

policy



MINISTRY OF HEALTH

July 2014

PUBLIC
EXPENDITURE
TRACKING SURVEY
IN KENYA, 2012
(PETS-PLUS)



Suggested citation: Onsomu, E., D. Muthaka, G. Mwabu, O. Nyanjom, A. Dutta, T. M. Maina, C. Barker, and S. Muchiri. 2014. *Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)*. Washington, DC: Futures Group, Health Policy Project; and Nairobi, Kenya: Kenya Institute for Public Policy Research and Analysis.

ISBN: 978-1-59560-041-7

The Health Policy Project is a five-year cooperative agreement funded by the U.S. Agency for International Development under Agreement No. AID-OAA-A-10-00067, beginning September 30, 2010. The project's HIV-related activities are supported by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). It is implemented by Futures Group, in collaboration with Plan International USA, Futures Institute, Partners in Population and Development, Africa Regional Office (PPD ARO), Population Reference Bureau (PRB), RTI International, and the White Ribbon Alliance for Safe Motherhood (WRA).

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

JULY 2014

This publication was prepared by staff of the Kenya Institute for Public Policy Research and Analysis (KIPPRA) and staff of the Health Policy Project.

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CONTENTS

| | |
|---|-----------|
| Acknowledgments | vi |
| Executive Summary | vii |
| Study findings | vii |
| Policy recommendations | ix |
| Abbreviations..... | xii |
| 1. Background and Context | 1 |
| 1.1 Objectives of PETS-Plus..... | 1 |
| 1.2 Kenya’s healthcare system..... | 2 |
| 1.3 The health system’s structure and norms | 3 |
| 1.4 Healthcare financing | 4 |
| 2. Method | 5 |
| 2.1 Sampling | 5 |
| 2.2 Data collection | 7 |
| 3. Findings on Service Delivery | 9 |
| 3.1 Healthcare service provision..... | 9 |
| 3.2 Healthcare utilization | 10 |
| 3.3 Quality of service delivery | 12 |
| 3.4 Summary of findings on service delivery | 30 |
| 4. Findings on Health Revenues and Expenditures | 31 |
| 4.1 Implementation of the 10/20 policy | 31 |
| 4.2 Implementation of the health sector services fund..... | 37 |
| 4.3 Kenya medical supplies agency “drawing rights”..... | 42 |
| 4.4 Other sources of revenue for public facilities, 2011–2012 | 43 |
| 4.5 Expenditure patterns of health facilities, 2011–2012..... | 44 |
| 4.6 Planning and financial management | 47 |
| 4.7 Summary of health revenues and expenditures..... | 52 |
| 5. Conclusions and Policy Implications | 54 |
| 5.1 Recommendations for county governments..... | 54 |
| 5.2 Recommendations for the national government | 55 |
| 5.3 Key recommendations for all stakeholders | 55 |
| Appendix 1: Additional Information..... | 57 |
| Modules of the survey instrument..... | 57 |
| Disease management..... | 57 |
| Tracer drug list..... | 58 |
| Diagnostic outcomes by questions asked..... | 58 |
| Maternal and newborn complications | 59 |
| Appendix 2: Additional Tables for Chapter 3 | 60 |
| Appendix 3: Additional Tables for Chapter 4 | 75 |

LIST OF TABLES

| | |
|---|----|
| Table 1-1: Defining Activities in the KEPH Service Delivery Framework..... | 3 |
| Table 2-1: Regional and Facility Distribution of the Survey Sample..... | 6 |
| Table 2-2: Characteristics of the Health Facility Sample | 7 |
| Table 3-1: Average Level of Service Delivery by Facility Type..... | 9 |
| Table 3-2: Outpatients, Inpatient Bed Days, and Deliveries..... | 10 |
| Table 3-3: Caseload per Clinician per Day | 11 |
| Table 3-4: Facilities with Basic Infrastructure (%)..... | 13 |
| Table 3-5: Availability of Types of Toilet Facilities for Patients (%) | 14 |
| Table 3-6: Availability of Basic Facility Equipment (%) | 15 |
| Table 3-7: Availability of Basic Equipment by Facility and Region (%)..... | 16 |
| Table 3-8: Access to Electronic Communications Equipment (%)..... | 17 |
| Table 3-9: Average Availability of Ambulance Services and Fuel (%) | 17 |
| Table 3-10: Availability of Drugs at Facilities, Adjusted for Facility Type (%)..... | 19 |
| Table 3-11: Staff Absence by Geography, Facility Type, and Ownership (%) | 23 |
| Table 3-12: Staff Absenteeism, by Cadres (%)..... | 23 |
| Table 3-13: Relating Correctness of Diagnostic Process and Action Taken (%) | 27 |
| Table 3-14: Assessing Correctness of Diagnosis by Service Provider (%) | 27 |
| Table 3-15: Adherence to Clinical Guidelines Across Facilities and Cadres (%) | 28 |
| Table 4-1: Adherence to the 10/20 Policy, by Services Provided (%)..... | 33 |
| Table 4-2: User Fees Charged (Ksh), by Facility Type, Fee Exempt Service, and Implementation of the 10/20 Policy | 33 |
| Table 4-3: Average User Fee Charges, by Service and Facility Type (Ksh)..... | 35 |
| Table 4-4: Adherence to HSSF Guidelines, by Facility Type | 38 |
| Table 4-5: Shares of All Sources in Facility Revenues, 2011–2012..... | 43 |
| Table 4-6: Availability of QIPs and Involvement of an HFMC in Planning | 47 |
| Table 4-7: Share of Facilities with HFMCs (%) | 50 |
| Table 4-8: Presence of Key Management Subcommittees (%) | 51 |
| Table A–3-1: Average Level of Service Delivery by Facility Type, Region, and Ownership | 60 |
| Table A–3-2: Healthcare Utilization..... | 61 |
| Table A–3-3: Caseload per Clinician Day | 63 |
| Table A–3-4: Availability of Infrastructure | 63 |
| Table A–3-5: Availability of Equipment | 64 |
| Table A–3-6: Availability of Communications Equipment | 66 |
| Table A–3-7: Availability of Drugs | 67 |
| Table A–3-8: Percentage availability of mothers’ drugs,by facility type | 69 |
| Table A–3-9: Percentage Availability of Children’s Drugs, by Facility Type | 69 |
| Table A–3-10: Absenteeism..... | 70 |
| Table A–3-11: Diagnostic Accuracy..... | 71 |
| Table A–3-12: Quality of Diagnostic Process | 72 |
| Table A–3-13: Diagnostic Outcomes by Questions Asked: Acute Diarrhea with Severe Dehydration | 74 |
| Table A–4-1: Reasons for Not Implementing the 10/20 Policy..... | 75 |
| Table A–4-2: Facilities Involving Health Facility Management Committee in Work Planning | 77 |
| Table A–4-3: Distribution of Financial Management Tools From National Level | 77 |
| Table A–4-4: Share of Facilities with a Designated Financial Accounting Officer | 79 |
| Table A–4-5: Staff Responsible for Financial Accounting..... | 79 |
| Table A–4-6: Frequency of Health Facility Management Committee Meetings (%) | 82 |
| Table A–4-7: Proportion of Facilities with Various Subcommittees in Place and Operational..... | 83 |

LIST OF FIGURES

| | |
|--|----|
| Figure 3-1: Distribution of Caseload by Number of Workers per Facility | 12 |
| Figure 3-2: Distribution of Water Sources by Facility Status (%)..... | 14 |
| Figure 3-3: Average Access to Communications Equipment (%)..... | 16 |
| Figure 3-4: Purpose of Last Trip of Ambulance | 18 |
| Figure 3-5: Availability of Key Maternal and Child Health Drugs (%) | 19 |
| Figure 3-6: Facility Availability of Vaccines and Related Management Items (%)..... | 20 |
| Figure 3-7: Drug Availability by Procurement Mechanism: Push vs. Pull Facilities (%)..... | 21 |
| Figure 3-8: Comparing Drug Purchases by Push vs. Pull Facilities (%) | 22 |
| Figure 3-9: Absence Rate, by Cadre and Facility Type | 23 |
| Figure 3-10: Factors Explaining Staff Absence..... | 24 |
| Figure 3-11: Assessing Correctness of Diagnosis by Service Provider (%)..... | 25 |
| Figure 3-12: Rate of Correct Diagnosis across Facilities (%)..... | 26 |
| Figure 3-13: Correct Diagnosis by Illness or Condition (%)..... | 26 |
| Figure 3-14: Clinical Knowledge: Maternal and Newborn Complications (%) | 29 |
| Figure 3-15: Adherence to Processes for Maternal and Newborn Complications (%)..... | 29 |
| Figure 4-1: Awareness of 10/20 Policy across Public Facilities..... | 32 |
| Figure 4-2: Health Centers and Dispensaries Implementing the 10/20 Policy (%) | 32 |
| Figure 4-3: Reasons for not Implementing the 10/20 Policy (%) | 34 |
| Figure 4-4: Average User Fees in Public and Private Facilities, 2011–2012 (Ksh) | 37 |
| Figure 4-5: Shares of Facilities Receiving HSSF Funding, 2011–2012 (%)..... | 38 |
| Figure 4-6: Average HSSF Disbursements to Health Centers in 2011–2012 (KSh Thousands)..... | 39 |
| Figure 4-7: Delays in Facility Receipt of 2011–2012 HSSF Resources (Percentages of Facilities by Number of Days)..... | 40 |
| Figure 4-8: Quarterly Shares of HSSF Reaching Public Facilities, 2011–2012 | 41 |
| Figure 4-9: Shares of HSSF Reaching Public Dispensaries and Health Centers, 2011–2012 | 41 |
| Figure 4-10: Comparing User Fees and HSSF/HMSF Revenues in Public Facilities, 2011–2012 | 42 |
| Figure 4-11: Status of Drawing Rights for Drugs and Medical Supplies, 2011–2012 | 43 |
| Figure 4-12: Composition of User Fees Spending in Public Facilities, 2011–2012 | 45 |
| Figure 4-13 HSSF and HMSF Spending by Public Facilities, 2011–2012..... | 46 |
| Figure 4-14: Distribution of Financial Management Tools from National Level, All Facilities (%)..... | 48 |
| Figure 4-15: Facilities Sharing Financial Information with Their Communities (%)..... | 49 |
| Figure 4-16: Inclusion of Community Representatives in HFMCs | 51 |

ACKNOWLEDGMENTS

The authors and the Kenya Institute for Public Policy Research and Analysis (KIPPRA) are grateful to the World Bank and the Ministry of Health for commissioning the study and the Health Policy Project (HPP), funded by the United States Agency for International Development, for technical support and financing the data collection activities under this project.

We gratefully acknowledge Gayle Martin, Obert Pimhidzai, and Chris Rockmore of the World Bank (Service Delivery Indicators) for their technical input; and Elkana Onguti and David Njuguna of the Ministry of Health for policy guidance. Dr. John Omiti, Executive Director (KIPPRA), and Dr. Eric Aligula, Programmes Coordinator (KIPPRA), provided technical guidance during the process of writing this report. The KIPPRA research team comprised Prof. Germano Mwabu (Principal Investigator), Othieno Nyanjom, Eldah Onsomu, David Muthaka, Phares Mugo, and a group of dedicated research assistants who were very effective during data collection and entry. The HPP team consisted of Stephen Muchiri, Program Director, and Thomas Maina, Senior Health Financing Advisor, both of HPP/Kenya. They were supported by headquarters-based HPP technical staff: Arin Dutta (Senior Economist) and Catherine Barker (Research Associate). While every effort has been made to verify the information in this report at the time of writing, the authors alone retain responsibility for the accuracy of the views expressed.

EXECUTIVE SUMMARY

PETS-Plus combines a public expenditure tracking survey (PETS) and a service delivery indicator (SDI) survey. Recently in Kenya, PETS-Plus was conducted to assess the overall service delivery performance of primary health facilities and hospitals and also the impact of some key policy reforms aimed at improving the delivery of essential health services. Consequently, the survey collected facility-based and other data on service delivery performance at dispensaries, health centers, and hospitals (i.e., health facilities at levels two through four). PETS-Plus focused on analyzing the effectiveness of key policies that resulted from previous PETS studies: the Health Services Sector Fund (HSSF) transfer grant to primary health facilities; the Hospital Management Service Fund (HMSF), which makes direct transfers to public hospitals; performance of the 10/20 Policy, which replaced user fees with registration fees of Kenya shillings (Ksh) 10 at dispensaries and Ksh 20 at health centers; and a new drug distribution system. The survey data have been used to analyze and report on the following issues:

- Current status of service quality performance using standard assessment tools
- Implementation of key policy reforms to improve service delivery
- Extent to which the allocated resources are being used for intended purposes (as per the quarterly implementation plans and authority to incur expenditure)
- Compliance of the program with procedures established under the reform initiatives
- The contribution (if any) made by the reform in improving service quality

The study was designed and implemented as a collaborative effort between the Kenya Institute of Public Policy Research and Analysis, Health Policy Project, World Bank, Kenya Medical Research Institute, and Ministry of Health. Data were collected in November and December 2012 from 294 sampled health facilities in 15 counties.

Study Findings

Service delivery

Infrastructure: Just over half of the facilities (57%) had all three components of basic infrastructure examined in this study. The differential between urban and rural public facilities was 10 percentage points. Seventy-three percent of the facilities had electricity. Water and toilets were widely available, but a minority of facilities had water from secure sources or flush toilets.

Equipment: On medical equipment, PETS-Plus developed two availability indicators. Indicator 1 (stethoscope, scales, thermometer, and sphygmomanometer) returned an 80-percent score and indicator 2 (which added a refrigerator and sterilizer to the equipment under indicator 1) returned a 78-percent score. The weighing scale was most widely available, and the refrigerator was also widely available across public facilities, underscoring support for immunization. The level of functionality of this equipment was 90 percent. The study also found that 79.1 percent of all facilities had a basic set of communication equipment. The mobile phone was the most common (74.8%), but only 20.4 percent of facilities had a computer and just 14 percent had access to the internet.

Medicines: Most of the 51 percent of facilities with the selected drug supplies were private and urban. Availability was also greater at hospitals than at the health centers and dispensaries, which may limit certain populations' access to drugs. While 78 percent of the facilities had the eight drugs for children, only 59 percent had the 14 drugs for mothers. These results varied across facility categories, with "pull" facilities (facilities that demand specific drugs according to needs) generally having more priority drugs

available than “push” facilities (which receive packages of drugs regardless of need). Even with this greater availability, “pull” facilities experienced a 75-day delay on average in receiving their orders from the Kenya Medical Supplies Agency, with rural facilities and health centers experiencing the longest delays. To make up for shortages in drug supply, most facilities purchased out-of-stock supplies from the open market. Finally, the distribution of vaccines was widespread but the supply was erratic.

Human resources: The average caseload across all facilities was nine patients per clinician per day, with a slight discrepancy between public and private and urban and rural facilities. The facility absence rate (based on roster entries) stood at 27.5 percent, with a peak of 41.9 percent in rural public health centers. However, 88 percent of absences were sanctioned by colleagues or supervisors.

Doctors were most accurate in diagnosis (85.4%, compared to 69.8% for nurses). However, this competence was selective. Although 97 percent achieved a correct diagnosis for tuberculosis, only a modest 35 percent were accurate in diagnosing malaria with anemia. One explanation for the weak diagnostic performance may be that only 43.7 percent of clinicians—61.2 percent of the doctors and 40.3 percent of the nurses—followed the ministry’s diagnostic guidelines. Although doctors led in correct diagnosis and actions taken, they prescribed full treatment in only 54 percent of treatment cases.

Table ES-1: Key Findings

| Service Delivery | Percentage of All Facilities |
|---|------------------------------|
| Basic infrastructure | 57 |
| Minimum functioning equipment | 77 |
| Essential medicines availability | 67 |
| Staff absence rate | 28 |
| Health Financing | |
| Compliance with 10/20 Policy | 45 |
| Ratio of user fee revenue vs. HSSF funding (public facilities only) | 2.8 |
| User fees do not meet needs | 47 |
| No financial management tools | 24 |

Health financing

Adherence to the 10/20 Policy: While the 10/20 Policy of 2005 had restricted dispensary and health center registration fees to KShs10 and 20, respectively, this study found that of all public facility managers, only about 72 percent were aware of the policy. About 70 percent of this group were health center and dispensary managers. Of the facilities whose managers were aware of the policy, 14 percent were not implementing it. Some explained this by reporting that HSSF funds were inadequate to cover operational costs; others said they thought that households in their catchment areas could afford to pay for services. Still others reported that they imposed fees on the advice of their facility committees. Besides charges for registration, other violations also occurred in fee-exempt services, such as charging for antenatal care attendance, children-under-five services, and HIV and AIDS services.

Revenues generated from user charges in private facilities were more than double those raised in public facilities, even after the government had compensated public facilities for revenues lost through exemptions and waivers. Poor data undermined this study’s analysis of the roles of the National Hospital

Insurance Fund and such decentralized funds as the Constituency Development Fund. Even so, the public/private revenue gap underscores the country's need for a sustainable national social health insurance fund.

HSSF: About 76 percent of the dispensaries received HSSF resources, compared to 94 percent of health centers. The survey found uneven disbursements to the public facilities in 2011/2012. Disbursement delays average between 40 and 80 days. Furthermore, on average, public dispensaries received 79 percent of allocations due them, in comparison with health centers, which received 110 percent (more than their due, if the accuracy of their records can be trusted).

Comparing user fees to HSSF: PETS-Plus found that user fee revenues were greater than HSSF and HMSF revenues for dispensaries, health centers, and hospitals. For instance, user fees accounted for 53 percent of annual revenue for health centers and dispensaries and 70 percent for that of hospitals. These disparities indicate that HSSF and HMSF resources are inadequate to cover all of the facilities' costs.

Analyzing expenditures: On average, the spending in 2011–2012 of private nonprofit facilities exceeded that of public facilities. Indeed, the five top public-expenditure lines amounted to a mere quarter of the Ksh 4.5 billion that private nonprofit facilities spent. On user fee revenues, hospitals prioritized medical supplies, food and rations, and drugs. Drugs were the top priority for health centers and casual labor for dispensaries. On government resources, hospitals primarily focused HMSF spending on food and rations and motor vehicle maintenance, and they made a modest allocation to drugs. For HSSF, the health centers' leading priority was training, followed by medical supplies; for dispensaries, it was maintenance of the physical plant and machinery. Overall, HMSF and HSSF spending for 2011–2012 did not prioritize health consumables (i.e., drugs and nondrug supplies). However, the total spending picture reflects potentially inadequate government budget allocations—hence the heavy focus on casual labor, food and rations, and drugs.

Financial planning and management: On average, 70 percent of facilities developed quarterly implementation plans; this group consisted mainly of public facilities and was dominated by hospitals rather than staff-constrained dispensaries. One-third of facilities with plans (especially those that were private, rural dispensaries) did not implement them. However, implementation was also hampered by delayed approval from the district health office.

An average of 24 percent of public facilities did not have financial management tools, including official receipt and cashbooks and payment vouchers. However, almost all had a designated person for financial accounting, even if the person was untrained.

Almost all facilities had a health finance management committee, or HFMC (96%), and involved the committee in preparing plans (91%). Private facilities were less likely than public facilities to have an HFMC, involve it in planning, and share financial information. Inclusion in HFMC membership was marginally democratic, through elections, but at other sites the appointment of HFMC members by local leaders—and ministry nominations to urban hospitals—likely provides a scope for parochial decisions in the committee.

Policy Recommendations

The results of this study have implications for the devolution (transfer of power) of healthcare to county governments in Kenya, for the implementation of two new health financing policies (abolition of user fees in health centers and dispensaries and free maternal health services), and for Kenya's move toward universal healthcare.

In general, the findings reveal inadequacies in service delivery and financing, which may limit facilities' ability to adapt to these changes. The high rates of noncompliance with the 10/20 Policy indicate that user fees may not be dropped with the introduction of the two new policies. Also, counties will face difficulty in improving the quality of service delivery unless the availability of drugs, basic infrastructure, and other key inputs is significantly increased. Last, the discrepancies between urban and rural and private and public facilities indicate that there is significant room for growth in accessible and affordable care to all Kenyans.

Based on these results, the following are top priorities for counties:

1. *Increase the availability of drugs:* At all levels of facilities, the availability of drugs—particularly maternal drugs—is inadequate. Counties should consider allocating enough funds for essential drugs and source them from the Kenya Medical Supplies Agency on an as-needed basis.
2. *Improve human resource capacity:* Counties can reduce absenteeism by granting less time off, ensuring close staff supervision, and redeploying staff to facilities with shortages. Clinicians lack knowledge and diagnostic accuracy, and need more opportunities for training in the use of clinical guidelines. The Ministry of Health should consider reviewing training curricula to ensure that future medical students have the skills they need. In-house training should be mandatory for existing clinical staff, particularly in areas identified as weak.
3. *Scale up use of electronic equipment:* Access to computers and the internet is essential as Kenya moves toward electronic data collection for its health management information system. The Ministry of Health should consider scaling up access to computers and the internet to enhance health facility-based business processes.

The study's results point to the following priorities for the national government:

1. *Increase awareness of new policies and monitoring of facilities:* Eight years after the 10/20 Policy was implemented, just 70 percent of facilities were aware of it, and adherence to the policy was low, particularly among dispensaries. Without oversight and punitive policies, the rate of adherence to the policy will remain low. The ministry should consider restoring courses on health-sector policies for new staff.
2. *Ensure timely and accurate delivery of HMSF/HSSF funds by strengthening community involvement and capacity for financial management:* Financial personnel should be trained and skilled in preparing the documents required to allocate and disburse funds. More financial tools should be made available to facilities as well. The creation of more financial management subcommittees under an HFMC, particularly at dispensaries, can make it easier for facilities to manage their revenues and expenditures.
3. *Increase funding available to facilities:* Facilities may hesitate to cut user fees unless additional money is provided through HSSF/HMSF and the Kenya Medical Supplies Agency for procurement of medical supplies. Patterns in user fees versus HSSF and HMSF expenditure reveal that only certain areas may lack sufficient funding, such as drugs.

Below are recommendations for all stakeholders as Kenya moves toward universal healthcare:

1. *Reduce inequities in who is covered (breadth) by focusing on service delivery at dispensaries and/or clinics (Level 2) and health centers, maternities, and nursing homes (Level 3):* Additional investments in human resources at these facilities, along with rural and public facilities, could significantly increase the number of people receiving care.

2. *Increase the capacity of facilities to provide services:* Provide key inputs to achieve universal health coverage. Lack of basic infrastructure, medical equipment, and drugs hinders facilities' ability to provide more services.
3. *Speed up facilities' implementation of new health financing policies to reduce the financial burden on patients:* The new policies need to be widely enforced to protect vulnerable populations from financial risk.

ABBREVIATIONS

| | |
|-------|--|
| AIE | authority to incur expenditure |
| ANC | antenatal care |
| AOP | annual operational plan |
| CDF | Constituency Development Fund |
| DHMT | district health management team |
| EMMS | essential medicines and medical supplies |
| HFMC | health facility management committee |
| HMIS | health management information system |
| HMSF | Hospital Management Services Fund |
| HSSF | Health Sector Services Fund |
| KEMSA | Kenya Medical Supplies Agency |
| KEPH | Kenya Essential Package for Health |
| KEPI | Kenya Expanded Programme on Immunization |
| KHPF | Kenya Health Policy Framework |
| KNHA | Kenya National Health Accounts |
| Ksh | Kenya shilling |
| MOH | Ministry of Health |
| NGO | nongovernmental organization |
| NHIF | National Hospital Insurance Fund |
| NHSSP | National Health Sector Strategic Plan |
| PETS | public expenditure tracking survey |
| QIP | quarterly implementation plan |
| SDI | service delivery indicator |
| TB | tuberculosis |
| THE | total health expenditure |
| UHC | universal health coverage |
| VIP | ventilated improved pit |
| WHO | World Health Organization |

1. BACKGROUND AND CONTEXT

Social services, particularly healthcare, are important for improving a population's human capital. Healthcare augments other contributors to health status, such as one's lifestyle, social and work relations, and the general environment in which one resides. In resource-constrained countries, healthcare delivery must be cost-effective. Governments such as Kenya's recognize that the service delivery indicator (SDI) survey and public expenditure tracking survey (PETS) yield data on which the optimal delivery of healthcare depends. This report is the product of a combined SDI and PETS study—dubbed PETS-Plus—undertaken in a sample of Kenyan counties and health facilities in November and December 2012.

It is important to collect information on the key inputs available for the provision of essential care at health facilities, in addition to monitoring the care itself. Although a majority of the population may have little or no access to private, for-profit healthcare, these private providers play a significant role in augmenting public healthcare. Therefore, information on private providers' inputs, the services they facilitate, and consumption of these services can be taken as service delivery indicators, which can guide policymakers on improvements in basic services needed at the facility level, where the health system and the population come into contact.

PETS gathers information on the flow of health inputs from higher levels of the system to health facilities and their staff. This resource flow is typically in the form of budgeted and nonbudgeted public health expenditures, invariably augmented by private household and corporate sources.¹ The data gathered on public and private health revenues and expenditures can be used to track the flow of inputs and evaluate their timeliness and the timeliness of services. Thus, the SDI survey and the PETS reported here complement each other in monitoring the provision of timely and high-quality health services. In such surveys, the units of the analysis are health facilities and health workers, rather than the general population that uses the healthcare services.

Kenya has periodically undertaken PETS analyses to inform annual sectoral public expenditure reviews, which it conducts ahead of the annual budget-making process. The health sector to date has experienced four PETS, which have made significant contributions to policy reforms. For example, the surveys in 2007, 2008, and 2009 resulted in the introduction of the 10/20 Policy capping facility fees, the Health Sector Services Fund (HSSF) framework for resource flows to facilities, and the adoption of a “pull” system that enables facilities to set priorities for the acquisition of drugs and nonpharmaceutical supplies. A consultation between the Ministry of Health (MOH) and key stakeholders in 2011 identified the need to better understand the contributions of these reforms to the public health service. Consequently, in 2012, an SDI survey was incorporated alongside the traditional PETS for the first time; hence PETS-Plus, which assesses overall service delivery performance of primary health facilities and district hospitals and contributes to an assessment of the performance of some key policy reforms aimed at improving the delivery of essential health services.

1.1 Objectives of PETS-Plus

The main objective of this study was to assess overall service delivery performance of primary health facilities and district hospitals in Kenya and the impacts of some key policy reforms aimed at improving the delivery of essential health services. Consequently, the survey collected facility-based and other expenditure data on service delivery performance at dispensaries, health centers, and district hospitals using quantitative survey instruments (see Section 2). The study analyzed data on the flow of funds in HSSF and HMSF transfer grants to public health facilities, in the performance of the 10/20 Policy (which

¹ Public expenditure often is seen as the primary source of health funding in the public health sector. However, private sources are also important (Section 4)—a fact that raises concerns about equity in payment for and access to healthcare.

replaced user fees with registration fees of Kenya shillings (Ksh) 10 at dispensaries and Ksh 20 at health centers), and in the new drug distribution system to determine the following:

- The current status of service quality performance using standard assessment tools
- The implementation of key policy reforms to improve service delivery
- The extent to which the allocated resources are being used for intended purposes, as dictated by quarterly implementation plans (QIP) and authorities to incur expenditure (AIEs)
- The compliance of a program with procedures established under the reform initiatives
- The contribution (if any) made by the reform in improving service quality

This section describes health services delivery in Kenya. Section 2 explains the study's method, which was influenced by the design of SDI studies piloted in Tanzania and Senegal.² Consequently, much of the PETS-Plus data are analyzed as averages. Section 3 presents the findings of the SDI component of the study, covering the state of provision, delivery, and utilization of care. It also addresses the availability and functionality of medical and other facility equipment and the availability of drugs and nonpharmaceutical supplies. Finally, it offers information on staff: their attendance at facilities and their clinical knowledge. Section 4 presents the PETS findings, comparing facilities' revenues from user fees with budgeted government resources. It also analyzes facility spending patterns and the performance of financial and facility management tools. Section 5 draws conclusions and highlights some implications.

1.2 Kenya's Healthcare System

Kenya's first health policy, the Kenya Health Policy Framework (KHPF), developed in 1994, guided healthcare management until 2011. KHPF's focus was largely on healthcare. The follow-up Kenya Health Policy 2012–2030 (draft) attempts to redress this historical oversight, by incorporating other aspects of health status.

The policy has the following principles:

- Equity in the distribution of health services and interventions
- People-centered approach to health and health interventions
- Participatory approach to delivery of interventions
- Multisectoral approach to realizing health goals
- Efficient application of health technologies
- Social accountability

The policy has the following objectives:

- Eliminate communicable conditions
- Halt and reverse the rising burden of noncommunicable conditions
- Reduce the burden of violence and injuries
- Provide essential healthcare
- Minimize exposure to health risk factors
- Strengthen collaboration with other sectors that have an impact on health

The last objective—collaboration—links directly to the policy's principle of a multisectoral approach.

² See African Economic Research Consortium. 2011. *Service Delivery Indicators: Pilot in Education and Health Care in Africa*. Available from <http://www.africportal.org/dspace/articles/service-delivery-indicators-pilot-education-and-health-care-africa>.

The basic healthcare delivery framework under the new policy remains the Kenya Essential Package of Health (KEPH), inherited from the previous National Health Sector Strategic Plan (NHSSP).

1.3 The Health System's Structure and Norms

In 2008, a restructuring of Kenya's cabinet led to a split of the health ministry into the Ministry of Public Health and Sanitation, responsible for primary healthcare at Levels 1–3 of the public health system; and the Ministry of Medical Services, responsible for medical services provided primarily at Levels 4–6 (Table 1-1). The services provided at Levels 1–4, which are the focus of the PETS-Plus reported here, are summarized in this table and also discussed in Section 2. In May 2013, the two ministries were merged into one Ministry of Health. Like other ministries, the MOH currently is undergoing reorganization to align itself with the provisions of the 2010 Constitution and the county government system.

The KEPH service-delivery structure is essentially a referral system that requires community health units (Level 1) to try to cope with healthcare needs with their own resources and to refer cases, if necessary, to the next level of care: the dispensary (Level 2), which can in turn refer cases to the health center (Level 3). Table 1-1 also presents the respective catchment populations of the various levels of service delivery and activities.

Table 1-1: Defining Activities in the KEPH Service Delivery Framework

| Level | Catchment and Type of Care |
|--|--|
| Level 1: Community health unit: | Population of 5,000: 50 community workers; no support staff Role: Encourage healthy behavior and help the community to identify symptoms of conditions that need to be managed at other levels of care. |
| Level 2: Dispensaries and/or clinics | Population 10,000 (rural)–15,000 (urban): 4 nurses and community health workers; 4 support staff Role: Interface between the community and health system facilities. Deliver basic curative, promotive, preventative, and rehabilitative care; manage census and health records; conduct microplanning for annual work plans. Monitor delivery of community care. |
| Level 3: Health centers, maternities, nursing homes | Population 30,000–40,000: 35 health workers; 9 support staff Role: Provide back-up for Level 2 services, including logistical support (e.g., cold chain support for vaccine distribution) and information flow. Also provide outpatient care: minor outpatient surgery; oral health; emergency inpatient services; normal deliveries; and specific laboratory tests (routine lab, including malaria; smear test for tuberculosis; HIV testing). |
| Level 4: Primary hospitals (district and subdistrict hospitals) | Population 100,000 (rural)–200,000 (urban): 167 health workers; 22 support staff Role: Principal referral from Levels 1–3; clinical support supervision to and logistical support and information coordination for Levels 2–3; referral-level outpatient care, inpatient services, emergency obstetric care, oral health services, inpatient surgery, client health education, more specialized laboratory tests, and radiology services. |

Source: (Luoma et al., 2010: 74)³

³ Luoma, M., J. Doherty, S. Muchiri, T. Barasa, K. Hofler, L. Maniscalco, C. Ouma, R. Kirika, and J. Maundu. 2010. *Kenya Health System Assessment 2010*. Bethesda, MD: Health Systems 20/20 Project, Abt Associates, Inc.

For information on disease management, see Appendix 1.

1.4 Healthcare Financing

This study looked at the extent of compliance with healthcare financing reforms that were designed to reduce household financing burdens, but which might in other ways hamper access to healthcare.^{4,5}

Based on reported total health expenditure (THE) over three periods (2001–2002; 2005–2006; and 2009–2010), nominal health spending grew in absolute and per capita terms, according to the *Kenya National Health Accounts 2009/10* (KNHA).⁶ However, government health expenditures as a percentage of total government expenditures declined from 8 percent in 2001–2002 to 4.6 percent in 2009–2010. Consistent with the government’s under-performance on its commitment to the 2001 Abuja Declaration on HIV/AIDS, Tuberculosis and Other Related Infectious Diseases, in which Kenya along with other African countries pledged to devote at least 15 percent of its annual budget to improving its health sector, the public share of THE was unchanged over the three periods, at 29 percent. Meanwhile, the private share of THE fell by 20 percentage points (from 54% to 36.7%), while the donor share doubled, from 16.4 percent to 34.5 percent.

There was sustained growth in spending on prevention and public health (one of KNHA’s six functional health spending areas), rising from a 9 percent share of THE in 2001–2002 to 23 percent by 2009–2010. The increase was likely driven by enhanced donor commitments, which reduced the traditional resource focus on curative care. On the negative side, KNHA reports a weak commitment to capital investments, which might undermine the availability of facility equipment. Nonetheless, outpatient and inpatient care has dominated THE and will continue to do so in the foreseeable future.

