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AN ASSESSMENT OF THE COST AND QUALITY OF PRIVATE HEALTH SERVICES IN KENYA

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ACRONYMS

ALOS	Average Length of Stay
ART	Antiretroviral Therapy
CHAK	Christian Health Association of Kenya
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (the German Society for International Cooperation)
FBO	Faith Based Organization
FP	Family Planning
HIV	Human Immunodeficiency Virus
KCCB	Kenya Conference of Catholic Bishops
KEMSA	Kenya Medical Supplies Agency
KEPH	Kenya Essential Package for Health
KES	Kenya Shilling
MASH	Management Accounting System for Hospitals
MDGs	Millennium Development Goals
MOH	Ministry of Health
NGO	Non-Government Organization
OOP	Out-of-pocket
PEP	Post-exposure Prophylaxis
P4P	Private for-profit
PHC	Primary Health Care
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
SHOPS	Strengthening Health Outcomes through the Private Sector
UHC	Universal Health Coverage
USAID	United States Agency for International Development
VCT	Voluntary Counseling and Testing

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GLOSSARY

Kenya Essential Package for Health (KEPH): A framework designated by the Kenyan Ministry of Health that integrates all health programs in Kenya into a single benefit package focused on improving health at different stages of the human life cycle.¹ It defines the different components of care required at each stage of the life cycle and outlines the corresponding levels of care within the Kenyan health system for delivering such care. This benefit package of services forms the basis of service delivery in both public and private health facilities.

Level of care: The Ministry of Health categorizes health functions in six distinct levels of care. Each level is assigned staffing norms, expected services, and population of coverage. Table 1 gives further details.

Subsequent to this study, these six levels were consolidated to four: community, primary, county referral, and national hospitals. Primary level consolidates Levels 2 and 3, while county referral consolidates Levels 4 and 5. However, for the purpose of this report, the six levels which were in use during the study period are referred to throughout.

TABLE 1: LEVELS OF CARE

Level	Service delivery	Staffing
Level 1 Community level	No physical infrastructure. Includes programs focused on ensuring that individuals, households, and communities (a) carry out appropriate healthy behaviors, and (b) recognize signs and symptoms of conditions that need to be managed at higher levels of the system.	<ul style="list-style-type: none"> Community-owned resource person
Level 2 Dispensary	Acts as the interface between the community and the formal health system. It is expected to organize and coordinate structured, permanent dialogue and interaction with the community. Provides basic health services. It is not expected to offer laboratory diagnostic services but may be able to carry out simple diagnostic tests with rapid diagnostic tests.	<ul style="list-style-type: none"> Registered comprehensive nurses Community health extension worker
Level 3 Health center and nursing homes	Provides basic health services, as well as <ul style="list-style-type: none"> Minor outpatient surgical surgeries Limited emergency inpatient care Limited oral health services Maternity care for normal deliveries Specific routine lab tests 	<ul style="list-style-type: none"> Nursing staff Clinical officers Lab technicians Pharmaceutical technologists Community oral health officers
Level 4 Formerly sub-district and	Provides appropriate curative care and constitutes the principal referral level for all KEPH interventions. Offers all the above services as well as	Above staff, and: <ul style="list-style-type: none"> Medical officers Clinical officers

¹ There are six stages of the human life cycle: pregnancy and the newborn (up to 2 weeks); early childhood (three weeks to five years); late childhood (6 years to 12 years); adolescence (13 to 24 years); adulthood (25-59 years); and the elderly (60 years and above).

district hospitals; currently known as county referral hospitals	<ul style="list-style-type: none"> • Clinical supportive supervision to lower level facilities • Broader outpatient and inpatient care • Emergency obstetric care • Oral health services • Specialized laboratory and radiology services 	<p>(general and specialized)</p> <ul style="list-style-type: none"> • Nursing staff • Lab technologist • Radiographer • Pharmacist • Dentist • Dental technologist
Level 5 Formerly provincial general hospitals and some upgraded district hospitals; currently known as county regional hospitals	<p>This level introduces a broader spectrum of specialized referral curative services, including intensive care and high dependency care. Includes training facilities for cadres of health workers who function at the primary care level (nursing staff and clinical officers), serving as internship centers for all staff up to medical officers.</p>	<p>Above staff, and:</p> <ul style="list-style-type: none"> • Medical specialists (physician, obstetrics and gynecology, surgeon, pediatrician) • Rehabilitative specialists (physiotherapist, occupational therapist, orthopedic technologist, social workers) • Nursing staff (intensive care units)
Level 6 Tertiary specialized care, and national referral and teaching hospitals	<p>This level completes the range of specialized referral care. Offers the remaining specialized services that are best provided at a national level. Has training facilities for cadres of specialized health workers that function at all levels of care and serve as internship centers.</p>	<p>Above staff, and:</p> <ul style="list-style-type: none"> • Medical super-specialists within each discipline

EXECUTIVE SUMMARY

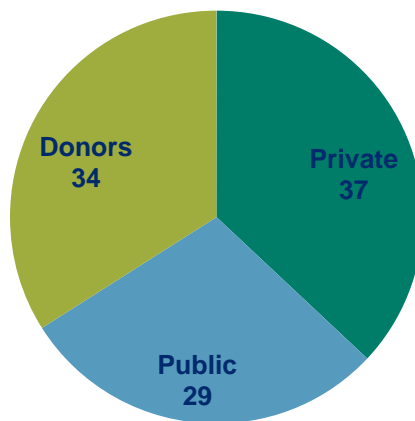
Kenya has experienced consistent economic growth in the last decade, leading to its recent classification as a middle-income country. Sixty-seven percent of Kenya's 45.5 million people live in rural areas, and 77 percent of employed Kenyans work in the informal sector (KNBS 2010; IEA 2012). Kenya's government recognizes health as an important determinant of economic development and identifies universal health coverage (UHC) as one of the social pillars of economic prosperity. In 2010, Kenya's constitution enshrined the right to the highest attainable standard of health for all, including reproductive health care.

Despite Kenya's good economic performance, it still faces significant health challenges. Under-five mortality is still high, at 74 per 1000 live births, while maternal mortality is at 488 per 100,000 live births. Malaria and HIV continue to contribute the highest burden of disease, while emerging lifestyle conditions such as cancer, hypertension, and diabetes threaten to reverse the health gains made. This has resulted in low productivity which reduces economic growth.

KENYA'S HEALTH FINANCING SYSTEM IS INEQUITABLE

As shown in Figure 1 below, a majority of health care financing is from private sources (largely out-of-pocket (OOP) expenditures). OOP expenditure is a significant cause of delays in accessing health care. OOP is an inequitable and inefficient means of financing health care, hurting those who need health care the most.

FIGURE 1: SOURCES OF HEALTH CARE FINANCING



Source: Government of Kenya, 2010

The impoverishing effects of OOP expenditure disproportionately affect low-income households and those who suffer from chronic illnesses such as HIV, exposing them to catastrophic health expenditures. It is estimated that 11 percent of Kenyan households incur catastrophic health care expenditures, and 1.48 million Kenyans are impoverished annually due to OOP health care expenses (MOH 2009; Chuma and Maina 2012).

INSURANCE CAN REDUCE CATASTROPHIC HEALTH EXPENDITURE

Pooling of funds through health insurance is low in Kenya. Only 20 percent of the population is enrolled under public and private health insurance. A key advantage of insurance is to spread

risk. In exchange for affordable, regular financial contributions (premiums), individuals can receive financial protection in the event of illness. The pooling of premiums transfers financial risk due to health events from the household to the larger, more stable insurance pool. An approach to premium contributions based on principles of solidarity allows the healthy to subsidize the sick and the rich to subsidize the poor.

Health insurance can improve health-seeking behavior and reduce the impoverishing effects of OOP health expenditure. Insurance does this by allowing people access care when they need it without paying OOP. This eliminates delays in seeking care and reduces the financial barriers to health care access. Subsidies can be used to target the poor or other vulnerable groups to access health insurance. However, for public and private insurers to effectively design health insurance products, accurate costing data is critically important for pricing and design.

SHOPS IS PROVIDING DATA ON COST AND QUALITY TO INFORM HEALTH FINANCING DECISION MAKING

The Strengthening Health Outcomes through the Private Sector (SHOPS) project, funded by the US Agency for International Development (USAID), was tasked to obtain accurate and reliable cost and quality data about private sector provision of health care in Kenya. SHOPS partnered with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) to conduct a national health care costing study, collecting data from 238 public and private health care facilities in 17 Kenyan counties. The facilities ranged from small clinics/dispensaries, designated as Level 2, to large teaching and referral hospitals designated as Level 6. (See Glossary for *levels of care*.) In parallel, SHOPS contracted PharmAccess to conduct a quality assessment in a subset of 80 private facilities, using their SafeCare Essentials tool.² Data collected for both studies was for the 2012 financial year.

SHOPS used the data collected from the 238 facilities to identify 148 private sector facilities that were examined for this follow-on study — the first systematic study of health care cost and quality in Kenya. SHOPS analyzed the data using the Management Accounting System for Hospitals (MASH), an Excel-based health facility costing tool, to generate outpatient and inpatient costs across different levels and types of facilities.³ In addition, the study generated service-specific costs for voluntary counseling and testing (VCT), antiretroviral therapy (ART), family planning (FP), and maternity care services. The MASH analysis included expenditures on human resources, drugs, and clinical supplies as well as indirect costs, and excluded capital costs. The costing study used a provider perspective so it excluded such societal costs as transport and loss of income for patients accessing health care.

COSTING AND QUALITY RESULTS VARY BY FACILITY LEVEL AND OWNERSHIP

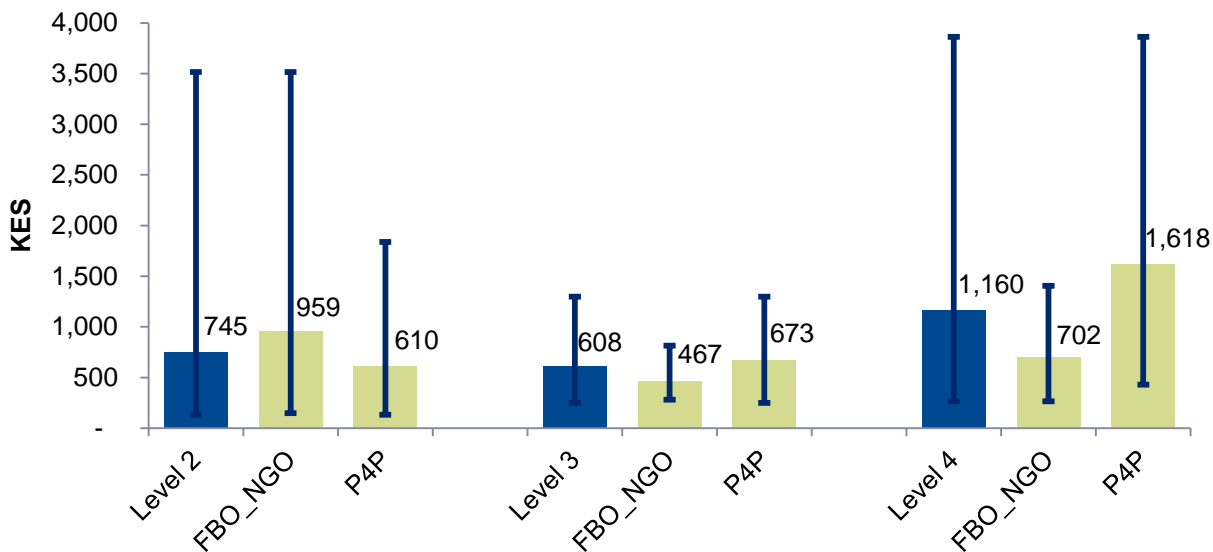
Costing and quality results are provided for private facilities by level of care provided and ownership status, as defined by the Kenya Essential Package for Health (KEPH). Costing results are presented separately for private for-profit (P4P) and nonprofit (faith-based (FBO) or

² SafeCare Essentials is a tool for assessing quality of care based on the Joint Commission International's (JCI) International Essentials of Health Care Quality and Patient Safety™. The assessment tool is mainly used during Medical Due Diligence visits for a selection of facilities.

³ MASH is an Excel software-based tool for costing facility-based health services that uses a step-down approach. MASH was developed by Abt Associates Inc. in 2002 and has been used in Africa, the Middle East, and the Caribbean.

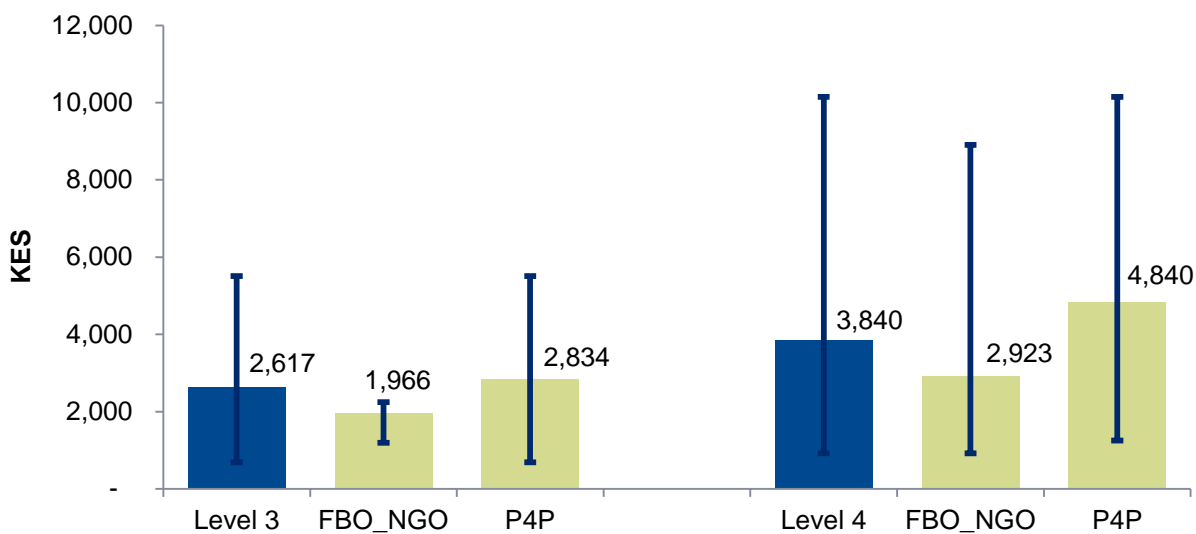
non-government organization (NGO)) ownership categories. As shown in Figure 2, the average cost of an outpatient visit varied from KES 467 (USD 5.36) to KES 1,618 (USD 18.60).⁴

FIGURE 2: AVERAGE OUTPATIENT VISIT COST AND RANGES, BY FACILITY LEVEL AND OWNERSHIP (KES)



NOTE: Bars show the total range of average outpatient costs for the different facility categories

FIGURE 3: AVERAGE INPATIENT BED DAY COST AND RANGES, BY FACILITY LEVEL AND OWNERSHIP (KES)



NOTE: Bars show the total range of average inpatient costs for the different facility categories

Figure 3 shows the average cost per inpatient bed day, which varied between KES 1,966 (USD 22.60) for Level 3 to KES 4,840 (USD 55.63) for Level 4.

