.95
	Shibuyunji	0.03
Provincial Subtotal of FTE Productivity Loss		4.19
Southern	Chikankata	0.09
	Choma	0.02
	Gwembe	0.09
	Kalomo	0.06
	Kazungula	0.02
	Livingstone	0.00
	Mazabuka	0.06
	Monze	0.02
	Namwala	0.17
	Pemba	0.48
	Siavonga	1.35
	Sinazongwe	0.00
	Zimba	0.03
Provincial Subtotal of FTE Productivity Loss		2.39
Western	Lukulu	0.52
	Kalabo	0.39
	Kaoma	0.26
	Limulunga	0.39
	Luampa	0.26
	Mongu	0.23
	Mulobezi	0.20
	Mwandi	0.14
	Nalolo	0.58
	Nkeyema	0.06
	Senanga	0.86
	Sesheke	0.76
	Shangombo	0.05
	Sikongo	0.11
Sioma	0.12	
Provincial Subtotal of FTE Productivity Loss		4.93

Source: Authors' compilation from survey data.