Against the backdrop of the 10/20 Policy, KNHA reports that out-of-pocket spending has been the dominant health financing method, even though the share has declined. For example, while such spending accounted for 51 percent of all financing in 2001–2002, this share fell to 29 percent by 2009–2010, alongside a 10-percent decline in the share of health financing by government ministries. These falling shares can be related to increased donor financing through nongovernmental organizations (NGOs). Although a number of developing countries have instituted medical insurance models, enabling significant insurance contributions to healthcare financing, KNHA shows that, in the Kenyan context, both the private and public medical insurers play a relatively modest role. However, reforms by the public health insurer, the National Hospital Insurance Fund (NHIF), strive to expand the fund’s presence in the health market.

Finally, government procurement of pharmaceuticals and nonpharmaceutical supplies in Kenya is based on two distribution systems: the “push” and “pull” systems, which this study analyzes. The MOH disburses all budgeted resources—“drawing rights”—for pharmaceuticals and nonpharmaceutical supplies directly to the state-owned bulk purchaser, Kenya Medical Supplies Agency (KEMSA). In the push distribution system, which is applied in some Level-2 and -3 public health facilities, KEMSA delivers packages of supplies to facilities on a fixed schedule. The risk is that facilities will receive too many slow-moving items and not enough of the fast-moving ones. The advantage of the pull system, used by all public hospitals, is that facilities requisition only what they need at a particular time, although with this arrangement they risk delays in packaging and delivery.

⁴ Among the reforms are those to budget resource flows to facilities; the 10/20 Policy, capping dispensary fees at Ksh 10 and health center fees at Ksh 20; and the KEMSA-led initiative to convert all hospitals from the “push” to the “pull” system for the distribution of pharmaceutical and nonpharmaceutical supplies.

⁵ This is estimated to be the spending level required for the delivery of the Millennium Development Goals on child survival (goal 4), maternal health (goal 5), and the main diseases (goal 6), such as HIV, malaria, and TB.

⁶ Republic of Kenya (2010).

2. METHOD

2.1 Sampling

2.1.1 *Target population*

This study used a nationally representative sample of health facilities in Kenya's primary healthcare system. Interviews were conducted with 629 health workers at 294 facilities (dispensaries, health centers, outpatient departments of hospitals, and private, for-profit health facilities) within the same tiers of the public healthcare system. The units of analysis in this survey were the health facility, for indicators measuring inputs and resources at the health facility level; and health workers, for indicators measuring provider effort and competency.

2.1.2 *Sampling strategy*

A multistage cluster sampling strategy yielded 294 facilities to be surveyed. The sampling strategy was designed to produce nationally representative estimates and have a minimum power of 80 percent, with a 0.05 level of significance, for comparison of key service-delivery indicators. The sample strategy also allowed for disaggregation by geographic location (rural/urban), provider type (public/private), and facility type (dispensary, health center, and hospital).

In this sampling approach, 15 counties were selected at the first stage from among Kenya's 47. In the second stage, facilities were randomly selected by strata within each sampled county: four strata capturing ownership (public or private), by facility type—that is, primary level and district/subcounty hospitals. Of the 15 counties, five were selected intentionally: Nairobi (the capital) and Mombasa, because they are the two most populous cities, and Nyandarua, Nyamira, and Siaya, because of their baseline poverty rates and service delivery outcomes. The remaining 10 counties were identified first by stratifying the counties (by above- or below-median urbanization; then by above- or below-median poverty), and then by randomly selecting counties with probability in proportion to their population size. Table 2-1 shows the distribution of facilities in the sample across the selected counties.

Table 2-1: Regional and Facility Distribution of the Survey Sample

| | Facilities Targeted | | Number of Staff According to Facility Staff Roster | 2 nd Survey Visit | | |
|--------------|---------------------|--------------------|--|------------------------------|------------------------------|---|
| | Numbers Sampled | Percentage Covered | | Number of Staff in Sample | Number of Clinicians Covered | Percentage Distribution of Clinicians Covered |
| Bungoma | 19 | 100.0 | 300 | 155 | 63 | 10.02 |
| Homa Bay | 19 | 100.0 | 142 | 109 | 34 | 5.41 |
| Kilifi | 16 | 94.7 | 227 | 101 | 28 | 4.45 |
| Kirinyaga | 19 | 100.0 | 286 | 128 | 45 | 7.15 |
| Kitui | 19 | 100.0 | 125 | 94 | 40 | 6.36 |
| Makueni | 19 | 100.0 | 115 | 94 | 32 | 5.09 |
| Mombasa | 19 | 100.0 | 251 | 150 | 52 | 8.27 |
| Nairobi | 34 | 94.4 | 586 | 291 | 84 | 13.35 |
| Nakuru | 18 | 94.7 | 168 | 116 | 29 | 4.61 |
| Nyamira | 19 | 100.0 | 88 | 75 | 35 | 5.56 |
| Nyandarua | 19 | 100.0 | 170 | 97 | 31 | 4.93 |
| Siaya | 19 | 100.0 | 169 | 141 | 55 | 8.74 |
| Trans Nzoia | 17 | 89.5 | 205 | 121 | 34 | 5.41 |
| Uasin Gishu | 18 | 94.7 | 176 | 113 | 36 | 5.72 |
| West Pokot | 18 | 94.7 | 155 | 91 | 31 | 4.93 |
| Total | 294 | 97.4 | 3,163 | 1,876 | 629 | 100.00 |

Source: PETS-Plus survey data.

2.1.3 Weights

Some strata were over-sampled, to allow meaningful analysis at that level. To adjust for this over-sampling, inverse probability weights were generated and used to achieve an accurate representation of facility distribution by stratum at the national level. The actual number of facilities by category and their unweighted and weighted distributions are presented in Table 2-2. All results presented in this report are therefore based on inverse probability weights constructed to factor into account this sampling strategy, while all standard errors are based on clustering at the county level.

Table 2-2: Characteristics of the Health Facility Sample⁷

| Category | Number | Percentage | Weighted Distribution | National Distribution | |
|--|-------------|------------|-----------------------|-----------------------|------|
| Total sample size | 294 | 100 | 100 | 100 | |
| Location | | | | | |
| Rural | 207 | 70.4 | 85.4 | | |
| Urban | 87 | 29.6 | 14.6 | | |
| Ownership | | | | | |
| Government | 158 | 53.7 | 79.4 | 81.4 | |
| Nongovernment | Faith-based | 121 | 41.2 | 19.2 | 12.8 |
| | NGO | 15 | 5.1 | 1.4 | 5.8 |
| Facility Type: MOH classification | | | | | |
| Dispensaries | 102 | 34.7 | 78.6 | 76.6 | |
| Health centers and nursing homes | 147 | 50.0 | 15.2 | 17.0 | |
| Hospitals | 45 | 15.3 | 6.2 | 6.4 | |

Source: PETS-Plus survey data.

2.2 Data Collection

2.2.1 Data collection method

Data collection in the survey was done using paper-and-pencil, in-person interviews at the health facilities in the sample; the data then were entered using a double data-entry system. The data were collected over five weeks, starting in mid-November and ending in mid-December 2012. During this period, each facility in the sample was visited twice. The first visit was announced; the second was unannounced in order to collect information on absenteeism of health workers. Multiple respondents were interviewed at each facility. The primary respondents were the person/s in charge of the respective facilities, who provided information on facility characteristics and financing. Facility health workers gave information on attendance and clinical knowledge (see Appendix 1 for more information about the survey modules).

2.2.2 Data collection techniques

The methodological emphasis of the PETS-Plus data collection was observation, and the use of recall information was minimized. Responses to most of the questions were the enumerator's observations of the existence and functionality of specified medical equipment, materials, facility amenities, and drugs and supplies. The enumerator observed and recorded attendance of staff during the unannounced visit, while information on revenues and expenditures was completed largely from verified copies of AIEs issued by the MOH and invoices and vouchers belonging to the facility.

The clinical knowledge assessment was done using medical vignettes: patient case simulations.⁸ Short of employing "standardized patients," the use of medical vignettes is the best survey method for assessing clinical knowledge and evaluating the level and quality of service delivery. With this approach, one enumerator acted as a case patient presenting some putative symptoms, whom the clinician—having been informed of this exercise in advance—"examined." Another enumerator—who was a clinician—acted as

⁷ "Nongovernment" refers to private, nonprofit facilities.

⁸ See Jishnu, D., and J. Hammer. 2005. "Which Doctor? Combining Vignettes and Item-response to Measure Doctor Quality." *Journal of Development Economics* 78: 348–383.

the observer and was responsible for recording the responses. This study used seven vignettes covering the following conditions: acute diarrhea with severe dehydration, pneumonia, diabetes mellitus (Type II), pulmonary tuberculosis (TB), malaria with anemia, postpartum hemorrhage, and neonatal asphyxia. In each case, the clinician was assessed according to the following criteria: the questions posed in taking the patient's history, the scope of the physical examination, the tests recommended, the preliminary diagnosis, the treatment prescribed, and the health education offered.

3. FINDINGS ON SERVICE DELIVERY

In the context of healthcare, service delivery refers to the very wide range of interactions between health workers (clinicians and related technicians) and patients inside and outside of a health facility. Given the breadth of such interactions, an SDI survey typically focuses on a sample of key activities, which in this study is reported under the following subheadings: healthcare service provision, healthcare utilization, and quality of service delivery.

3.1 Healthcare Service Provision

“Provision of healthcare services” means making services available at points and in amounts considered accessible by the population that needs them. Among the many elements of provision, this study focused on the number of days and hours facilities are open and the availability of beds and antenatal rooms.

3.1.1 Numbers of hours or days of facility operation

The survey established that the average number of days per week that the facilities were open was six, as shown in Table 3-1 (see also Table A–3-1).⁹ Differences in this rate across public, private, urban, and rural facilities were negligible. However, as expected, dispensaries and health centers, on average, were open for fewer days than hospitals and were customarily closed over weekends, handling only emergencies.¹⁰

Table 3-1: Average Level of Service Delivery by Facility Type¹¹

| | All Facilities | Public | Private | Rural | Urban | Public Rural | Public Urban |
|--|----------------|--------|---------|-------|-------|--------------|--------------|
| Number of days per week facility is open | 5.9 | 5.8 | 6.1 | 5.9 | 6 | 5.8 | 5.8 |
| Number of inpatient beds available | 6.6 | 6.3 | 7.9 | 3.0 | 28.2 | 2.2 | 37.6 |
| Hours of outpatient consultation offered per day | 12.2 | 12.1 | 12.8 | 12 | 13.5 | 11.9 | 13.4 |
| Antenatal care room (%) | 23.9 | 22.7 | 28.1 | 23.5 | 26.4 | 23.3 | 18.4 |

The difference in the number of outpatient opening hours between public and private facilities was small. The most notable difference for all facility categories was the comparatively longer hours for the urban, public facilities than for the rural, public facilities. Differences in opening hours across facility types were greater, with public and private hospitals generally open for nearly twice the number of days as the two categories of dispensary (Table A–3-1). If we consider opening hours alone, then these findings suggest that access to healthcare services is better in urban areas than rural areas. However, other factors can also come into play that limit access to health services in urban areas (e.g., overcrowding).

Dispensaries, the nearest facilities to households, do not handle inpatient admissions (Table A–3-1). Public hospitals handle most inpatient admissions, and urban facilities are three times better equipped to

⁹ This and other appendix tables present additional findings from the analysis, including comparisons between comparable indicators, such as public vs. private and rural vs. urban. The standard errors of the estimates are also provided.

¹⁰ Information on this stand-by facility was offered by ministry personnel.

¹¹ The findings reported here do not always state the sample populations, since some tables contain combinations of indicators of varied sample sizes.

handle inpatients than rural ones. Effectively, households seeking inpatient healthcare have much better prospects in urban public facilities. The urban facilities' average for beds was 28 (about nine times the rural average), and the urban public facilities' average of 38 beds was nearly 20 times that of their rural counterparts.

With respect to maternal care, antenatal care (ANC) rooms were available in only 23.9 percent of the facilities, as reported in Table A-3-1. Across facility types, ANC rooms were most widely available in hospitals—primarily public facilities.

3.1.2 Staff mix

Kenya has a wide range of healthcare professionals in the public and private health sectors. Ostensibly, MOH norms guide public sector deployment, but the draft Kenya Health Policy 2012–2030 notes weak adherence to them. This study found that healthcare delivery is dominated by nurses, followed by clinical officers. Doctors are relatively few. The majority of the national population is rural; as a result, 58 percent of health personnel are stationed in rural areas.

3.2 Healthcare Utilization

Analyzing healthcare utilization can highlight issues of access and equity. As with the provision of healthcare services, there are many gauges of utilization. This subsection focuses on deliveries in light of the 2013 government policy to provide maternal healthcare free of charge at public facilities. Other indicators reported here are inpatient capacity, outpatient treatment, and caseloads per clinician. These indicators offer some insights into the efficiency of staff, given workload.

3.2.1 Number of deliveries

The average number of deliveries per facility over the three months prior to the survey varied greatly by facility type. Hospitals may provide more deliveries due to their larger catchment areas and capacity to handle them. On average, hospitals provided 125 deliveries per month, while health centers conducted about 16 per month. Most dispensaries do not offer deliveries, so only about one delivery per month, on average, was conducted at these facilities (Table A-3-2). There were more deliveries in urban facilities than rural ones, which is consistent with the higher number of hospital deliveries and the provision of ANC services (Table 3-2). Therefore, even though the government scrapped maternity fees in June 2013, it seems that women may still need money to travel to urban hospitals, where most deliveries are occurring. Comprehensive services are offered mostly in Level 4 facilities, which are generally located in urban centers.

Table 3-2: Outpatients, Inpatient Bed Days, and Deliveries

| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|--|-------|--------|---------|-------|-------|--------------|--------------|
| Inpatient bed days in the last 3 months | 289 | 302 | 240 | 113 | 1,339 | 86 | 1,981 |
| Number of deliveries in the last 3 months | 33 | 33 | 33 | 18 | 122 | 17 | 156 |
| Number of outpatient visits in the last 3 months | 2,027 | 2,023 | 2,040 | 1,530 | 4,938 | 1,562 | 5,619 |

3.2.2 Inpatient visits

Results from this study show that urban facilities received more inpatients over the three months preceding the survey than rural ones did (Table 3-2) and that urban public facilities received almost four times more inpatients than rural facilities did. The inpatient numbers were also marginally greater for public facilities than for private ones, but private health centers' burden (266) was about four times that of their public counterparts (61).

3.2.3 Outpatient visits

The numbers of outpatient visits to public and private facilities in the three months prior to the survey were similar. Urban facilities received many more outpatients during this period than rural facilities did (Table 3.2). This rural/urban imbalance also was reflected in the distribution of visits to public facilities: those in urban areas handled three times more outpatients than those in rural areas, chiefly owing to the high numbers seen in urban public hospitals. In rural areas, hospitals were busier than other types of facilities. In urban areas, public health centers had more visits than private ones did, but private dispensaries had more clients than public ones did.

3.2.4 Consultations per worker

This survey reviewed the curative outpatient caseloads for the various facility types and regions, where caseload is defined as the average number of patients that a health worker designated to undertake consultations—that is, a clinician—would see per day.¹² The average caseload across all facilities was nine patients per clinician per day; the rate was marginally greater in the private facilities (10 patients) than in the public ones (9 patients) (Tables 3-3 and A-3-3). The difference in caseload between rural and urban facilities was slight, with clinicians in rural areas seeing 8.8 patients compared to 10.2 in urban areas. The difference in caseload between public rural and public urban facilities followed the same pattern.

Table 3-3: Caseload per Clinician per Day

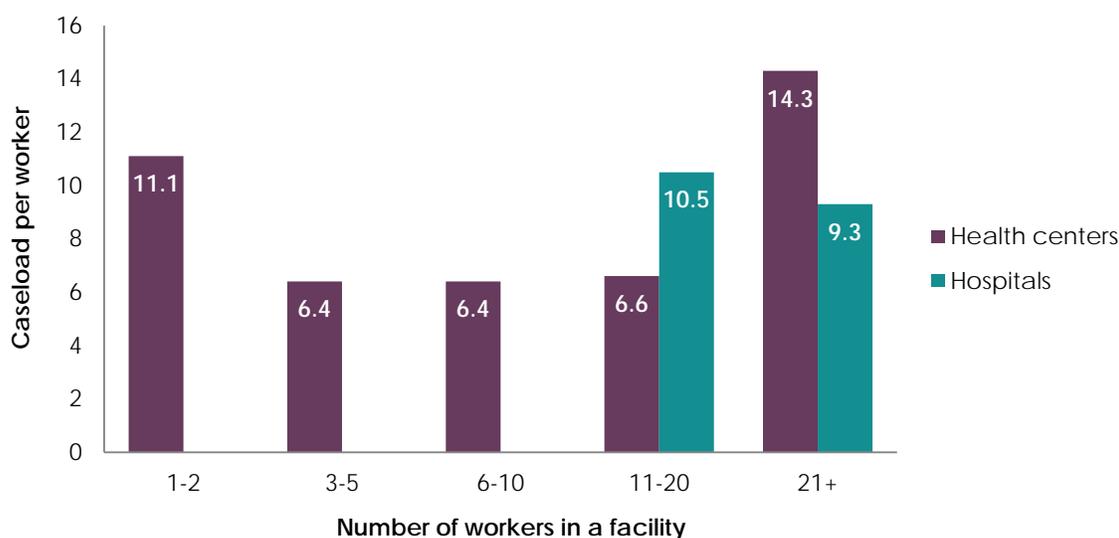
| | All Facilities | Public | Private | Rural | Urban | Public Rural | Public Urban |
|----------------|----------------|--------|---------|-------|-------|--------------|--------------|
| All | 9.0 | 8.7 | 10.4 | 8.8 | 10.2 | 8.5 | 10.3 |
| Dispensaries | 9.3 | 8.7 | 11.4 | 9.3 | 8.8 | 8.9 | 7.3 |
| Health centers | 7.3 | 7.7 | 6.0 | 6.3 | 11.9 | 6.4 | 15.4 |
| Hospitals | 10.2 | 10.5 | 9.0 | 7.6 | 14.0 | 7.8 | 15.3 |

Across facility types, hospitals, on average, had the highest caseload per clinician, and dispensaries had a higher average caseload than health centers. Public hospitals and health centers had, on average, higher caseloads than private facilities of the same level, but private dispensaries had a higher caseload than public ones. Urban hospitals and health centers also had a higher average caseload than rural ones, but health workers in rural dispensaries saw more patients than those in urban dispensaries did. Among the public facilities, the caseloads in urban health centers and hospitals were almost the same, as shown in Table 3-3. While the caseloads in urban public dispensaries were about half of those of the other facility types, rural dispensaries' caseloads were greater than those of the other public facilities. The higher caseloads of rural dispensaries make sense given low user charges and travel costs, but they raise questions about the capacity of dispensaries to handle large numbers of patients.

¹² This restriction to curative outpatient cases excluded other important outpatient facility activities that were not surveyed, such as immunization, antenatal clinic attendance, and growth monitoring.

The survey also explored the effect of facility staffing levels on facility caseloads, as presented in Figure 3-1. Facilities with one to two workers—typically public dispensaries—had nearly double the caseload of those with three to 20 workers, which is the lower to middle level for the public health centers. Hospitals with 11 to 20 workers had more cases than health centers with 11 to 20 workers did. When the number of staff rises above 20, however, the health center caseload surpasses that of the lower-level hospitals with comparable numbers of staff. One can speculate that there is a trade-off at certain points between costs of access and expected quality of service. That is, when quality of care—represented by staff diversity in numbers—is constrained, then it is illogical for clients to attend the more distant facility, but a greater diversity of staff improves quality and attracts households up the care delivery ladder.

Figure 3-1: Distribution of Caseload by Number of Workers per Facility



3.3 Quality of Service Delivery

Healthcare is a service that consumers *need*, but often they know too little about it to judge its quality critically. A major constraint of the consumption of healthcare is the cost—direct or indirect—of access, which the prospective consumer often weighs against the *perceived* quality of care. Among the factors that influence perceptions of quality among prospective consumers is the availability of inputs, including healthcare service providers, medical equipment, and consumables.

3.3.1 Health infrastructure

Basic infrastructure

The study developed a composite indicator of the basic health facility infrastructure, which covers access to electricity, clean water,¹³ and toilet facilities. Access to clean water and adequate sanitation (toilets) is important for containing the spread of disease in health facilities, but it also provides an example for the catchment community to emulate. From the study findings, about 57 percent of the facilities in the survey had the basic infrastructure, as shown in Table 3-4. The majority of the private facilities—85.6 percent—had the basic infrastructure, in comparison with 49.2 percent of public facilities. More urban facilities than rural ones had basic infrastructure. Among public facilities, 58.1 percent of the urban ones had the

¹³ Notwithstanding the water standards of the World Health Organization and the United Nations Children’s Fund, this study interprets “clean water” to signify piped water into a facility or its compound, protected wells and springs, boreholes, and rainwater.

basic infrastructure, in comparison with 48 percent of the rural ones. The comparatively better-resourced hospitals—see Section 4—performed better on basic infrastructure (97%) than health centers (68%) and dispensaries (39%), as presented in Table A–3-4.

Table 3-4: Facilities with Basic Infrastructure (%)

| Description | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|--|------|--------|---------|-------|-------|--------------|--------------|
| Basic Infrastructure Components of All Facilities | | | | | | | |
| All facilities, basic infrastructure | 56.9 | 49.2 | 85.6 | 54.8 | 68.7 | 48.0 | 58.1 |
| Clean water | 80.0 | 75.4 | 97.3 | 77.1 | 97.1 | 72.5 | 97.6 |
| Electricity | 73.0 | 68.4 | 90.1 | 69.2 | 95.4 | 65.2 | 93.7 |
| Toilet | 95.3 | 94.8 | 97.2 | 98.9 | 73.9 | 98.7 | 64.3 |
| Basic Infrastructure, by Facility Type | | | | | | | |
| Dispensaries | 38.8 | 29.6 | 74.0 | 36.3 | 57.4 | 28.5 | 41.1 |
| Health centers | 68.1 | 68.1 | 68.3 | 68.0 | 68.6 | 67.2 | 73.3 |
| Hospitals | 97.0 | 96.1 | 100.0 | 96.6 | 97.7 | 95.5 | 96.9 |

Electricity

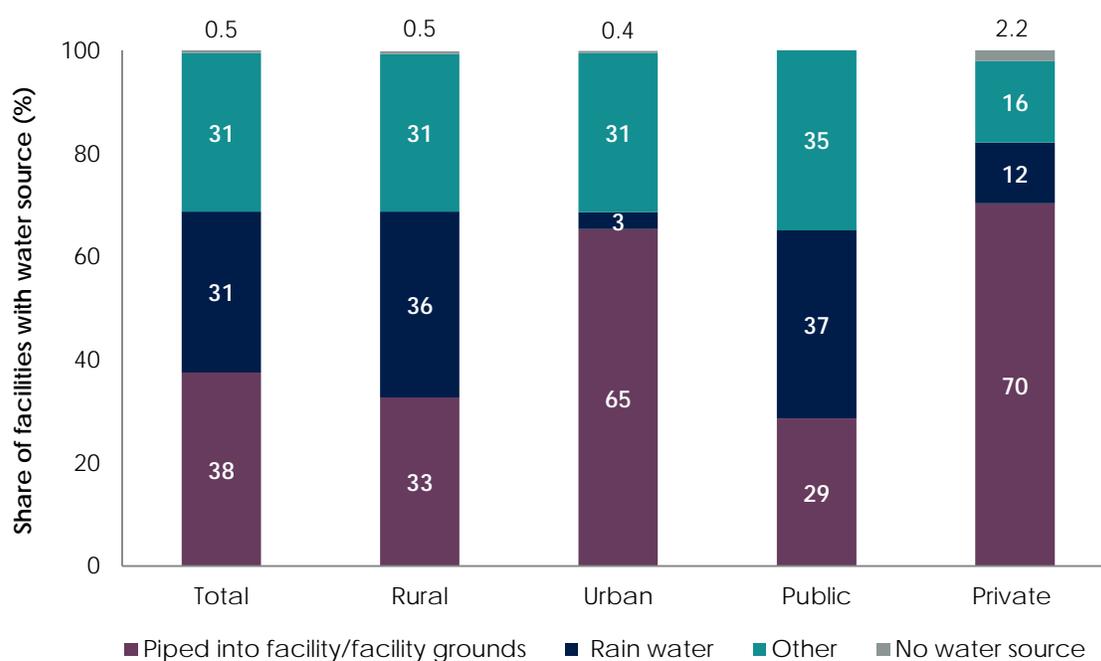
Access to electricity improves the service delivery capacity of health facilities, by increasing the number of service hours and widening the range of services that a facility can offer. The results show that 73 percent of facilities had electricity as their main source of power. Overall, more private and urban facilities than public and rural ones had electricity. Among public facilities, more urban facilities had electricity than those in rural areas. More health centers had electricity than did dispensaries. Of the five power supply options, the use of battery- and fuel-operated generators was very low, and solar power was the second largest power source (21.4%), used primarily by rural facilities. Significantly, 11 percent of the facilities reported a power outage of more than two hours in a day.

Water

Clean water was available at 80 percent of facilities, as shown in Table 3.4. Almost all the private and urban public facilities had clean water. Seventy-two percent of rural public facilities had clean water (Table A–3-4).

Further analysis, reported in Figure 3-2, shows that the most prominent water source across all facilities was piped water into facility/facility grounds (38%), followed by rain water (31.2%). Given the likelihood that only piped water is treated, health facilities might be drawing water largely from sources whose quality cannot be guaranteed. There are more facilities with piped water in urban and private facilities than in rural and public facilities. However, whereas all public facilities have at least one source of water, 2.2 percent of private facilities have none. Across facility types, other survey data show that more hospitals (83%) have access to piped water than dispensaries do (33%) (Table A–3-4).

Figure 3-2: Distribution of Water Sources by Facility Status (%)



Toilets

The study found that 95 percent of all facilities had toilets for patients, the highest share of all three basic infrastructure items measured (Table A-3-4). Rural facilities were more likely to have a toilet than urban facilities, and the difference between public rural and public urban facilities was large (35 percentage points). The most common type of toilet was the pit latrine with a slab (52.6%), followed by the ventilated improved pit (VIP) latrine (35.5%), as shown in Table 3-5. Flush toilets (with or without water) were found in only 10.8 percent of the facilities, and largely in urban facilities (56.3%).

Table 3-5: Availability of Types of Toilet Facilities for Patients (%)

| | Total | Rural | Urban | Dispensaries | Health Centers | Hospitals | Public | Private |
|--------------------|-------|-------|-------|--------------|----------------|-----------|--------|---------|
| Bush | 0.4 | 0.2 | 1.5 | 0.0 | 2.4 | 0.0 | 0.2 | 1.1 |
| Flush toilet | 7.7 | 3.0 | 35.1 | 5.4 | 10.8 | 29.0 | 4.9 | 17.8 |
| Flush: no water | 3.1 | 0.1 | 21.2 | 3.3 | 3.3 | 1.0 | 3.8 | 0.6 |
| VIP latrine | 35.5 | 38.3 | 19.4 | 34.1 | 43.2 | 34.6 | 32.8 | 45.7 |
| Latrine: no slab | 0.7 | 0.2 | 3.2 | 0.6 | 1.3 | 0.0 | 0.5 | 1.2 |
| Latrine: with slab | 52.6 | 58.3 | 19.4 | 56.7 | 38.9 | 35.4 | 57.7 | 33.7 |

3.3.2 Medical equipment¹⁴

The survey developed two indicators to capture the presence of basic medical equipment at a facility. The first indicator was whether the facility had a functioning weighing scale (adult, child, and/or infant), stethoscope, sphygmomanometer, and thermometer (see Tables 3-6 and A-3-5). On average, 79.7 percent of all facilities were observed to have functional basic equipment, with urban facilities—including urban public facilities—and private facilities generally having the most. The second indicator was whether health centers and hospitals had a functioning refrigerator and sterilization equipment. The results show that 76.5 percent of the facilities sampled had functioning refrigerators and sterilizing equipment. More private and urban facilities had the equipment than public and rural facilities. This difference was also evident among the public facilities alone, with urban facilities scoring better than rural ones on this indicator.

Table 3-6: Availability of Basic Facility Equipment (%)

| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|---|------|--------|---------|-------|-------|--------------|--------------|
| All Facilities | | | | | | | |
| Minimum equipment | 79.7 | 75.6 | 95.1 | 77.4 | 93.7 | 73.3 | 93.5 |
| Any scale | 98.7 | 98.4 | 99.6 | 98.5 | 99.4 | 98.2 | 100.0 |
| Thermometer | 92.0 | 90.8 | 96.5 | 91.2 | 96.8 | 90.1 | 96.2 |
| Stethoscope | 94.3 | 92.9 | 99.4 | 93.8 | 97.5 | 92.4 | 97.3 |
| Sphygmomanometer | 86.3 | 83.1 | 98.1 | 84.5 | 96.8 | 81.6 | 94.8 |
| Health Centers and Hospitals | | | | | | | |
| Minimum equipment (composite) | 76.5 | 72.4 | 91.6 | 74.5 | 87.9 | 70.5 | 87.2 |
| Refrigerator (just health centers and hospitals) | 98.0 | 98.2 | 97.3 | 99.2 | 94.6 | 100.0 | 91.8 |
| Sterilizing equipment (just health centers and hospitals) | 84.8 | 85.3 | 83.3 | 83.0 | 90.1 | 83.2 | 92.5 |

Among the pieces of equipment, weighing scales were most widely available, while the sphygmomanometer and sterilizing equipment were the least widely available. More public health centers and hospitals had refrigerators than did private facilities, perhaps due to the demand for cold chain storage for immunization supplies. Urban public facilities performed better on equipment in all instances, except for the refrigerator.

Analysis by facility types shows that 76.1 percent of the dispensaries had the basic equipment, which was found in more urban and private facilities than rural and public facilities. Among the hospitals, 83 percent had the basic equipment (including the refrigerator and sterilizer), with private and rural facilities having more than public and urban facilities, respectively. The same pattern was evident for health centers, except that more urban public facilities had the equipment than rural ones.

¹⁴ In some instances, an adjustment in the data for facility type recognizes that not all equipment must be in all facilities. For example, KEPH does not assign maternity functions to public dispensaries, so these dispensaries are unlikely to have an autoclave.

Table 3-7: Availability of Basic Equipment by Facility and Region (%)

| | All | Public | Private | Rural | Urban | Public rural | Public urban |
|----------------|------|--------|---------|-------|-------|--------------|--------------|
| Dispensaries | 76.1 | 71.2 | 94.9 | 74.0 | 92.3 | 69.4 | 91.2 |
| Health centers | 75.9 | 75.2 | 78.0 | 73.4 | 86.0 | 73.1 | 88.1 |
| Hospitals | 82.5 | 81.4 | 86.5 | 88.4 | 74.9 | 85.5 | 75.6 |

For specific items of equipment, other PETS-Plus data not reflected here show that fewer than 80 percent of the facilities had the basic equipment necessary for pediatric care. Other than scales, the stethoscope was the most widely available functioning piece of equipment, followed by the thermometer. Private facilities were more likely to have all equipment for infant care except the infant weighing scale.

3.3.3 Communications equipment

The study explored health facility access to a set of functioning communications equipment and found that 79.1 percent of all of the facilities had the composite set (radio, phone, computer), as reported in Figure 3-3 and Table A-3-6. Eighty-three percent of all public facilities and 80 percent of all rural facilities had the set of communications equipment, compared to 65 percent of all private and 75 percent of urban facilities. All hospitals had a set of communications equipment, but only 76 percent of dispensaries did (60% of private dispensaries and 59% of urban ones).

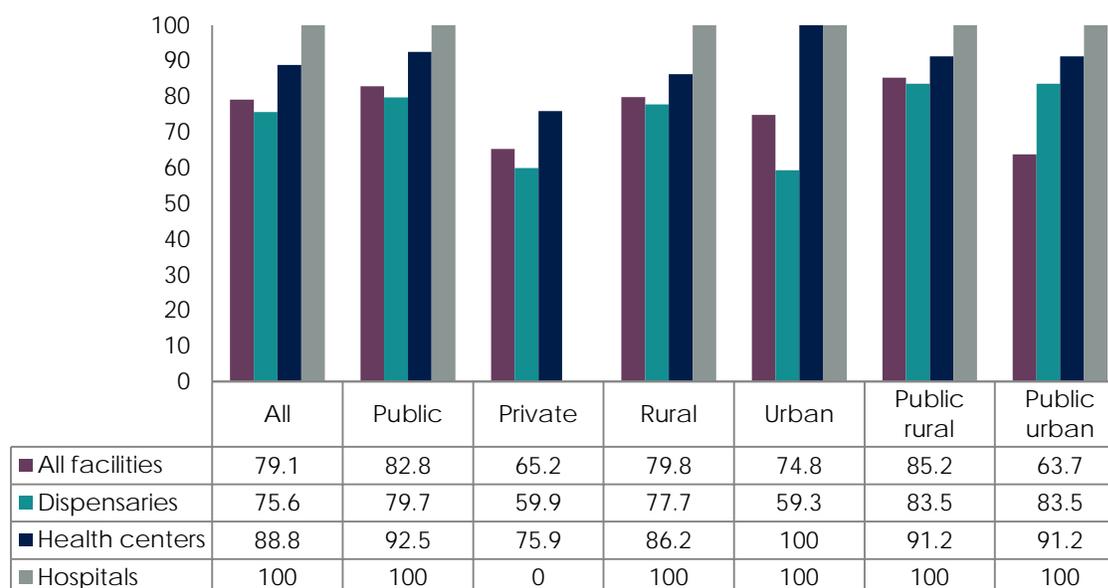
Figure 3-3: Average Access to Communications Equipment (%)

Table 3-8 summarizes the availability of specific communications equipment by facility type, region, and ownership. The most widely available communications equipment by far was the mobile phone, and the least available was the shortwave radio. Although landline telephones were a gauge of interconnection, the cellular phone now is used more widely. The most striking development is the spread of computers and, by extension, that of the internet, to 20 percent of facilities. Access to computers and the internet will eventually improve the facility-based data collection work of the MOH health management information

system (HMIS).¹⁵ However, whereas 98 percent of hospitals indicated that they had a computer, only 9 percent of dispensaries had access to one. Internet availability was greater in urban and private facilities. A majority of dispensaries and health centers lack computer and internet access.