⁴ All currency conversion between US Dollar and Kenyan Shilling is set at KES 87 to USD 1.00, which was the average exchange rate as of August 14th, 2014.

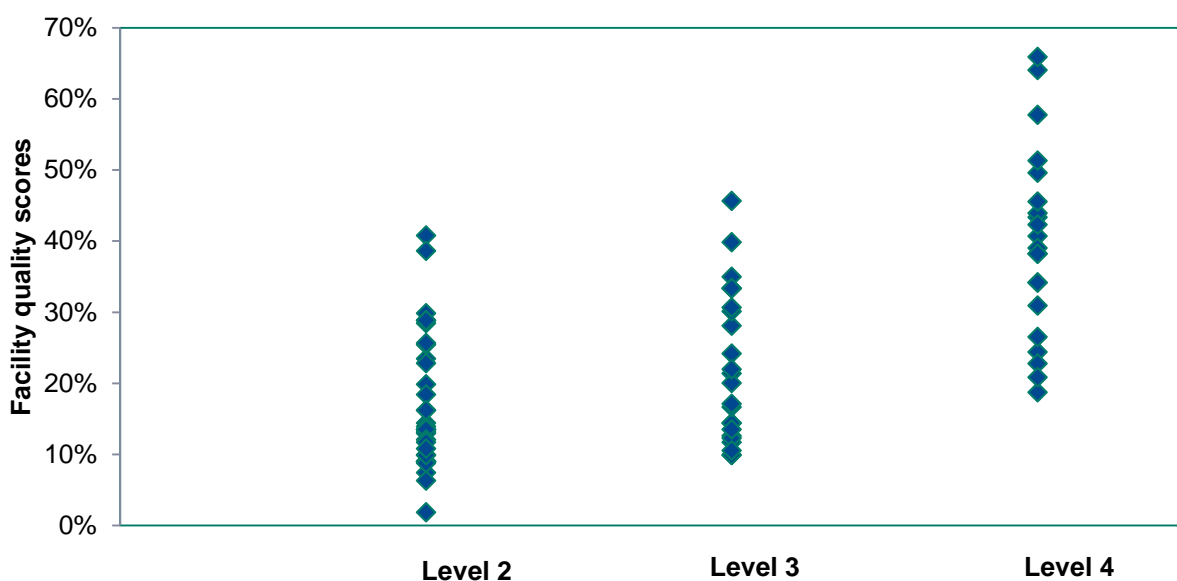
Differences in outpatient visit and inpatient bed day costs across levels were driven by operating costs and service utilization levels. Levels 2 and 3 had similar operating costs, but utilization was 1.46 times higher at Level 3, pushing Level 3 outpatient visit cost lower than Level 2. Level 4 had 6.8 times higher operational costs than Level 3. Average outpatient visit and inpatient bed day costs were generally higher for the P4P facilities compared with FBO/NGO facilities, reflecting the higher utilization at FBO and NGO facilities and the higher operating costs at P4P facilities.

Generally, both outpatient and inpatient costs showed wide variation across facilities: FBO/NGO facilities showed the smallest variation across facilities, and P4P Level 4 showed the widest variation. These differences show opportunities to improve technical efficiency so as to reduce facility-specific outpatient and inpatient costs.

The average cost of a VCT visit at Level 2 was KES 542 (USD 6.23), KES 836 (USD 9.61) at Level 3, and KES 979 (USD 11.25) at Level 4 facilities. The average annual cost per person of providing ART varied from KES 13,908 (USD 159.86) to KES 29,983 (USD 344.63). An average FP outpatient visit cost KES 620 (USD 7.13).⁵ The average cost of a normal childbirth delivery, based on an average length of stay of two days, was KES 6,796 (USD 78.11); the average cost of a caesarean section, based on an average length of stay of four days, was KES 18,317 (USD 210.54). The variation in costs across levels is attributed to the high operating costs at Level 4 as compared to Level 2 and 3, as well as the differences in utilization across levels. Facilities offering VCT, ART, and FP services received, free of cost, government- and donor-subsidized commodities from the Kenya Essential Medical Supplies Agency (KEMSA). Despite the subsidy received, the costs of the commodities were included in the average visit cost in order to reflect the full cost of providing the service.

Quality scores ranged widely, from 2 percent to 66 percent (Figure 4), with NGO facilities scoring marginally better than P4P and FBO facilities. Generally, facilities scored poorly; the majority scored below 50 percent. This is an issue of concern that requires strong quality assurance systems to monitor and improve quality of care received by patients.

FIGURE 4: QUALITY SCORES FOR 80 PRIVATE FACILITIES



⁵ A family planning visit included the cost of consultation with a health worker and the cost of the commodities prescribed for each visit.

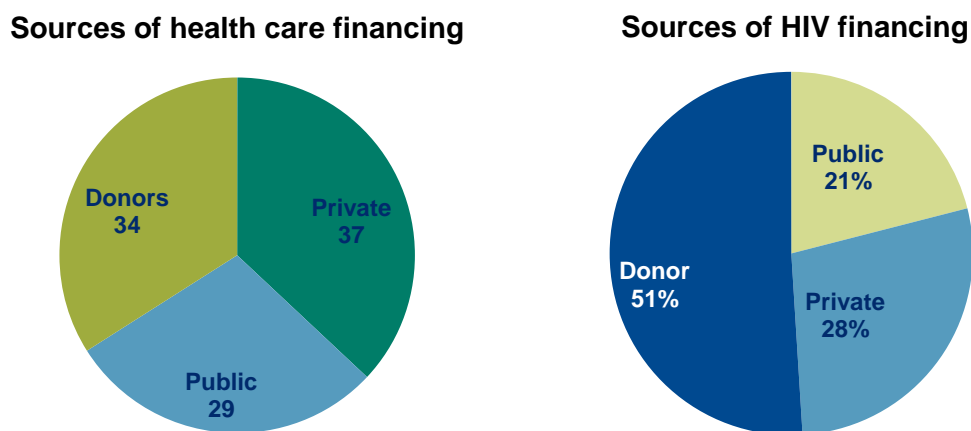
In a comparison of cost and quality of 51 facilities, almost all 51 facilities had quality scores below 50 percent. This analysis showed that while the majority of facilities had outpatient costs lower than the average costs shown in this study, they also had poor quality of care, below the average of the 80 facilities surveyed.

DATA ON COST AND QUALITY CAN INFORM HIV PROGRAMMING

Kenya has a HIV prevalence of 5.6 percent of the adult population. HIV is the highest cause of mortality, causing 18.1 percent of all deaths. Kenya has mobilized considerable resources from both domestic and international sources, including both PEPFAR and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). With these resources, 744,116 people living with HIV (PLHIV) are on life-saving ART — the second-highest number in Sub-Saharan Africa. Despite this, more needs to be done to close the growing treatment gap, currently estimated at 900,000 PLHIV. Though the cost of ART has significantly declined, it is estimated that Kenya needs USD 24.2 billion between 2014 and 2030 to achieve the UNAIDS 90-90-90 goal (Haacker 2014) — that is, 90 percent of all PLHIV will know their HIV status, 90 percent of all people diagnosed with HIV will receive sustained ART, and 90 percent of all people receiving ART will show viral suppression. Moreover, the alternative to rapidly scaling ART will be an expansion of new infections, significantly raising the costs of achieving an AIDS-Free Generation. Understanding the costs associated with delivery of HIV services and making investments to improve quality of care will be critical for sustaining effective HIV programs.

Currently, 51 percent of funding for HIV comes from donors (Figure 5). This is an unpredictable and potentially unsustainable source of long-term funding for health care. Private contributions represent the second highest proportion (28 percent) of funds spent on HIV prevention and treatment, including 19 percent from OOP expenditure and 9 percent from prepayments such as insurance premiums (Government of Kenya 2010).

FIGURE 5: COMPARISON OF SOURCES OF GENERAL HEALTH CARE FINANCING AND HIV FINANCING



For HIV patients, OOP increases financial barriers to health care, with the consequences of deferred or no treatment that equates to poor compliance with prescribed medication regimens. Ultimately this can lead to poor viral suppression and worse health outcomes (Bor et al. 2012).

Kenya has begun planning to increase domestic resources for HIV. A potentially sustainable means of doing so, with the potential to provide comprehensive coverage of HIV services and to achieve UHC, is by expanding public and private insurance coverage. The HIV and AIDS

Prevention and Control Act of 2006 states that insurers can charge an additional premium to ordinary benefits to cover HIV care (Government of Kenya 2007). However, for public and private insurers to effectively design health insurance products that include benefits for HIV, costing data is needed.

Kenya has a vibrant private health sector, with 51 percent of health care facilities operated by the private sector. The P4P sector provides 33 percent of VCT and 25 percent of ART services. A recent mapping of readiness and availability of services across the country estimates that 52 percent of P4P and 71 percent of private nonprofit health care facilities have the infrastructure and human resources required to provide HIV services (Government of Kenya 2014). Currently, only 20 percent of P4P and 27 percent of FBO/NGO facilities offer HIV services, with availability of ART tracer products ranging from 14 percent of P4P and 43 percent of FBO/NGO facilities. Moreover, this study found that average inpatient bed occupancy at private facilities is less than 50 percent. This indicates potential for the government to increase privately delivered outpatient and inpatient HIV services by providing HIV commodities free of charge to all private facilities and by contracting private facilities to provide HIV care. This approach can decongest overcrowded public facilities. This requires accurate cost and quality data, to establish efficient and performance-based provider payment mechanisms.

The private sector offers an opportunity to expand ART coverage rapidly and sustainably in Kenya. This private sector cost and quality study is the first of its kind and has broad applications, including health sector planning, HIV programming, and the design of provider payment mechanisms and health insurance products. HIV programs can use the costing results as a basis for contracting with private sector providers for HIV prevention, care, and treatment services including VCT and ART as well as for components of prevention of mother to child transmission (PMTCT) such as VCT, ART, FP, and delivery. Public and private insurers may use these data to design insurance products that include HIV services. The quality data is useful for benchmarking, comparison, and monitoring improvement of quality standards in private facilities. In addition, quality data is useful for establishing payment mechanisms that will incentivize providers to invest in quality of care.

RECOMMENDATIONS FROM THIS STUDY

Based on this costing and quality analysis, the following recommendations are proposed:

1. Perform regular costing studies to grow the body of knowledge and inform decision making on the private sector.
2. Improve record-keeping at private facilities, which was a significant challenge in data collection.
3. As part of health systems strengthening, the private sector should be included in financial management capacity-building initiatives.
4. Expand the scope of future costing studies to ensure representation of all counties; include a quality assessment to compare the quality of care with cost.
5. Improve accreditation and quality assurance systems to protect patients.
6. Consider adopting a societal perspective to evaluate the non-medical cost of accessing care. These costs may be a significant barrier to vulnerable groups such as PLHIV, despite the subsidized HIV services.

1. INTRODUCTION

1.1. OVERVIEW OF HEALTH CARE IN KENYA

Kenya is a low-income country in East Africa with a population of approximately 45.5 million people in 2013 (World Bank 2014). The majority of the population works in the informal and agricultural sectors. Gross domestic product (GDP) per capita in 2012 was approximately KES 148,780 (USD 1,730) with a per capita health expenditure of approximately KES 7,308 (USD 84) (WHO 2013).⁶ Kenya has average life expectancy of 59 years, under-five mortality rate (U5MR) of 74 deaths per 1,000 live births, and a maternal mortality ratio (MMR) of 488 deaths per 100,000 live births (KNBS and ICF Macro 2010). These health indicators have significantly improved over the last several decades through concerted efforts by the government and the donor community. However, Kenya has yet to meet the Millennium Development Goals (MDGs) to reduce its MMR below 150 deaths per 100,000 live births by 2017 and its U5MR to less than 35 deaths per 1,000 live births, while continuing to combat HIV, tuberculosis, and malaria.

Box 1. Kenya health statistics at a glance

- Population: 45.5 million
- Life expectancy: 59 years
- U5MR: 74 per 1000 live births
- MMR: 488 per 100,000 live births
- HIV prevalence (2012): 5.6 percent
- Morbidity due to HIV: 15.3 percent
- Mortality due to HIV: 18.1 percent

HIV is the leading cause of mortality and morbidity in Kenya; 18.1 percent of deaths are due to HIV and AIDS-related complications, and 15.3 percent of the national disease burden is due to HIV (Ortblad, Lozano, and Murray 2013). HIV prevalence has declined to 5.6 percent in 2012, from 10.8 percent at its peak in the mid-nineties (NASCO 2014). The success in reducing HIV transmission is credited to the government's sustained commitment to support increased ART coverage, with support of development partners such as PEPFAR and the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). Kenya is committed to achieving the UNAIDS 90-90-90 goal by 2020: 90 percent of all people living with HIV will know their HIV status, 90 percent of all people diagnosed with HIV will receive sustained ART, and 90 percent of all people receiving ART will have viral suppression (Box 2). This commitment will involve enrolling more Kenyans to receive HIV treatment, in accordance with broader treatment guidelines that mandate ART at earlier disease stages. This reform will require long-term management, further straining an overburdened public health sector.

Currently, Kenyans rely heavily on out-of-pocket (OOP) spending to access health care, accounting for 24.5 percent of health spending in 2009/10 (most recent data available). Relying on OOP expenditure is an inefficient and regressive health financing mechanism, and it exposes people to the risk of catastrophic health care expenditures (Chuma and Maina 2012; Xu et al. 2007; Xu et al. 2003). One million Kenyans are estimated to fall into poverty every year because of catastrophic health care expenditures (MOH 2009).

Health insurance penetration is low, at approximately 20 percent, contributing to high OOP expenses. The vast majority of the insured population works in the formal sector, where enrollment in the National Hospital Insurance Fund (NHIF) is mandatory. Kenya has identified the NHIF as the vehicle through which it intends to achieve universal health coverage (UHC),

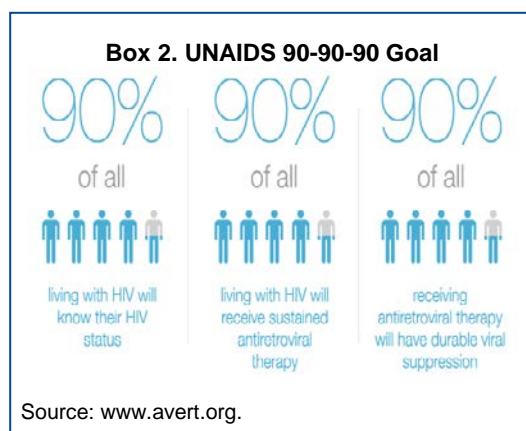
⁶ All currency conversion between US Dollar and Kenyan Shilling is set at KES 87 to USD 1.00, which was the average exchange rate as of August 14th, 2014.

but more needs to be done to cover the 80 percent of uninsured Kenyans who lack sufficient financial risk protection to obtain the health care they need. Often, they opt to delay or forego care, or they are forced to resort to burdensome and damaging coping strategies such as selling productive assets or taking a child out of school.

Providing convenient access and ensuring adequate and streamlined financing of health services is of utmost importance to the government. The Kenyan Constitution states that all Kenyans are entitled to the highest attainable standard of health, including reproductive health services. The growing private sector is capable of playing a larger role in enabling all Kenyans to gain access to high quality health care. For example, private health insurance, as a mechanism to mobilize private sector funding for health care, can complement the NHIF, which only covers inpatient services. Private health insurance can be used to broaden the benefit package offered by the NHIF, and to increase access to private health services for those who can afford to pay the premiums. This approach could free up vital public financial, infrastructural, and human resources for those who lack the ability to pay.

1.2. KENYAN HEALTH POLICY GOALS

Two policy documents, the Kenya Vision 2030 and the Kenya Health Policy 2012–2030, guide the overall policy direction for the Kenya health system. Common to both is the long-term goal of providing UHC to all Kenyans by 2030, as well as recognition of the role that the private health sector can play in achieving this public health goal. The new Constitution of Kenya affirms the right to good health for every Kenyan. Kenya is also committed to regional and international declarations concerning improved health for its citizens, such as the MDGs and the UNAIDS 90-90-90 goal for HIV.



The draft Kenya Health Sector Strategic and Investment Plan 2013–2017 (KHSSP) states that access to the Kenya Essential Package for Health (KEPH) — which includes HIV prevention, care, and treatment services to all citizens — is a step toward reaching UHC. Government bodies and relevant stakeholders agree that policies must be developed to provide health care in line with KEPH. For example, in June 2013, the Government announced a new policy to provide free primary health care and free maternity services through the public sector, to reduce financial barriers for these services.

The journey toward UHC will inevitably face financial challenges. Since the global financial crisis in 2008, Kenya is experiencing a leveling-off, and in some cases a decline, in donor funding. Accordingly, the KHSSP promotes financial risk pooling as well as adoption of innovative provider payment mechanisms, to improve efficiencies and increase financial risk protection for the population.

1.3. OPPORTUNITIES AND CHALLENGES IN LEVERAGING THE PRIVATE HEALTH SECTOR

The Kenyan private sector, comprised of for-profit entities and nonprofit and faith-based organizations (FBOs), plays an important role in financing and delivering health care. According to the 2009/2010 National Health Accounts, private sources (including households) constitute the largest source of total health expenditure (THE), at 37 percent. Moreover, private facilities

make up 51 percent of health facilities, and they employ almost two-thirds of nurses and clinical officers, and three-quarters of doctors (Government of Kenya 2010; Barnes et al. 2010). These private facilities can help to relieve pressure on the overburdened public sector so that all Kenyans have better access to care. Innovative, effective payment mechanisms must be in place to ensure that private health care is affordable to all Kenyans.

Kenya has numerous private health insurance providers. However, uptake of private health insurance is low. While 20 percent of the population has health insurance coverage, most of it is provided through NHIF; only 2 percent of the population has private health insurance, which remains unaffordable to the majority of Kenyans. There have been several efforts to target lower-income populations through health micro-insurance products, though most have yet to make a significant impact (Deloitte 2011).

1.3.1. BETTER HEALTH CARE COST DATA CAN ENABLE HEALTH FINANCING INNOVATION

The NHIF and key public and private health sector stakeholders have been debating how best to increase the number of insured Kenyans, and in particular how to cover those who need long-term care, including people living with HIV (PLHIV). One major constraint to the expansion of insurance coverage continues to be the lack of objective and reliable health care service cost data. For example, in 2012, the NHIF rolled out an enhanced insurance cover for civil servants that included outpatient benefits through a capitation model.⁷ A number of private providers disputed the capitation rates fixed by the NHIF and requested an independent costing of services before they would contract to provide services under the new scheme.

Private health insurance companies are also trying to diversify their traditional business model in order to increase their market share and number of clients. Traditionally, insurance companies have focused on employer-based schemes, but this approach limited the insurance business to the formal sector. By developing affordable insurance products that target individuals, private health insurance companies can cater to the vast majority of Kenyans, who work in the informal and agricultural sectors. Lacking reliable health care cost data and concerned about potentially high claims costs, insurers require higher risk margins, leading to higher premiums charged to clients.

Many private health care providers do not have a sufficient understanding of the real costs of services they provide, particularly since they receive subsidies or grants for commodities such as HIV testing and treatment and family planning (FP) supplies. This limits their ability to identify areas to improve efficiency and to contract at more competitive prices with insurers. Without accurate cost data, the government, the private insurers, and health care providers are limited in their ability to create constructive partnerships to develop health care financing solutions that will enable access to health care for all.

1.3.2. COST DATA FOR THE KENYAN HEALTH SECTOR ARE SCARCE

Publicly available, recent, and reliable cost data for the private sector are scarce. Various institutions have in the past assessed costs of health services, but the costing was conducted for programmatic purposes and the results have not been widely disseminated. A report published by the Health Systems 20/20 Project in 2010 focused only on HIV-related costs in the public sector (Government of Kenya and Health Systems 20/20 Project 2010). The most recent

⁷ In a capitation model, a provider is paid a fixed sum per person enrolled with the provider, for a defined package of care, set prospectively for a defined period of time.

private sector health care cost data were generated in 2007, through a costing study supported by the German international development agency, Gesellschaft für Internationale Zusammenarbeit (GIZ). This national health care costing study calculated unit costs for both public and private health sectors. The study also produced service-specific cost data to inform policy makers on planning and budgeting. Although the results have been published (Flessa et al. 2011), they were not adopted by stakeholders, due to concerns about the study's methodology in applying public sector costs for human resources and commodities to the private sector.

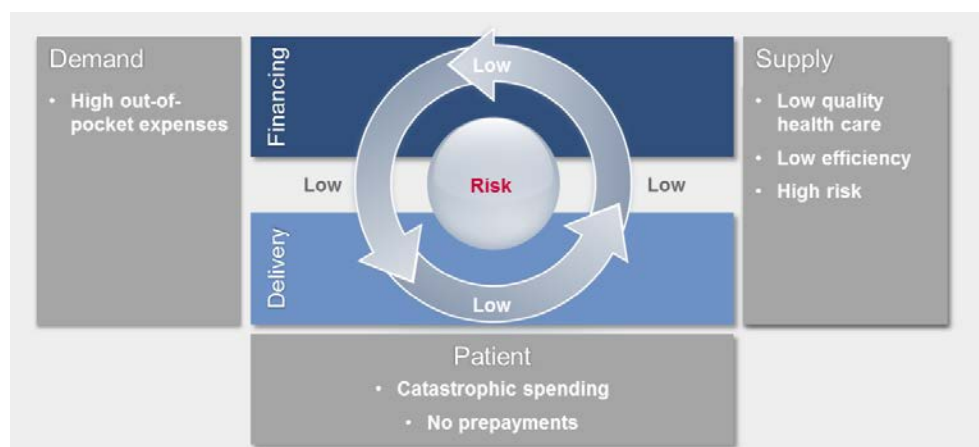
This private sector costing and quality report is the first such study with broad applications, including: planning for the health sector and HIV programming; design of reimbursement mechanisms; and design of health insurance products.

1.3.3. QUALITY OF CARE IS POORLY MONITORED

Fifty-one percent of health facilities in Kenya are operated by the private sector. These facilities vary in size, from small clinics (Level 2) to referral and teaching hospitals (Level 6). The quality of care similarly varies, due to weak regulation and enforcement. Quality of care standards are not well defined, with different and fragmented standards applied by the Ministry of Health (MOH), the NHIF, regulatory agencies, and private insurers. In effect, this means that Kenyans are exposed to varying degrees of quality of care, with little recourse for action in cases of complaints or malpractice. Harmonizing accreditation, facility registration, and quality of care protocols can support both improved health outcomes and better value for health care services.

Quality of care is an important determinant of demand for both health care and health insurance. However, as shown in Figure 6, Kenya suffers from a challenging cycle of low health care quality (i.e., low supply) and high consumer costs (resulting in low demand). Low quality of care discourages consumers from prepaying for health care through health insurance. This exposes them to the risk of catastrophic health care spending. Lack of prepayment means that providers rely on unpredictable user fees, through fee for service payments at the time care is received. In many instances, patients may not have money to pay at the point of need, leading to impoverishment due to borrowing or selling productive assets to pay for health care. Alternatively, providers are forced to either waive fees for the patient or carry an unrecoverable account in their books. This unpredictability of revenue makes it difficult to plan and risky to invest further in the health business — in particular, to make improvements in quality of care.

FIGURE 6: THE VICIOUS CYCLE OF LOW QUALITY CARE AND PREPAYMENT FOR HEALTH CARE



Source: Schellekens 2014

In addition, multiple and fragmented accreditation and quality assurance systems make it difficult to compare quality across providers. Better information on quality of care would allow insurers to select providers and set reimbursement rates based on quality of care, rewarding those providers that invest in quality of care and produce better health outcomes.

To this end, the MOH is working toward defining accreditation and quality standards for the country, collaborating with stakeholders to set up objective systems for quality assurance. Currently, a number of quality frameworks are in place, including the Kenya Quality Model; international accreditation tools are also being applied, such as the PharmAccess SafeCare Essentials and International Organization for Standardization (ISO) and Joint Commission International (JCI) certification. However, their application is uneven, and Kenya lacks an adequate database for comparison and benchmarking.

1.3.4. COST INFORMATION IS CRITICAL TO INFORM A SUSTAINABLE HIV RESPONSE

HIV prevalence has declined over the years, from a high of 10.8 percent in 1996 to 5.6 percent in 2012. Progress has been made through a combined effort of the Kenya government, the private sector, and external resources. However, HIV services are heavily donor-funded; 51 percent of funding comes from donors including PEPFAR and the GFATM. It is estimated that Kenya will need USD 24.2 billion between 2014 and 2030 to achieve the UNAIDS 90-90-90 goal (Haacker 2014). This is more funding than is currently available.

Though the Kenyan economy has reported sustained economic growth since 2002, the Kenya government has limited fiscal space to expand resources for HIV to address the UNAIDS goal. Therefore, the government is exploring innovative alternatives to finance this gap, including mobilizing domestic resources through the private sector and increasing efficiencies in providing care. This can be done by providing an enabling environment that allows private insurers to offer affordable products, and by encouraging those who can afford to pay to purchase these products. This would allow public resources to be focused on the poor who cannot afford to pay. In the short term, the government can increase access to HIV prevention, care, and treatment by contracting with the 51 percent of health facilities owned by the private sector, and by providing commodities to ensure that HIV services are available through private providers. However, to make informed decisions, government, private insurers, and private providers will require accurate costing data which is currently unavailable.

1.4. SHOPS IS PROVIDING PRIVATE SECTOR DATA ON COST AND QUALITY

The current study was designed to meet these information gaps, implemented through a partnership between the Strengthening Health Outcomes through the Private Sector project (SHOPS) — and GIZ. The purpose of the study is to generate unit costs for private sector health services, covering outpatient, inpatient, and service-specific costs, disaggregated by facility type and level. (See Glossary for a summary of KEPH levels of care.)

The costing study was designed for the following purposes:

- Comparing costs for different levels and types of ownership of facilities, for benchmarking and for identifying opportunities for efficiency gains.
- Informing the MOH on private provider unit costs to assist planning and budgeting.
- Assisting the NHIF and private sector providers to negotiate appropriate payment mechanisms and rates under new insurance schemes.

- Developing innovative private low-cost health insurance products, including products for low income groups, and improving and scaling up existing products.
- Improving contracting arrangements between private providers and private insurers.
- Initiating discussion of options for new payment models, such as case rates and capitation.

Recognizing public and private sector stakeholders' interest in cost information related to HIV care and treatment, the study focused on the costs of delivering HIV testing, care, and treatment, as well as FP and maternity care services that are critically important for prevention of mother to child transmission of HIV (PMTCT).

The results of this costing study will inform public and private sector initiatives to develop health financing solutions in support of UHC. In addition, the specific costs for HIV can inform HIV programming and investment decisions in support of a sustainable HIV response.