Table 3-8: Access to Electronic Communications Equipment (%)

| | Landline | Cellular Phone | Shortwave Radio | Computer | Internet |
|----------------|----------|----------------|-----------------|----------|----------|
| All facilities | 5.6 | 75 | 1.7 | 20 | 14 |
| Rural | 3 | 77 | 1 | 1.4 | 9 |
| Urban | 21 | 58 | 6.6 | 58 | 40 |
| Dispensaries | 2 | 72 | 0.6 | 9 | 6 |
| Health centers | 13 | 79 | 4 | 47 | 27 |
| Hospitals | 38 | 98 | 8 | 98 | 82 |
| Public | 4 | 80 | 1.5 | 14 | 9 |
| Private | 10 | 54 | 2.3 | 43 | 33 |

3.3.4 Ambulance and fuel

Patients who cannot be handled by lower-level facilities are referred to higher-level facilities, making the availability of ambulance services critical. The MOH policy is to station ambulances at hospitals, which lower-level facilities—health centers and dispensaries—can call on as needed. The survey found that 97.4 percent of the public hospitals had ambulances; in general, more urban hospitals had ambulances than rural ones did (Table 3-9). Because more hospitals are located in urban areas, there is a higher availability of emergency transportation in such facilities.

Table 3-9: Average Availability of Ambulance Services and Fuel (%)

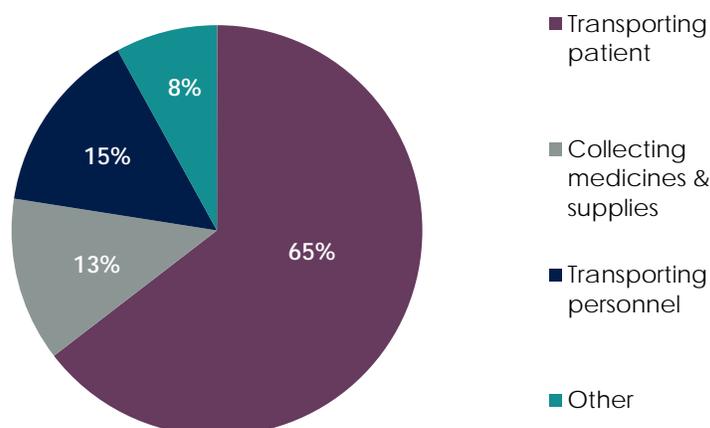
| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|--|------|--------|---------|-------|-------|--------------|--------------|
| (i) Facilities with Ambulance | | | | | | | |
| Health centers | 21.8 | 12.5 | 54.2 | 18.4 | 35.8 | 10.6 | 24 |
| Hospitals | 92.4 | 97.4 | 0 | 90 | 95.4 | 98 | 97 |
| (ii) Fuel in Facilities with Functional Ambulance | | | | | | | |
| Health centers | 89.4 | 79.6 | 97.2 | 84.4 | 100 | 72 | 100 |
| Hospitals | 100 | 100 | 0 | 100 | 100 | 100 | 100 |

Table 3-9 also presents data on the availability of fuel for ambulances. Almost all facilities with ambulances had fuel, and 100 percent of all hospitals, regardless of location, did.

The survey also explored how ambulances had been used on the last trip they made. The results show that most facilities used the ambulance to transport a patient (Figure 3-4).

¹⁵ The Kenya National Health Management Information System Program (AfyaInfo), funded by the U.S. Agency for International Development, recently concluded a review of county preparedness for devolving HMIS. Besides HMIS data collection, facilities are computerizing internally for improved management, such as managing user fees.

Figure 3-4: Purpose of Last Trip of Ambulance



In summary, the likelihood of using ambulances to transport patients was greatest in urban public hospitals and lowest in rural private health centers. Conversely, the greatest likelihood of using ambulances to transport personnel was in rural private health centers and dispensaries. Approximately 16 percent of health centers and 12 percent of dispensaries had “other” uses for their ambulances than transport of patients, drugs, and personnel, but this was not the case in hospitals. This shows that, in lower level facilities, the ambulance is not used solely for its main purpose of transporting patients, and that in some facilities, what is designated as an ambulance may be an ordinary multipurpose vehicle.

3.3.5 Distribution of medicines and medical supplies

In considering the availability of drugs and supplies in facilities, the study distinguishes between the standards set by WHO and the Kenya Essential Medicines List 2010¹⁶ and takes into account a further operational distinction, made by MOH, of “tracer” or priority drugs, which MOH monitors regularly (see Appendix 1). This study examined a sample from the MOH’s list of 20 tracer medicines and nonpharmaceuticals, which consisted of 14 priority drugs for maternal health and eight priority drugs for children’s health.¹⁷ Full lists are available in the appendix. In addition, the availability of three tracer nonpharmaceutical commodities (disposable syringes with disposable needles, auto-disable syringes, and sharps containers) also was assessed. We adjusted the results on drug availability according to facility type (Table 3-10)—that is, by distinguishing which drugs are permitted at each facility level.

On average, all drugs were available and within their shelf life at 67 percent of all facilities. There were some differences by ownership: 69 percent of private facilities had all drugs available, compared with 67 percent of public facilities (Table 3-10; see also Table A-3-7). Among public facilities, more rural facilities were well-stocked than urban ones.

¹⁶ See Republic of Kenya (2010), Kenya Essential Medicines List 2010. Nairobi: Ministry of Medical Services/Ministry of Public Health and Sanitation. Kenya’s 2010 list effectively replaces the Kenya National Drug List (2003) and Clinical Guidelines (2002).

¹⁷ The children’s drug list contains 10 drugs in the survey instrument. Two were removed from the analysis, because they overlapped with the maternal drug list.

Facilities of all types were more likely to have priority drugs for children than for maternal health. Availability of maternal drugs was higher in private than public facilities and also was higher in urban than rural public facilities. Children’s drugs were also more available in private hospitals and health centers than other facilities.

Table 3-10: Availability of Drugs at Facilities, Adjusted for Facility Type (%)

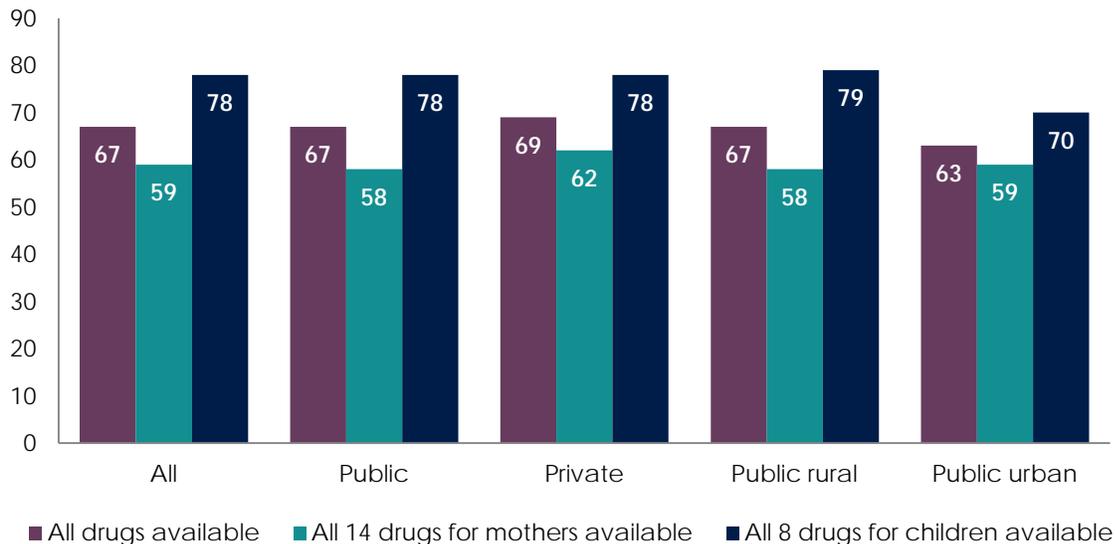
| | All | Public | Private | Public Rural | Public Urban |
|---|-----|--------|---------|--------------|--------------|
| (i) Drugs Available (%): Average Across All Facility Types | | | | | |
| All drugs available | 67 | 67 | 69 | 67 | 63 |
| All 14 drugs for mothers available | 59 | 58 | 62 | 58 | 59 |
| All 8 drugs for children available | 78 | 78 | 78 | 79 | 70 |
| (ii) All Drugs Available (%), by Facility Type | | | | | |
| Dispensaries | 67 | 67 | 67 | 67 | 63 |
| Health centers | 69 | 68 | 74 | 69 | 61 |
| Hospitals | 67 | 63 | 80 | 61 | 66 |

When analysis of drug availability is adjusted for facility type, there were some clear trends:

- Rural public dispensaries and health centers were better stocked than urban public facilities of the same level; and
- Public health centers and hospitals were also better stocked than private facilities of the same level.

Figure 3-5 summarizes these findings.

Figure 3-5: Availability of Key Maternal and Child Health Drugs (%)



Of the 14 drugs for mothers identified by the survey, none were universally available for any facility type (Table A–3-8). More than 75 percent of all facilities had only seven drugs from the MOH list,¹⁸ and more than 75 percent of health centers and dispensaries had only three. On average, the drugs were more available in hospitals (59%) than at health centers (40%) and dispensaries (29%). A significant aspect of mothers’ drugs is the low availability of antibiotics, such as ampicillin, cefaxime, and azithromycin.

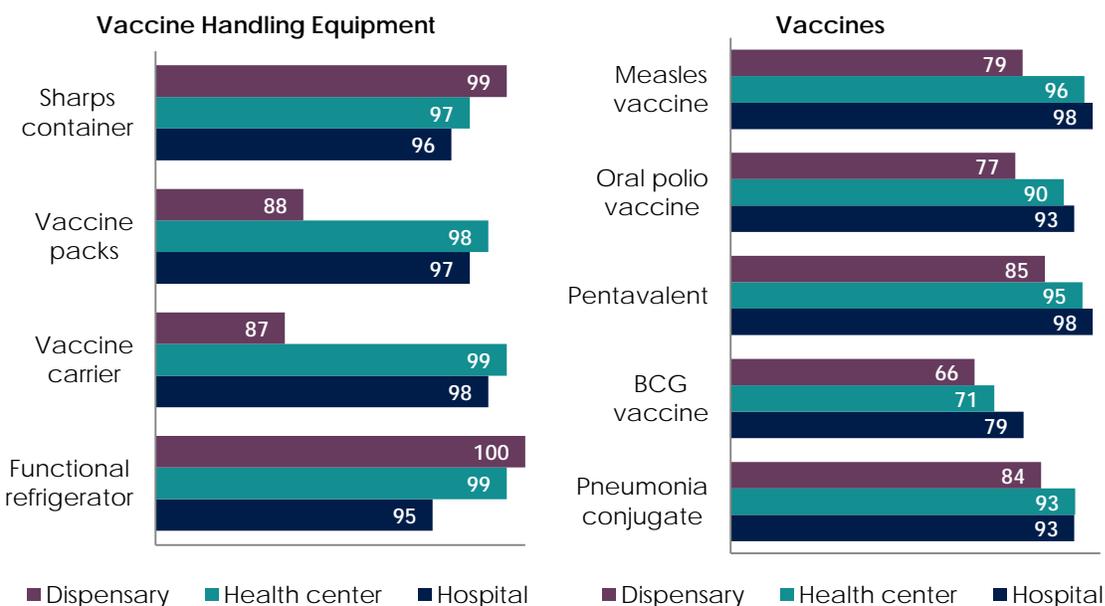
None of the facilities had all eight of the key drugs for children (Table A–3-9). Four drugs were available in 75 percent of facilities: artemisinin, gentamicin injectable, benzyl penicillin, and vitamin A capsules. Apart from ceftriaxone powder, which was available in 83 percent of hospitals but in only 13 percent of dispensaries, the distribution of children’s drugs was even across facilities. Significantly, the antimalarial drug artemisinin AT was available widely, and at least two antibiotics also were available, but ampicillin and artusunate (rectal) were scarce.

Vaccines

Vaccines are a critical basis of early childhood health, as the drive for Millennium Development Goal 4 on child survival affirms. In this survey, the availability of vaccines and related equipment was assessed separately. The survey findings are presented in Figure 3-6.

Overall, there seems to be good preparation for the management (storage) of vaccine stocks across all of the facility types. All of the dispensaries had functional refrigerators. However, the availability of vaccine carriers and packs was uneven, with dispensaries having fewer carriers and packs than the other facility types. Five percent of hospitals and 1 percent of health centers had no functioning refrigerator, although some had vaccine packs and carriers. This suggests that the facilities most likely had refrigerators, but these may have broken down. Among the facility types, the vaccines were more available in hospitals than in health centers and dispensaries, as shown in Figure 3-6. Of specific vaccines, bacille Calmette-Guerin, more commonly known as BCG, was the least available across the facilities, while the pentavalent and measles vaccines were generally more readily available.

Figure 3-6: Facility Availability of Vaccines and Related Management Items (%)



¹⁸ These are gentamicin injectable, oxytocin, sodium chloride, benzathine benzyl penicillin, metronidazole injectable, medroxyprogesterone acetate, and folic acid.

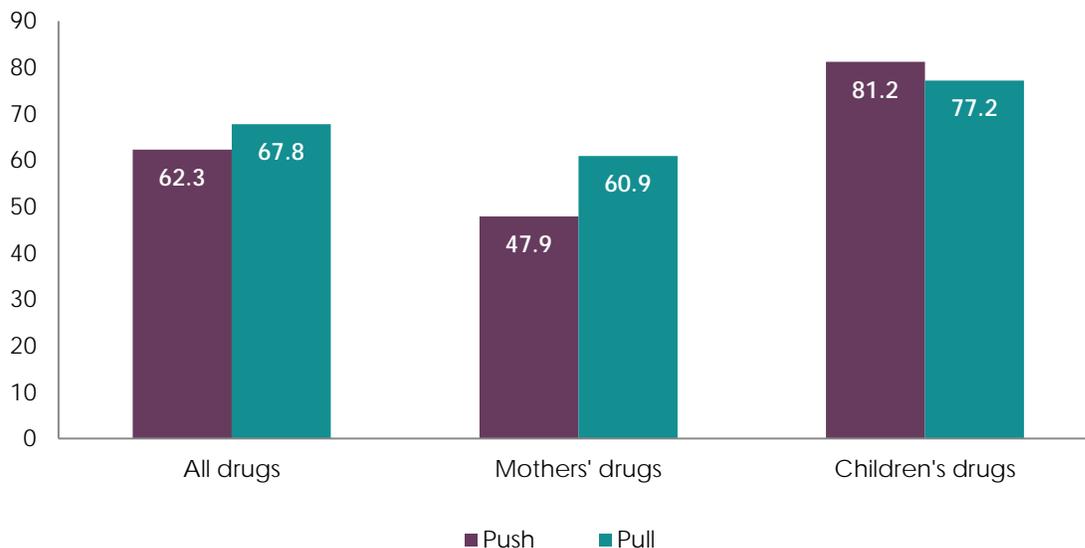
The survey also investigated the availability of two nonpharmaceutical supplies (disposable gloves and condoms) and found that disposable gloves were available, on average, at 98 percent of facilities, while condoms were available in 89 percent of facilities.

Drug availability: comparing push and pull facilities

The survey assessed the comparative status of drug supplies under KEMSA’s two distribution systems—the traditional “push” system and the reformist “pull” system. In the push system, KEMSA packages supplies in structured universal “drug kits,” which are delivered to facilities in accord with their “drawing rights”—the allocations for drugs that the health ministries have budgeted for them.¹⁹ In the pull system, facilities requisition drugs as needed, and KEMSA checks the requisitions off against the facilities’ drawing rights. Anecdotal information from MOH staff indicated that all public hospitals and most of the other facility types are pull facilities, but rare instances existed in which KEMSA still pushed commodities to facilities, which may explain why some respondents thought theirs were push facilities.

Figure 3-7 compares the stock status of all drugs, mothers’ drugs, and children’s drugs at push versus pull facilities. Although pull facilities had greater stocks of all drugs and mothers’ drugs, push facilities had more children’s drugs. Additionally, the data confirm previous evidence that children’s drugs were more widely available than mothers’ drugs.

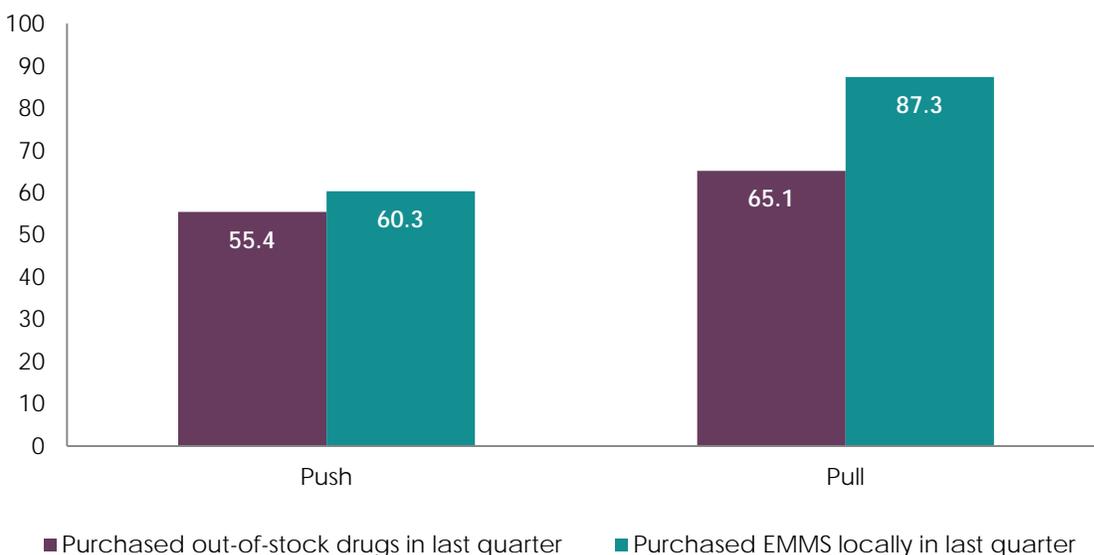
Figure 3-7: Drug Availability by Procurement Mechanism: Push vs. Pull Facilities (%)



The survey also reviewed the relationship between the facilities’ distribution status—push versus pull—and their own drug purchases. It found that more pull than push facilities undertook purchase of their own out-of-stock drugs and essential medicines and medical supplies (EMMS), as reported in Figure 3-8. The lower rate of push facilities making their own purchases suggests that (other factors such as comparative workloads being held constant) drug kits may have become better focused on the push facilities’ needs. However, the higher proportion of pull facilities buying outside of their KEMSA deliveries also suggests that the health ministries have an inadequate capacity to undertake proper forecasting and procure an adequate range of drugs.

¹⁹ For a discussion, see Wambua Nzioki (c. 2011). *Addressing Drugs and Commodity Gaps in Treatment of Non-Communicable Diseases (NCDs) in Kenya*. The Capacity Kenya Project/Strengthening Human Resources for Health (HRH).

Figure 3-8: Comparing Drug Purchases by Push vs. Pull Facilities (%)



3.3.6 Human resources

The health sector is labor-intensive, and the availability and presence of various cadres of health workers are important for high-quality health service delivery. Clinicians’ knowledge and performance, as measured by their diagnostic accuracy, are important, too.

Availability and performance of staff at health facilities

Staffing follows the norms set by MOH for facility size. Thus, hospitals have larger establishments, cutting across cadres, and dispensaries and health centers have smaller establishments, in keeping with their shorter docket of services and lower specified catchment populations.²⁰ This study looked at the number of staff absent from their stations at the time of the survey, distinguishing authorized from unauthorized absences.

The absence rate of health staff was measured as the proportion of health staff not in the clinic during the unannounced visit, adjusted for off-duty workers. For the study, absence is not reported for hospitals whose survey coverage was limited only to the outpatient department and whose duty roster system would require a more sophisticated analysis. Consequently, the overall rate of absence was estimated at 27.5 percent (Tables 3-11 and A-3-8). More public facilities (29%) had absent staff than private facilities (21%) did. Within public facilities alone, absence was higher in urban than in rural facilities. However, as illustrated in Figure 3-10, much of this absence (88%) was sanctioned.

²⁰ However, *Kenya Health Policy 2014–2030* notes: “The norms and standards for health delivery, which include human resource(s)...were in place though lacking in operationalization.” The policy adds: “While norms and standards defining the appropriate mix of personnel and operations and maintenance inputs at all levels were in place, these were not utilized to ensure cost efficiency.”

Table 3-11: Staff Absence by Geography, Facility Type, and Ownership (%)

| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|----------------|------|--------|---------|-------|-------|--------------|--------------|
| All facilities | 27.5 | 29.2 | 20.9 | 26.9 | 31.2 | 28.3 | 37.6 |
| Dispensaries | 25.5 | 26.9 | 20.1 | 24.8 | 31.5 | 25.9 | 38.1 |
| Health centers | 37.5 | 41.1 | 24.8 | 39.2 | 30.4 | 41.9 | 36.1 |

More health centers (37.5%) had absent staff than dispensaries (25.5%) did. Among the dispensaries, absence was most common in urban and public facilities, and especially in public urban facilities.

Absence among the staff cadres across all facilities was fairly even (Table 3-12). Within the public sector, the highest absence rate was among clinical officers in rural facilities (46.2%), followed by nurses in urban facilities (43.1%). Clinical officers and doctors had higher rates of absence in public rural facilities than in public urban facilities. Table 3-12 shows that absence in private facilities was lower, by a margin of 18 percentage points, than in public facilities, and lower by 14 percentage points when compared with the rate of absence in all facilities in the sample. All facility absence rates are presented in A-3-10, which shows that, overall, more paraprofessionals than nurses were absent from their posts.

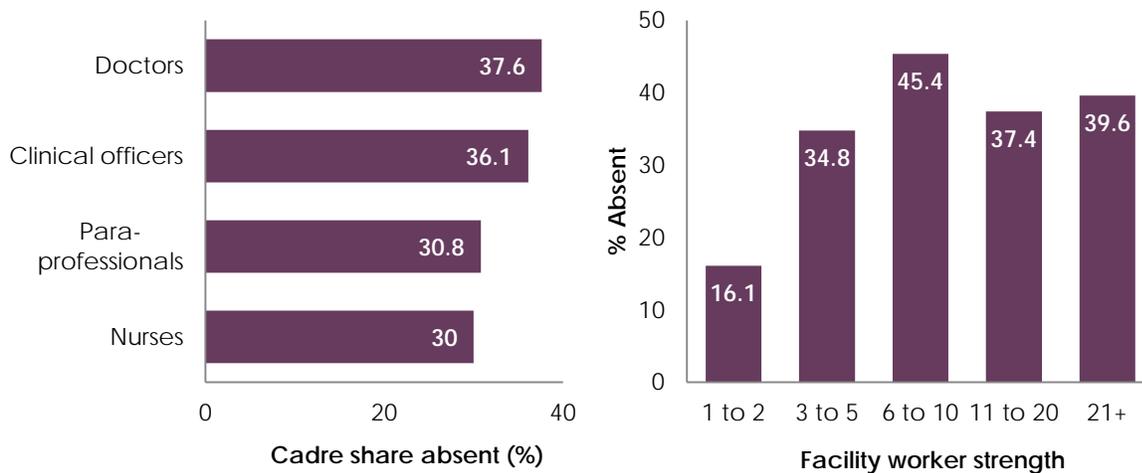
Table 3-12: Staff Absenteeism, by Cadres (%)

| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|-------------------|------|--------|---------|-------|-------|--------------|--------------|
| Doctors | 37.6 | 39 | 21.1 | 39.8 | 35.3 | 40.6 | 37.2 |
| Clinical officers | 36.1 | 43 | 23.7 | 41.8 | 28.8 | 46.2 | 39.2 |
| Nurses | 37.5 | 40 | 26 | 37.2 | 38.2 | 39.2 | 43.1 |

Absence by facility staff strength

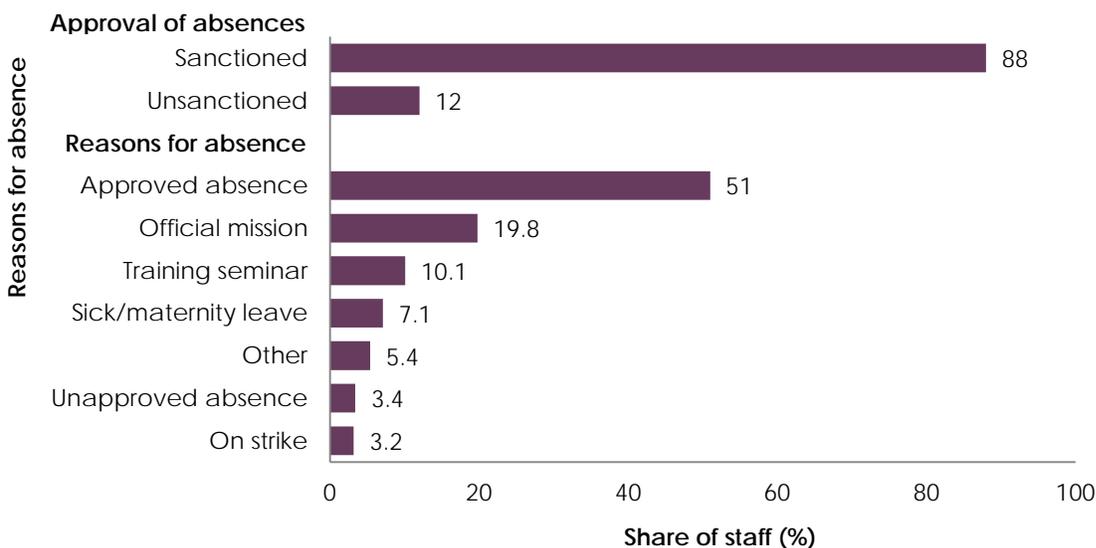
The survey also investigated the relationship between absence and facility staff strength. The staff absence rate for small facilities with one to two members was 16 percent, while the rate for facilities with six to 21 staff members was between 37 percent and 45 percent, as shown in Figure 3-9.

Figure 3-9: Absence Rate, by Cadre and Facility Type



While the average absence rate among health professionals was quite high (Figure 3-9), survey evidence showed that the absence was unsanctioned in only 12 percent of the cases. Rather, 88 percent of those absent had permission to be away from their stations. Figure 3-10 lists the reasons for staff absence. Besides approved absence, other reasons were sick or maternity leave, attending training, and official duties elsewhere.

Figure 3-10: Factors Explaining Staff Absence

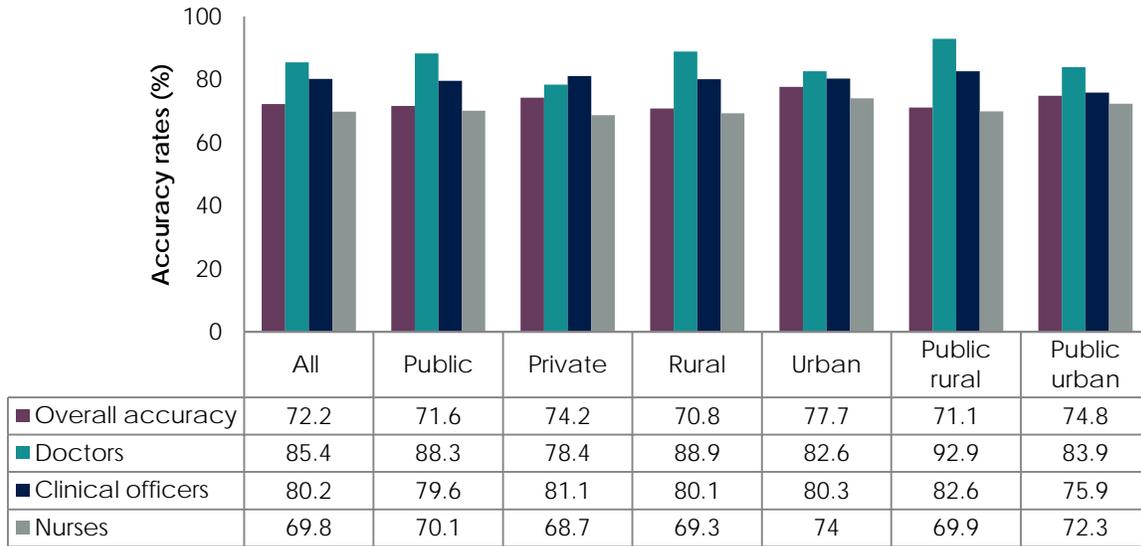


Even though the vast majority of cases of absence from work had been approved, staff absence can upset service delivery by reducing facilities' caseload capacity, particularly their capacity to provide clinicians with specialized expertise.

Health worker ability to reach correct diagnosis

On average, 72.2 percent of the clinicians surveyed made correct diagnoses in the scenarios presented to them during interviews (Figure 3-11 and Table A-3-11). Overall, clinicians in urban areas achieved higher diagnostic accuracy compared to those in rural facilities. These findings are important, because the diagnoses were based on *clinician knowledge and perceptions alone*, not using any equipment or tests, which could have influenced their assessments one way or another.

Figure 3-11: Assessing Correctness of Diagnosis by Service Provider (%)

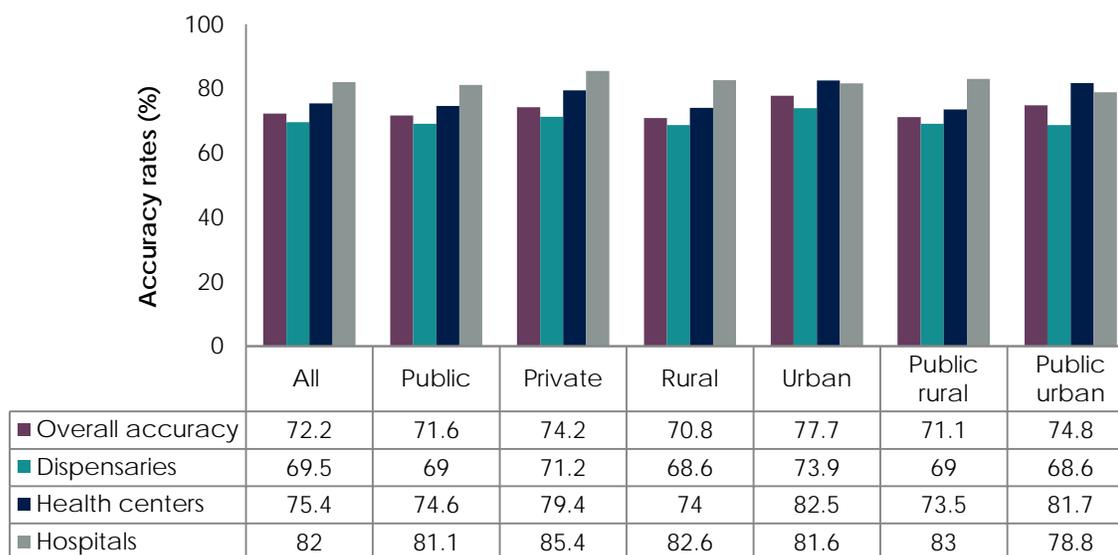


On average, the proportion of doctors arriving at the correct diagnosis was 85.4 percent—the best average across all three clinician cadres. Doctors in public and rural facilities did better than their private and urban counterparts. There were fewer differences by region for clinical officers and nurses.

A client’s choice to use a health facility depends on the quality (reputation) both of clinicians and the facility itself, which might be captured by the facility’s overall performance.²¹ Thus, Figure 3-12 summarizes the rates of correct diagnoses by facility type across the regions and by ownership. The data show that clinicians in hospitals had the highest rate of correct diagnosis (82) and dispensaries had the lowest (69.5 %). This is an important finding when we try to understand why households use particular services, even when they are distant. Clinicians in privately owned hospitals and those located in rural areas scored high in diagnosis competence. Clinicians in rural public hospitals had better scores than those in urban public hospitals. In health centers and dispensaries, diagnostic accuracy was higher among clinicians in private and urban facilities. Results from publicly owned facilities were mixed: providers in urban health centers performed better than those in rural health centers, but this pattern was not evident in dispensaries and hospitals.

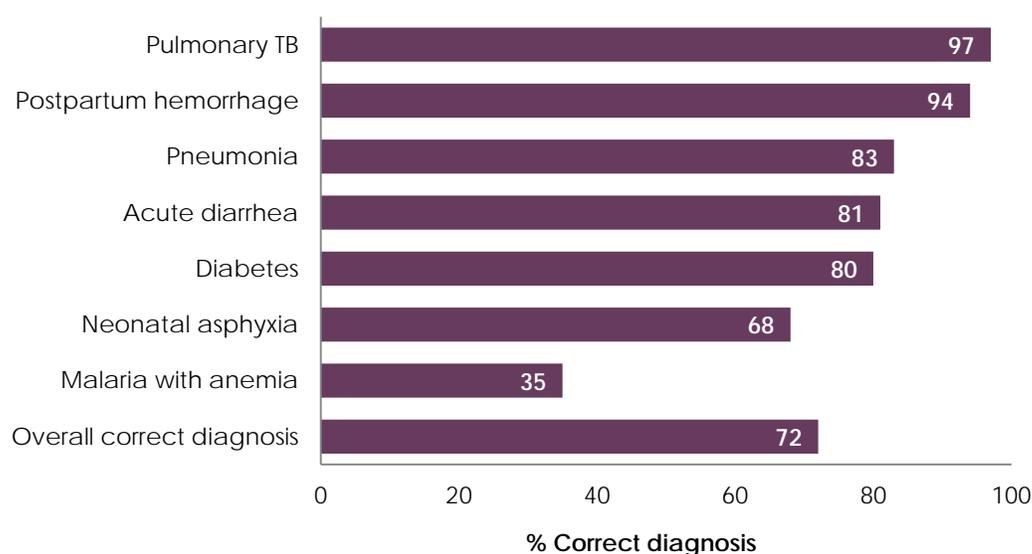
²¹ Clients may shun a facility because of the frequency of reported deaths, regardless of the circumstances of the deaths.

Figure 3-12: Rate of Correct Diagnosis across Facilities (%)



The analysis for specific illness categories shows that diagnostic accuracy among clinicians was lowest for malaria with anemia and highest for pulmonary TB, closely followed by postpartum hemorrhage, as shown in Figure 3-13. The diagnostic accuracy rate varied across case conditions: about eight in every 10 clinicians were able to offer a correct diagnosis of acute diarrhea, pneumonia, and diabetes, but only 35 percent correctly diagnosed malaria with anemia.

Figure 3-13: Correct Diagnosis by Illness or Condition (%)



Relating correct diagnostic process to treatment prescription

The survey also assessed whether the clinicians followed the correct process to arrive at diagnoses and the breadth of treatment they subsequently prescribed. “Full treatment” was defined as clinicians following

all of the correct actions for treatment, whereas “some treatment” was used when clinicians followed only some of the correct treatment actions. These data were collected through interview questions. In the diagnosis process, clinicians gave diabetes the least attention to review of history and examination (Table 3-13). However, diabetes also received the highest percentage of “full treatment” prescribed in comparison with the other four health conditions. Although malaria had the highest percentage of “some treatment” prescribed, it also had by far the lowest rate of “full treatment” prescribed by clinicians (just 14%).

Table 3-13: Relating Correctness of Diagnostic Process and Action Taken (%)

| | Correct Diagnosis | Some Treatment | Full Treatment | History Examination |
|---------------------------|-------------------|----------------|----------------|---------------------|
| Acute diarrhea | 82 | 69 | 20 | 34 |
| Diabetes mellitus type II | 76 | 73 | 73 | 24 |
| Malaria with anemia | 27 | 78 | 14 | 36 |
| Pneumonia | 81 | 49 | 49 | 38 |
| Pulmonary tuberculosis | 97 | 67 | 30 | 37 |

In the analysis of diagnoses by medical personnel, 85.4 percent of doctors gave the correct diagnosis, in comparison with 80.2 percent of clinical officers and 68.9 percent of nurses, as shown in Table 3-14. However, the rate of adherence to clinical guidelines in diagnosis was rather low—averaging just above 50 percent across the different cadres. The large gap for all cadres between adherence to guidelines and correct diagnosis probably points either to the need to review the current guidelines, which seem to be only marginally important in the diagnostic process, or to the possibility that clinicians internalize the guidelines over time and do not need to refer to them during examination. However, a large proportion of clinicians offered only partial treatment (“some treatment”), as illustrated in Table 3-14.

Table 3-14: Assessing Correctness of Diagnosis by Service Provider (%)

| | Correct Diagnosis | Process | Some Treatment | Full Treatment |
|-------------------|-------------------|---------|----------------|----------------|
| Doctors | 85.4 | 64.7 | 78.8 | 48.4 |
| Clinical officers | 80.2 | 57.5 | 73.2 | 43.3 |
| Nurses | 68.9 | 42.1 | 66.4 | 36.8 |

Adherence to clinical guidelines (process quality)

The quality of the healthcare process was determined as the percentage of guidelines met related to relevant history-taking questions and examinations performed, as compared to the list from the MOH’s guidelines. Overall, adherence to guidelines in the survey sample was low (43.7%), implying that clinicians adhered to fewer than half of the guidelines for managing the vignette cases (Tables 3-15 and A-3-12). Adherence was greater in urban than in rural facilities. Additionally, compliance was lower among dispensaries than in the other facility types, with the public and rural dispensaries doing worse than their respective counterparts.

Table 3-15: Adherence to Clinical Guidelines across Facilities and Cadres (%)

| By Facility | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|-------------------|------|--------|---------|-------|-------|--------------|--------------|
| All facilities | 43.7 | 42.7 | 47.6 | 41.7 | 52.0 | 41.1 | 51.2 |
| Dispensaries | 40.8 | 39.6 | 44.6 | 39.2 | 49.2 | 38.4 | 50.2 |
| Health centers | 47.5 | 47.0 | 49.7 | 46.2 | 53.9 | 46.1 | 53.0 |
| Hospitals | 54.0 | 51.7 | 62.3 | 52.3 | 55.7 | 51.8 | 51.6 |
| By Cadre | | | | | | | |
| Doctors | 61.2 | 60.9 | 61.7 | 69.2 | 54.6 | 72.5 | 49.7 |
| Clinical officers | 54.3 | 52.4 | 57.2 | 53.9 | 54.8 | 51.7 | 53.3 |
| Nurses | 40.3 | 40.4 | 39.6 | 39.4 | 47.9 | 39.7 | 48.9 |

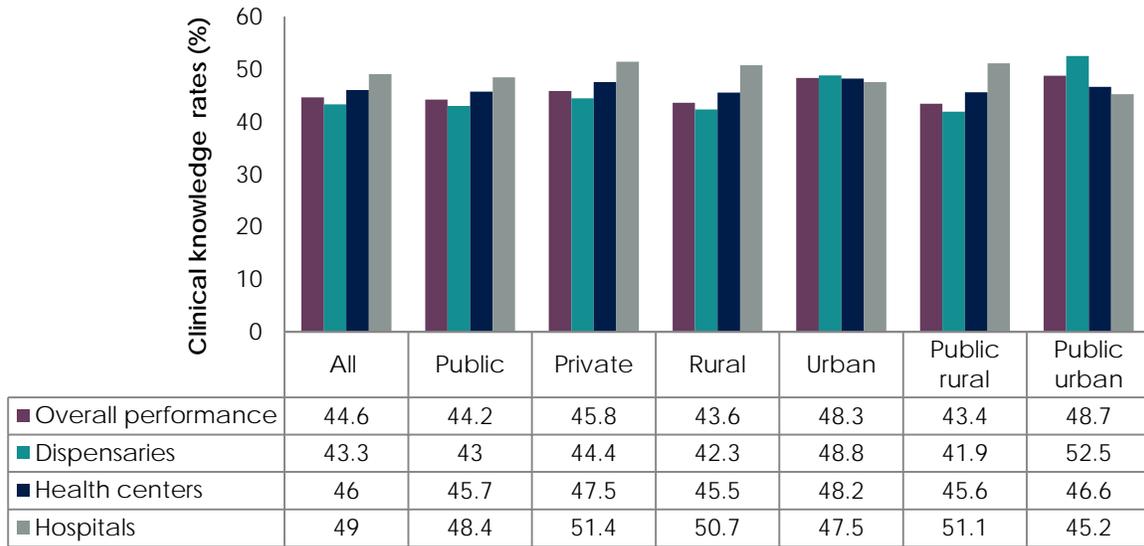
Among the clinicians, adherence was greatest among doctors and lowest among nurses. Rural doctors generally, and especially those at rural public facilities, did a markedly better job of adhering to guidelines than their urban counterparts, by about 15 and 23 percentage points, respectively. The differences in adherence among the clinical officers were smallest for the various facility categories. For nurses, adherence was greater in urban (48%) than in rural (39%) facilities.

The survey reviewed the extent to which the performance of clinicians, based on accuracy of diagnosis, related to whether they asked a particular question about conditions pertinent to the suspected illness under investigation, and the related outcome of getting the diagnosis right or wrong. For more information, see Appendix 1.

Clinical management of maternal and newborn complications

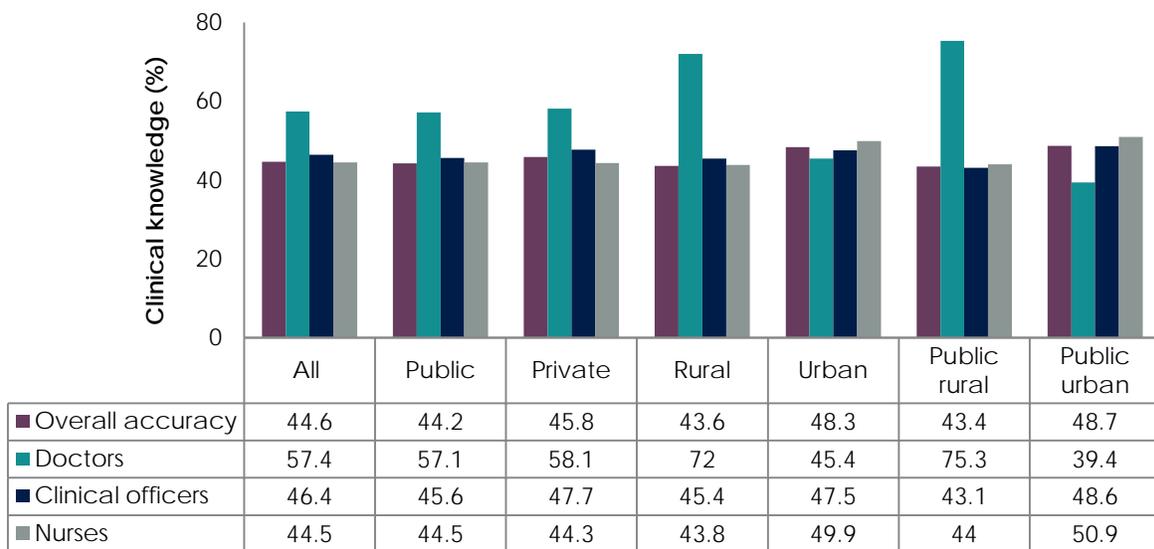
The assessment of the clinical management of maternal and newborn complications was based on the postpartum hemorrhage and neonatal asphyxia vignettes, which measured the average proportion of history and physical examination questions asked for each of the case simulations. On average, the score for clinical knowledge of managing maternal and newborn complications was 44.6 percent (Figure 3-14 and Table A-3-12). Clinical knowledge was marginally greater among staff in urban than in rural facilities and best among staff in urban public facilities. Staff in hospitals also had the best knowledge in comparison with staff in other facilities.

Figure 3-14: Clinical Knowledge: Maternal and Newborn Complications (%)



Across the medical cadres, adherence to clinical guidelines on the management of maternal and neonatal complications was greatest among doctors, although the rate was only 57 percent (Figure 3-15). Adherence was highest among doctors in rural public facilities (75%) and rural facilities (72%). Among clinical officers, adherence ranged between 43.1 percent and 48.6 percent for rural and urban public facilities, respectively. Adherence among nurses was also similar across facilities. These modest rates do not bode well for the influx of maternity cases expected following the government’s 2013 policy to eliminate fees for maternal health services at all public facilities. For more information, see Appendix 1.

Figure 3-15: Adherence to Processes for Maternal and Newborn Complications (%)



3.4 Summary of Findings on Service Delivery

Provision of healthcare services was heavily skewed in favor of private urban hospitals. The private facilities had marginally more opening days and longer outpatient consultation hours and greater capacity in inpatient and antenatal beds.

On utilization of healthcare facilities and their services, the study established that the bulk of deliveries occur in urban facilities, which, in the context of the new government policy on free maternity services, has implications for costs incurred. Expectant women may still have to contend with the indirect costs of travel and time to urban facilities.

Infrastructure: Fifty-seven percent of all facilities (mainly urban and private facilities) had basic infrastructure: electricity, water, toilets. The differential between urban and rural public facilities was 10 percentage points. Seventy-three percent of all facilities had electricity. Water and toilets were widely available, but only a minority of facilities had water from secure sources and flush toilets.

Equipment: On medical equipment, PETS-Plus developed two availability indicators, which returned an 80-percent score for indicator 1 (stethoscope, scales, thermometer, and sphygmomanometer) and a 78-percent score for indicator 2 (which added a refrigerator and sterilizer to the equipment under indicator 1). The weighing scale was most widely available, and the refrigerator was also widely available across public facilities, underscoring support for immunization. The level of functionality of this equipment was 90 percent.

Of the basic indicator for communications equipment (radio, landline, and computer), the rate of availability was 79 percent, with public and rural facilities outdoing the private and urban facilities—an encouraging distribution given the remoteness of some of the facilities under review. The mobile phone had the widest coverage, and the shortwave radio had the weakest. Indeed, the mobile phone has effectively usurped the functions of the shortwave radio and the landline.

Medicines: The 51 percent of facilities with the selected drug supplies were mostly urban private facilities. Availability was also greater at hospitals than at the health centers and dispensaries, which may limit certain populations' access to drugs. Of a select list of drugs developed by PETS-Plus, children's drugs were more broadly available than mothers' drugs, but both categories were far from being universally available. Availability of the MOH 20 "tracer" (priority) drugs stood at 55 percent, with the distribution favoring private urban facilities. Finally, the distribution of vaccines was widespread but the supply was erratic.

Human resources: The staff absence rate was 27.5 percent and grew with facility staff numbers, with the health center rate being especially high at 37 percent. It was greater in public than private facilities and greatest among urban versus rural public facilities. The bulk of all of this absence—88 percent—was sanctioned (trainings, leave, etc.).

The use of vignettes by PETS-Plus to evaluate clinical knowledge revealed that only 72 percent of the clinicians (mostly in private and urban facilities) made correct diagnoses of the conditions presented to them. Just 44.6 percent of clinicians had correct clinical knowledge of maternal and newborn complications.

Diagnostic accuracy varied widely: the doctors rated at 85.4 percent and the nurses at 68.9 percent. On average, public and rural clinicians did better than their private and urban counterparts. Diagnostic accuracy among clinicians was lowest for malaria with anemia and highest for TB. There were wide variations in compliance with clinical guidelines: 61 percent of doctors followed processes, compared to 40 percent of nurses; 79 percent of doctors offered partial treatment, compared to 66 percent of nurses; and only 48 percent of doctors and 37 percent of nurses offered full treatment.

4. FINDINGS ON HEALTH REVENUES AND EXPENDITURES

This section documents the flow of revenues to the health sector and expenditures on elements of health services for 2011–2012. Over the years, the government has instituted policy reforms for financing public health facilities, aimed at enhancing both service delivery and access. When user fees were launched in the early 1990s, the government introduced a waiver policy to benefit patients who were unable to pay and exempted particular categories of patients and illnesses from fees. The government also introduced additional financing reforms—among them, the 10/20 Policy, launched in 2005 to enhance facility access by capping user fees; the Health Sector Services Fund (HSSF), launched in 2010 to finance KEPH’s facilities at Levels 2 and 3; and the Hospital Management Services Fund (HMSF), launched in 2009, to finance Level 4 to 6 facilities. This section assesses the extent of implementation of and compliance with these policy reforms and related financial management changes. It also presents findings regarding planning, budgeting, and procurement and the extent of the involvement of communities in these financial management activities.

This survey covered Level 2 and 3 facilities and the outpatient departments of Level 4 hospitals in the public sector. It also covered private nonprofit facilities, which are not always bound by the reforms introduced by the government. Public health facilities are financed by various sources, including government budget allocations, which pay the salaries of permanent staff; finance the purchase of drugs and nonpharmaceutical supplies through drawing rights deposited with KEMSA; and finance other operational costs, such as food and rations, utilities, and maintenance. While the drawing rights are remitted directly to KEMSA and salaries directly to staff (through bank accounts), resources for the facilities are transmitted as HSSF and HMSF funds. Additionally, public facilities rely on user fees under the 10/20 Policy for dispensaries and health centers and unregulated general user fees for hospitals. Public facilities also receive financial support from other sources, such as decentralized public funds, development partners, and other private donors. For the private nonprofit facilities, the larger portion of their financing comes through user fees, but they also benefit from donor support. However, a few private nonprofit facilities receive in-kind support through drugs and medical supplies from the government.

The objective of the PETS-Plus review of revenue and expenditure management was to gauge the extent of compliance with various sector reforms, including the 10/20 Policy, the introduction of HSSF and HMSF, and community participation in planning and managing local healthcare. Understanding these components will offer insight on new policy initiatives. The findings are reported under the following headings: Implementation of the 10/20 Policy; Implementation of the Health Sector Services Fund; KEMSA “Drawing Rights”; Other Sources Revenue for Public Facilities, 2011–2012; Expenditure Patterns of Health Facilities, 2011–2012; and Planning and Financial Management.

4.1 Implementation of the 10/20 Policy

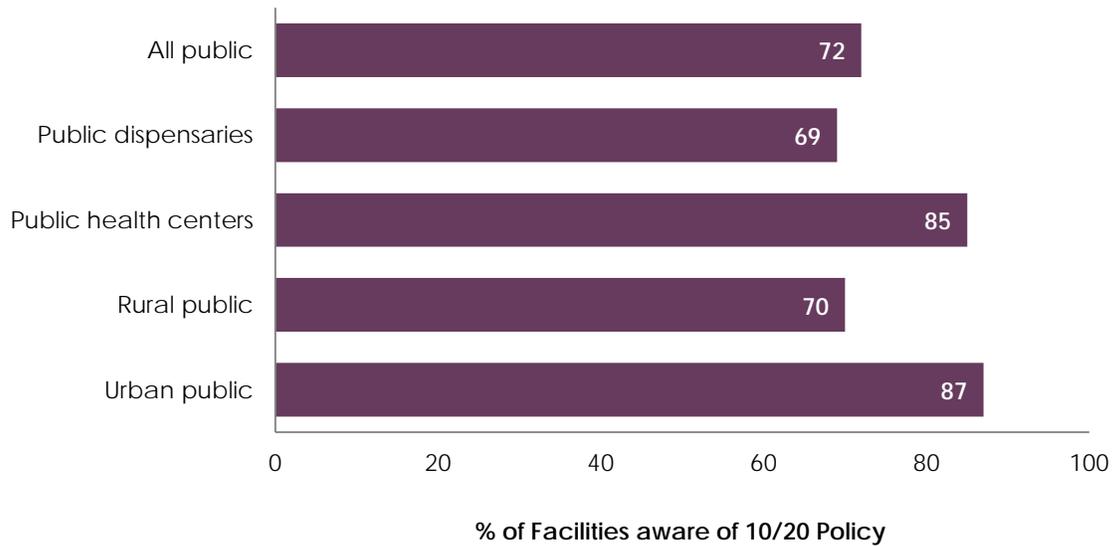
The generation of user fee revenues in public dispensaries and health centers is based on the 10/20 Policy, which replaced user fees with registration fees of Ksh 10 at dispensaries and Ksh 20 at health centers. Children under five, the poor, and those with special conditions/services (such as malaria and TB) are exempted from payment. Additionally, facilities have always had the discretion to waive fees for patients considered too poor to pay and are required to observe the rules on exemptions and waivers. Private facilities are not bound by any of these fees policies, but some of their services are subsidized by the government. Adherence to financing policies in public facilities has been low due to cash shortages.

4.1.1 Awareness of and adherence to the 10/20 Policy

The survey explored the level of self-reported awareness of the 10/20 Policy across all of the public facilities covered and found that 72 percent of the respondents were aware of the policy, as shown in

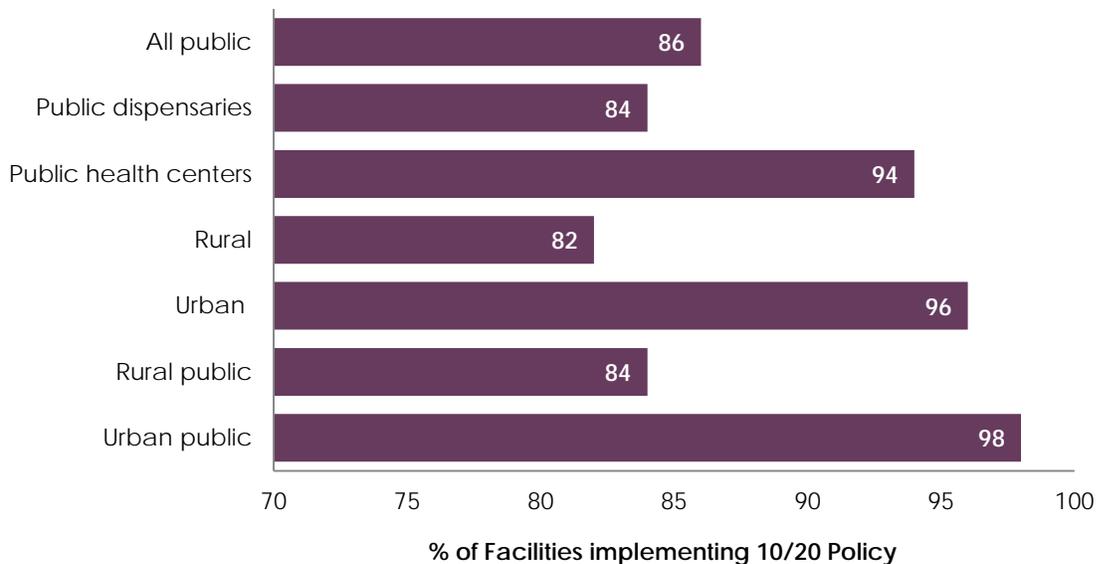
Figure 4-1. The highest awareness level was observed among respondents in urban health centers (87%). Across the sample, this implies that 28 percent of public facilities are not aware of the 10/20 user fee policy, indicating the possibility of inadequacy in the communication strategy used by the government to communicate the policy to the intended recipients.

Figure 4-1: Awareness of 10/20 Policy across Public Facilities



The survey assessed the proportion of public health facilities that were aware of the 10/20 Policy and actually were implementing it. As illustrated in Figure 4-2, urban facilities (urban and urban public) and public health centers reported the highest rates of awareness and implementation of the policy.

Figure 4-2: Health Centers and Dispensaries Implementing the 10/20 Policy (%)



4. Findings on Health Revenues and Expenditures

The survey compared self-reported compliance with the policy with the actual fees charged and/or collected at dispensaries and health centers. The analysis of actual facility fees reported in Table 4-1 shows that only about 45 percent of facilities complied with the policy, even though 86 percent reported implementing it. In other words, nearly half of the facilities that reported compliance were in fact charging fees that violated the 10/20 Policy. Fewer dispensaries (39%) than health centers (79%) complied with the policy.

Table 4-1: Adherence to the 10/20 Policy, by Services Provided (%)

| Service | Overall | Dispensary | Health Center |
|--|---------|------------|---------------|
| Registration | 45 | 39 | 79 |
| Consultation for children older than 5 | 62 | 57 | 85 |
| Consultation for children younger than 5 | 65 | 60 | 92 |
| Under age-5 services | 93 | 92 | 96 |
| ANC visit | 61 | 60 | 64 |

These discrepancies generated further interest in investigating adherence to related policies, including free consultation services for children under five and for ANC visits. The findings reported in Table 4-1 show that adherence to the under-five policy was high (over 90%) in all facility types. However, about 40 percent of the health facilities were charging for ANC visits, contrary to policy.

Facilities reporting implementation of the 10/20 Policy also sometimes charged higher user fees than those not implementing it (Table 4-2). Dispensaries that reported implementing the 10/20 Policy on average charged Ksh 22 for registration, which is much higher than the Ksh 12 charged by those that reported not implementing the policy. The same discrepancy was seen for under-five services. However, dispensaries that reported implementing the policy had lower fees than nonimplementing dispensaries for services to children (under- and over-five years of age) and ANC visits. The scenario was somewhat different for health centers. Those not implementing the 10/20 Policy charged more for services than those reportedly implementing the policy. These discrepancies indicate that there may be misunderstandings and misconceptions about the policy at the facility level.

Table 4-2: User Fees Charged (Ksh), by Facility Type, Fee Exempt Service, and Implementation of the 10/20 Policy

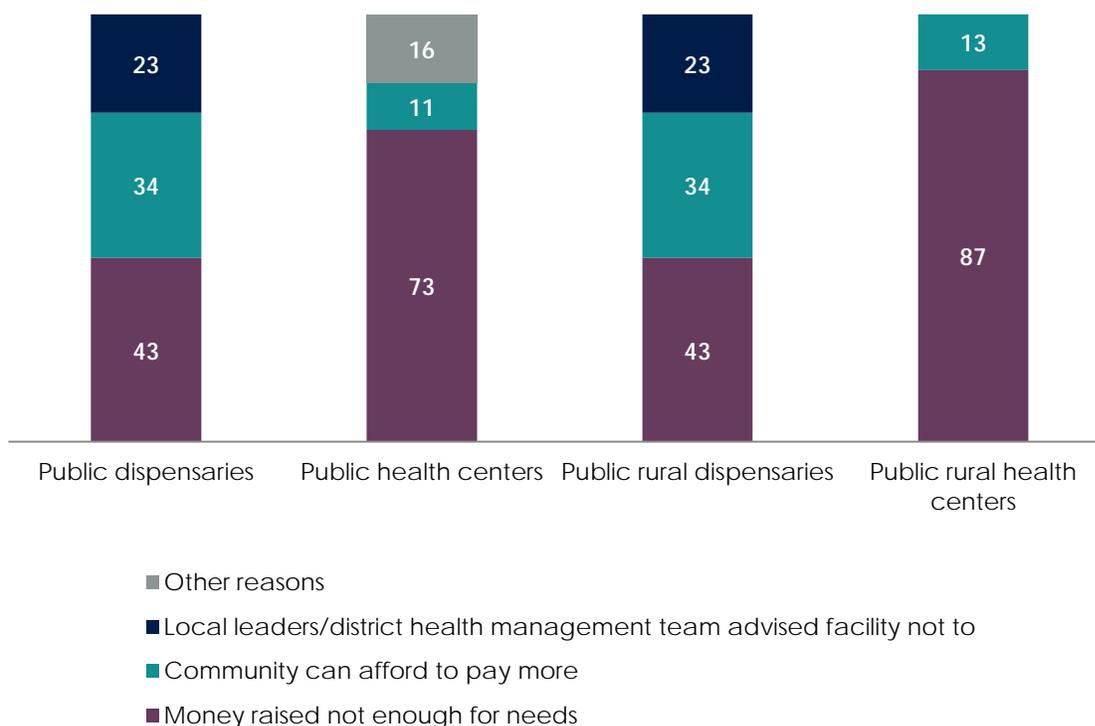
| Facility/Service | Implementing (Ksh) | Not Implementing (KSh) |
|----------------------|--------------------|------------------------|
| Dispensary | | |
| Registration | 22 | 12 |
| Children over age 5 | 4 | 52 |
| Children under age 5 | 2 | 35 |
| Under age-5 services | 24 | 3 |
| ANC visit | 27 | 72 |

| Facility/Service | Implementing (Ksh) | Not Implementing (KSh) |
|----------------------|--------------------|------------------------|
| Health Center | | |
| Registration | 23 | 29 |
| Children over age 5 | 12 | 8 |
| Children under age 5 | 4 | 9 |
| Under age-5 services | 1 | 12 |
| ANC visit | 33 | 145 |

Given the observed level of awareness of the policy in public facilities (72%, as shown in Figure 4-1), the survey investigated why some facilities were not abiding by the policy. The reasons given suggest deliberate disregard for the policy.

The most common reason, reported by 46.8 percent of all facilities, was that the resources available were not enough for their needs, so they had to raise more funds through user fees. This was reported by a large proportion of health centers (73%), public rural health centers (87%), and some dispensaries (43%), as shown in Figure 4-3. The second most common reason for noncompliance was the perception that the catchment community could afford to pay more (30.8%). Respondents in 18 percent of facilities also said they were advised by local leaders not to follow the policy. More dispensaries than health centers cited these two reasons, as shown in Figure 4-3. Urban dispensaries and urban health centers did not offer any reasons for not implementing the 10/20 Policy. (For more information, see Table A-4-1.)

Figure 4-3: Reasons for not Implementing the 10/20 Policy (%)



These findings show that a substantial proportion of public health facilities were not aware of the 10/20 Policy, and a substantial proportion of those that were aware were not implementing it. The next subsection analyses information on user charges by different facility types.

4.1.2 User charges at facilities

As Table 4-3 shows, user charges were higher in private nonprofit facilities than in public facilities for all of the services identified in the survey except ANC visits and minor surgery, for which public dispensaries, on average, charged higher rates than private dispensaries. While these data show that private hospitals and health centers charge at least 10 times more for at least four services, there were a few instances in which the bias was not consistent. However, the average charges confirm violations of key public health sector policies designed to enhance access, such as the 10/20 Policy on registration and the policy on conditions exempt from fees.

Table 4-3: Average User Fee Charges, by Service and Facility Type (Ksh)

| Service Charged | Hospitals | | Health Centers | | Dispensaries | |
|---|-----------|---------|----------------|---------|--------------|---------|
| | Public | Private | Public | Private | Public | Private |
| Registration | 49 | 109 | 23 | 76 | 18 | 26 |
| Medical Examination (Specialist) | 138 | 514 | 3 | 89 | N/A | N/A |
| Consultation Over Age 5 | 34 | 150 | 10 | 69 | 24 | 33 |
| Consultation Under Age 5 | 3 | 193 | 6 | 87 | 16 | 26 |
| Radiological Examination | 166 | 650 | N/A | 61 | N/A | N/A |
| Laboratory: Malaria Test | 52 | 100 | 31 | 63 | 25 | 41 |
| Laboratory: Random Blood Sugar | 107 | 152 | 66 | 109 | 19 | 83 |
| Laboratory: Hemoglobin | 85 | 154 | 55 | 112 | 19 | 64 |
| Laboratory: Urinalysis | 75 | 133 | 52 | 96 | 16 | 72 |
| Laboratory: Other Services | 112 | 240 | 62 | 105 | 22 | 95 |
| Dental Services: Cleaning | 254 | 233 | N/A | 19 | N/A | N/A |
| Dental Services: Extraction | 140 | 129 | 2 | 15 | 1 | N/A |
| Dental Services: Root Canal | 630 | 661 | N/A | N/A | 1 | N/A |
| Drugs: Amoxicillin Syrup | 18 | 116 | 8 | 64 | 7 | 44 |
| Normal Delivery | 679 | 5,203 | 181 | 1,242 | 45 | 215 |
| Under-5 Services (Immunization, Diarrhea Treatment, Acute Respiratory Infections) | 0 | 15 | 3 | 31 | 15 | 19 |
| Caesarean Section | 2,079 | 19,528 | N/A | 2,548 | N/A | N/A |
| ANC Visit | 55 | 137 | 58 | 215 | 46 | 43 |
| Bed Charges Per Day | 131 | 4,092 | 29 | 103 | N/A | N/A |
| Family Planning | 56 | 74 | 15 | 47 | 11 | 33 |

| Service Charged | Hospitals | | Health Centers | | Dispensaries | |
|---------------------|-----------|---------|----------------|---------|--------------|---------|
| | Public | Private | Public | Private | Public | Private |
| Minor Surgery | 1,003 | 4,580 | 23 | 324 | 14 | 4 |
| Malaria Treatment | 6 | 222 | 10 | 93 | 13 | 80 |
| General Surgery | 1,986 | 11,949 | N/A | 486 | N/A | N/A |
| HIV | 7 | 13 | 0 | 13 | N/A | 4 |
| Specialized Surgery | 1,449 | 18,174 | N/A | 765 | N/A | N/A |

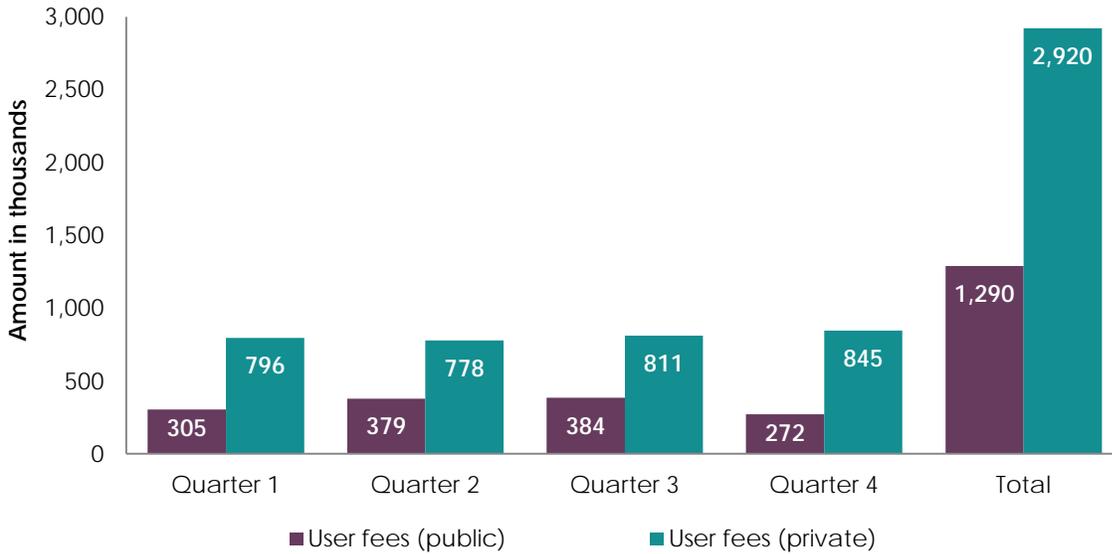
For maternal health services, the survey found that all facilities impose charges for ANC visits, family planning, and normal deliveries, but the charges were, on average, lower in public facilities than in private ones. For instance, the ANC fee in private health centers is four times that in public health centers. Private dispensaries charge, on average, three times more for family planning than do public dispensaries, and seven-and-a-half times more for normal deliveries. To some extent, this may be a result of public health services being highly subsidized by the government.