In tandem with the costing activity, SHOPS contracted PharmAccess to conduct a quality assessment using the SafeCare Essentials tool with a subset of the facilities surveyed, to better understand cost and quality variations among similar facilities.⁸ In addition, SHOPS assessed the quality of care against the cost of services, to seek insights into developing provider payment models that incentivize quality while reducing the cost of care.

⁸ SafeCare Essentials is a tool for assessing quality of care based on the Joint Commission International's (JCI) International Essentials of Health Care Quality and Patient Safety™. The assessment tool is mainly used during Medical Due Diligence visits for selection of facilities.

2. COSTING STUDY METHODOLOGY

2.1. DATA COLLECTION (2013)

This study is based on data collected in 2013, when SHOPS partnered with GIZ to conduct a costing exercise for the Kenyan health sector. The team collected detailed cost and health service utilization data from 238 public and private health facilities throughout Kenya. The facilities were selected from 17 counties, 11 of which have the highest numbers of PLHIV. (The counties within North Eastern province were excluded from the sample due to security concerns.) Annex A presents the sampling framework and the breakdown of the sampled public and private health facilities by county, facility level, and ownership. (See Glossary for a summary of the KEPH levels of care.) The facilities included all ownership types (i.e., public, private for-profit, and non-government, and faith-based organizations); they were purposively selected to represent all the levels of health care service providers, from the smallest clinic/dispensary (Level 2) to teaching and referral hospitals (Level 6). Data collection included 148 private health-care facilities, providing the basis of the current private sector costing analysis.

The 2013 survey used an updated version of the tools developed under a GIZ-financed 2006/07 costing exercise.⁹ Data were collected on total financial expenditure for each facility, for either the 2012 calendar year or the 2011/12 fiscal year (whichever was available), categorized as either capital or recurrent expenditures. As capital costs were not available for the majority of health facilities, this category was excluded from the final analysis. In addition, data were collected on volume of services as well as staff allocation to various services. Teams of three or four research assistants spent from 2 to 15 person-days per facility, with higher level facilities requiring more time than lower level facilities.

The 2013 data collection effort encountered challenges that affected the completeness and quality of data collected. Many facilities have only manual systems, and data reporting and storage are often inconsistent and inaccurate. This resulted in incomplete and unreliable data that triggered a data verification exercise by the SHOPS team, detailed below. In addition, the private Level 5 and 6 facilities declined to participate in the study, so these levels were excluded from the analysis. This costing study therefore presents results from private facilities at Levels 2, 3, and 4.

2.2. OVERVIEW OF THE COSTING APPROACH

SHOPS generated two types of private sector unit costs through this study:

1. Average costs of health services within the private sector:
 - a. Cost per outpatient visit
 - b. Cost per inpatient bed day

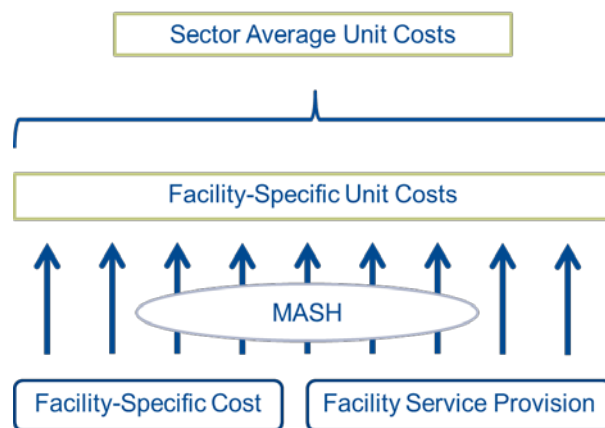
⁹ A copy of the data collection tools can be retrieved from the SHOPS website: www.shopsproject.com.

2. Average costs of the following specific health services:
 - a. HIV voluntary counseling and testing (VCT)
 - b. ART
 - c. Family planning (FP)
 - d. Delivery (normal and caesarean section)

2.2.1. SERVICE-SPECIFIC UNIT COSTS (MASH COSTING TOOL)

Using the Management Accounting System for Hospitals (MASH) costing tool, SHOPS calculated the average costs of health services for each of the 148 private facilities studied.¹⁰ After removing the outliers, these facility costs were averaged to estimate the unit costs for the private sector (Figure 7).

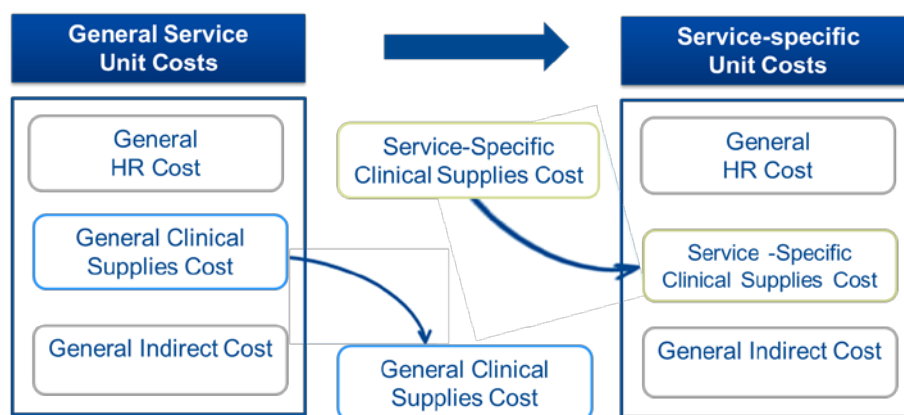
FIGURE 7: COSTING DATA COLLECTION AND ANALYSIS PROCESS



Unit costs are defined for this study to have three components: (1) human resources (staff); (2) clinical supplies (drugs and commodities); and (3) indirect costs (general). To estimate the unit costs for a specific service (e.g., ART), the team replaced the average cost of drugs and clinical supplies across all services for a facility with drug and clinical supplies costs for the specific service (Figure 8). The assumption was that, unlike the cost of supplies, staff and general indirect costs would remain roughly constant across all services for a given facility.

¹⁰ MASH is a Microsoft Excel-based tool for costing facility-based health services. It was developed by Abt Associates Inc. in 2002 and has been used in Africa, the Middle East and the Caribbean. For more on MASH please see <https://www.hfgproject.org/management-accounting-systems-hospitals-mash-manual/>.

FIGURE 8: APPROACH TO SERVICE-SPECIFIC UNIT COST CALCULATION



SHOPS used a five-step process to generate the unit costs.

1. The team cleaned the original data collected in 2013.
2. The team populated the MASH costing tool with the collected data to generate preliminary unit costs for each facility.
3. To check data quality, SHOPS conducted a data verification exercise at 31 facilities (a subset of the 148 private facilities included in the 2013 data collection exercise).
4. After a review of outliers and data quality, the team eliminated any unreliable data.
5. The team generated the sector average unit costs for the private sector based on facilities that had reliable data.

The subsections below explain in more detail each of the data collection and analysis steps.

2.2.2. FACILITY-SPECIFIC UNIT COSTS, BY SERVICE

This costing study focused on generating the unit cost of outpatient and inpatient services from the provider's perspective. Thus, the unit cost represents only costs incurred by the provider to deliver a specific service and excludes costs incurred by others, including those borne by patients (e.g., for transportation to the health facility or lost wages) and by the government or donors (e.g., the supply chain cost of providing free drugs and commodities to the health facility).¹¹

MASH takes a step-down costing approach: all the facility costs are allocated to "cost centers," using allocation factors. There are three types of cost centers:

1. Administrative services and logistics (e.g., finance, kitchen, and building management)
2. Ancillary (or intermediate) medical services (e.g., pharmacy, laboratory, and theater)
3. Final medical services cost centers (i.e., outpatient clinics and inpatient wards).

¹¹ All private health facilities surveyed through the data verification exercise stated that they usually receive vaccination, FP, VCT, and ART drugs and commodities for free through the public sector or the Gold Star/Tunza social franchise. Although, the costs of the actual commodities are available through Kenya Medical Supplies Authority (KEMSA), the related supply chain costs are inconsistently available. Therefore the cost of the actual commodity used for each service is included but the supply chain management costs are not included. These facilities did not report any other public sector subsidy. Three NGO/FBOs reported that their medical officers' salaries were subsidized through affiliated international FBO/NGOs or foundations.

Annex B lists the cost centers, types of expenditures collected, and allocation factors used to allocate expenditures to cost centers.¹² Due to poor inventory and asset records at most facilities, capital costs and equipment were excluded from the MASH analysis. Annex C details how the collected data were aggregated or treated to populate the MASH tool to generate the unit costs.

Once all facility costs were allocated to cost centers (organized under either outpatient clinics or inpatient wards), unit costs were calculated by dividing the total cost for each cost center by the number of services. To generate the sector unit costs, the team summed the facility-specific costs for each level (classified by type of ownership of facility) and divided the total by the number of facilities in that category. This approach was used rather than a weighted average, to avoid skewing the results towards the facilities with the highest volume. In this case, each facility counts equally in the resulting average for that level.

2.3. QUALITY OF 2013 DATA: ISSUES AND REMEDIATION

Four types of data are necessary to produce a unit cost for health services: (1) facility utilization statistics; (2) numbers of staff, by cost center; (3) staff costs; and (4) other capital and recurrent costs. Of the 148 private facilities, 57 were missing at least one of these four essential types of data, making it impossible to generate unit costs for that facility. Further, most of the other facilities had inconsistencies that caused the team to question the validity of the calculated unit costs. These inconsistencies were of five types:

- **Utilization data inconsistency.** This was the most common issue. In 66 facilities the ancillary service cost centers (e.g., laboratory and radiology) had recorded utilization even though the corresponding outpatient or inpatient cost center did not report any patient volume.
- **Ward data gaps.** 23 facilities lacked data on the number of beds and/or inpatient bed days.
- **Staff data issues.** 64 facilities reported staff for clinics or wards that had no visits or admissions, or admissions for a clinic or ward with no staff. Similar issues arose with ancillary health services, such as laboratory services that were reported when no laboratory staff was listed on the payroll.
- **Cost inconsistency.** 58 facilities reported costs associated with ancillary health services that did not have any utilization.
- **Data looks suspicious.** 49 facilities had highly improbable data, mostly around staffing patterns compared to facility utilization. For example, one facility had 565 outpatient visits per nurse per day; while not impossible, it is likely that either the number of nurses was under-reported or utilization data were overstated.

An outlier analysis of the unit costs in the private health sector found significant changes in average unit costs after eliminating the outliers. In the real world, outliers are expected; a variety of facilities with varying cost structures exist. However, in view of the data inconsistencies observed in the detailed costing for each facility, it seemed possible that the outliers in the dataset were caused by data collection errors. A data verification exercise was necessary to assess whether the data collected in 2013 were valid and reliable, as described in the next section.

¹² For more information, refer to Partners for Health Reform *plus* (2004). The Partners for Health Reform project was led by Abt Associates and funded by USAID.

2.3.1. THE DATA VERIFICATION EXERCISE (2014)

To detect any errors in the 2013 data collection process, SHOPS validated the quality of the three key data elements (utilization, staffing, and clinical supplies expenditures) for 31 of the 148 private facilities. The team randomly selected 31 facilities from the initial sample, stratified by facility level and ownership category, excluding hard-to-reach areas due to budget constraints. The team was forced to replace 11 facilities (in the sample of 31) that were unavailable or unwilling to participate in the data verification exercise. See Annex D for the number of facilities sampled by county, facility level, and ownership category.

SHOPS developed a new data collection tool for this verification exercise and pre-tested it at two Level 4 FBO facilities. The questionnaire has two parts. Part A collects general cost, utilization, and staffing data, and Part B has questions to clarify any gaps in the facility information based on the original data collection exercise. Four research assistants who were part of the 2013 data collection exercise were retrained on this new data collection tool. To reduce bias toward previously collected data, the research assistants were instructed to gather a new set of data based on the facility records available, including: service utilization per clinic and ward; staff numbers; staff allocation by clinic and ward; total expenditure; staff salary; and clinical supplies cost. In addition, the research assistants were instructed to cross-check the new data with the 2013 data and, if there were any material inconsistencies between the two datasets, to clarify with the facility staff the cause(s) of this difference. The data collection tool emphasized gathering of qualitative information regarding the data quality and data source, to provide insight into any issues identified. Working in teams of two, the research assistants verified the data at the 31 selected private facilities during the month of May, 2014.

SHOPS staff supervised the first week of data collection and conducted subsequent mid-term on-site supportive supervision to confirm that the data collection standards were being met. A SHOPS technical staff member was available daily via phone to answer any questions the research assistants had while collecting the data. The research assistants collected the data on the paper data collection instrument and then entered the data into a specialized data entry spreadsheet. The research assistants submitted the populated spreadsheets within a week of the data collection, and SHOPS staff reviewed the spreadsheets within a week of receipt and sought clarification on the results from the research assistants, if necessary. The MASH costing for the 31 sample facilities was then revised using updated data from the data verification exercise.

2.3.2. VALIDATION OF FACILITY UNIT COSTS

SHOPS performed an outlier analysis of the original data, to select the facilities to generate unit costs. The following criteria were used to identify and eliminate outliers:

- Facilities with incomplete utilization data were eliminated from the sample.
- Facilities where outpatient visit and inpatient bed day unit cost proportion was skewed were eliminated. The inpatient bed day unit cost is expected to be about five times the cost of one outpatient visit; any facility that showed inpatient unit costs less than three times or more than seven times the cost of its outpatient unit cost was eliminated.
- Any facility whose unit cost was three standard deviations away from the mean for its facility level was eliminated, after careful review of the underlying data.
- Any Level 2 facility that reported inpatient admissions was eliminated. Under KEPH definition, Level 2 facilities should not have inpatient services. Moreover, if these

inpatient services were limited to monitoring patients, without a full-scale inpatient ward, the service did not meet the standard of the Level 3 and 4 facility inpatient wards.

- Finally, any facility with outpatient visit unit costs less than KES 100 was eliminated. The research team decided that KES 100 was unreasonably low for an outpatient visit.

After all outliers were removed, 91 facilities remained of the initial 148 facilities studied. The analysis used 2013 data for 60 of these facilities and 2014 data for the 31 facilities whose data had been verified.