These findings show that there is a real risk of public facilities loading expenses associated with free maternity services on the fees paid for other services if the maternal care top-up subsidy received from the government is inadequate. This concern is especially valid, given the observed levels of noncompliance with other policies designed to remove financial obstacles to access at a facility. The noncompliance also suggests weak supervision of facilities, which could undermine the new free maternal services policy.

4.1.3 User fee revenues

In concluding this discussion of compliance with the 10/20 Policy, it is useful to summarize the magnitude of user-fee revenues raised by health facilities, including public facilities, in violation of the government policy regarding charges. Figure 4-4 illustrates the flow of public and private facility user fee revenues for 2011–2012, disaggregated by quarters to enable comparison with the flows of HSSF (and HMSF) resources. The data in the figure show that, on average, public facility revenues from user fees amounted to Ksh 1.3 million during 2011–2012—less than half of the private facilities' average of Ksh 2.9 million. Further, the data show that the average private and public revenue flows through the four quarters were somewhat even.

Figure 4-4: Average User Fees in Public and Private Facilities, 2011–2012 (Ksh)



4.2 Implementation of the Health Sector Services Fund

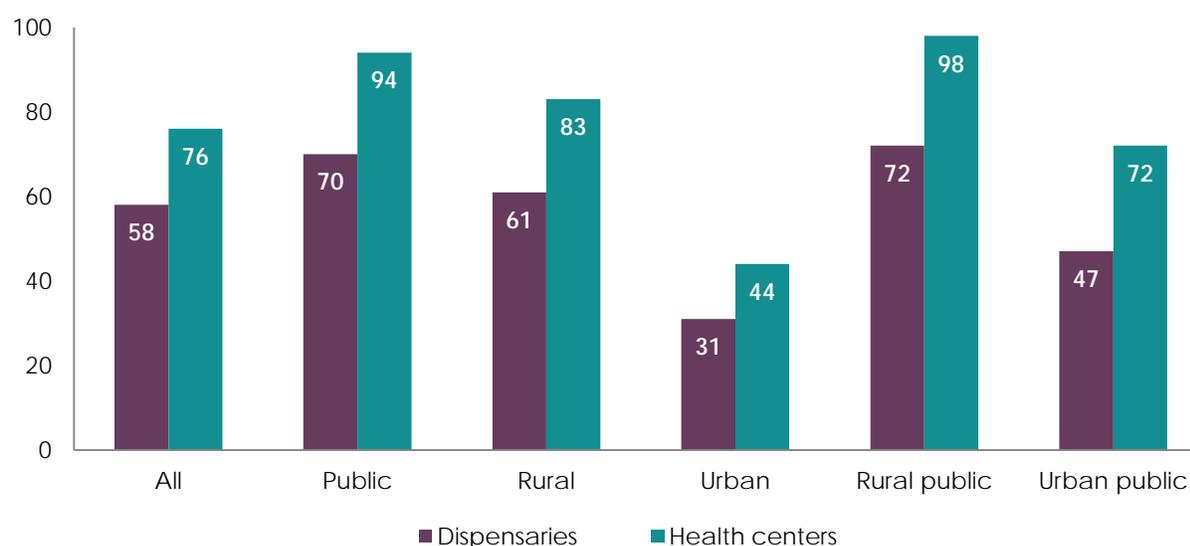
HSSF is a government-led response to the operational challenges that previously undermined health facility funding flows. Its intent is to compensate facilities for the revenues lost with implementation of the 10/20 Policy. HSSF pools government and development partner resources and provides them directly to participating health facilities. The fund aims to increase access by addressing equity in delivery of health services and improving the quality and responsiveness of health systems and services to the needs of the population. It also aims to increase financial management efficiency and effectiveness through stronger health facility management committees (HFMCs), which reduce the bureaucracy that previously had led to disbursement delays.

HSSF (and HMSF) spending is restricted to nonwage, nondrug, and pharmaceutical supply categories; the government pays through other channels for wages, drugs, and nonpharmaceutical supplies. Public dispensaries and health centers receive funds directly into their bank accounts from the national treasury.²²

Figure 4-5 provides summarizes the percentages of facilities that received HSSF during 2011–2012. For all facilities—public and private—more health centers (76%) than dispensaries (58%) benefitted from the subsidy. Within the public sector, the proportion of rural health centers benefitting from the fund was greater than that of rural dispensaries. Nearly all public health centers in rural areas—98 percent—received the funds, compared to 72 percent of rural public dispensaries.

²² The eligibility criteria require the health facility to (a) be gazetted (that is, official), (b) have a trained HFMC, (c) have an operational bank account, (d) have adequate technical staff at the facility, (e) have prepared an annual operational plan, and (f) belong to a facility cluster that already has an accountant to oversee financial accounting functions.

Figure 4-5: Shares of Facilities Receiving HSSF Funding, 2011–2012 (%)



District health management teams (DHMTs) provide technical and operational oversight at the district level, by approving the annual operational plans (AOPs) and quarterly implementation plans (QIPs) that facilities prepare and monitoring their implementation through integrated supportive supervision. HFMCs are charged with governing facility spending of HSSF funds. As part of this structure, facilities receive financial management documents and use these as the basis for quarterly and annual financial reports. Table 4-4 shows the status of facility reports in the last quarter prior to the PETS-Plus, whether the facilities received HSSF resources, and whether they had an HFMC. Of facilities with evidence of having submitted financial reports, a higher proportion of health centers (99%) than dispensaries (84%) reported receiving funds and having an HFMC.

Table 4-4: Adherence to HSSF Guidelines, by Facility Type

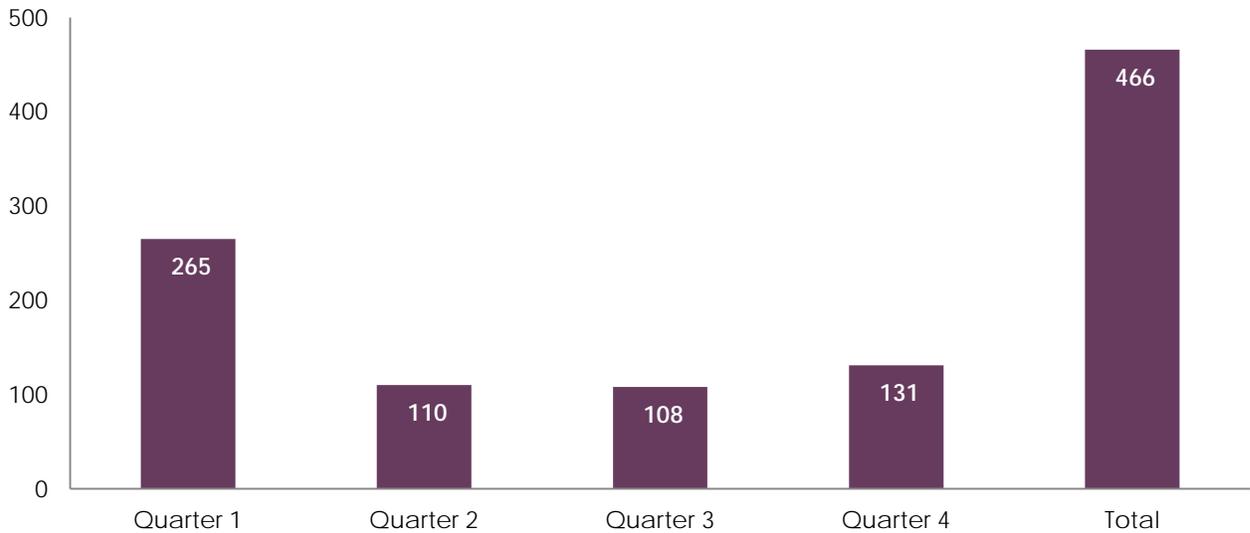
| | Financial Reporting | Receiving HSSF (%) | Existence of an HFMC (%) | Both (%) |
|----------------|---------------------|--------------------|--------------------------|----------|
| Dispensaries | Yes | 86 | 84 | 84 |
| | No | 30 | 0 | 0 |
| Health Centers | Yes | 97 | 99 | 99 |
| | No | 77 | 0 | 0 |

4.2.1 Flow of HSSF resources

As noted earlier, HSSF resources comprise the inputs of the government and development partners and are credited directly to the respective facilities' bank accounts. Facilities should receive their fixed annual subsidies—Ksh 110,000 for dispensaries and Ksh 450,000 for health centers—in quarterly installments. For new participating facilities, however, the allocations for the initial two quarters are released in one installment, while releases for the third and fourth quarters are based on facilities submitting their quarterly financial reports. After the quarterly reports have been approved by the National Health Sector Committee, the money for the next quarter is transferred to the facilities' bank accounts.

Regarding HSSF flows during 2011–2012, Figure 4-6 shows that, although the disbursements should be in fixed quarterly amounts, in practice variance occurs across the quarters. HSSF disbursements come directly from the Treasury and therefore are out of MOH’s control. These quarterly disparities obviously undermine implementation of the QIPs and AOPs, but some facilities may be missing out on their due because they are not fulfilling the requirements for disbursement.

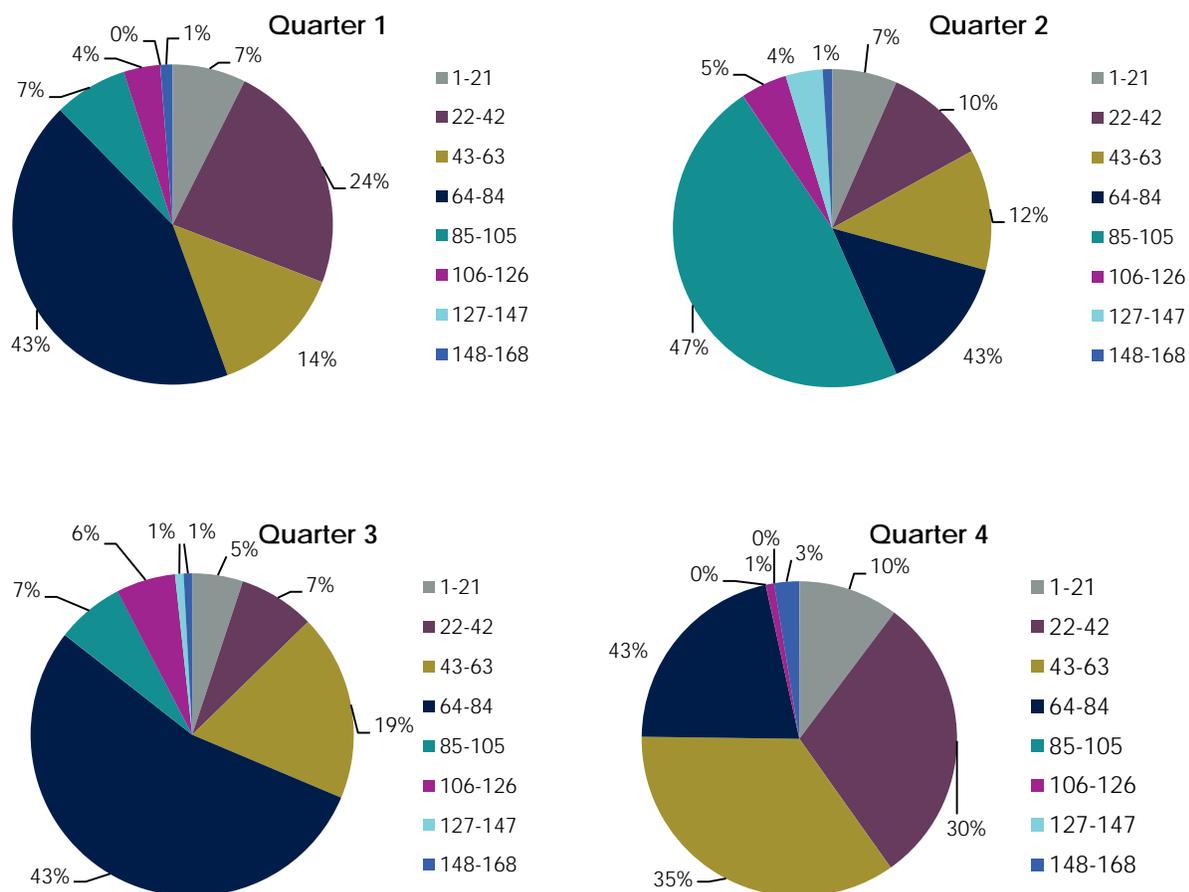
Figure 4-6: Average HSSF Disbursements to Health Centers in 2011–2012 (KSh Thousands)



4.2.2 Timeliness in disbursement of HSSF, 2011–2012

The survey collected data on timeliness in disbursement of HSSF funds. Figure 4-7 reflects the numbers of facilities categorized by the specified numbers of days that elapsed before they received their resources in the bank for each quarter. The data show that most of the facilities experienced delays of between two to three months. As suggested above, these delays most likely affect the implementation of plans and may also undermine accounting integrity, creating loopholes for misappropriation of scarce resources.

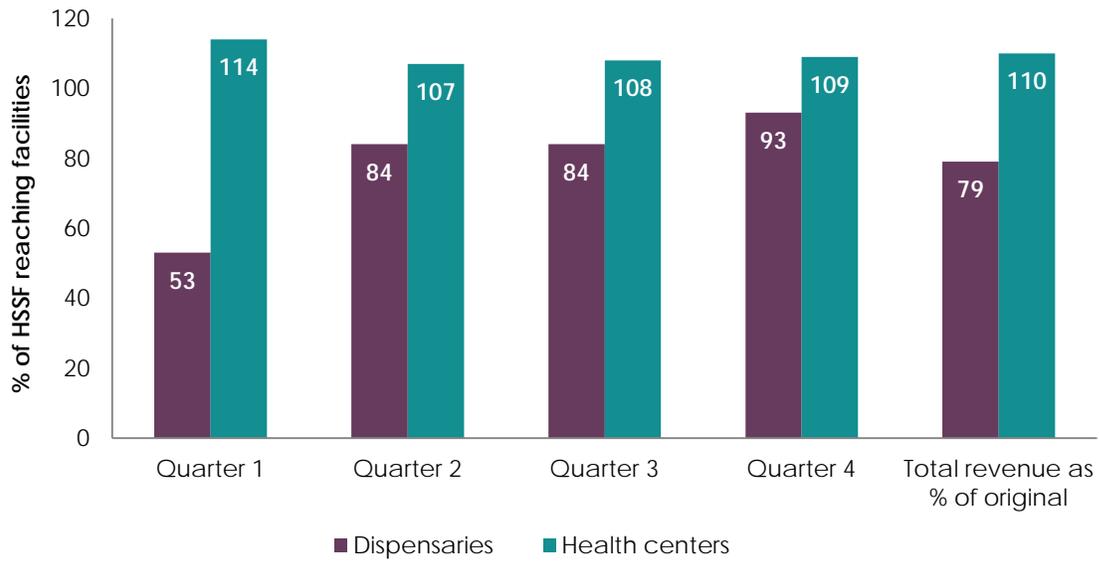
Figure 4-7: Delays in Facility Receipt of 2011–2012 HSSF Resources (Percentages of Facilities by Number of Days)



4.2.3 Proportion of HSSF reaching facilities, 2011–2012

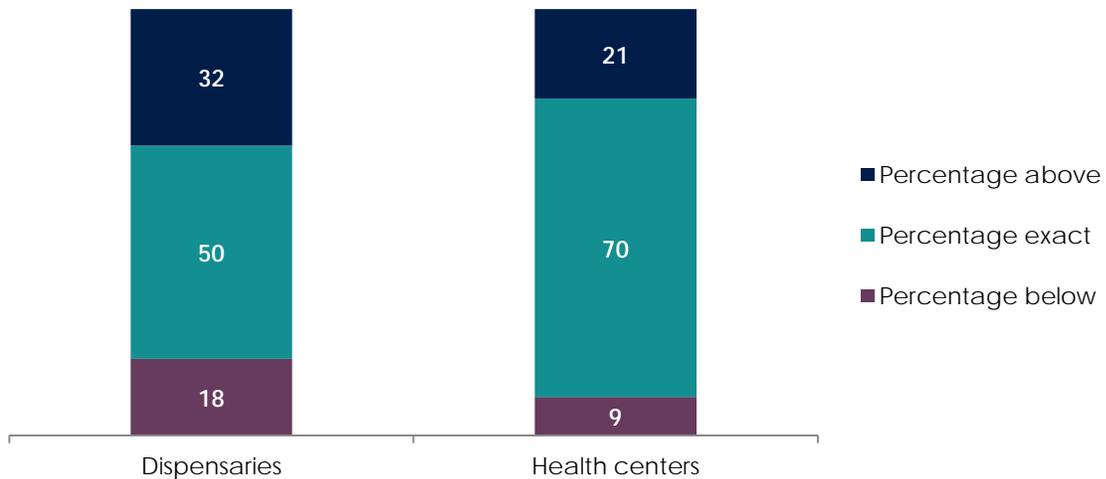
Against the backdrop of the inconsistent disbursements reflected above (Figure 4-7), the survey estimated the shares of HSSF resources reaching facilities as a proportion of designated amounts. The findings show that in 2011–2012, 79 percent of dispensaries and 110 percent of health centers received their earmarked disbursements. These discrepancies were not investigated conclusively. One likely explanation could be the weak management of facility status; some health centers may not have changed their registration status to subdistrict or district hospitals to match the ministry records, resulting in an overestimation of HSSF receipts by health centers. The current analyses do not respond to the need to reconcile the disbursements (Figure 4-6), delays (Figure 4-7), and the aggregate quarterly shares (Figure 4-8).

Figure 4-8: Quarterly Shares of HSSF Reaching Public Facilities, 2011–2012



When facility receipts are disaggregated, Figure 4-9 shows that health centers are more likely than dispensaries to receive the exact allocation of Ksh 450,000. Viewed against the backdrop of the data in Figure 4-7, this situation suggests that some dispensaries receive disbursements equivalent to those of health centers, perhaps because the MOH has upgraded them without changing their registration details, meaning that they retain their designation as dispensaries and the accompanying management profile.

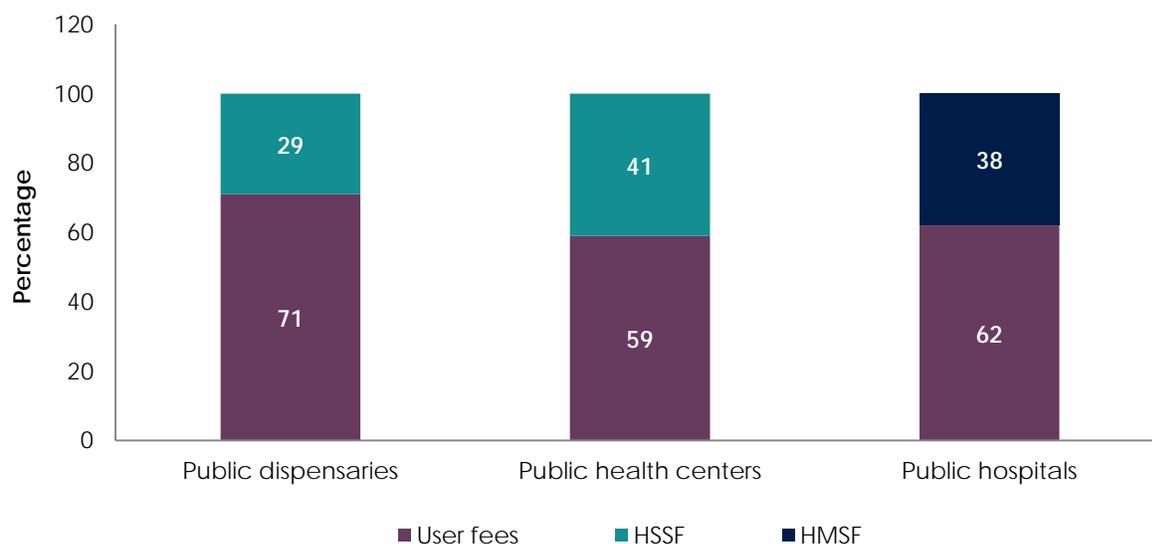
Figure 4-9: Shares of HSSF Reaching Public Dispensaries and Health Centers, 2011–2012



4.2.4 Comparing facility revenues: user fees, HSSF, and HMSF, 2011–2012

The significant role of user fees in public facilities is highlighted in Figure 4-10. On average, during 2011–2012, a public health facility raised user fees that were more than double the revenues received from HSSF or HMSF. The scenario is not very different across facility types.

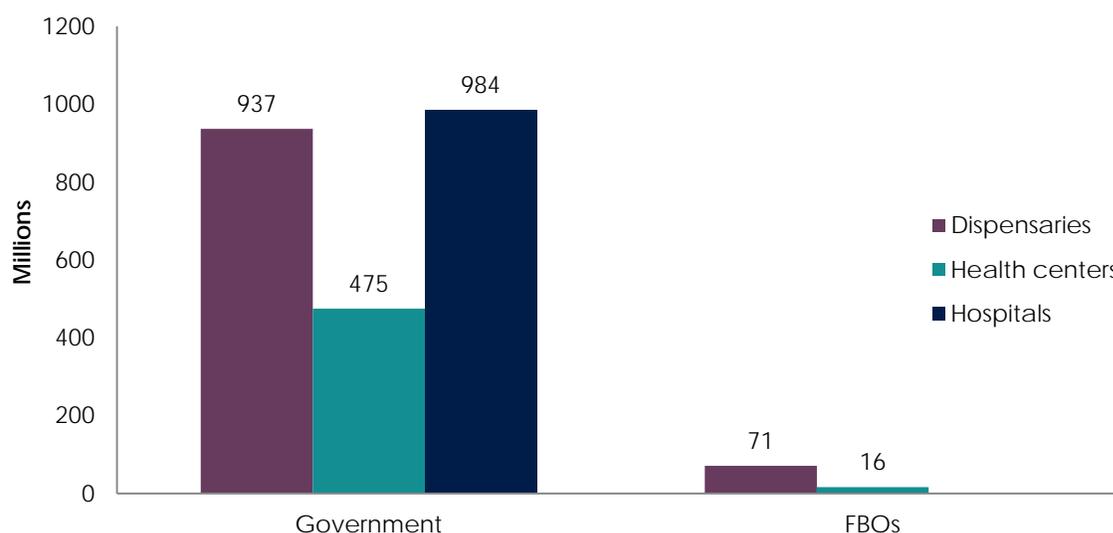
Figure 4-10: Comparing User Fees and HSSF/HMSF Revenues in Public Facilities, 2011–2012



4.3 Kenya Medical Supplies Agency “Drawing Rights”

KEMSA procures in bulk and distributes medicines and medical supplies to public health facilities. The traditional “push” system, which delivers packaged standard drug kits by facility type, regardless of regional differences, has largely been replaced by a “pull” system, which enables facilities to order according to their own needs. KEMSA’s role is enabled by indirect government budget resources, dubbed “drawing rights,” which are set aside for the procurement of drugs and nonpharmaceutical supplies. This survey has established that the value of these additional resources from the government is greater than the value of resources from nongovernmental sources, directed at private and public facilities.

Secondary information from the MOH shows that, during 2011–2012, KEMSA-based allocations to public hospitals (Ksh 984 million) and dispensaries (Ksh 937 million) for drugs and medical supplies were greater than those for health centers (Ksh 475 million) (Figure 4-11.) The faith-based organizations’ drawing rights were Ksh 71 million for dispensaries and Ksh 16 million for health centers.

Figure 4-11: Status of Drawing Rights for Drugs and Medical Supplies, 2011–2012

Source: Ministry of Health, Health Financing Division.

4.4 Other Sources of Revenue for Public Facilities, 2011–2012

The survey asked facilities to indicate other sources of revenue besides user fees and HSSF/HMSF. It is worth recalling that the government pays all public health salaries and procures drugs and nonpharmaceutical supplies from KEMSA. Thus, HSSF resources target direct facility spending on operations and maintenance. As Table 4-5 shows, the amount of funds generated from other sources is modest, with no single source contributing more than a 10-percent share. The Constituency Development Fund (CDF) and donors contributed more during the year to dispensaries than to health centers and hospitals. On the other hand, other ministry funds and the National Hospital Insurance Fund (NHIF) contributed more to hospitals than to health centers and dispensaries. In general, dispensaries and hospitals had larger additional sources of revenue than health centers did.

Table 4-5: Shares of All Sources in Facility Revenues, 2011–2012

| | Dispensaries (%) | Health Centers (%) | Hospitals (%) |
|----------------------------------|------------------|--------------------|---------------|
| HSSF | 31 | 40 | 0 |
| HMSF | 0 | 0 | 14 |
| Other MOPHS/MOMS funds | 0 | 1 | 6 |
| User fees | 53 | 53 | 70 |
| Constituency Development Fund | 6 | 3 | 2 |
| National Hospital Insurance Fund | 0 | 0 | 5 |
| Donors | 6 | 1 | 0 |
| Other cash receipts | 3 | 0 | 0 |
| Value of in-kind from government | 0 | 0 | 1 |
| Value of in-kind from NGOs | 0 | 1 | 3 |

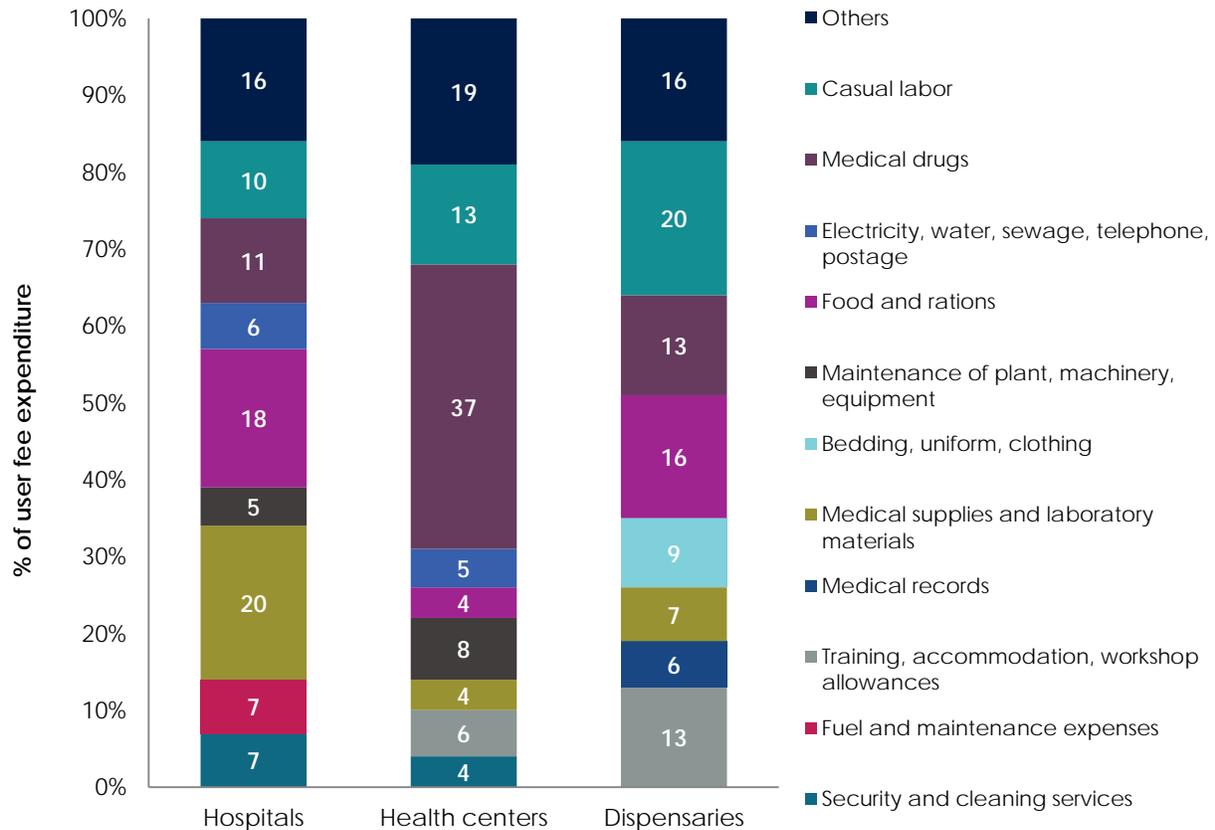
4.5 Expenditure Patterns of Health Facilities, 2011–2012

The 2011–2012 expenditure lines reported by facilities, regardless of the source of revenue involved, were grouped together into eight categories for ease of analysis, as listed in Figures 4-12 and 4-13. Figure 4-12 summarizes the expenditure of user fee revenues, while Figure 4-13 summarizes the expenditure of HSSF resources. The survey analysis did not estimate the total expenditures, because the amounts that MOH spent directly on salaries and allocations for drugs and nonpharmaceutical supplies were not captured at the facility level.

4.5.1 *Composition of user fees expenditures, 2011–2012*

As Figure 4-12 shows, during 2011–2012, public hospitals spent the largest share of their user fee revenue (20%) on medical supplies and laboratory materials, followed by food and rations (18%) and medical drugs (11%). For the health centers, most of the funds were spent on medical drugs (37%), followed by casual labor (13%), while at dispensaries, the categories were casual labor (20%), followed by food and rations (16%) and medical drugs (13%). The expenditure on food and rations hospitals and health centers is understandable, given their inpatient roles, but for dispensaries it is extraordinary, because they have no inpatient role. However, the analysis of facility caseloads found that some dispensaries provide inpatient services. It is likely that such dispensaries have been upgraded to health centers, but the cataloguing process to change their status had not been completed during the reporting period. Another prominent user fee expenditure line covers casual labor, which suggests that the MOH budget for facility personnel is inadequate, requiring facilities to spend a large share of their own revenues to hire extra workers.

Figure 4-12: Composition of User Fees Spending in Public Facilities, 2011–2012



The most significant finding is the proportion spent, across all facilities, on medical drugs, medical supplies, and laboratory materials. This highlights either the inadequacy of KEMSA drawing rights or suggests that the variety of KEMSA supplies does not adequately cover facility needs, forcing facilities to procure from the market to cover the KEMSA deficit.²³

4.5.2 Composition of HSSF and HMSF spending, 2011–2012

HSSF resources are intended to improve coverage, quality, and responsiveness, by supporting basic operational costs at public dispensaries and health centers; HMSF resources serve the same role for hospitals. Basic operational costs are those for support staff for facility upkeep and record keeping and for the operation and maintenance of the facility, equipment, and vehicles. The two funds also cover the costs of electricity, water, and communications and the supply of consumables and stationery. In addition, HSSF covers services at Level 1: outreach, such as reproductive and child health, provided by facility staff; community mobilization; and promoting cross-sector linkages and other community-based activities, including maintenance of water sources and sanitation. In the tradition of the government’s budget system, HSSF and HMSF disbursements specify areas of spending, which are based on respective facilities’ annual operational plans (AOPs) and quarterly implementation plans (QIPs) as originally submitted to the MOH.

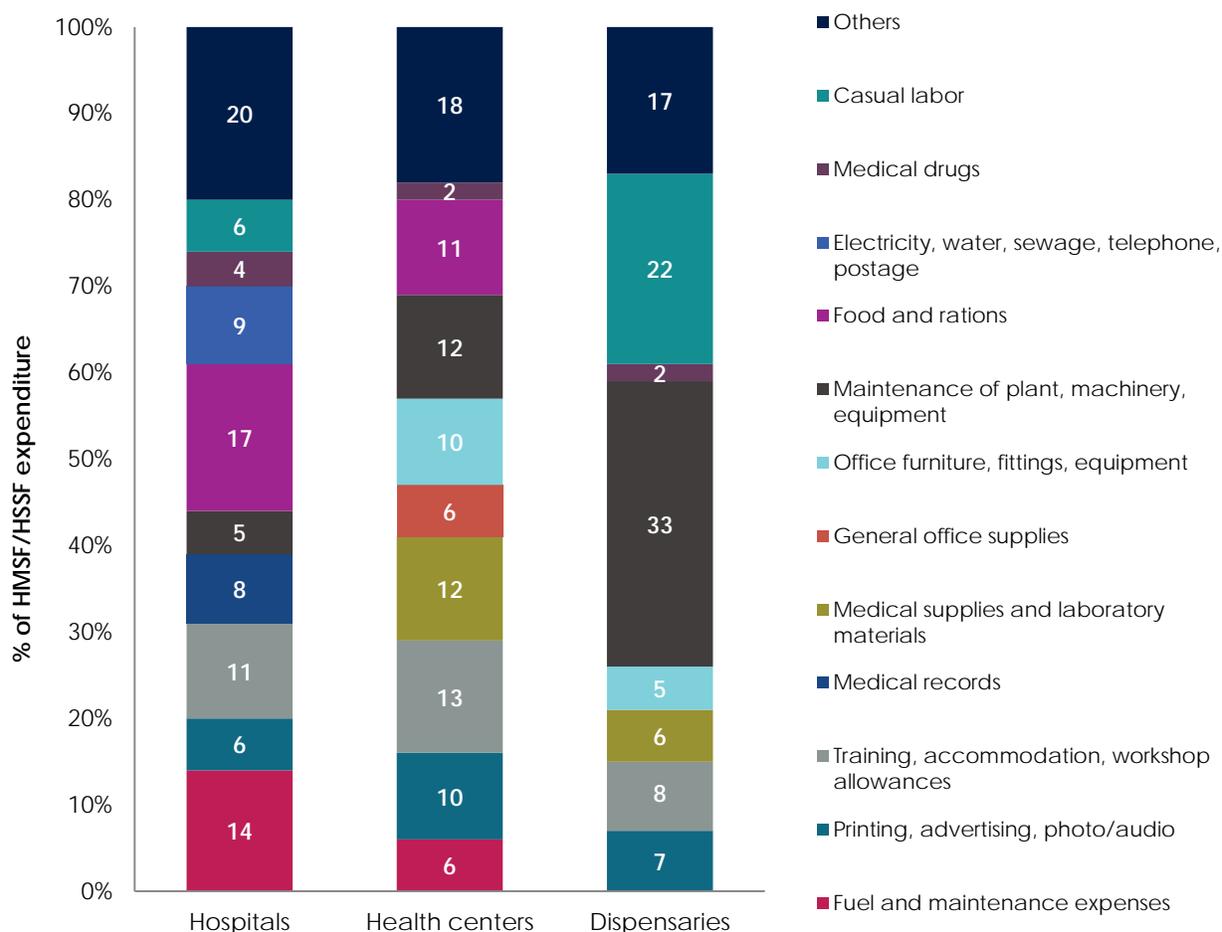
The survey collected facility data on HSSF for dispensaries and health centers and HMSF for hospitals, as reported in Figure 4-13. The hospitals’ biggest share of spending was on food (17%), followed by

²³ Although the latter explanation is logical, it would mean that (1) KEMSA does not adequately cover EMMS and the Kenya Essential Drugs List (KEDL), or (2) that EMMS and KEDL are not comprehensive for Kenya’s epidemiological profile.

maintenance of vehicles (14%), and training (11%). This contrasts well with user fee spending, most of which goes to cover medical supplies (20%), food and rations (18%), medicines (11%), and casual labor (11%). The distribution suggests that HMSF subsidies meet certain needs for the hospitals, such as vehicle maintenance and training, but are inadequate to cover other key areas, such as food and rations and medical supplies.

HSSF spending also contrasted with facility user-fee spending. About half of HSSF funds were spent on areas not covered by user fee spending, meaning that these revenue sources may serve different purposes. For dispensaries, only casual labor was a prominent cost covered by both revenue sources: 22 percent for HSSF and 20 percent for user fees. There were some other notable features of spending, such as hospitals' expense on training (11%), which might explain the high rates of sanctioned absence from work (see Figure 3-10). Contrary to expectations, hospitals did not spend any HMSF funds on motor vehicles. Also, the comparatively high amounts spent on media materials contrasted sharply with the lack of spending on utilities (electricity, water, telephone). Finally, the dispensaries' large share of spending on "maintenance of plant, machinery, and equipment" (33%) was surprising in comparison with the shares of spending on this expense by hospitals (5%) and health centers (12%).

Figure 4-13 HSSF and HMSF Spending by Public Facilities, 2011–2012



Overall, the 2011–2012 HSSF and HMSF spending patterns show that priority spending areas do not focus directly on health inputs. This is reflected in the expenditures on maintenance of plant, machinery,

and equipment; training, accommodation, and expenditure allowances; and food and rations, which greatly overshadow spending on medical drugs and supplies and laboratory materials. Second, the spending patterns show that government resources may not adequately cover drug supplies, causing facilities to procure them from the unregulated private market. The results also reflect the inadequacy of personnel, which causes all facility types to spend user fee revenue to hire casual labor. Finally, some spending areas call for further investigation, such as why arguably small dispensaries manned by four nurses (Figure 4-13) allocated money for media and the maintenance of plant and machinery.

4.6 Planning and Financial Management

The financial planning process is facilitated by a stakeholder’s forum organized by the staff in charge of the facility and involves the HFMC, local health sector development partners, and representatives of CDF, among others. The forum reviews the previous year’s performance, including implementation challenges and their possible solutions. It also reviews government priorities in the sector, from which it extracts the key issues for the next financial year, which then are incorporated into AOPs. After the DHMT approves the AOP, the HFMC prepares the QIP, which describes specific activities to be implemented during each quarter.

4.6.1 Development of the quarterly implementation plans

The flow of resources and implementation of projects in health facilities is supposed to follow a well-thought-out workplan. In the past, public facilities were required to prepare annual workplans, but since 2011–2012, they have switched to preparing QIPs to coincide with the quarterly disbursement of HMSF/HSSF budget resources. Although the availability of QIPs averaged 70 percent across facilities, they were more common in urban facilities (84%) (Table 4-6). More public facilities (74%) than private ones (56%) had the plans. And more hospitals (94%) than dispensaries (66%) had them. Availability in urban public facilities was nearly universal for all review categories, perhaps because large urban facilities have more capacity (that is, staff, resources, and knowledge) to complete QIPs than other facilities do. Also, not all private facilities are required to submit QIPs.

Table 4-6: Availability of QIPs and Involvement of an HFMC in Planning

| | All (%) | Public (%) | Private (%) | Rural (%) | Urban (%) | Public Rural (%) | Public urban (%) |
|---|---------|------------|-------------|-----------|-----------|------------------|------------------|
| Availability of QIPs | | | | | | | |
| All facilities | 70 | 74 | 56 | 68 | 84 | 71 | 97 |
| Dispensaries | 66 | 69 | 53 | 64 | 82 | 67 | 96 |
| Health centers | 84 | 91 | 60 | 85 | 83 | 90 | 97 |
| Hospitals | 94 | 96 | 87 | 94 | 93 | 93 | 100 |
| Facilities involving HFMC in Work Planning | | | | | | | |
| All facilities | 91 | 94 | 76 | 95 | 71 | 99 | 67 |
| Dispensaries | 90 | 94 | 74 | 96 | 59 | 100 | 47 |
| Health centers | 91 | 93 | 81 | 93 | 82 | 94 | 87 |
| Hospitals | 94 | 96 | 87 | 90 | 100 | 93 | 100 |

In the preparation of workplans, facilities are required to involve HFMCs, which are responsible for facility-level governance. HFMCs oversee implementation, including supervision and control of all resources raised, received and managed by the health facility. Information from the survey shows that the level of HFMC involvement in developing workplans is impressive, with an all-facility average rate of 91 percent. Involvement was much higher in rural than urban areas, perhaps reflecting a difference in the perceived opportunity costs of attending community interest meetings. Compliance was higher in public (94%) facilities than private ones (76%).

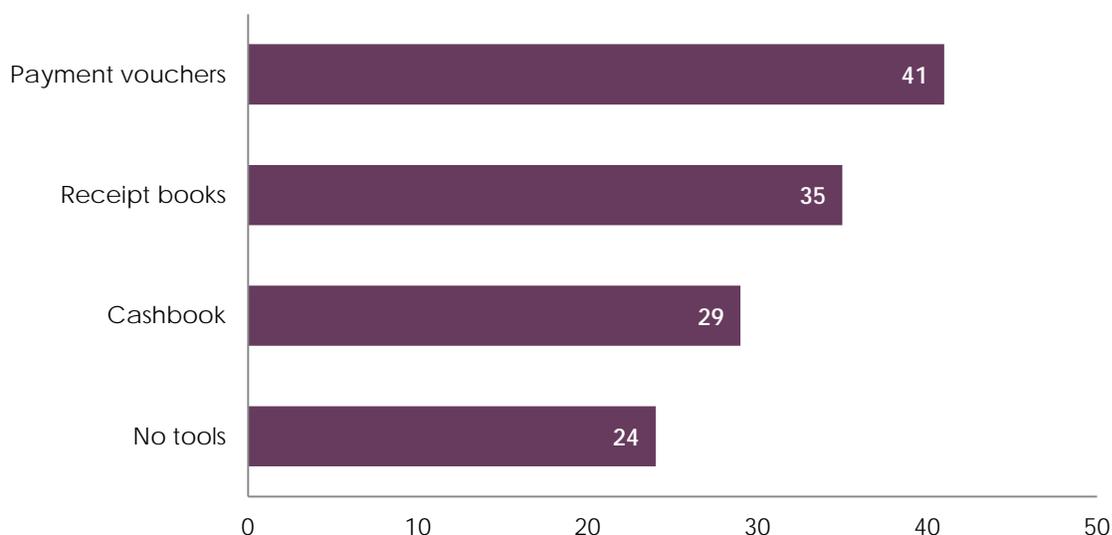
Once the QIPs were developed, however, there were extensive delays in getting them approved, with about 65 percent of rural-based facilities and about 70 percent of all dispensaries experiencing delays. The survey found that about 80 percent of the delays were associated with inaction by the district health office.

4.6.2 Availability of financial management tools

Health facilities receive receipt books, payment vouchers, and cashbooks to help them improve record keeping and monitor expenditures effectively.

However, as illustrated in Figure 4-14, roughly one-quarter of all facilities do not have any financial management tools, opening the door to weak accountability. Urban facilities, in particular, lack financial accounting tools; 39 percent of them reported having no tools, in comparison with 21 percent of rural facilities. Public facilities are more likely than private facilities to have financial management tools. The most widely available tool at public facilities was the payment voucher (49%). Just 10 percent of private facilities had payment vouchers. (For more information, see Table A-4-3.)

Figure 4-14: Distribution of Financial Management Tools from National Level, All Facilities (%)



4.6.3 Distribution of the financial accounting role

The lack of financial management instruments raises questions about the functions of the financial accounting personnel at facilities. Almost all facilities (99%) reported having designated financial accounting officers; whether or not they were trained is discussed below (Table A-4-4). Although private health centers are the least likely facility type to have this cadre of personnel, 87 percent did have a designated financial accounting officer.

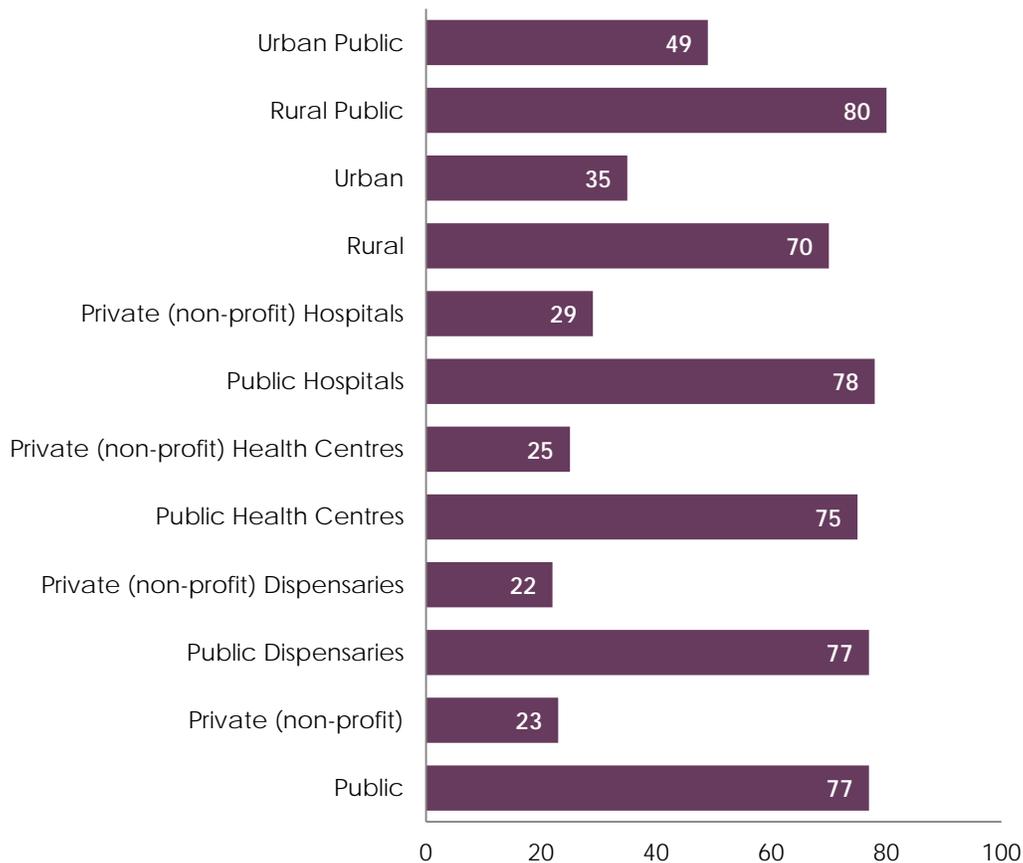
At approximately 89 percent of all the public facilities sampled, the officer-in-charge was the person responsible for financial accounting; this was the case at only 45 percent of private facilities (Table A-4-6). This officer-in-charge normally was the nurse at a dispensary, the clinical officer at a health center, and the medical superintendent at a hospital. Only 5 percent of public and 25 percent of private facilities had an accountant, meaning that the large sums of money and the related procurement are managed by people who are not professional accountants. Indeed, the distribution of dedicated accountants in both the private and public sector was skewed heavily in favor of hospitals rather than health centers and dispensaries. Thus, for most facilities, financial management is a subsidiary function undertaken by untrained people. No health centers or dispensaries reported receiving support from a county accountant and only 7 percent of hospitals did so.

4.6.4 Community-led management and participation

Sharing of financial information

Following the introduction of the HSSF/HFMC mechanisms, facilities have been expected to share financial information with their communities to enhance their accountability and overall health system management. Overall, 65 percent of the facilities surveyed shared financial information with their communities, but this was twice as common in rural than urban areas, as Figure 4-15 shows. Information sharing was also more common in public facilities (77%) than private facilities (23%). Most of the facilities used meetings to share financial information, very few of them with the aid of chalkboards and posters.

Figure 4-15: Facilities Sharing Financial Information with Their Communities (%)



Facility distribution of health facility management committees

The government requires facilities to form HFMCs composed of local stakeholders to manage all resources. As Table 4-7 shows, 96 percent of all facilities and all public rural facilities covered in the survey had a facility management committee. While 99 percent of public facilities had a committee in place, just 77 percent of private facilities had one.²⁴ HFMCs were also marginally more common in rural than urban facilities, including public rural facilities. Private dispensaries (73%) were far less likely than private hospitals (98%) and private health centers (86%) to have an HFMC.

Table 4-7: Share of Facilities with HFMCs (%)

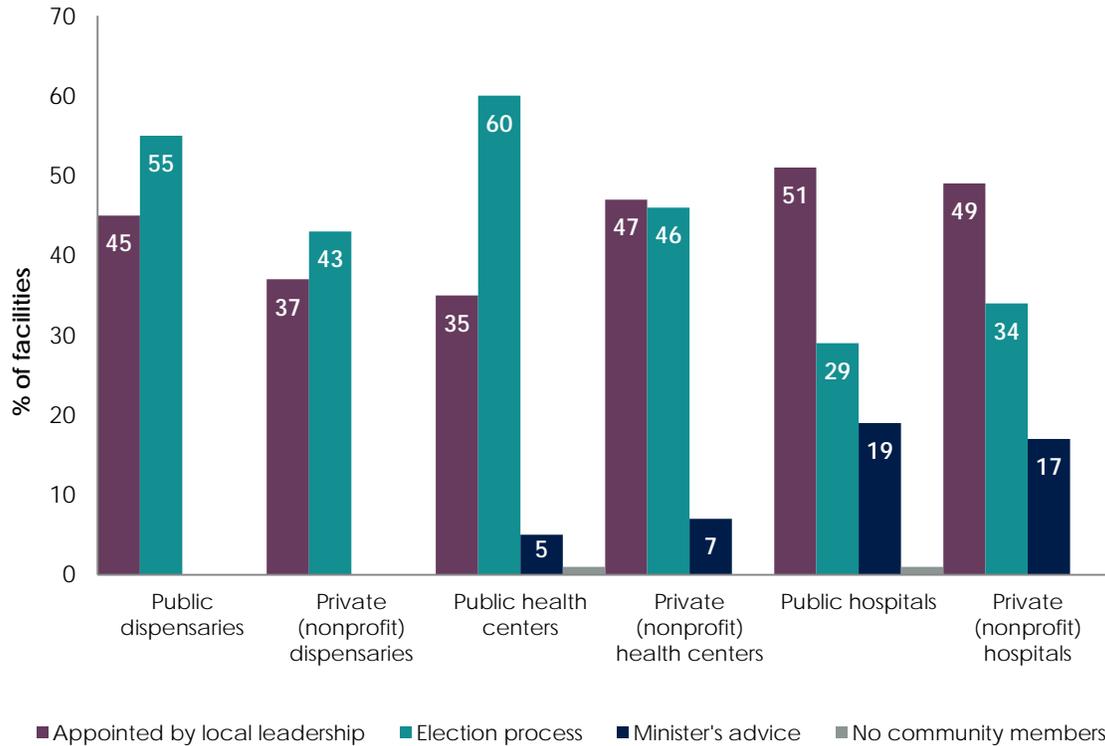
| | All | Public | Private | Rural | Urban | Public Rural | Public Urban |
|----------------|-----|--------|---------|-------|-------|--------------|--------------|
| All facilities | 96 | 99 | 77 | 97 | 93 | 100 | 95 |
| Dispensaries | 96 | 100 | 73 | 97 | 92 | 100 | 96 |
| Health centers | 97 | 98 | 86 | 99 | 88 | 100 | 89 |
| Hospitals | 100 | 100 | 98 | 99 | 100 | 100 | 100 |

Inclusion of community representatives in HFMCs

The survey explored the inclusion of community representatives in HFMCs. Figure 4-16 summarizes the channels through which the committees were constituted. In the majority of the lower-level facilities, the committees were constituted mainly through an election. Public and private hospitals, on the other hand, were more likely to appoint representatives through the local leadership. Although the ministry did not advise dispensaries on HFMC appointments, it did advise public health centers and hospitals. There was a significant divergence between the urban and rural facilities on the mode of choosing the HFMC representative. In 71 percent of the urban facilities, representatives were appointed by local leaders; in only 25 percent were they elected. In 39 percent of rural facilities, representatives were directly appointed; in 59 percent, they were elected. The survey found that, on the whole in public urban hospitals, the ministry appointed HFMC members.

²⁴ It is likely that for a private facility that is part of a chain, the management system might see a facility-based committee as an unnecessary additional cost.

Figure 4-16: Inclusion of Community Representatives in HFMCs



The survey also examined the frequency of HFMC meetings (Table A–4-6). Most facilities (83%) held quarterly meetings—possibly in an attempt to synchronize with the QIP cycle. Very few HFMC meetings were held monthly or biannually, and only 1 percent of the facilities held annual meetings. Quarterly meetings were more likely in public facilities (86% in public compared to 54% in private). However, three times as many private as public facilities held monthly meetings, and only private facilities held biannual (4%) and annual (5%) meetings.

Facility financial management subcommittees

Besides the umbrella HFMC, facilities also may establish subcommittees, as Table 4-8 shows. Three such subcommittees focus specifically on financial management (finance, procurement, and audit). The survey found that these subcommittees were uncommon across the facilities. A finance subcommittee existed in 22 percent of the facilities, a procurement subcommittee in 16 percent of them, and an audit subcommittee in 6 percent of them. A larger share of public facilities than private ones had finance and procurement subcommittees; private facilities had more audit subcommittees. All three subcommittee types were more prevalent in urban than rural facilities. Subcommittees were more prevalent in hospitals than health centers and dispensaries, regardless of ownership (public or private).

Table 4-8: Presence of Key Management Subcommittees (%)

| | Finance Subcommittee | Procurement Subcommittee | Audit Subcommittee | Other |
|----------------|----------------------|--------------------------|--------------------|-------|
| All facilities | 22 | 16 | 6 | 10 |
| Public | 23 | 18 | 6 | 10 |
| Private | 16 | 6 | 10 | 11 |

| | Finance Subcommittee | Procurement Subcommittee | Audit Subcommittee | Other |
|------------------------|----------------------|--------------------------|--------------------|-------|
| Public dispensaries | 17 | 14 | 1 | 4 |
| Private dispensaries | 8 | 3 | 13 | 7 |
| Public health centers | 27 | 23 | 7 | 13 |
| Private health centers | 21 | 26 | 0 | 17 |
| Public hospitals | 85 | 46 | 65 | 78 |
| Private hospitals | 72 | 7 | 0 | 33 |
| Rural | 16 | 15 | 4 | 8 |
| Urban | 64 | 22 | 20 | 25 |
| Public rural | 17 | 17 | 4 | 8 |
| Public urban | 72 | 23 | 21 | 29 |

4.7 Summary of Health Revenues and Expenditures

Adherence to the 10/20 Policy: Although the 10/20 Policy of 2005 restricted dispensary registration fees to KShs10 and health center registration fees to KShs 20, this study found that only about 72 percent of public facility managers were aware of the policy, including about 70 percent of the health center and dispensary managers. Of the facilities that were aware of the policy, 14 percent were not implementing it, due to reported inadequacy of the HSSFs to cover operational costs or because of perceptions that households in their catchment areas could afford to pay for services. Others reported that they had imposed fees on the advice of a local committee. Besides charging for registration, other violations also occurred in fee-exempt services, such as ANC attendance, services for children under five, and HIV and AIDS services. The survey found a wide gap between private and public facility fees.

Revenues generated from user charges in private facilities were more than double those raised in public facilities, even after the government had compensated public facilities for revenues lost through exemptions and waivers. Although poor data undermined this study's analysis of the roles of NHIF and decentralized funds (for example, CDF), the public/private revenue gap underscores the need for a sustainable national social health insurance fund.

HSSF: To overcome operational challenges, HSSF was disbursed in equal quarterly installments into the QIPs of dispensaries and health centers. However, the survey found uneven disbursements to the public facilities in 2011–2012. Disbursement delays average from 40 to 80 days.

Comparing user fee revenues and HSSF: KNHA 2009–2010 illustrated the great household healthcare spending burden, which fell from 54 percent of total health expenditure in 2001–2002 to 37 percent in 2009–2010. This diminished household share was owing to increased donor spending, because the government's contribution over this period remained constant at 29 percent. Despite commitments to the Abuja 15 percent and WHO spending guidelines, PETS-Plus found that user fee revenues were greater than HSSF revenues for dispensaries, health centers, and hospitals. For instance, dispensaries received 2.4 times more revenue from user fees than from HSSF.

Analyzing expenditures: On average, private facility spending in 2011–2012 exceeded that of public facilities: the five top public expenditure lines amounted to a mere quarter of the Ksh 4.5 billion spent by private facilities. Hospitals spent user fee revenues on medical supplies, food and rations, and drugs. Health centers spent these fees chiefly on drugs and dispensaries spent them chiefly on casual labor. As for government resources, hospitals focused HMSF spending primarily on food and rations, motor vehicle maintenance, and a modest allocation to drugs. For HSSF, the health centers' leading priority was training, followed by medical supplies, in contrast with dispensaries, whose priority was the maintenance of plant and machinery. Overall, 2011–2012 HMSF and HSSF spending did not prioritize health consumables (i.e., drugs and nondrug supplies). However, the total spending picture reflects potentially inadequate government budget allocations; hence the heavy focus on casual labor, food and rations, and drugs.

Financial management and planning: On average, 70 percent of facilities developed QIPs, mainly public facilities. Of these, the majority were hospitals rather than the staff-constrained dispensaries. Ninety-one percent of HFMCs participated in QIP preparation—again, mainly those in public facilities, especially hospitals. Implementation was similarly distributed, but one-third of facilities—especially rural private dispensaries—with plans did not implement them. However, implementation was also hampered by delayed approval from the district health office.

A quarter of facilities had not been supplied with necessary financial management tools. Payment vouchers were more widely distributed than cash or receipt books, primarily among public urban hospitals. About 99 percent of all facilities had a dedicated accounts officer, even if many of these did not have a background in accounts. Accountants were in charge in only 25 percent of private facilities and 5 percent of public facilities.

Inclusion in HFMC membership was marginally democratic, through elections, but the appointment of others by local leaders—and ministry nominations to urban hospitals—likely provides opportunity for committees to base decisions on parochial interests. The widespread distribution of these democratically constituted HFMCs does not guarantee the sharing of information with communities. Such transparency was especially rare among private facilities, which generate the greatest revenues from the public. The few “technical” HFMC subcommittees focused on finance and audits, rather than procurement, for instance.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Kenya has made various commitments to restructure its public health delivery to focus more on the cost-effective primary healthcare approach and incorporate preventive and promotive health through the Alma Ata Declaration (1978) and the KHPF (1994–2010). Reviewed against the past decade or so, the current structure of the public health budget suggests a movement away from curative hospital-focused care toward the direction of the foregoing policies. The findings reported here show that, fundamentally, Kenya’s public healthcare system—budgets, personnel, drugs, equipment, etc.—remains extensively focused on curative, urban-centered hospital healthcare. Additionally, PETS-Plus found evidence of persistent significant out-of-pocket spending—user fees—as the basis of facility spending and operations.²⁵ The following sections outline key recommendations based on this study.

5.1 Recommendations for County Governments

As counties prepare to take on additional responsibilities through the devolved restructuring of healthcare, they will face challenges in improving the quality of service delivery while reducing the burden of out-of-pocket healthcare expenditures. The findings from PETS-Plus reveal that critical healthcare inputs, such as human resources and drug availability, are not sufficiently supplied. This indicates that counties may not be ready to undertake all of their new functions. As a result, we suggest that counties prioritize the following to improve quality service delivery:

1. *Increase availability of drugs:* The availability of drugs—particularly maternal drugs—is sub-par in facilities at all levels. Although counties do not yet have clearly defined new procurement responsibilities, they should act as a liaison between facilities and the national government, and restructure existing procurement procedures. For instance, counties should consider allocating more funds for essential drugs and source them from KEMSA on a needs basis, as pull facilities generally perform better than push facilities.
2. *Improve human resource capacity:* Staffing should follow the ministry norms. The current high rates of staff absences are detrimental to healthcare delivery, even if most of them are sanctioned. Counties can reduce absenteeism by granting less time off. Clinicians also lack proper knowledge and diagnostic accuracy, which can be strengthened by increasing training on clinical guidelines. The MOH should consider review of training curricula to ensure that future medical students have the necessary skills. For those in service, the MOH should make in-house training mandatory particularly in areas that have been identified as weak: malaria with anemia and managing maternal and newborn complications.
4. *Scale up use of electronic equipment:* Access to computers and the internet will become essential as Kenya moves toward electronic HMIS data collection. However, current access to these resources is very low, particularly in rural and public facilities and dispensaries. MOH should therefore scale up use of electronic equipment—computers and internet—to enhance health facility-based business processes.

²⁵ This conclusion regarding user fees would be obvious even if PETS+ had not explored government contributions to facility resources through wages for facility health personnel and the facility drawing-rights budgets deposited with KEMSA.

5.2 Recommendations for the National Government

The national government will enforce two new health financing policies: (1) the eradication of user fees at health centers and dispensaries, and (2) the provision of free maternity services at all facilities. Based on assessments of current health financing policies and structure, we recommend the following:

1. *Increase awareness of new policies and monitoring of facilities:* Lessons can be learned from the implementation of the 10/20 Policy as facilities prepare to implement these new policies. Just 70 percent of facilities were aware of the 10/20 Policy eight years after it was implemented, and adherence to the policy was low, particularly among dispensaries. Without punitive policies and oversight for nonadherence, similarly poor rates of adherence to the new policies are likely.
2. *Ensure timely and accurate delivery of HMSF/HSSF funds:* Facilities reported delays in fund receipt along with inaccurate amounts being disbursed, which could be barriers to facilities eradicating user fees. However, these challenges can be overcome by strengthening community involvement and financial management capacity. Financial personnel should be trained in the skills needed to prepare QIPs and other documents for fund disbursement. More financial tools should be made available to facilities as well. The creation of financial management subcommittees under HFMC, particularly for dispensaries, also can alleviate the burden on facilities in managing their revenues and expenditures.
3. *Increase funding available to facilities:* Facilities reported that they did not adhere to the 10/20 Policy because the resources available to them did not meet their needs. The fact that the government's contributions to public health facilities through HSSF and HMSF are not the dominant source of revenue for any of the facility types suggests that these government resources do not meet all the needs of facilities. As a result, facilities may not cut user fees unless they receive additional funding through HSSF, KEMSA, and/or NHIF. Patterns in user fees versus HSSF expenditures reveal that only certain areas, such as drugs, may lack sufficient funding.

5.3 Key Recommendations for All Stakeholders

As Kenya moves toward Universal Health Coverage (UHC) through KEPH, every Kenyan citizen should have access to affordable healthcare. This study can comment in particular on the breadth (who is covered), depth (which benefits are covered), and height (what proportion of the costs is covered) of healthcare. The results show gaps in services and financing that suggest potential inequities in the accessibility and affordability of care. Below are recommendations for closing some of the bigger gaps:

1. *Reduce inequities in who is covered (breadth) by focusing on service delivery at Levels 2 and 3:* A major setback to the referral system envisaged by KEPH is the disparity in service delivery indicators between dispensaries, health centers, and hospitals. Hospitals tend to have more resources than health centers and dispensaries. By focusing on service delivery improvement at the lower levels, these gaps may close. For health centers, as the number of workers increases, so does the caseload rate per worker. Therefore, additional investments in human resources at these facilities could significantly increase the number of people receiving care. Urban and private facilities had better indicators of care, including greater availability of drugs, which suggests that rural and low-income populations may have less access to care than urban and wealthier populations do. Again, by focusing on these facilities, access to healthcare can be improved.
2. *Increase facilities' ability to conduct more services:* Key inputs are missing to achieve UHC, because facilities are unequipped to provide additional interventions. Lack of basic infrastructure, medical equipment, and drugs all hinder facilities' ability to provide more services. The government should therefore give priority to equipping health facilities with adequate

infrastructures and medical equipment. The health facilities should receive enough money for drugs to provide adequate and high-quality health services to their clients.

3. *Speed up facilities' implementation of new health financing policies to reduce the financial burden on patients:* Many facilities ignore current user fee policies, which results in wide variations in the cost of care across facilities. For instance, the ANC fee in private health centers is four times that in public health centers. The new policies need to be enforced widely to protect vulnerable populations from financial risk.

APPENDIX 1: ADDITIONAL INFORMATION

Modules of the Survey Instrument

The survey instrument had four modules covering:

- General facility information
- Staff characteristics and attendance
- Tests of staff's clinical knowledge
- Public expenditures tracking

Table 2-1 provides an overview of the instrument, key respondents, and the numbers of respondents for some of the modules. This table also summarizes the information collected under each module. The survey instrument was designed in consultation with MOH and key stakeholders.

Overview of the PETS-Plus Instrument

| Module | Key Respondents | Description |
|-------------------------------|--|--|
| Facility Questionnaire | Administrative staffing in-charge and chief doctor/most senior medical officer/nurse in-charge | Collects general information about the health facility; its infrastructure; and availability of equipment, materials, drugs, and supplies |
| Staff Roster | Part A: Senior staff in charge Part B: Health workers | Part A: List of all health workers at the facility, including their employment category Part B: Administered to 10 randomly selected health workers to measure absenteeism |
| Clinical Knowledge Assessment | Health workers conducting outpatient consultations | Administered to up to 10 health workers; assessed their clinical knowledge using 5 medical vignettes and 2 additional vignettes for antenatal and neonatal care |
| Public Expenditure Tracking | Senior staff in-charge and facility accountant | Collects information on (1) the revenue and expenditures (both monetary and nonmonetary) of facilities, with a focus on the HSSF/HMSF and user charges; (2) financial management and planning; and (3) distribution of essential drugs |

Disease Management

Kenya's location in the tropics contributes significantly to the high burden of communicable diseases, notably malaria, which accounted for more than 30 percent of all illnesses between 2006 and 2010. The extensive reliance by Kenyan households on unprotected domestic water sources drives both skin and diarrhea diseases. Despite the prominence of HIV and AIDS, neither features among the leading morbidity conditions, possibly because of their manifestation in related opportunistic infections. Effective management of diseases can cure some and make life more bearable for others.

We noted above that HIV and AIDS are not always adequately reported owing to stigma, but the disease comes to the fore when causes of death are considered. Kenya's Economic Survey 2011 reports malaria to be the prime cause of death, with a 27.2 percent share. Pneumonia, AIDS, and TB—conditions that are often related—follow, with respective shares of 18.5 percent, 11.1 percent, and 10.2 percent. In turn, the Kenya Health Policy 2012–30 data show that HIV and AIDS account for about one-third (29.3%) of all

deaths. Indeed, the role of HIV in deaths is larger, given that other listed causes of death are often coinfections of the virus. Communicable diseases dominate Kenya's death profile, with the noncommunicable diseases' share standing at a mere 10 percent.