2.3.3. AVERAGE COST STATISTICS

For the selected 91 facilities, the team calculated average unit costs. The resulting facility unit costs, excluding outliers, were then averaged to generate an average cost for the private health sector as a whole, by ownership category and facility level. This approach — averaging the unit costs rather than summing up the total costs and dividing by the sum of service volumes for each level — avoids skewing the resulting average toward the facilities with the highest volume.

2.4. LIMITATIONS OF THE STUDY

The amount of data sought was significant in terms of quantity and detail, and was often not readily available. In many instances, data were stored in various on-site and off-site locations and in different formats. The majority of facilities had manual systems that were incomplete and unreliable, and audited financial accounts were lacking in most facilities. This made it challenging to collect accurate and complete data necessary for this costing exercise, as discussed in section 2.3.1.

In addition, the amount of data requested and the sensitivity of some financial data prompted some facilities to opt out of the study. In some instances, data collectors would begin collecting data, only to be stopped when the data being requested become sensitive or the exercise took too long. This led to the need to replace some of the health care facilities in the initial sample, leading to further delays, with budgetary implications.

The research team aimed to replace facilities that declined to participate with a similar facility (e.g., the same level and ownership category). However, all private Level 5 and 6 facilities declined to participate in the study, making it necessary to exclude facilities from these levels from the analysis. Therefore, the costing results presented in the next section are from private facilities at Level 2, 3, and 4 only.

3. COSTING STUDY RESULTS

The private sector average costs are presented by level and ownership of facilities. The results are based on combined data from 91 facilities, including the data set collected in 2013 (minus outliers) and the data from the 2014 data verification exercise. Annex E provides a breakdown of the 91 facilities. Ownership is defined as FBO and NGO (FBO/NGO) and private for-profit (P4P). FBO and NGO facilities were combined, due to the small size of the NGO sample. Facility levels are defined as follows: Level 2 – clinics/dispensaries; Level 3 – health centers and nursing homes; Level 4 – hospitals. Level 5 and 6 private facilities did not participate in this study.

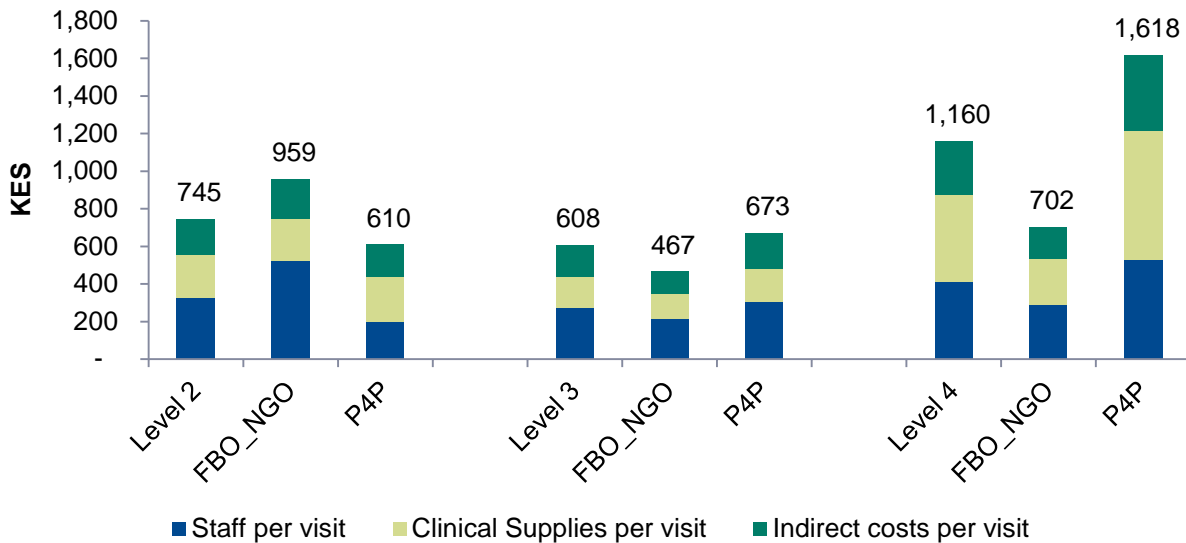
The service-specific costs are based on data from the 31 facilities whose data was verified in 2014. ART, VCT, and delivery services were not offered by all facilities. This changed the sample size for each service; only family planning service costs could be presented by both facility level and ownership. For other services, costs are presented by either facility level or ownership.

The cost of subsidized and seconded human resources and free commodities was included in all sector- and service-specific costs. The costs of the free or subsidized human resources and commodities were included in the average visit cost in order to reflect the full cost of providing the service. The sections below present tables and graphs showing the various costs generated by the MASH tool, with a brief discussion of the results. Additional results are presented in Annex F.

3.1. AVERAGE COST OF AN OUTPATIENT VISIT

These results present an average outpatient visit cost for services offered at an outpatient setting, including consultation, laboratory services, and medical commodities, at Levels 2, 3, and 4. At Level 4, these costs also included radiological diagnostic services. As shown in Figure 9, the average cost of an outpatient visit was lowest in Level 3 facilities and highest in Level 4 facilities. Level 2 outpatient costs were higher than Level 3 costs. FBO/NGO facilities had lower average costs than the P4P facilities, except at Level 2, where P4P facilities had a lower outpatient visit cost than FBO/NGO facilities.

FIGURE 9: AVERAGE COST OF AN OUTPATIENT VISIT IN THE PRIVATE SECTOR, BY FACILITY LEVEL AND OWNERSHIP (KES)

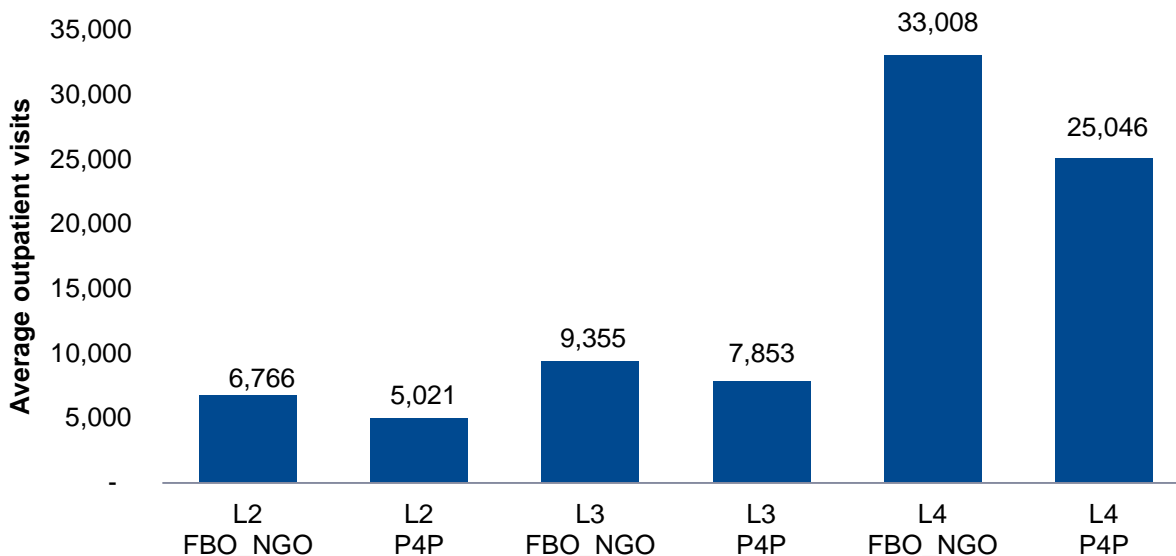


The average cost of an outpatient visit was KES 745 in Level 2 facilities, KES 608 in Level 3 facilities, and KES 1,160 in Level 4 facilities. Level 2 facilities offer basic primary health care (PHC) services, including HIV services such as VCT and ART, and some PMTCT services excluding delivery. Level 2 facilities are staffed by lower cadre health workers such as nurse practitioners, and are stocked with essential medical commodities and supplies. The majority of Level 2 facilities have limited infrastructure; typical services offered are consultation with a nurse practitioner offering essential medical commodities and limited diagnostic services, with rapid diagnostic tests at basic laboratories. Level 3 facilities have services and human resources similar to Level 2 facilities, but in addition to nurse practitioners, they are also staffed by clinical officers. The majority of Level 3 facilities sampled were maternity nursing homes offering maternity care, which at outpatient level is not resource intensive. Level 4 facilities are staffed by higher cadre and more expensive human resources, such as medical officers and medical specialists, and they offer a wide range of curative and diagnostic services including all HIV-related services (VCT, ART, and PMTCT) and medical commodities. In addition, the majority of Level 4 facilities were located in urban areas, which are associated with higher operating costs.

As presented in Figure 9, staff costs constitute between 33 and 55 percent of the average outpatient visit costs — the largest component of the average cost. Indirect costs varied between 22 and 28 percent and were generally higher for P4P facilities than for FBO and NGO facilities. The cost of clinical supplies varied from 23 to 42 percent. The variations of costs of inputs across levels can be explained by their differences in human resources, infrastructure, and services. Provision of health care is labor-intensive, and therefore human resources are a bigger component of cost for Level 2, where clinical consultation services are the bulk of health care offered. As the infrastructure and services expand in Level 3 and 4, the cost of clinical supplies and indirect costs comprise a bigger proportion of cost. Across all facilities, optimizing the use of their human resources, which is a large constituent of costs, can reduce the average cost further. In addition, facilities may benefit from reducing their indirect costs and improving procurement practices to reduce the price of clinical supplies.

Low utilization was the main driver of Level 2 costs. Level 2 and 3 showed similar expenditures, but Level 3 had 1.46 times as many outpatient visits than Level 2 facilities in both ownership categories, as shown in Figure 10.

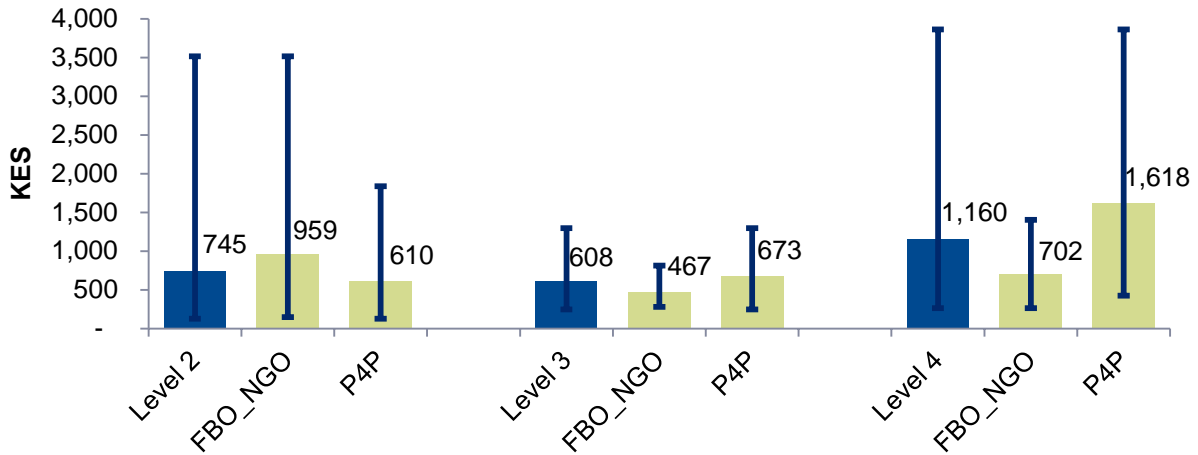
FIGURE 10: AVERAGE NUMBER OF OUTPATIENT VISITS BY FACILITY LEVEL AND OWNERSHIP



As shown in Figure 11, FBO/NGO facilities had lower outpatient visit costs than P4P facilities at Levels 3 and 4, but higher outpatient visit costs at Level 2. Level 2 FBO/NGO facilities also showed 1.35 times higher utilization than P4P facilities (as shown in Figure 10), but their total costs of providing outpatient services was 1.3 times higher, resulting in a higher FBO/NGO average unit cost. For Level 3 facilities, utilization at FBO/NGO facilities was 1.2 times higher than for P4P facilities, and the cost of providing outpatient visits was about the same, resulting in the difference in average costs. For Level 4 facilities, the FBO/NGO facilities showed 1.3 times higher utilization than P4P, but P4P facilities had 1.3 times higher operating costs. Accordingly, FBO/NGO facilities' outpatient average costs were less than half of the P4P facilities' average, for Level 4.

Within levels, Figure 11 shows wide variation in outpatient average visit costs: from KES 139 to KES 3,514 (Level 2); KES 248 to KES 1,298 (Level 3); and KES 266 to KES 3,863 (Level 4). The variations are generally wider at P4P facilities than FBO/NGO but are widest at Level 2 FBO/NGO facilities. Based on this cost variation across facility levels and ownership categories, there appears to be potential for providers to identify areas for efficiency gains by reducing their operating costs and increasing outpatient visits, improving their competitiveness across different ownership types.