From the perspective of service delivery, an important characteristic of most of Kenya's health risk factors, morbidity, and deaths is that they are amenable to management through sustained behavior change. This points to the need for increased attention to preventive and promotive healthcare interventions, a key component of KEPH's Level 1 (the individual, household, and community), which this PETS-Plus study has not investigated.

Tracer Drug List

The MOH tracer medicines are amoxicillin 250mg capsule/tablet; amoxicillin 125mg/5ml powder for oral liquid; paracetamol 500mg tablet; cotrimoxazole 480mg tablet; artemether + lumefantrine 20/120mg tablet; benzylpenicillin 600mg (IMU) vial; epinephrine (adrenaline) 1mg/ml (as HCl or hydrogen tartrate) injection; oral rehydration solution (ORS) (low osmolality), WHO formula (in sachet for 500ml); oxytocin injection 10 IU/ml in 1 ml ampoule; retinol (vitamin A) (as palmitate) capsules; water for injection 10ml ampoule; glucose injectable solution, hypertonic (10% or 50%).

The nonpharmaceutical medical supplies are syringe disposable 5cc, with needle 21G sterile; cotton wool, absorbent, 400mg BP, white; surgical gloves, size 7.5", latex sterile medium; cotton, gauze plain 36" x 100yds, 1500gms BP weight white color, loosely woven and absorbent; sodium hypochlorite 4–6 percent external solution; ethanol 70 percent (denatured) solution.

Contraceptives are hormonal (ethinylestradiol + levonorgestrel 30/150 micrograms tablet or medroxyprogesterone acetate depot injection 150mg/ml in 1 ml vial) and male condoms.

Diagnostic Outcomes by Questions Asked

For each group of clinicians who either got the correct or incorrect diagnosis, the interest is in what share asked about the issues listed in Table 3-13 with a possible link to diarrhea with severe dehydration. Similar analyses were undertaken for pneumonia, diabetes, TB, and malaria with anemia.²⁶

For **acute diarrhea with severe dehydration**, 90 percent of the clinicians who got the correct diagnosis had asked about the "duration of diarrhea." Other conditions that clinicians queried with the highest correlation to a correct diagnosis are "vomiting" (83% of clinicians) and "skin pinch" (86% of clinicians). However, a big proportion of the clinicians who the diagnosis wrong, despite having asked those very same questions: 91 percent who asked about diarrhea, 92 percent who asked about vomiting, and 86 percent on skin pinch. Consequently, there seem to be questions that were popular among clinicians, but asking them did not determine the outcome of the diagnosis.

For **pneumonia**, the difference between asking and getting the diagnosis right or wrong was more clear-cut. Asking some particular questions led to an average 43.7 percent of the clinicians getting the correct diagnosis, against 32.3 percent getting the wrong diagnosis. For all but two of pneumonia's 10 issues—"respiratory rate" and "breathing difficulty"—the share of clinicians asking and getting the correct diagnosis was greater. On "duration of cough," 94.4 percent of those who got the diagnosis right asked about this condition, while just 74.9 percent of those who got the diagnosis wrong asked about it. On "fever," it was 77.5 percent against 66.2 percent, and on "respiratory rate," it was 51.8 percent against 54.3 percent. The poorest scores on either side—getting the diagnosis correct vs. getting it incorrect—were for convulsions (5.6% versus 2.1%) and measles (2.3% versus 0.4%).

²⁶ Because of space constraints, the specific findings are not reported here but are available from the authors.

For **diabetes mellitus**, the picture differed somewhat from the previous conditions, because the associations between asking the eight analyzed issues and getting the diagnosis right or wrong were much stronger. However, the overall averages were a modest 32.1 percent getting the diagnosis correct against 14.8 percent getting it incorrect. For example, the differences in percentage points—between clinicians being correct or incorrect—were large for “family diabetes history” (35.7%), “urinary output” (69.8%), and “thirst” (59.3%). Again, the same issues generated the lowest shares of those asking and getting the correct diagnosis compared with those getting the incorrect diagnosis: “exercise” (6.3% vs. 0.3%) and “height” (4.1% vs. 0.6%).

The picture for **tuberculosis** also lends credence to the conclusions drawn regarding diabetes. In half the questions—9 out of 18—the share of clinicians who asked and got the correct diagnosis was at least twice the share of those who asked and got the diagnosis wrong. Indeed, in no instance did the share of those asking and getting the diagnosis wrong exceed the share of those that got it right. This suggests that for diabetes mellitus, asking the questions was important for the correct diagnosis.

For **malaria with anemia**, it has been suggested in the previous section that clinicians have difficulty in identifying anemia alongside malaria. Of all of the nine conditions in the ministry guidelines, only two point directly to anemia: “color of eyes” and “pallor of hands”—both gauges of blood status. The data show that of those who got the correct diagnosis, the dominant issues raised were “body temperature” (93.3%), “eyes” (95.2%), “fever duration” (80.1%), and “hands” (77.4%), but “convulsions” (38.1%) and “neck stiffness” (14.6%) were weak guides to the condition. However, some of the conditions that had led to high rates of correctness also led to high failure rates: “fever” (82.6%) and “temperature” (82.4%).

Maternal and Newborn Complications

Clinicians were required to consider nearly 40 issues, from which 21 have been analyzed concerning postpartum bleeding. The analysis shows that in all but six of the 21, the share asking and getting the diagnosis right was marginally greater than the share asking and getting the diagnosis wrong. The issues raised with the highest share of clinicians getting the diagnosis right included amount of bleeding (78.1%), genital lacerations (75.0%), and uterine palpitation (74.2%). Only for another two issues—retained placenta and blood pressure—did the share asking and getting the diagnosis right rise above 50 percent. Of the clinicians who were right, less than 1 percent addressed fibroids, polyhydromniotic, multiple pregnancies, and placenta previa.

Interestingly, the greatest share of those asking and getting the wrong diagnosis concerned the same issues for which asking had led large shares to a correct diagnosis: amount of bleeding (77.5%); genital lacerations (79.7%); retained placenta (74.4%); and uterine palpitation (70.0%). The share asking and getting the wrong diagnosis rose above 50 percent for another four issues, including placenta delivery, taking the pulse, taking blood pressure, and genital examination. Only 1 percent of clinicians who got the wrong diagnosis had asked about fibroids, polyhydromniotic, multiple pregnancies, and placenta previa.

For neonatal asphyxia, there were seven considerations for which the share of clinicians asking and getting the correct diagnosis was greater than the share who asked and got the diagnosis wrong. While this was certainly an instance in which asking was the correct thing to do, the picture is not that clear-cut. For example, while 76.2 percent of the clinicians who got the diagnosis correct had asked about respiration effort, 75.8 percent of those who got the diagnosis wrong also had asked the question. Similarly, the 69.8 percent of clinicians who asked about the neonate’s color and got the diagnosis right was as high as that of those who asked (68.1%) and got the diagnosis wrong. Indeed, the question resulting in the greatest variance was on muscle tone: 47.3 percent got the diagnosis right and 19.3 percent got it wrong.

APPENDIX 2: ADDITIONAL TABLES FOR CHAPTER 3

Table A-3-1: Average Level of Service Delivery by Facility Type, Region, and Ownership

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--|-------|--------|---------|------------|-------|--------|--------------|--------------|--------------|--------------|
| Number of Days Per Week Facility Is Open | | | | | | | | | | |
| All facilities | 5.88 | 5.82 | 6.11 | -0.30 | 5.87 | 5.97 | -0.10 | 5.81 | 5.85 | -0.03 |
| SE | 0.14 | 0.16 | 0.10 | | 0.15 | 0.15 | | 0.17 | 0.21 | |
| Dispensaries | 5.67 | 5.60 | 5.94 | -0.34 | 5.69 | 5.53 | 0.16 | 5.63 | 5.35 | 0.50 |
| SE | 0.17 | 0.19 | 0.11 | | 0.18 | 0.15 | | 0.21 | 0.05 | |
| Health centers | 6.52 | 6.50 | 6.58 | 6.38 | 6.54 | 6.42 | 0.12 | 6.55 | 6.17 | 0.38 |
| SE | 0.17 | 0.11 | 0.12 | | 0.11 | 0.17 | | 0.13 | 0.28 | |
| Hospitals | 6.98 | 6.97 | 0.00 | 6.97 | 7.00 | 6.95 | 0.05 | 7.00 | 6.94 | 0.06 |
| SE | 0.02 | 0.03 | 0.00 | | 0.00 | 0.05 | | 0.00 | 0.07 | |
| Number of Beds | | | | | | | | | | |
| All facilities | 6.6 | 6.26 | 7.91 | -1.66 | 2.98 | 28.21 | -25.24 | 2.24 | 37.58 | -35.34 |
| SE | 1.11 | 1.23 | 1.78 | | 0.66 | 11.02 | | 0.79 | 22.07 | |
| Dispensaries | 0.03 | 0 | 0.16 | -0.16 | 0.04 | 0 | 0.04 | 0 | 0 | 0 |
| SE | 0.02 | 0 | 0.11 | | 0.03 | 0 | | 0 | 0 | |
| Health centers | 4.59 | 3.21 | 9.41 | 0.82 | 4.47 | 5.1 | -0.63 | 3.13 | 3.68 | -0.54 |
| SE | 0.02 | 1 | 2.39 | | 1.16 | 1.94 | | 0.96 | 2.04 | |
| Hospitals | 95.07 | 97.16 | 0 | 97.16 | 55.63 | 148.13 | -92.5 | 45.57 | 169.46 | -123.9 |
| SE | 11.32 | 12.76 | 16.24 | | 9.88 | 29.89 | | 12.09 | 29.42 | |
| Hours Outpatient Consultation Offered Per Day | | | | | | | | | | |
| All facilities | 12.23 | 12.07 | 12.82 | -0.75 | 12.01 | 13.48 | -1.47 | 11.90 | 13.41 | -1.51 |
| SE | 0.91 | 1.09 | 0.71 | | 1.04 | 0.76 | | 1.19 | 1.36 | |
| Dispensaries | 10.33 | 10.29 | 10.49 | -0.19 | 10.39 | 9.88 | 0.51 | 10.32 | 10.04 | 3.36 |
| SE | 1.22 | 1.45 | 0.83 | | 1.37 | 0.65 | | 1.58 | 0.53 | |
| Health centers | 17.83 | 17.44 | 19.20 | 16.29 | 18.27 | 15.98 | 2.29 | 18.14 | 13.23 | 4.91 |

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|---|-------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| SE | 1.22 | 0.99 | 1.15 | | 1.10 | 1.23 | | 1.11 | 1.62 | |
| Hospitals | 22.53 | 22.14 | 0.00 | 22.14 | 22.13 | 23.07 | -0.95 | 21.70 | 22.75 | -1.05 |
| SE | 0.79 | 1.00 | 0.24 | | 1.21 | 0.93 | | 1.50 | 1.33 | |
| Proportion of Facilities with Antenatal Rooms | | | | | | | | | | |
| All facilities | 0.24 | 0.23 | 0.28 | -0.05 | 0.23 | 0.26 | -0.03 | 0.23 | 0.18 | 0.05 |
| SE | 0.06 | 0.07 | 0.07 | | 0.07 | 0.06 | | 0.08 | 0.09 | |
| Dispensaries | 0.16 | 0.16 | 0.15 | 0.01 | 0.17 | 0.08 | 0.09 | 0.18 | 0.00 | 0.18 |
| SE | 0.06 | 0.08 | 0.06 | | 0.07 | 0.05 | | 0.09 | 0.00 | |
| Health centers | 0.47 | 0.43 | 0.63 | 0.36 | 0.47 | 0.48 | 0.00 | 0.44 | 0.36 | 0.07 |
| SE | 0.06 | 0.06 | 0.06 | | 0.07 | 0.12 | | 0.07 | 0.15 | |
| Hospitals | 0.68 | 0.61 | 0.00 | 0.61 | 0.71 | 0.65 | 0.05 | 0.67 | 0.53 | 0.13 |
| SE | 0.09 | 0.12 | 0.08 | | 0.11 | 0.13 | | 0.13 | 0.20 | |

SE: Standard error.

Table A-3-2: Healthcare Utilization

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|----------------|--------|--------|---------|------------|--------|--------|--------------|--------------|--------------|--------------|
| Deliveries | | | | | | | | | | |
| All facilities | 33.08 | 33.07 | 33.13 | -0.06 | 18.16 | 121.97 | -103.80 | 17.28 | 156.09 | -138.81 |
| SE | 6.86 | 6.87 | 9.83 | | 4.02 | 41.57 | | 4.82 | 78.56 | |
| Dispensaries | 3.20 | 2.81 | 4.73 | -1.92 | 3.12 | 3.87 | -0.75 | 2.89 | 1.92 | 154.18 |
| SE | 1.12 | 1.09 | 1.73 | | 1.17 | 1.79 | | 1.21 | 0.50 | |
| Health centers | 48.75 | 50.25 | 43.54 | 42.02 | 47.19 | 55.32 | -8.12 | 48.51 | 60.72 | -12.21 |
| SE | 1.12 | 8.23 | 8.23 | | 8.51 | 9.26 | | 9.51 | 11.60 | |
| Hospitals | 374.06 | 392.04 | 0.00 | 392.04 | 213.27 | 590.34 | -377.07 | 201.20 | 659.50 | -458.30 |
| SE | 72.78 | 71.10 | 106.95 | | 45.49 | 146.51 | | 53.65 | 126.97 | |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--|---------|---------|---------|------------|---------|----------|--------------|--------------|--------------|--------------|
| Outpatient Visits | | | | | | | | | | |
| All facilities | 2026.93 | 2023.31 | 2040.45 | -17.14 | 1529.92 | 4938.05 | -3408.14 | 1561.95 | 5618.87 | -4056.92 |
| SE | 243.95 | 216.18 | 548.08 | | 137.35 | 790.54 | | 163.30 | 1509.98 | |
| Dispensaries | 1335.06 | 1262.74 | 1612.49 | -349.76 | 1192.00 | 2438.20 | -1246.20 | 1192.53 | 2013.15 | 3605.72 |
| SE | 175.74 | 160.99 | 458.50 | | 127.22 | 962.06 | | 162.62 | 718.50 | |
| Health centers | 2749.08 | 3038.55 | 1738.35 | 2715.85 | 2372.73 | 4328.84 | -1956.10 | 2548.61 | 5993.90 | -3445.30 |
| SE | 175.74 | 522.65 | 322.69 | | 355.64 | 1126.56 | | 374.03 | 1805.19 | |
| Hospitals | 9062.64 | 9572.71 | 0.00 | 9572.71 | 5246.45 | 14195.73 | -8949.28 | 5596.61 | 15145.29 | -9548.69 |
| SE | 1133.46 | 1458.51 | 2660.90 | | 790.47 | 2041.95 | | 878.00 | 2918.54 | |
| Number of Inpatient Bed Days for Three Months | | | | | | | | | | |
| All facilities | 288.71 | 301.65 | 239.81 | 61.84 | 112.46 | 1338.97 | -1226.50 | 86.13 | 1981.29 | -1895.16 |
| SE | 62.96 | 80.49 | 53.12 | | 42.17 | 598.62 | | 50.54 | 1223.51 | |
| Dispensaries | 0.20 | 0.00 | 0.99 | -0.99 | 0.23 | 0.00 | 0.23 | 0.00 | 0.00 | 1981.29 |
| SE | 0.15 | 0.00 | 0.72 | | 0.17 | 0.00 | | 0.00 | 0.00 | |
| Health centers | 106.87 | 61.20 | 266.33 | -80.94 | 97.26 | 147.23 | -49.98 | 44.71 | 160.72 | -116.01 |
| SE | 0.15 | 23.35 | 142.15 | | 42.67 | 67.16 | | 15.32 | 108.86 | |
| Hospitals | 4403.97 | 4919.68 | 0.00 | 4919.68 | 2373.37 | 7135.29 | -4761.92 | 2034.34 | 8963.52 | -6929.18 |
| SE | 770.56 | 976.35 | 653.01 | | 911.87 | 1849.20 | | 1061.41 | 1926.10 | |

Table A-3-3: Caseload per Clinician Day

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|----------------|-------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| All facilities | 9.023 | 8.668 | 10.372 | 1.704 | 8.826 | 10.22 | 1.392 | 8.470 | 10.297 | 1.827 |
| SE | 0.950 | 0.895 | 1.691 | 1.425 | 0.979 | 2.53 | 2.572 | 0.957 | 2.703 | 2.771 |
| Dispensaries | 9.27 | 8.73 | 11.37 | 2.64 | 9.33 | 8.79 | 0.54 | 8.87 | 7.26 | 1.61 |
| SE | 1.11 | 1.09 | 2.04 | 1.88 | 1.14 | 3.80 | 3.83 | 1.12 | 5.02 | 3.90 |
| Health centers | 7.34 | 7.71 | 5.99 | 1.72 | 6.31 | 11.85 | 5.54 | 6.43 | 15.43 | 9.00 |
| SE | 0.98 | 1.10 | 0.99 | 1.10 | 0.82 | 2.27 | 2.16 | 0.83 | 3.41 | 3.26 |
| Hospitals | 10.15 | 10.48 | 8.99 | 1.50 | 7.55 | 14.02 | 6.47 | 7.79 | 15.34 | 7.54 |
| SE | 1.31 | 1.58 | 4.07 | 4.68 | 0.92 | 2.73 | 2.94 | 1.16 | 3.47 | 3.82 |

Table A-3-4: Availability of Infrastructure

| Description | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--|-------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| Minimum Infrastructure | | | | | | | | | | |
| Composite | 0.569 | 0.492 | 0.856 | 0.365 | 0.548 | 0.687 | 0.139 | 0.48 | 0.581 | 0.101 |
| SE | 0.075 | 0.091 | 0.035 | 0.088 | 0.089 | 0.089 | 0.136 | 0.106 | 0.096 | 0.157 |
| Clean water | 0.800 | 0.754 | 0.973 | 0.220 | 0.771 | 0.971 | 0.2 | 0.725 | 0.976 | 0.250 |
| SE | 0.095 | 0.118 | 0.013 | 0.121 | 0.109 | 0.024 | 0.114 | 0.131 | 0.025 | 0.136 |
| Toilet | 0.953 | 0.948 | 0.972 | 0.024 | 0.989 | 0.739 | 0.25 | 0.987 | 0.643 | 0.343 |
| SE | 0.03 | 0.035 | 0.019 | 0.03 | 0.008 | 0.087 | 0.086 | 0.009 | 0.094 | 0.092 |
| Electricity | 0.73 | 0.684 | 0.901 | 0.217 | 0.692 | 0.954 | 0.262 | 0.652 | 0.937 | 0.285 |
| SE | 0.05 | 0.063 | 0.039 | 0.064 | 0.055 | 0.012 | 0.058 | 0.069 | 0.017 | 0.072 |
| Minimum Infrastructure Restricted | | | | | | | | | | |
| Composite | 0.374 | 0.293 | 0.677 | 0.383 | 0.348 | 0.527 | 0.179 | 0.281 | 0.39 | 0.11 |
| SE | 0.075 | 0.079 | 0.07 | 0.063 | 0.086 | 0.05 | 0.089 | 0.088 | 0.024 | 0.081 |
| Electricity restricted | 0.382 | 0.342 | 0.531 | 0.189 | 0.341 | 0.621 | 0.28 | 0.299 | 0.678 | 0.379 |
| SE | 0.079 | 0.099 | 0.09 | 0.133 | 0.083 | 0.091 | 0.117 | 0.103 | 0.102 | 0.142 |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| Description | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|----------------------------------|-------|--------|---------|------------|-------|--------|--------------|--------------|--------------|--------------|
| Minimum Infrastructure | | | | | | | | | | |
| Dispensaries | 0.388 | 0.296 | 0.74 | 0.444 | 0.363 | 0.574 | 0.211 | 0.285 | 0.411 | 0.126 |
| SE | 0.093 | 0.1 | 0.081 | 0.079 | 0.106 | 0.104 | 0.147 | 0.109 | 0.039 | 0.114 |
| Health centers | 0.681 | 0.681 | 0.683 | 0.002 | 0.68 | 0.686 | 0.006 | 0.672 | 0.733 | 0.062 |
| SE | 0.057 | 0.064 | 0.075 | 0.083 | 0.067 | 0.065 | 0.085 | 0.074 | 0.098 | 0.124 |
| Hospitals | 0.97 | 0.961 | 1.000 | 0.039 | 0.966 | 0.977 | 0.011 | 0.955 | 0.969 | 0.013 |
| SE | 0.023 | 0.031 | | 0.031 | 0.036 | 0.023 | 0.042 | 0.047 | 0.034 | 0.057 |
| Infrastructure Restricted | | | | | | | | | | |
| Dispensaries | 0.498 | 0.404 | 0.859 | 0.455 | 0.483 | 0.612 | 0.128 | 0.403 | 0.411 | 0.007 |
| SE | 0.096 | 0.118 | 0.043 | 0.115 | 0.110 | -0.109 | 0.160 | 0.129 | 0.039 | 0.134 |
| Health centers | 0.343 | 0.302 | 0.489 | 0.187 | 0.331 | 0.395 | 0.064 | 0.302 | 0.305 | 0.003 |
| SE | 0.035 | 0.047 | 0.070 | 0.102 | 0.048 | -0.093 | 0.119 | 0.063 | 0.104 | 0.145 |
| Hospitals | 0.397 | 0.338 | 0.584 | 0.246 | 0.374 | 0.427 | 0.053 | 0.368 | 0.296 | -0.072 |
| SE | 0.083 | 0.070 | 0.162 | 0.146 | 0.089 | -0.131 | 0.142 | 0.090 | 0.120 | 0.152 |

Table A-3-5: Availability of Equipment

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--------------------------------|-------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| Minimum Equipment (H2a) | | | | | | | | | | |
| Basic equipment | 0.797 | 0.756 | 0.951 | 0.195 | 0.774 | 0.937 | 0.163 | 0.733 | 0.935 | 0.202 |
| SE | 0.092 | 0.116 | 0.035 | 0.128 | 0.106 | 0.031 | 0.114 | 0.128 | 0.061 | 0.143 |
| Any scale | 0.987 | 0.984 | 0.996 | 0.012 | 0.985 | 0.994 | 0.009 | 0.982 | 1.000 | 0.018 |
| SE | 0.013 | 0.016 | 0.004 | 0.017 | 0.015 | 0.006 | 0.017 | 0.018 | - | 0.018 |
| Thermometer | 0.920 | 0.908 | 0.965 | 0.057 | 0.912 | 0.968 | 0.056 | 0.901 | 0.962 | 0.062 |
| SE | 0.033 | 0.040 | 0.030 | 0.050 | 0.039 | 0.021 | 0.044 | 0.045 | 0.033 | 0.055 |
| Stethoscope | 0.943 | 0.929 | 0.994 | 0.065 | 0.938 | 0.975 | 0.037 | 0.924 | 0.973 | 0.049 |
| SE | 0.048 | 0.061 | 0.006 | 0.062 | 0.056 | 0.013 | 0.058 | 0.068 | 0.030 | 0.074 |
| Sphygmomanometer | 0.863 | 0.831 | 0.981 | 0.150 | 0.845 | 0.968 | 0.123 | 0.816 | 0.948 | 0.132 |

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|---|---------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| SE | 0.095 | 0.120 | 0.019 | 0.124 | 0.110 | 0.031 | 0.115 | 0.134 | 0.057 | 0.146 |
| Minimum Equipment (H2b – Health Centers and Hospitals) | | | | | | | | | | |
| Basic equipment | 0.778 | 0.770 | 0.804 | 0.034 | 0.767 | 0.807 | 0.040 | 0.758 | 0.814 | 0.056 |
| SE | 0.061 | 0.067 | 0.075 | 0.076 | 0.069 | 0.070 | 0.075 | 0.070 | 0.085 | 0.072 |
| Refrigerator | 0.980 | 0.982 | 0.973 | 0.009 | 0.992 | 0.946 | 0.047 | 1.000 | 0.918 | 0.082 |
| SE | 0.014 | 0.018 | 0.026 | 0.033 | 0.008 | 0.058 | 0.059 | - | 0.086 | 0.085 |
| Sterilizing equipment | 0.848 | 0.853 | 0.833 | 0.019 | 0.830 | 0.901 | 0.071 | 0.832 | 0.925 | 0.092 |
| SE | 0.054 | 0.055 | 0.069 | 0.055 | 0.071 | 0.055 | 0.092 | 0.072 | 0.043 | 0.087 |
| Minimum Equipment | | | | | | | | | | |
| Dispensaries | 0.761 | 0.712 | 0.949 | 0.236 | 0.740 | 0.923 | 0.183 | 0.694 | 0.912 | 0.219 |
| SE | 0.112 | 0.140 | 0.042 | 0.154 | 0.126 | 0.049 | 0.137 | 0.151 | 0.145 | 0.186 |
| Health centers | 0.909 | 0.900 | 0.940 | 0.041 | 0.906 | 0.922 | 0.017 | 0.894 | 0.933 | 0.039 |
| SE | 0.025 | 0.029 | 0.034 | 0.045 | 0.030 | 0.049 | 0.062 | 0.033 | 0.069 | 0.077 |
| Hospitals | 0.983 | 0.978 | 1.000 | 0.022 | 0.970 | 1.000 | 0.030 | 0.962 | 1.000 | 0.038 |
| SE | 0.018 | 0.023 | - | 0.023 | 0.031 | - | 0.031 | 0.039 | - | 0.039 |
| Minimum Equipment (Plus Sterilizer and Refrigerator) | | | | | | | | | | |
| Health centers | 0.759 | 0.752 | 0.780 | 0.027 | 0.734 | 0.860 | 0.126 | 0.731 | 0.881 | 0.150 |
| SE | 0.066 | 0.066 | 0.087 | 0.063 | 0.077 | 0.071 | 0.104 | 0.073 | 0.077 | 0.103 |
| Hospitals | 0.825 | 0.814 | 0.865 | 0.051 | 0.884 | 0.749 | 0.135 | 0.855 | 0.756 | (0.099) |
| SE | (0.091) | 0.118 | 0.132 | 0.191 | 0.084 | 0.113 | 0.072 | 0.108 | (0.152) | (0.098) |

Table A-3.6: Availability of Communications Equipment

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|----------------|------|--------|---------|------------|-------|-------|--------------|--------------|--------------|--------------|
| All facilities | 0.79 | 0.83 | 0.65 | 0.18 | 0.80 | 0.75 | 0.05 | 0.85 | 0.64 | 0.22 |
| SE | 0.06 | 0.07 | 0.09 | | 0.06 | 0.12 | | 0.06 | 0.14 | |
| Dispensaries | 0.76 | 0.80 | 0.60 | 0.20 | 0.78 | 0.59 | 0.18 | 0.83 | 0.39 | 0.25 |
| SE | 0.08 | 0.09 | 0.09 | | 0.08 | 0.16 | | 0.08 | 0.10 | |
| Health centers | 0.89 | 0.92 | 0.76 | 0.82 | 0.86 | 1.00 | -0.14 | 0.91 | 1.00 | -0.09 |
| SE | 0.08 | 0.03 | 0.11 | | 0.04 | 0.00 | | 0.03 | 0.00 | |
| Hospitals | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| SE | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | | 0.00 | 0.00 | |

Table A-3-7: Availability of Drugs

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|---|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| Drugs (all) | 0.508 | 0.494 | 0.562 | 0.068 | 0.501 | 0.549 | 0.049 | 0.493 | 0.499 | 0.006 |
| SE | (0.013) | (0.015) | (0.019) | (0.021) | (0.014) | (0.025) | (0.029) | (0.016) | (0.038) | (0.037) |
| Drugs/ mothers (all) | 0.408 | 0.393 | 0.465 | 0.072 | 0.397 | 0.477 | 0.080 | 0.389 | 0.429 | 0.040 |
| SE | (0.014) | (0.018) | (0.021) | (0.030) | (0.015) | (0.026) | (0.030) | (0.019) | (0.038) | (0.036) |
| Drugs/children (all) | 0.707 | 0.694 | 0.754 | 0.061 | 0.709 | 0.695 | (0.014) | 0.701 | 0.639 | (0.062) |
| SE | (0.019) | (0.021) | (0.023) | (0.019) | (0.021) | (0.025) | (0.030) | (0.022) | (0.041) | (0.042) |
| Drugs (adjusted for facility type) | 0.543 | 0.523 | 0.621 | 0.098 | 0.540 | 0.560 | 0.019 | 0.527 | 0.485 | (0.042) |
| SE | (0.013) | (0.016) | (0.022) | (0.029) | (0.014) | (0.024) | (0.027) | (0.016) | (0.041) | (0.043) |
| Drugs/mothers (adjusted for facility type) | 0.436 | 0.410 | 0.535 | 0.125 | 0.423 | 0.514 | 0.091 | 0.406 | 0.438 | 0.032 |
| SE | (0.014) | (0.019) | (0.022) | (0.032) | (0.016) | (0.021) | (0.026) | (0.020) | (0.048) | (0.049) |
| Drugs/children (adjusted for facility type) | 0.704 | 0.692 | 0.751 | 0.059 | 0.715 | 0.638 | (0.078) | 0.708 | 0.567 | (0.140) |
| SE | (0.023) | (0.026) | (0.033) | (0.038) | (0.024) | (0.037) | (0.042) | (0.025) | (0.041) | (0.048) |
| Note: 23 dispensaries were also carrying injectables. | | | | | | | | | | |
| Drugs Available (all) | | | | | | | | | | |
| Dispensaries and health posts | 0.488 | 0.479 | 0.522 | 0.043 | 0.486 | 0.505 | 0.019 | 0.482 | 0.450 | (0.032) |
| SE | (0.016) | (0.019) | (0.019) | (0.022) | (0.019) | (0.030) | (0.037) | (0.020) | (0.066) | (0.053) |
| Health centers | 0.544 | 0.514 | 0.649 | 0.135 | 0.545 | 0.541 | (0.004) | 0.523 | 0.463 | (0.060) |
| SE | (0.016) | (0.019) | (0.025) | (0.028) | (0.018) | (0.029) | (0.029) | (0.019) | (0.033) | (0.031) |
| Hospitals | 0.669 | 0.629 | 0.798 | 0.170 | 0.639 | 0.711 | 0.072 | 0.605 | 0.662 | 0.057 |
| SE | (0.024) | (0.024) | (0.030) | (0.040) | (0.025) | (0.033) | (0.038) | (0.024) | (0.041) | (0.044) |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| Drugs Available(Adjusted for facility type) | | | | | | | | | | |
| Dispensaries and health posts | 0.533 | 0.516 | 0.599 | 0.083 | 0.535 | 0.522 | (0.013) | 0.524 | 0.428 | (0.097) |
| SE | (0.016) | (0.019) | (0.024) | (0.032) | (0.017) | (0.030) | (0.036) | (0.020) | (0.077) | (0.060) |
| Health centers | 0.544 | 0.514 | 0.649 | 0.135 | 0.545 | 0.541 | (0.004) | 0.523 | 0.463 | (0.060) |
| SE | (0.016) | (0.019) | (0.025) | (0.028) | (0.018) | (0.029) | (0.029) | (0.019) | (0.033) | (0.031) |
| Hospitals | 0.669 | 0.629 | 0.798 | 0.170 | 0.639 | 0.711 | 0.072 | 0.605 | 0.662 | 0.057 |
| SE | (0.024) | (0.024) | (0.030) | (0.040) | (0.025) | (0.033) | (0.038) | (0.024) | (0.041) | (0.044) |

Table A-3-8: Percentage Availability of Mothers' Drugs, by Facility Type

| | Dispensaries | Health Centers | Hospitals |
|------------------------------|--------------|----------------|-----------|
| Betamathasone | 2.6 | 16.9 | 51.2 |
| Gentamicin injectable | 77.8 | 88.7 | 82.1 |
| Nifedipine capsule | 17.2 | 23.6 | 51.0 |
| Oxytocin | 34.8 | 77.9 | 88.3 |
| Misoprostol | 0.3 | 7.6 | 26.3 |
| Sodium chloride | 2.0 | 62.3 | 83.6 |
| Azithromycin | 1.0 | 9.5 | 34.7 |
| Calcium gluconate injectable | 14.5 | 19.1 | 48.6 |
| Cefixime capsules | 4.8 | 4.4 | 11.0 |
| Magnesium sulfate injectable | 25.6 | 38.7 | 68.6 |
| Benzathine benzyl penicillin | 56.8 | 59.3 | 81.4 |
| Ampicillin powder | 3.2 | 9.5 | 19.4 |
| Metronidazole injectable | 17.1 | 27.6 | 99.0 |
| Medroxyprogesterone acetate | 86.2 | 71.4 | 63.5 |
| Folic acid | 86.8 | 85.1 | 73.9 |

Table A-3-9: Percentage Availability of Children's Drugs, by Facility Type

| | Dispensaries | Health Centers | Hospitals |
|-----------------------|--------------|----------------|-----------|
| Ceftriaxone powder | 13.1 | 29.9 | 82.7 |
| Artemisinin | 90.5 | 87.2 | 90.9 |
| Gentamicin injectable | 75.8 | 82 | 78.2 |
| Ampicillin injectable | 8.2 | 10.5 | 8.6 |
| Artusunate rectal | 25.1 | 26.1 | 22 |
| Benzyl penicillin | 84.5 | 91.1 | 92.4 |
| Vitamin A capsules | 91.6 | 91.7 | 85.6 |

Table A-3-10: Absenteeism

| Item | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--------------------|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| Absenteeism | 0.275 | 0.292 | 0.209 | (0.083) | 0.269 | 0.312 | 0.043 | 0.283 | 0.376 | 0.093 |
| SE | (0.047) | (0.057) | (0.042) | (0.070) | (0.051) | (0.021) | (0.042) | (0.062) | (0.027) | (0.066) |
| Dispensary | 0.255 | 0.269 | 0.201 | (0.068) | 0.248 | 0.315 | 0.067 | 0.259 | 0.381 | 0.123 |
| SE | (0.055) | (0.066) | (0.045) | (0.077) | (0.059) | (0.026) | (0.048) | (0.072) | (0.041) | (0.079) |
| Health center | 0.375 | 0.411 | 0.248 | (0.163) | 0.392 | 0.304 | (0.087) | 0.419 | 0.361 | (0.058) |
| SE | (0.038) | (0.040) | (0.046) | (0.046) | (0.043) | (0.040) | (0.045) | (0.044) | (0.050) | (0.053) |
| By Cadre | | | | | | | | | | |
| Doctors | 0.376 | 0.390 | 0.211 | (0.138) | 0.398 | 0.353 | (0.045) | 0.406 | 0.372 | (0.035) |
| SE | (0.106) | (0.117) | (0.125) | (0.130) | (0.165) | (0.150) | (0.221) | (0.180) | (0.171) | (0.246) |
| Clinical officers | 0.361 | 0.430 | 0.237 | (0.193) | 0.418 | 0.288 | (0.130) | 0.462 | 0.392 | (0.070) |
| SE | (0.062) | (0.070) | (0.072) | (0.065) | (0.083) | (0.055) | (0.095) | (0.097) | (0.086) | (0.127) |
| Nurses | 0.375 | 0.400 | 0.260 | (0.140) | 0.372 | 0.382 | 0.010 | 0.392 | 0.431 | 0.040 |
| SE | (0.037) | (0.041) | (0.050) | (0.062) | (0.042) | (0.036) | (0.039) | (0.048) | (0.039) | (0.048) |

Table A-3-11: Diagnostic Accuracy

| Diagnostic Accuracy of Tracer Conditions | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public Rural | Public Urban | Difference 3 |
|--|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| All | 0.722 | 0.716 | 0.742 | 0.026 | 0.708 | 0.777 | 0.069 | 0.711 | 0.748 | 0.037 |
| SE | (0.018) | (0.023) | (0.025) | (0.036) | (0.022) | (0.018) | (0.027) | (0.027) | (0.026) | (0.038) |
| Doctors | 0.854 | 0.883 | 0.784 | (0.100) | 0.889 | 0.826 | (0.064) | 0.929 | 0.839 | (0.090) |
| SE | (0.032) | (0.039) | (0.035) | (0.048) | (0.054) | (0.029) | (0.062) | (0.046) | (0.046) | (0.067) |
| Clinical officers | 0.802 | 0.796 | 0.811 | 0.015 | 0.801 | 0.803 | 0.003 | 0.826 | 0.759 | (0.067) |
| SE | (0.012) | (0.024) | (0.028) | (0.046) | (0.019) | (0.015) | (0.024) | (0.022) | (0.023) | (0.026) |
| Nurses | 0.698 | 0.701 | 0.687 | (0.013) | 0.693 | 0.740 | 0.046 | 0.699 | 0.723 | 0.025 |
| SE | (0.026) | (0.033) | (0.030) | (0.053) | (0.030) | (0.028) | (0.041) | (0.036) | (0.036) | (0.049) |
| | | | | | | | | | | |
| Dispensaries | 0.695 | 0.690 | 0.712 | 0.022 | 0.686 | 0.739 | 0.053 | 0.690 | 0.686 | (0.004) |
| SE | (0.027) | (0.037) | (0.025) | (0.051) | (0.033) | (0.040) | (0.051) | (0.041) | (0.043) | (0.052) |
| Health centers | 0.754 | 0.746 | 0.794 | 0.048 | 0.740 | 0.825 | 0.086 | 0.735 | 0.817 | 0.082 |
| SE | (0.024) | (0.027) | (0.023) | (0.031) | (0.026) | (0.023) | (0.031) | (0.029) | (0.034) | (0.040) |
| Hospitals | 0.820 | 0.811 | 0.854 | 0.043 | 0.826 | 0.816 | (0.010) | 0.830 | 0.788 | (0.042) |
| SE | (0.023) | (0.024) | (0.033) | (0.034) | (0.036) | (0.030) | (0.046) | (0.037) | (0.025) | (0.044) |

Table A-3-12: Quality of Diagnostic Process

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public rural | Public urban | Difference 3 |
|---|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| Adherence to Clinical Guidelines | | | | | | | | | | |
| All | 0.437 | 0.427 | 0.476 | 0.049 | 0.417 | 0.520 | 0.103 | 0.411 | 0.512 | 0.101 |
| SE | (0.032) | (0.034) | (0.040) | (0.039) | (0.035) | (0.015) | (0.028) | (0.037) | (0.015) | (0.031) |
| Doctors | 0.612 | 0.609 | 0.617 | 0.008 | 0.692 | 0.546 | (0.146) | 0.725 | 0.497 | (0.227) |
| SE | (0.052) | (0.073) | (0.031) | (0.080) | (0.030) | (0.065) | (0.068) | (0.038) | (0.074) | (0.076) |
| Clinical officers | 0.543 | 0.524 | 0.572 | 0.048 | 0.539 | 0.548 | 0.009 | 0.517 | 0.533 | 0.016 |
| SE | (0.022) | (0.019) | (0.046) | (0.047) | (0.033) | (0.022) | (0.034) | (0.028) | (0.011) | (0.024) |
| Nurses | 0.403 | 0.404 | 0.396 | (0.008) | 0.394 | 0.479 | 0.086 | 0.397 | 0.489 | 0.092 |
| SE | (0.031) | (0.034) | (0.033) | (0.039) | (0.034) | (0.011) | (0.029) | (0.037) | (0.024) | (0.043) |
| Dispensaries | 0.408 | 0.396 | 0.446 | 0.050 | 0.392 | 0.492 | 0.099 | 0.384 | 0.502 | 0.118 |
| SE | (0.036) | (0.040) | (0.039) | (0.044) | (0.040) | (0.016) | (0.037) | (0.043) | (0.000) | (0.043) |
| Health centers | 0.475 | 0.470 | 0.497 | 0.026 | 0.462 | 0.539 | 0.077 | 0.461 | 0.530 | 0.068 |
| SE | (0.023) | (0.023) | (0.040) | (0.035) | (0.025) | (0.014) | (0.020) | (0.025) | (0.022) | (0.032) |
| Hospitals | 0.540 | 0.517 | 0.623 | 0.107 | 0.523 | 0.557 | 0.034 | 0.518 | 0.516 | (0.002) |
| SE | (0.028) | (0.030) | (0.053) | (0.064) | (0.039) | (0.030) | (0.042) | (0.041) | (0.034) | (0.045) |
| Maternal and Newborn Complications | | | | | | | | | | |
| All | 0.446 | 0.442 | 0.458 | 0.016 | 0.436 | 0.483 | 0.047 | 0.434 | 0.487 | 0.053 |
| SE | (0.027) | (0.027) | (0.036) | (0.031) | (0.029) | (0.030) | (0.033) | (0.028) | (0.021) | (0.020) |
| Doctors | 0.574 | 0.571 | 0.581 | 0.011 | 0.720 | 0.454 | (0.266) | 0.753 | 0.394 | (0.359) |
| SE | (0.074) | (0.101) | (0.084) | (0.133) | (0.033) | (0.082) | (0.087) | (0.033) | (0.077) | (0.086) |
| Clinical officers | 0.464 | 0.456 | 0.477 | 0.021 | 0.454 | 0.475 | 0.021 | 0.431 | 0.486 | 0.055 |
| SE | (0.026) | (0.020) | (0.050) | (0.046) | (0.034) | (0.035) | (0.046) | (0.022) | (0.016) | (0.023) |
| Nurses | 0.445 | 0.445 | 0.443 | (0.003) | 0.438 | 0.499 | 0.061 | 0.440 | 0.509 | 0.069 |
| SE | (0.025) | (0.025) | (0.031) | (0.026) | (0.025) | (0.023) | (0.028) | (0.026) | (0.011) | (0.025) |
| Dispensaries | 0.433 | 0.430 | 0.444 | 0.014 | 0.423 | 0.488 | 0.065 | 0.419 | 0.525 | 0.106 |

| | All | Public | Private | Difference | Rural | Urban | Difference 2 | Public rural | Public urban | Difference 3 |
|----------------|---------|---------|---------|------------|---------|---------|--------------|--------------|--------------|--------------|
| SE | (0.031) | (0.034) | (0.036) | (0.033) | (0.034) | (0.042) | (0.050) | (0.035) | (0.019) | (0.037) |
| Health centers | 0.460 | 0.457 | 0.475 | 0.017 | 0.455 | 0.482 | 0.027 | 0.456 | 0.466 | 0.010 |
| SE | (0.017) | (0.015) | (0.036) | (0.031) | (0.017) | (0.018) | (0.015) | (0.016) | (0.020) | (0.019) |
| Hospitals | 0.490 | 0.484 | 0.514 | 0.031 | 0.507 | 0.475 | (0.032) | 0.511 | 0.452 | (0.059) |
| SE | (0.025) | (0.031) | (0.067) | (0.080) | (0.026) | (0.038) | (0.040) | (0.028) | (0.044) | (0.045) |

Table A-3-13: Diagnostic Outcomes by Questions Asked: Acute Diarrhea with Severe Dehydration

| | Correct Diagnosis (%) | Incorrect Diagnosis (%) |
|--------------------------|-----------------------|-------------------------|
| Edema of both feet | 16 | 5 |
| Check weight | 7 | 3 |
| Sunken eyes | 74 | 64 |
| Offer drink | 34 | 30 |
| Skin pinch | 86 | 86 |
| General health condition | 44 | 33 |
| Abdominal discomfort | 27 | 20 |
| Breastfeeding well | 41 | 43 |
| Vomiting | 83 | 92 |
| Blood in stool | 41 | 47 |
| Frequency of diarrhea | 71 | 63 |
| Duration of diarrhea | 90 | 91 |

APPENDIX 3: ADDITIONAL TABLES FOR CHAPTER 4

Table A-4-1: Reasons for Not Implementing the 10/20 Policy

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|------------------------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% Point) | | | (% Point) | | | (% Point) |
| All Facilities | | | | | | | | | | |
| Community can afford to pay more | 0.308 | 0.327 | 0.218 | 0.109 | 0.318 | 0.000 | 0.318 | 0.331 | 0.000 | 0.331 |
| | 0.237 | 0.282 | 0.174 | | 0.244 | 0.000 | | 0.297 | 0.000 | |
| Revenues inadequate for needs | 0.468 | 0.450 | 0.555 | 0.104 | 0.480 | 0.068 | 0.412 | 0.455 | 0.000 | 0.455 |
| | 0.265 | 0.313 | 0.235 | | 0.271 | 0.094 | | 0.328 | 0.000 | |
| Local leaders /DHMT advised not to | 0.175 | 0.212 | 0.000 | 0.212 | 0.180 | 0.000 | 0.180 | 0.214 | 0.000 | 0.214 |
| | 0.170 | 0.214 | 0.000 | | 0.175 | 0.000 | | 0.225 | 0.000 | |
| Other | 0.048 | 0.011 | 0.227 | 0.216 | 0.022 | 0.932 | 0.910 | 0.000 | 1.000 | 1.000 |
| | 0.038 | 0.013 | 0.164 | | 0.021 | 0.094 | | 0.000 | 0.000 | |
| Dispensaries | | | | | | | | | | |
| Community can afford to pay more | 0.331 | 0.343 | 0.259 | 0.083 | 0.334 | 0.000 | 0.334 | 0.343 | 0.000 | 0.343 |
| | 0.257 | 0.307 | 0.225 | | 0.261 | 0.000 | | 0.313 | 0.000 | |
| Revenues inadequate for needs | 0.442 | 0.431 | 0.510 | 0.079 | 0.447 | 0.000 | 0.447 | 0.431 | 0.000 | 0.431 |
| | 0.278 | 0.331 | 0.258 | | 0.282 | 0.000 | | 0.338 | 0.000 | |
| Local leaders /DHMT advised not to | 0.194 | 0.227 | 0.000 | 0.227 | 0.196 | 0.000 | 0.196 | 0.227 | 0.000 | 0.227 |
| | 0.187 | 0.236 | 0.000 | | 0.191 | 0.000 | | 0.241 | 0.000 | |
| Other | 0.033 | 0.000 | 0.231 | 0.231 | 0.023 | 1.000 | -0.977 | 0.000 | 0.000 | 0.000 |
| | 0.026 | 0.000 | 0.186 | | 0.023 | 0.000 | | 0.000 | 0.000 | |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-----------------------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% Point) | | | (% Point) | | | (% Point) |
| Health Centers | | | | | | | | | | |
| Community can afford to pay more | 0.101 | 0.108 | 0.091 | 0.017 | 0.127 | 0.000 | 0.127 | 0.129 | 0.000 | 0.129 |
| | 0.083 | 0.127 | 0.106 | | 0.108 | 0.000 | | 0.160 | 0.000 | |
| Revenues inadequate for needs | 0.713 | 0.727 | 0.694 | 0.034 | 0.873 | 0.099 | 0.775 | 0.871 | 0.000 | 0.871 |
| | 0.192 | 0.233 | 0.248 | | 0.108 | 0.178 | | 0.160 | 0.000 | |
| Local leaders/DHMT advised not to | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | | 0.000 | 0.000 | |
| Other | 0.187 | 0.165 | 0.216 | 0.051 | 0.000 | 0.901 | 0.901 | 0.000 | 1.000 | 1.000 |
| | 0.179 | 0.184 | 0.223 | | 0.000 | 0.178 | | 0.000 | 0.000 | |

Table A-4-2: Facilities Involving Health Facility Management Committee in Work Planning

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|----------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| All facilities | 0.908 | 0.938 | 0.764 | 0.174 | 0.949 | 0.714 | 0.235 | 0.985 | 0.666 | 0.319 |
| SE | 0.044 | 0.046 | 0.086 | | 0.024 | 0.111 | | 0.009 | 0.122 | |
| Dispensaries | 0.904 | 0.937 | 0.737 | 0.201 | 0.957 | 0.586 | 0.371 | 1.000 | 0.473 | 0.527 |
| SE | 0.060 | 0.062 | 0.118 | | 0.025 | 0.158 | | 0.000 | 0.109 | |
| Health centers | 0.912 | 0.931 | 0.811 | 0.119 | 0.933 | 0.819 | 0.115 | 0.941 | 0.872 | 0.069 |
| SE | 0.031 | 0.031 | 0.078 | | 0.033 | 0.109 | | 0.035 | 0.105 | |
| Hospitals | 0.940 | 0.959 | 0.871 | 0.088 | 0.896 | 1.000 | -0.104 | 0.928 | 1.000 | -0.072 |
| SE | 0.040 | 0.040 | 0.126 | | 0.074 | 0.000 | | 0.073 | 0.000 | |

Table A-4-3: Distribution of Financial Management Tools from National Level

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-------------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| Receipt Books | | | | | | | | | | |
| All facilities | 0.345 | 0.420 | 0.062 | 0.358 | 0.315 | 0.526 | 0.211 | 0.382 | 0.729 | 0.347 |
| SE | 0.099 | 0.128 | 0.048 | | 0.103 | 0.225 | | 0.134 | 0.183 | |
| Dispensaries | 0.331 | 0.409 | 0.036 | 0.373 | 0.304 | 0.548 | 0.244 | 0.368 | 0.864 | 0.496 |
| SE | 0.114 | 0.148 | 0.028 | | 0.118 | 0.272 | | 0.154 | 0.175 | |
| Health centers | 0.322 | 0.383 | 0.106 | 0.277 | 0.318 | 0.337 | 0.019 | 0.385 | 0.371 | -0.014 |
| SE | 0.072 | 0.078 | 0.079 | | 0.069 | 0.165 | | 0.082 | 0.160 | |
| Hospitals | 0.576 | 0.671 | 0.263 | 0.409 | 0.513 | 0.664 | 0.151 | 0.663 | 0.683 | 0.020 |
| SE | 0.108 | 0.116 | 0.211 | | 0.092 | 0.157 | | 0.112 | 0.153 | |
| Payment Vouchers | | | | | | | | | | |
| All facilities | 0.405 | 0.487 | 0.100 | 0.387 | 0.405 | 0.409 | 0.005 | 0.482 | 0.521 | 0.039 |
| SE | 0.078 | 0.108 | 0.060 | | 0.088 | 0.087 | | 0.123 | 0.053 | |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-----------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| Dispensaries | 0.379 | 0.455 | 0.084 | 0.371 | 0.392 | 0.275 | -0.117 | 0.464 | 0.365 | -0.099 |
| SE | 0.103 | 0.143 | 0.053 | | 0.114 | 0.100 | | 0.157 | 0.027 | |
| Health centers | 0.475 | 0.581 | 0.106 | 0.474 | 0.470 | 0.499 | 0.030 | 0.569 | 0.654 | 0.086 |
| SE | 0.070 | 0.075 | 0.079 | | 0.071 | 0.137 | | 0.078 | 0.144 | |
| Hospitals | 0.575 | 0.669 | 0.263 | 0.407 | 0.428 | 0.777 | 0.349 | 0.553 | 0.832 | 0.278 |
| SE | 0.093 | 0.097 | 0.211 | | 0.124 | 0.123 | | 0.159 | 0.107 | |
| Cashbook | | | | | | | | | | |
| All facilities | 0.292 | 0.357 | 0.049 | 0.308 | 0.289 | 0.311 | 0.022 | 0.353 | 0.388 | 0.035 |
| SE | 0.068 | 0.089 | 0.044 | | 0.076 | 0.089 | | 0.097 | 0.061 | |
| Dispensaries | 0.246 | 0.304 | 0.025 | 0.279 | 0.253 | 0.197 | -0.056 | 0.309 | 0.256 | -0.053 |
| SE | 0.085 | 0.111 | 0.020 | | 0.096 | 0.093 | | 0.122 | 0.067 | |
| Health centers | 0.459 | 0.570 | 0.073 | 0.497 | 0.470 | 0.416 | -0.054 | 0.569 | 0.576 | 0.007 |
| SE | 0.076 | 0.088 | 0.074 | | 0.081 | 0.145 | | 0.098 | 0.138 | |
| Hospitals | 0.467 | 0.529 | 0.263 | 0.266 | 0.376 | 0.591 | 0.215 | 0.486 | 0.588 | 0.101 |
| SE | 0.097 | 0.113 | 0.211 | | 0.127 | 0.123 | | 0.160 | 0.134 | |
| No Tools | | | | | | | | | | |
| All facilities | 0.243 | 0.230 | 0.293 | 0.064 | 0.230 | 0.322 | 0.092 | 0.210 | 0.387 | 0.177 |
| SE | 0.077 | 0.091 | 0.077 | | 0.087 | 0.449 | | 0.102 | 0.071 | |
| Dispensaries | 0.276 | 0.269 | 0.306 | 0.037 | 0.263 | 0.382 | 0.118 | 0.248 | 0.487 | 0.239 |
| SE | 0.100 | 0.118 | 0.096 | | 0.110 | 0.072 | | 0.126 | 0.059 | |
| Health centers | 0.136 | 0.079 | 0.332 | 0.253 | 0.101 | 0.284 | 0.183 | 0.041 | 0.310 | 0.269 |
| SE | 0.027 | 0.025 | 0.076 | | 0.024 | 0.070 | | 0.022 | 0.131 | |
| Hospitals | 0.080 | 0.087 | 0.057 | -0.030 | 0.023 | 0.160 | 0.137 | 0.022 | 0.179 | 0.157 |
| SE | 0.043 | 0.052 | 0.047 | | 0.024 | 0.105 | | 0.023 | 0.129 | |

Table A-4-4: Share of Facilities with a Designated Financial Accounting Officer

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|----------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|----------|
| | | | | (% point) | | | (% point) | | | (%point) |
| All facilities | 0.985 | 0.994 | 0.952 | 0.042 | 0.986 | 0.980 | 0.006 | 0.995 | 0.990 | 0.004 |
| SE | 0.006 | 0.003 | 0.021 | | 0.006 | 0.015 | | 0.003 | 0.010 | |
| Dispensaries | 0.993 | 1.000 | 0.965 | 0.035 | 0.993 | 0.988 | 0.005 | 1.000 | 1.000 | 0.000 |
| SE | 0.004 | 0.000 | 0.023 | | 0.005 | 0.014 | | 0.000 | 0.000 | |
| Health Centers | 0.954 | 0.977 | 0.872 | 0.106 | 0.957 | 0.939 | 0.019 | 0.982 | 0.948 | 0.035 |
| SE | 0.019 | 0.015 | 0.046 | | 0.017 | 0.053 | | 0.011 | 0.048 | |
| Hospitals | 0.968 | 0.958 | 1.000 | -0.042 | 0.945 | 1.000 | -0.055 | 0.928 | 1.000 | -0.072 |
| SE | 0.032 | 0.041 | 0.000 | | 0.053 | 0.000 | | 0.067 | 0.000 | |

Table A-4-5: Staff Responsible for Financial Accounting

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-----------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| All facilities | | | | | | | | | | |
| In charge of facility | 0.804 | 0.893 | 0.453 | 0.440 | 0.847 | 0.547 | 0.300 | 0.919 | 0.685 | 0.234 |
| | 0.041 | 0.038 | 0.112 | | 0.047 | 0.128 | | 0.040 | 0.132 | |
| Treasurer | 0.010 | 0.000 | 0.047 | 0.047 | 0.011 | 0.002 | 0.009 | 0.000 | 0.000 | 0.000 |
| | 0.008 | 0.000 | 0.034 | | 0.009 | 0.002 | | 0.000 | 0.000 | |
| Chairman | 0.001 | 0.001 | 0.004 | 0.003 | 0.001 | 0.000 | 0.001 | 0.001 | 0.000 | 0.001 |
| | 0.001 | 0.001 | 0.003 | | 0.001 | 0.000 | | 0.001 | 0.000 | |
| County accountant | 0.003 | 0.004 | 0.000 | 0.004 | 0.004 | 0.000 | 0.004 | 0.005 | 0.000 | 0.005 |
| | 0.002 | 0.003 | 0.000 | | 0.003 | 0.000 | | 0.003 | 0.000 | |
| Facility accountant | 0.094 | 0.054 | 0.252 | 0.198 | 0.048 | 0.367 | 0.319 | 0.026 | 0.268 | 0.242 |
| | 0.013 | 0.013 | 0.032 | | 0.012 | 0.095 | | 0.013 | 0.104 | |
| Other | 0.089 | 0.049 | 0.244 | 0.195 | 0.089 | 0.084 | 0.005 | 0.049 | 0.046 | 0.003 |
| | 0.032 | 0.033 | 0.088 | | 0.037 | 0.050 | | 0.037 | 0.040 | |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-----------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| Dispensaries | | | | | | | | | | |
| In charge of facility | 0.846 | 0.939 | 0.471 | 0.468 | 0.868 | 0.677 | 0.191 | 0.942 | 0.912 | 0.029 |
| | 0.051 | 0.044 | 0.151 | | 0.057 | 0.172 | | 0.048 | 0.108 | |
| Treasurer | 0.011 | 0.000 | 0.055 | 0.055 | 0.012 | 0.000 | 0.012 | 0.000 | 0.000 | 0.000 |
| | 0.009 | 0.000 | 0.042 | | 0.010 | 0.000 | | 0.000 | 0.000 | |
| Chairman | 0.001 | 0.001 | 0.003 | 0.002 | 0.001 | 0.000 | 0.001 | 0.001 | 0.000 | 0.001 |
| | 0.001 | 0.001 | 0.003 | | 0.001 | 0.000 | | 0.001 | 0.000 | |
| County accountant | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | | 0.000 | 0.000 | |
| Facility accountant | 0.045 | 0.014 | 0.170 | 0.156 | 0.023 | 0.223 | 0.200 | 0.011 | 0.046 | 0.034 |
| | 0.011 | 0.012 | 0.033 | | 0.014 | 0.116 | | 0.012 | 0.056 | |
| Other | 0.096 | 0.046 | 0.300 | 0.254 | 0.096 | 0.100 | 0.005 | 0.046 | 0.042 | 0.004 |
| | 0.040 | 0.042 | 0.103 | | 0.044 | 0.074 | | 0.046 | 0.052 | |
| Health Centers | | | | | | | | | | |
| In charge of facility | 0.820 | 0.901 | 0.501 | 0.400 | 0.865 | 0.626 | 0.239 | 0.929 | 0.727 | 0.202 |
| | 0.036 | 0.033 | 0.084 | | 0.037 | 0.104 | | 0.032 | 0.140 | |
| Treasurer | 0.004 | 0.000 | 0.021 | 0.021 | 0.003 | 0.010 | 0.007 | 0.000 | 0.000 | 0.000 |
| | 0.003 | 0.000 | 0.015 | | 0.003 | 0.011 | | 0.000 | 0.000 | |
| Chairman | 0.002 | 0.000 | 0.009 | 0.009 | 0.002 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| | 0.002 | 0.000 | 0.010 | | 0.002 | 0.000 | | 0.000 | 0.000 | |
| County accountant | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | | 0.000 | 0.000 | |
| Facility accountant | 0.121 | 0.048 | 0.406 | 0.358 | 0.090 | 0.253 | 0.163 | 0.031 | 0.155 | 0.124 |
| | 0.031 | 0.028 | 0.078 | | 0.030 | 0.059 | | 0.021 | 0.123 | |
| Other | 0.053 | 0.051 | 0.063 | 0.012 | 0.040 | 0.111 | 0.072 | 0.040 | 0.118 | 0.078 |
| | 0.018 | 0.023 | 0.034 | | 0.021 | 0.070 | | 0.023 | 0.121 | |

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|-----------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| Hospitals | | | | | | | | | | |
| In charge of facility | 0.209 | 0.227 | 0.151 | 0.076 | 0.351 | 0.024 | 0.327 | 0.378 | 0.031 | 0.346 |
| | 0.067 | 0.080 | 0.109 | | 0.104 | 0.024 | | 0.150 | 0.033 | |
| Treasurer | 0.003 | 0.000 | 0.014 | 0.014 | 0.006 | 0.000 | 0.006 | 0.000 | 0.000 | 0.000 |
| | 0.004 | 0.000 | 0.016 | | 0.006 | 0.000 | | 0.000 | 0.000 | |
| Chairman | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.000 | 0.000 | 0.000 | | 0.000 | 0.000 | | 0.000 | 0.000 | |
| County accountant | 0.053 | 0.070 | 0.000 | 0.070 | 0.094 | 0.000 | 0.094 | 0.123 | 0.000 | 0.123 |
| | 0.039 | 0.050 | 0.000 | | 0.065 | 0.000 | | 0.079 | 0.000 | |
| Facility accountant | 0.663 | 0.613 | 0.820 | 0.207 | 0.421 | 0.976 | 0.555 | 0.339 | 0.969 | 0.629 |
| | 0.072 | 0.084 | 0.113 | | 0.087 | 0.024 | | 0.137 | 0.033 | |
| Other | 0.072 | 0.090 | 0.014 | 0.076 | 0.127 | 0.000 | 0.127 | 0.160 | 0.000 | 0.160 |
| | 0.045 | 0.056 | 0.016 | | 0.080 | 0.000 | | 0.102 | 0.000 | |

Table A-4.6: Frequency of Health Facility Management Committee Meetings (%)

| | Monthly | Quarterly | Biannual | Annual |
|------------------------|---------|-----------|----------|--------|
| Public | 13 | 86 | 0 | 0 |
| Private | 36 | 54 | 4 | 5 |
| Public dispensaries | 15 | 85 | 0 | 0 |
| Private dispensaries | 39 | 56 | 2 | 4 |
| Public Health centers | 10 | 89 | 2 | 0 |
| Private Health centers | 33 | 46 | 12 | 8 |
| Public hospitals | 8 | 92 | 0 | 0 |
| Private hospitals | 24 | 54 | 10 | 13 |
| Rural | 16 | 83 | 1 | 0 |
| Urban | 16 | 80 | 1 | 2 |
| Public rural | 14 | 86 | 0 | 0 |
| Public urban | 9 | 91 | 0 | 0 |

Table A-4-7: Proportion of Facilities with Various Subcommittees in Place and Operational

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|---------------------------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| Finance Subcommittee | | | | | | | | | | |
| All facilities | 0.221 | 0.230 | 0.156 | 0.074 | 0.160 | 0.639 | 0.479 | 0.167 | 0.724 | 0.557 |
| SE | 0.073 | 0.079 | 0.062 | | 0.062 | 0.105 | | 0.068 | 0.083 | |
| Dispensaries | 0.163 | 0.174 | 0.079 | 0.095 | 0.109 | 0.670 | 0.561 | 0.117 | 0.775 | 0.658 |
| SE | 0.082 | 0.092 | 0.051 | | 0.066 | 0.128 | | 0.074 | 0.090 | |
| Health centers | 0.262 | 0.268 | 0.206 | 0.063 | 0.279 | 0.178 | 0.102 | 0.274 | 0.230 | 0.045 |
| SE | 0.043 | 0.047 | 0.057 | | 0.054 | 0.079 | | 0.056 | 0.110 | |
| Hospitals | 0.828 | 0.851 | 0.718 | 0.133 | 0.734 | 0.950 | 0.216 | 0.766 | 0.969 | 0.202 |
| SE | 0.072 | 0.070 | 0.175 | | 0.114 | 0.052 | | 0.122 | 0.033 | |
| Procurement Subcommittee | | | | | | | | | | |
| All facilities | 0.163 | 0.177 | 0.062 | 0.114 | 0.155 | 0.221 | 0.067 | 0.169 | 0.232 | 0.063 |
| SE | 0.063 | 0.070 | 0.036 | | 0.072 | 0.066 | | 0.078 | 0.067 | |
| Dispensaries | 0.131 | 0.144 | 0.032 | 0.112 | 0.131 | 0.129 | 0.002 | 0.147 | 0.114 | 0.032 |
| SE | 0.075 | 0.084 | 0.034 | | 0.083 | 0.068 | | 0.092 | 0.047 | |
| Health centers | 0.233 | 0.231 | 0.257 | 0.027 | 0.222 | 0.289 | 0.067 | 0.217 | 0.318 | 0.101 |
| SE | 0.047 | 0.051 | 0.104 | | 0.048 | 0.125 | | 0.048 | 0.187 | |
| Hospitals | 0.390 | 0.457 | 0.072 | 0.385 | 0.379 | 0.406 | 0.027 | 0.444 | 0.474 | 0.031 |
| SE | 0.089 | 0.120 | 0.078 | | 0.120 | 0.107 | | 0.148 | 0.167 | |
| Audit Subcommittee | | | | | | | | | | |
| All facilities | 0.061 | 0.056 | 0.103 | 0.047 | 0.041 | 0.198 | 0.157 | 0.036 | 0.213 | 0.177 |
| SE | 0.008 | 0.009 | 0.054 | | 0.009 | 0.076 | | 0.010 | 0.095 | |
| Dispensaries | 0.020 | 0.006 | 0.132 | 0.126 | 0.011 | 0.109 | 0.098 | 0.000 | 0.067 | 0.067 |
| SE | 0.008 | 0.006 | 0.073 | | 0.007 | 0.035 | | 0.000 | 0.014 | |
| Health centers | 0.066 | 0.073 | 0.000 | 0.073 | 0.079 | 0.000 | 0.079 | 0.084 | 0.000 | 0.084 |
| SE | 0.023 | 0.025 | 0.000 | | 0.027 | 0.000 | | 0.028 | 0.000 | |
| Hospitals | 0.538 | 0.649 | 0.000 | 0.649 | 0.488 | 0.603 | 0.115 | 0.572 | 0.758 | 0.186 |

Public Expenditure Tracking Survey in Kenya, 2012 (PETS-Plus)

| | All | Public | Private | Diff. | Rural | Urban | Diff. | Public Rural | Public Urban | Diff. |
|----------------|-------|--------|---------|-----------|-------|-------|-----------|--------------|--------------|-----------|
| | | | | (% point) | | | (% point) | | | (% point) |
| SE | 0.081 | 0.076 | 0.000 | | 0.115 | 0.166 | | 0.118 | 0.127 | |
| Others | | | | | | | | | | |
| All facilities | 0.101 | 0.100 | 0.106 | 0.006 | 0.078 | 0.254 | 0.176 | 0.075 | 0.293 | 0.218 |
| SE | 0.036 | 0.042 | 0.050 | | 0.040 | 0.076 | | 0.046 | 0.110 | |
| Dispensaries | 0.044 | 0.040 | 0.069 | 0.028 | 0.046 | 0.019 | 0.027 | 0.044 | 0.000 | 0.044 |
| SE | 0.036 | 0.042 | 0.057 | | 0.041 | 0.007 | | 0.046 | 0.000 | |
| Health centers | 0.135 | 0.131 | 0.172 | 0.041 | 0.093 | 0.341 | 0.248 | 0.089 | 0.412 | 0.324 |
| SE | 0.036 | 0.043 | 0.131 | | 0.027 | 0.107 | | 0.031 | 0.140 | |
| Hospitals | 0.701 | 0.779 | 0.326 | 0.452 | 0.629 | 0.795 | 0.167 | 0.643 | 0.969 | 0.326 |
| SE | 0.078 | 0.075 | 0.202 | | 0.116 | 0.111 | | 0.129 | 0.033 | |

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