FIGURE 11: AVERAGE OUTPATIENT VISIT COST AND RANGES, BY FACILITY LEVEL AND OWNERSHIP (KES)



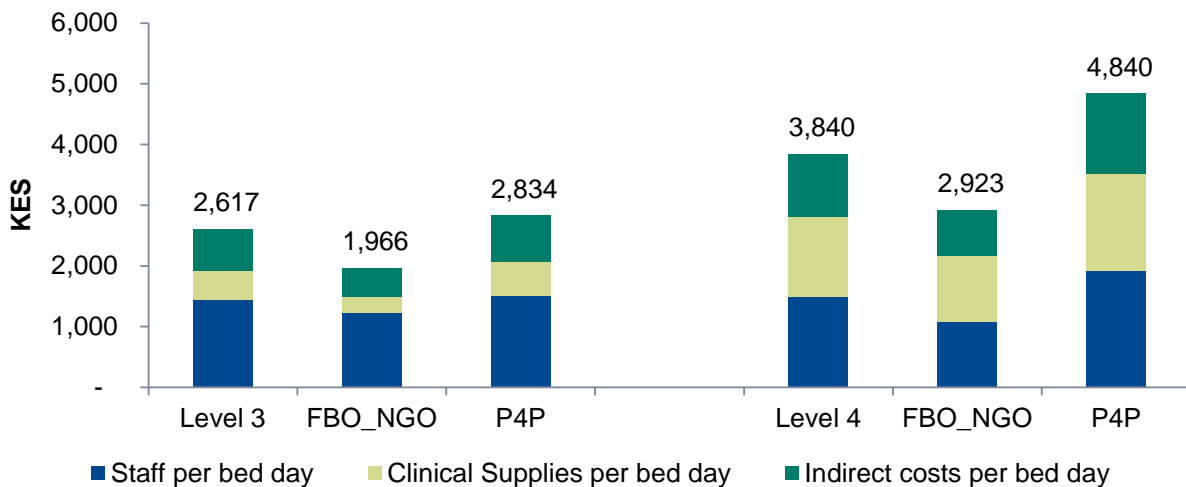
NOTE: Bars show the total range of average outpatient costs for the different facility categories

3.2. AVERAGE COST OF AN INPATIENT BED DAY

The analysis of inpatient bed days is restricted to facilities in Levels 3 and 4; Level 2 facilities are not expected to offer inpatient facilities. These inpatient costs represent an average inpatient bed day for medical, surgical, and pediatric inpatient care, including diagnostic laboratory and imaging services and medical commodities.

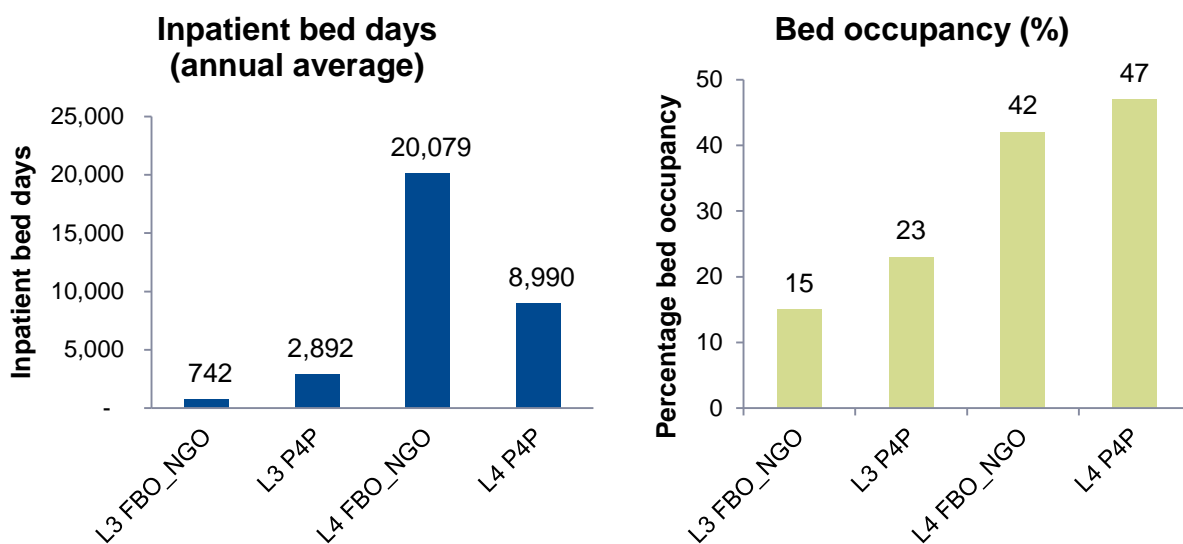
The average cost of an inpatient bed day was lower for Level 3 (KES 2,617) than for Level 4 facilities (KES 3,840), as shown in Figure 12. This can be explained by differences in resources (such as staffing, infrastructure, and medical commodities) at the two levels. Level 3 facilities' inpatient care is comprised mostly of basic emergency obstetric care, while Level 4 facilities offer both basic and comprehensive emergency obstetric care and medical and surgical adult and pediatric inpatient care.

FIGURE 12: AVERAGE COST OF AN INPATIENT BED DAY BY FACILITY LEVEL AND OWNERSHIP (KES)



Inpatient bed day costs are higher in the P4P facilities than in FBO/NGO facilities, at both Level 3 and Level 4 (Figure 12). A further analysis of the average inpatient bed day costs shows a wide variation in the components of the costs. As shown in Figure 12, staff costs contributed between 37 percent and 62 percent of the inpatient bed day costs. Clinical supplies contributed between 14 and 37 percent of the inpatient bed day costs, and were higher for Level 4 facilities than Level 3 facilities. Indirect costs showed less variation, contributing between 24 percent and 27 percent, and were higher for P4P than FBO/NGO facilities. The variation in cost of inputs can be explained by the differences in facility human resources, services, and infrastructure. Human resources are a larger constituent of costs for Level 3 facilities than for Level 4 facilities, which have higher indirect and clinical supplies cost. Based on this analysis, P4P facilities may benefit from reducing their indirect costs and improving procurement practices to reduce the price of clinical supplies.

FIGURE 13: INPATIENT BED DAYS AND OCCUPANCY, BY FACILITY LEVEL AND OWNERSHIP



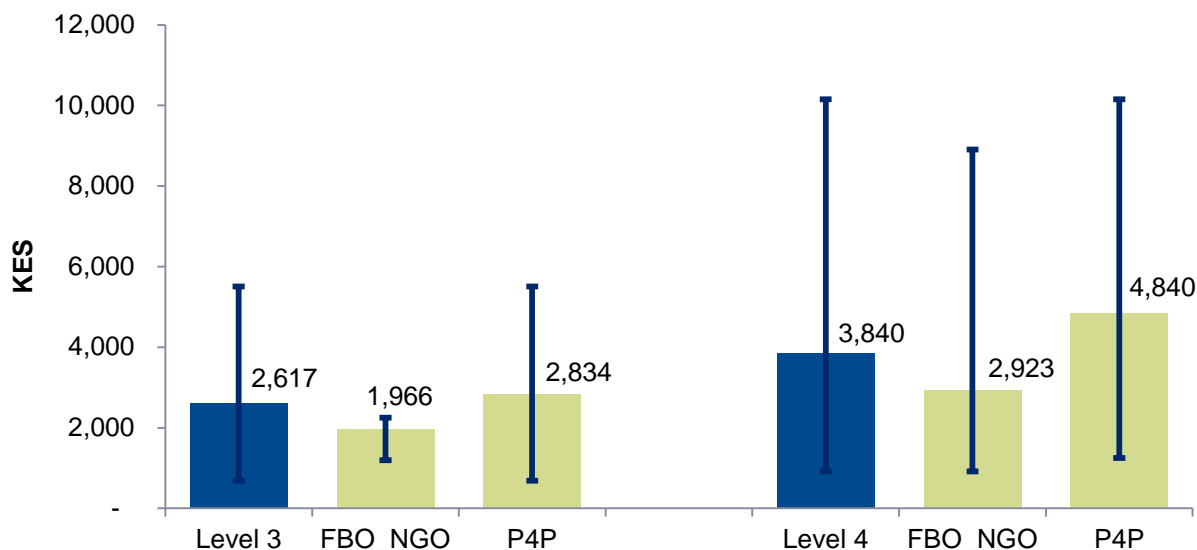
As shown in Figure 13 above, bed day usage varied widely within levels. Across all facilities, bed occupancy was below 50 percent, indicating unused capacity for inpatient care. Overall, Level 3 P4P facilities (with an average bed capacity of 29 beds) were larger than Level 3 FBO/NGO facilities (averaging 13 beds). If bed capacity is used as a proxy for the facility’s range of services and infrastructure, then it can be assumed that P4P Level 3 facilities offer a wider variety and can deliver a higher volume of services. Though P4P Level 3 facilities had 3.9 times as many inpatient bed days as FBO/NGO Level 3 facilities, their occupancy rate was only 1.5 times that of FBO/NGO Level 3 facilities. Since both types of facility had similar operating costs, the higher cost at P4P Level 3 (shown in Figure 12) is driven by relatively lower utilization as compared to capacity. Increasing utilization above the 23 percent bed occupancy rate may reduce these costs further. While Level 3 FBO/NGO inpatient bed day costs seem low, they can be further reduced by increasing utilization above the very low 15 percent bed occupancy.

The Level 4 P4P facilities had an average bed capacity of 51 beds, in comparison to Level 4 FBO and NGO facilities with an average 113 beds. Again, using bed capacity as a proxy for a facility’s range of services and infrastructure, it can be assumed that FBO and NGO facilities offer a wider variety and can deliver a higher volume of services in general. P4P Level 4 facilities have 50 percent higher operating costs as compared to Level 4 FBO/NGO facilities. Accordingly, FBO/NGO average inpatient bed day costs are lower than P4P Level 4 facilities, reflecting their higher inpatient bed days and lower operating costs. Therefore, Level 4

FBO/NGO facilities are probably more efficient at service delivery, providing care at a lower cost; but they can reduce costs further by increasing their utilization above the current 42 percent level.

Figure 14 shows a wide variation of inpatient bed day costs within levels, ranging from KES 687 to KES 6,451 for Level 3 and KES 920 to KES 10,152 for Level 4. The variation is wider for P4P facilities than FBO/NGO facilities, and widest at Level 4 P4P facilities. Wide variation indicates opportunities for efficiency gains, by increasing utilization to reduce average costs.

FIGURE 14: AVERAGE INPATIENT BED DAY COST AND RANGES BY FACILITY LEVEL AND OWNERSHIP (KES)



NOTE: Bars show the total range of average inpatient costs for the different facility categories

3.3. SERVICE-SPECIFIC COST DATA

Service-specific costs were generated for the 31 facilities whose costs were verified in 2014, for the following services, as presented in the following sections:

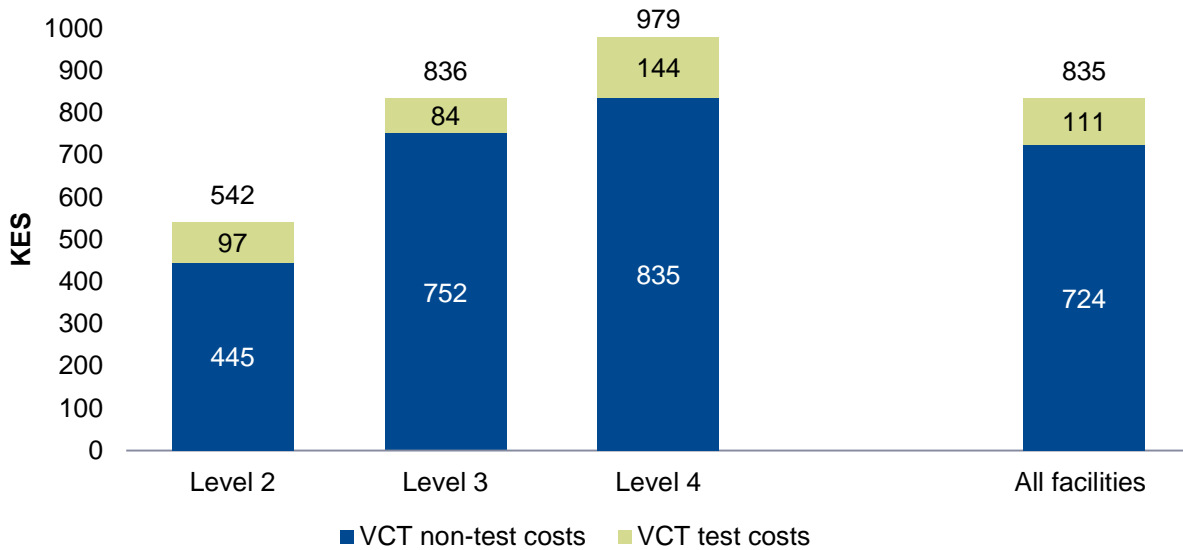
- a. HIV VCT by facility level
- b. ART by facility level
- c. FP by facility level and ownership category
- d. Delivery (normal and caesarean section) by facility ownership category

3.3.1. HIV VOLUNTARY COUNSELING AND TESTING (VCT)

The average cost of a VCT visit was KES 835, ranging from KES 542 at Level 2 to KES 836 at Level 3 and KES 979 at Level 4 (Figure 15). The test kit itself cost KES 111 on average, with minor variation among service levels, and constituted just 13.3 percent of the average total cost. All the facilities received their VCT test kits from Kenya Medical Supplies Agency (KEMSA) at a cost that reflects a government (or donor) subsidy. Average additional (non-test) costs were KES 724, comprising 86.7 percent of the average total visit cost, mainly for human resources. These additional costs were almost double for Level 4 facilities as compared to Level 2. The high additional costs reflect the more expensive human resources and indirect costs at Level 4 as compared to lower Levels. Test kit costs varied between KES 84 and 144 across levels

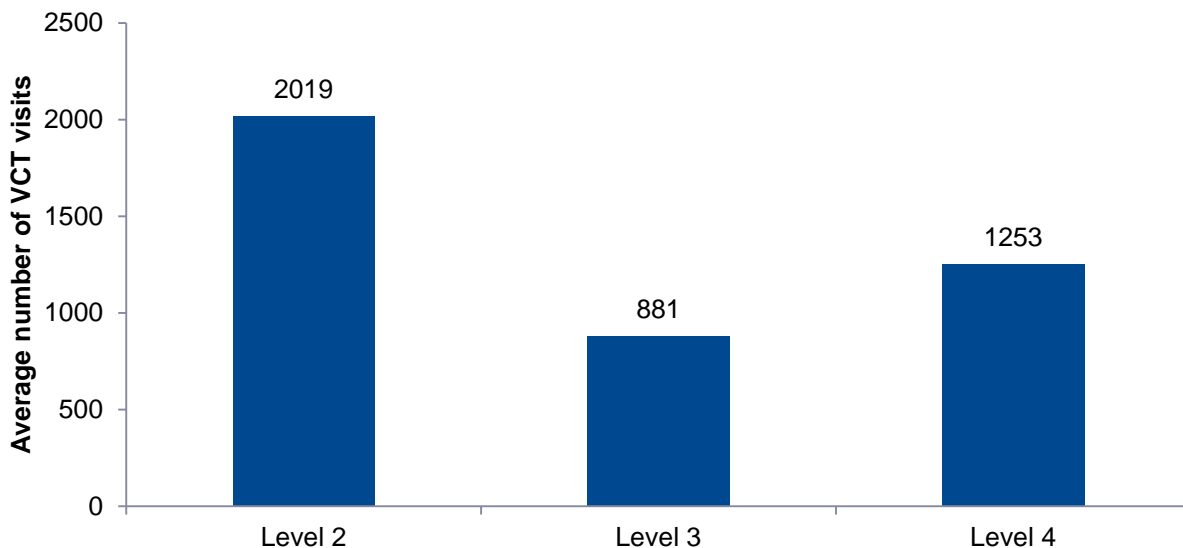
compared with an average test kit cost of KES 90.¹³ It is expected that clients may opt out of testing after counselling and therefore not all VCT visits will have a test and test kit cost associated with the visit. However, from Figure 15, Levels 2 and 4 have higher test kit costs which can be attributed to double testing which would mean a higher yield of HIV positive cases from these Levels of facilities or wastage of test kits.

FIGURE 15: AVERAGE UNIT COST OF AN HIV VCT VISIT, BY FACILITY LEVEL (KES)



VCT services are offered at primary health care settings, and therefore it is not surprising that VCT visits were highest at Level 2 (Figure 16).

FIGURE 16: AVERAGE NUMBER OF HIV VCT VISITS BY FACILITY LEVEL



¹³ This reference price of KES 90 was obtained from KEMSA from the purchases of HIV test kit for the 2011/2 financial year.

The high utilization at Level 2 drives down the cost of the VCT visit in comparison to Levels 3 and 4. For Level 4 facilities, however, higher operating costs mean that the average cost of VCT is higher than for Level 3 facilities, despite a higher rate of utilization.

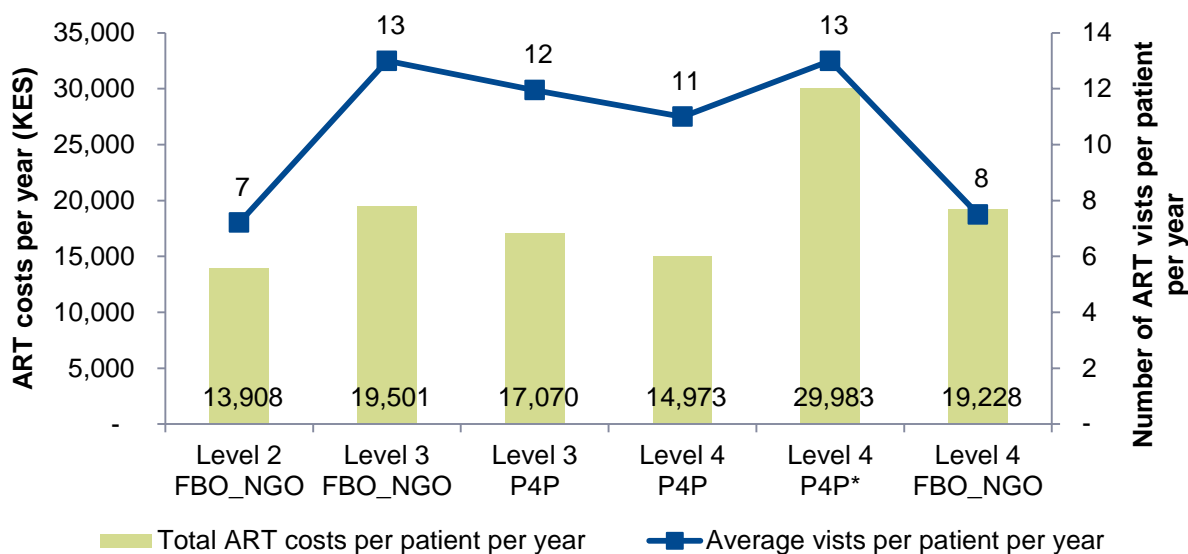
The VCT non-test costs, which are not subsidized, represent a substantial contribution of private sources to HIV service delivery, either through OOP expenditure or through patient insurance (if insured). It is estimated that 33 percent of VCT nationwide is provided by the P4P sector alone, a percentage that does not include the contribution by FBO and NGO providers (NASCO 2014). These results can inform planning by HIV programs to increase access to testing and counseling through the private sector.

3.3.2. ANTIRETROVIRAL THERAPY (ART)

ART visit costs were computed for six facilities including one Level 2, two Level 3 and three Level 4 facilities. By ownership these six facilities were three FBO/NGO facilities and three P4P facilities. In this section and related graphs they are designated by Level and ownership as Level 2 FBO/NGO, Level 3 FBO/NGO, Level 3 P4P, Level 4 P4P, Level 4 P4P* and Level 4 FBO/NGO.

Total ART costs per year ranged from KES 13,908 to KES 29,983 across the six facilities that offered this service, as shown in Figure 17, with an average cost of KES 19,111. Average annual visits per patient varied from 7 to 13 visits, averaging 10 per year. The number of per-patient visits was lowest for Level 2 and 4 FBO/NGO facilities, but higher in the Level 3 FBO/NGO and 4 P4P facilities. The variance in average outpatient visits across facilities may be explained by differences in the disease profile of patients: those starting treatment can be expected to have more frequent visits than those who are stable and under long-term management. Alternatively, the variations could be supplier-induced, as health care workers reduce the intervals between appointments to improve adherence or increase utilization. However, the sample of facilities is too small to make any generalizable conclusions. Additional review may help to clarify the variation among facilities to inform policies regarding adherence, retention of clients, and quality of care.

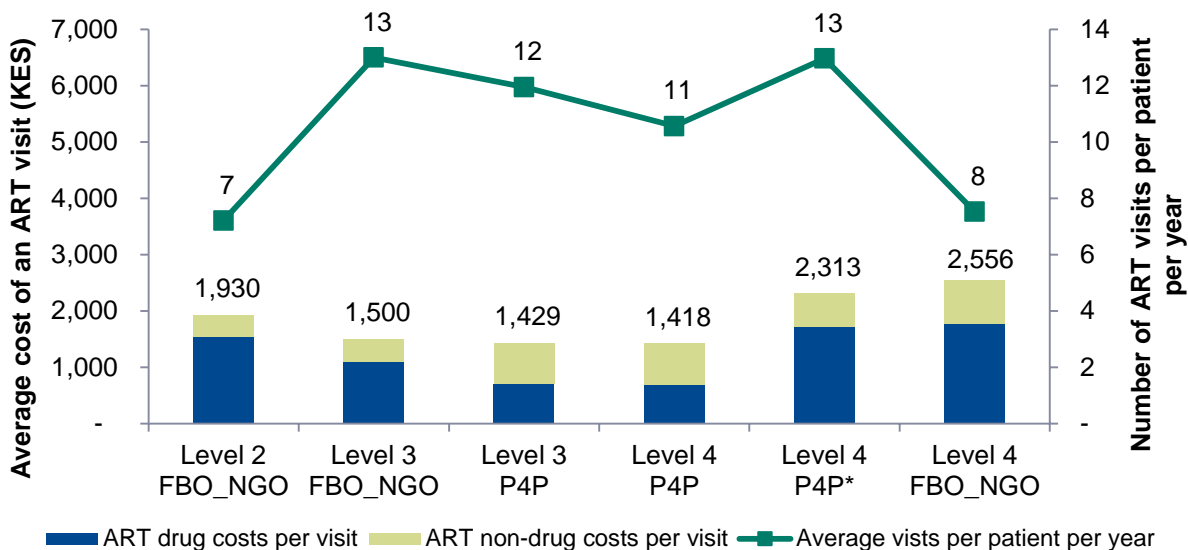
FIGURE 17: TOTAL COST OF HIV ART SERVICES FOR SAMPLED FACILITIES



This variation in average visits impacted the average cost per visit per facility, which ranged from KES 1,500 to KES 2,556 (Figure 18). Non-drug costs represented 20 to 52 percent of the

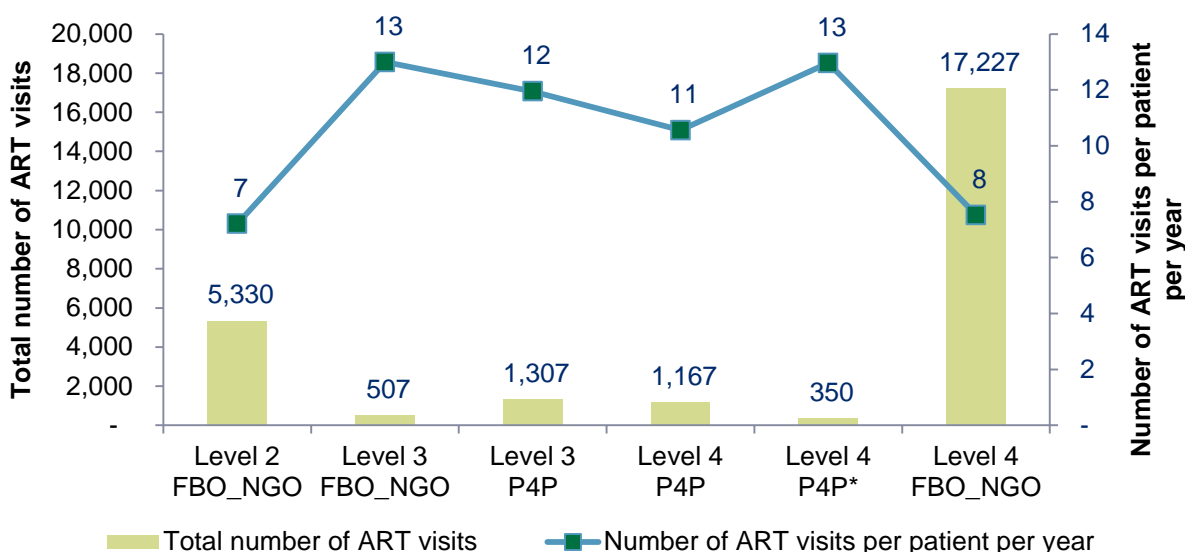
cost, mainly for staff costs. All facilities received their ART drugs through KEMSA free of charge, representing the external subsidy through the Ministry of Health. The ART cost was a significant proportion of the average cost per visit, ranging from 48 percent to 80 percent across the facilities. The wide variation of ART drug costs across facilities is a reflection of the different regimens used by each facility. Facilities with higher ART drug costs had more patients on more expensive, second-line ART regimens.

FIGURE 18: AVERAGE COST OF HIV ART SERVICES FOR SAMPLED FACILITIES



As shown in Figure 19, the Level 2 FBO/NGO and Level 4 FBO/NGO facilities have significantly higher utilization than the other four facilities. This does not translate into lower average costs, however, as the cost driver for these two facilities is cost of the ART drugs. Analysis shows a higher number of second-line regimens, which are more expensive than first-line therapy. Similarly, the Level 4 P4P* facility had a high number of second-line regimens in use, increasing the ART drug costs. In addition, the low utilization at Level 4 P4P* further increases the average costs. The other three facilities — Level 3 FBO/NGO, Level 3 and Level 4 P4P — generally used more first-line regimens, reducing the average drug costs per visit.

FIGURE 19: TOTAL NUMBER OF ART VISITS AND AVERAGE VISITS PER YEAR



It is estimated that 25 percent of ART is provided by the P4P sector (NASCO 2014); adding to that the FBO/NGO contribution shows the private sector as a key player in HIV/AIDS service delivery. It is estimated, also, that only 60 percent of pregnant PLHIV women receive ART prophylaxis for PMTCT, indicating an unmet need of 40 percent of pregnant PLHIV (NASCO 2014). In addition, there is currently an unmet need for ART treatment of 900,000 PLHIV. Cost data can inform HIV programming for scaling up both PMTCT and ART through the Kenyan private sector.

3.3.3. FAMILY PLANNING (FP)

Average FP outpatient visit cost was KES 623, ranging from KES 351 to KES 902 (Figure 20). FP costs showed varying trends depending on ownership. For the FBO and NGO facilities, costs were lowest for the Level 3 facilities and highest in Level 4. For the P4P facilities, costs were lowest in Level 2 and increased with higher levels of care.

The FP commodities costs were computed as an average of short term and long term methods, including oral contraceptive pills, male and female condoms, injectable depo-provera, and implants. The average cost of FP commodities for a given facility is given by dividing the total cost of all commodities (C) dispensed at the facility by the total number of patient visits for FP, as in the following calculation:

$$\text{Average cost}_C = (\text{cost of oral contraceptives} * \text{number of oral contraceptives dispensed} + \text{cost of condoms} * \text{number of condoms dispensed} + \dots + \text{cost of } C_n * \text{number of } C_n \text{ dispensed}) / \text{number of visits}$$

Commodities were supplied by KEMSA free of cost. The costs of the commodities were included in the average visit cost in order to reflect the full cost of providing the service. Commodities constituted 17 to 34 percent of the average visit cost.

FIGURE 20: AVERAGE COSTS PER FP SERVICE, BY LEVEL AND OWNERSHIP

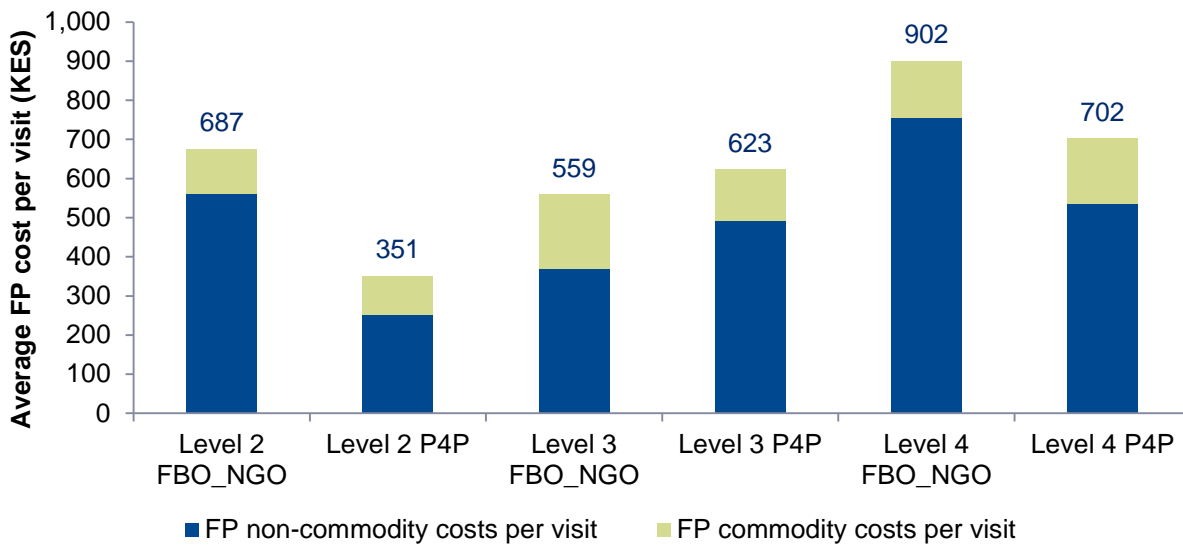
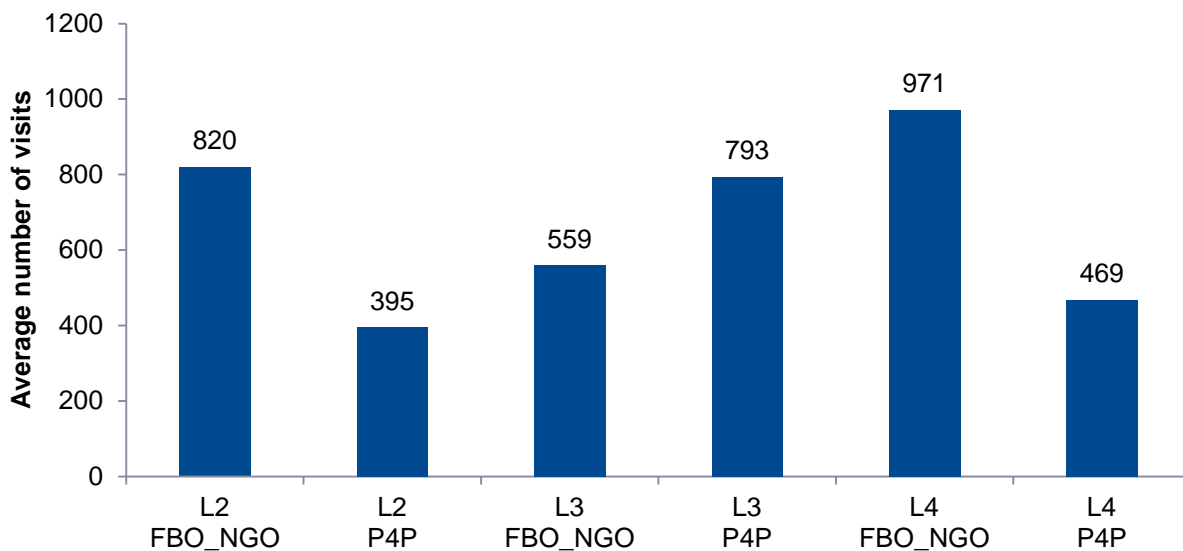


Figure 21 shows utilization of FP services, with Levels 2 and 4 FBO/NGO facilities and Level 3 P4P facilities having the highest utilization. It is expected that utilization rates, along with the differing mix of FP methods, would explain the cost variations seen across levels and ownership types. Unfortunately, further analysis of the mix of FP methods was not possible.

FIGURE 21: AVERAGE FP SERVICE VISITS, BY LEVEL AND OWNERSHIP



According to the 2008–2009 Kenya Demographic and Household Survey (KDHS), knowledge of contraceptive methods is high, at above 90 percent regardless of education, wealth status, or residence. However, use remains low at 46 percent, with an estimated 54 percent unmet need. The Kenya government is actively promoting FP to reduce the high crude birth rate of 4.6 children per woman. These FP cost calculations will be useful in estimating the additional investment that would be required to expand access to FP services through the private sector.

3.3.4. MATERNITY SERVICES

Normal delivery and caesarean section average costs were generated for Level 3 and 4 facilities. Normal delivery costs were calculated based on an average length of stay (ALOS) of two days, while caesarean sections assumed a four-day ALOS.

3.3.4.1. NORMAL DELIVERY

Costs for a normal delivery varied widely: the range across all the facilities was KES 1,958 to KES 22,606. The cost of a normal delivery is almost twice as high for Level 4 as at a Level 3 facility (Figure 22). It would be expected that the higher utilization at Level 4 would reduce the average costs of a normal delivery at a Level 4 facility (Figure 23). However, even though the total number of Level 4 deliveries is 1.3 times the number at Level 3, the operating costs are 6.8 times higher at Level 4 than at Level 3. The higher operating costs are attributed to more expensive human resource costs, medical commodities and indirect costs at Level 4.

There is an opportunity to improve efficiency of all facilities by increasing utilization (if there is excess capacity), to reduce average costs. In addition, there is an opportunity to task-shift basic emergency obstetric care to lower level facilities to reduce overall costs of providing care. This can optimize utilization at lower level facilities while ensuring that Level 4 facilities deal with complicated and emergency care. Alternatively, Level 4 facilities can task-shift internally, with nurse midwives offering basic emergency obstetric care, to reduce their average costs.

FIGURE 22: AVERAGE COSTS OF A NORMAL DELIVERY BY FACILITY LEVEL (2 DAYS ALOS)

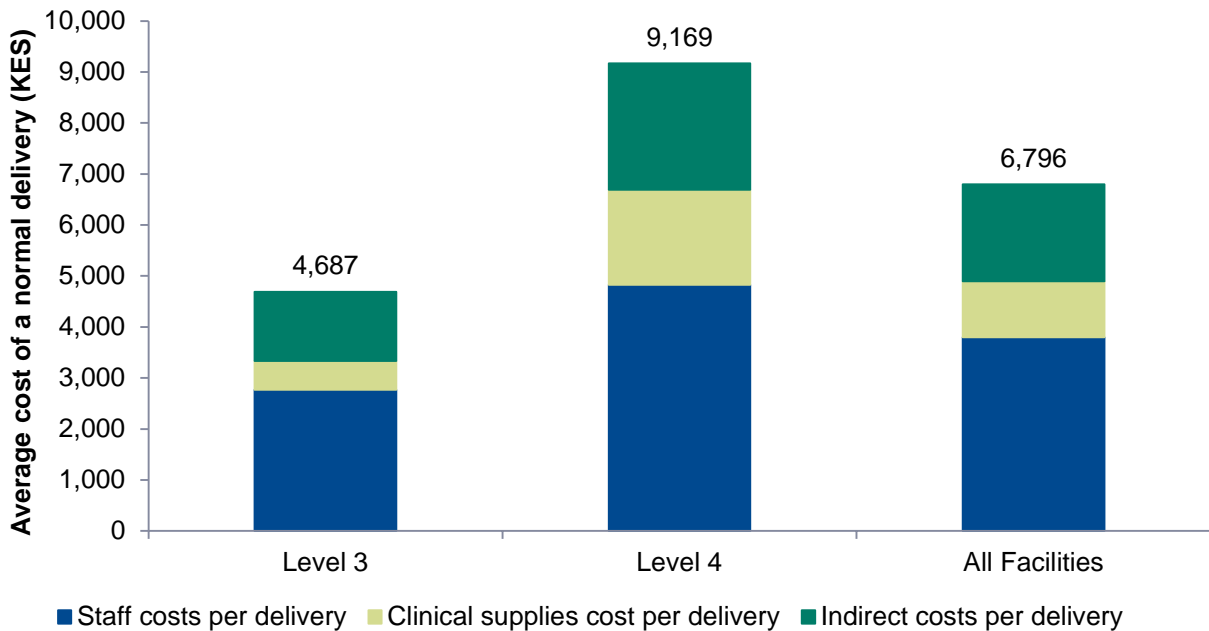
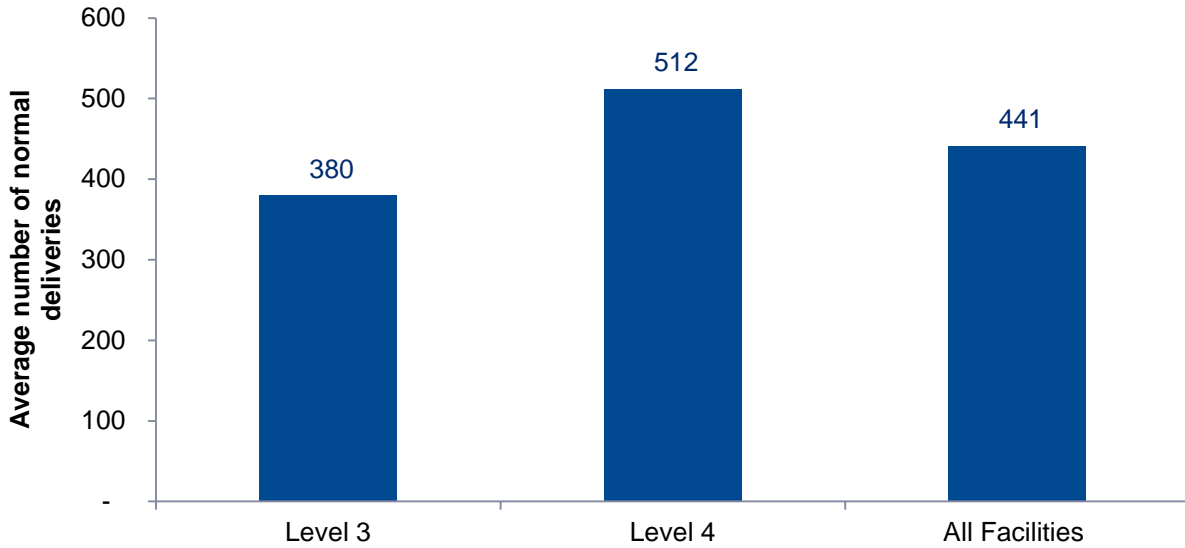


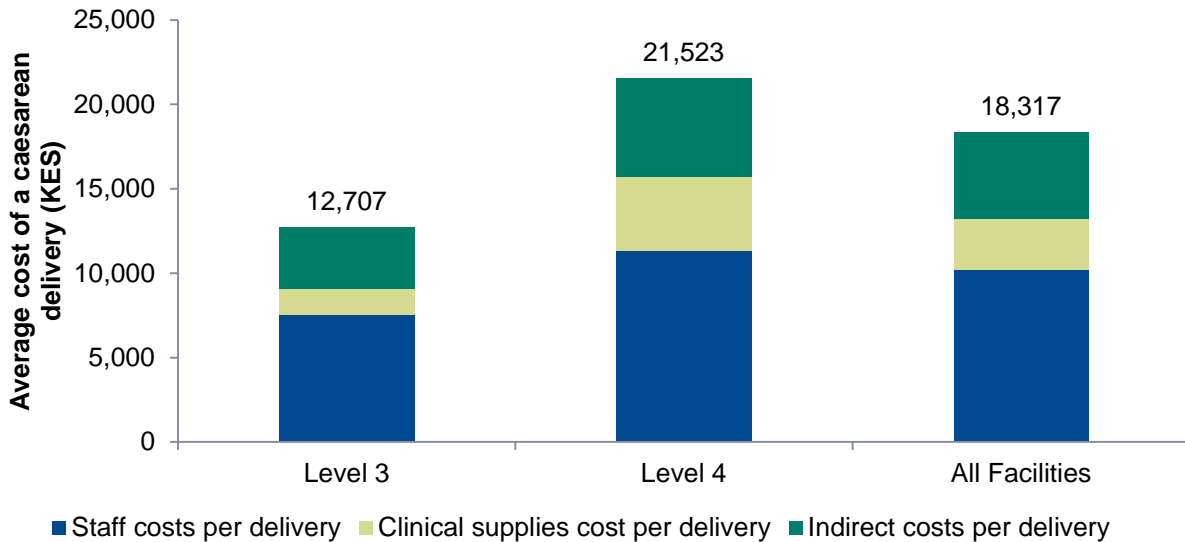
FIGURE 23: AVERAGE NUMBER OF NORMAL DELIVERIES BY FACILITY LEVEL (2 DAYS ALOS)



3.3.4.2. CAESAREAN DELIVERY

The average cost of a caesarean section, based on an ALOS of four days, is KES 18,317 (Figure 24). Level 4 cost was 1.7 times as high as Level 3, with similar rates of utilization (148 average caesarian deliveries at Level 3 compared to 151 at Level 4). The driver of these costs was the high operating costs at Level 4. This presents an opportunity to increase technical efficiency at Level 4 to reduce the average cost of a caesarian delivery.

FIGURE 24: AVERAGE COSTS OF A CAESARIAN DELIVERY BY FACILITY LEVEL (4 DAYS ALOS)



Figures 22 and 24 show that staff costs contributed the highest proportion of costs for both types of normal and caesarean deliveries representing 59 percent for Level 3 and 52 percent for Level 4. Comparing absolute values, the staff costs at Level 4 facilities are 1.5 times higher for normal deliveries and 1.7 times higher for caesarean deliveries than Level 3. This provides opportunities for reducing costs by task shifting and using less expensive personnel for these

services. Clinical supplies costs comprised 12 percent of costs at Level 3 and 20 percent at Level 4. The absolute value of the clinical supplies cost was 3.3 times higher at Level 4 for a normal delivery and 2.8 times higher at a Level 4 for caesarean deliveries when compared to Level 3 facilities. Further analysis is required to determine if this is a consequence of more complicated caseloads at Level 4 requiring more use of clinical supplies or a consequence of wastage or overuse of clinical supplies. Indirect costs constituted a similar proportion of delivery costs at 28 percent at Level 3 and 26 percent at Level 4. The absolute value of the indirect cost was 1.8 times higher at Level 4 for a normal delivery and 1.5 times higher at a Level 4 for caesarean deliveries when compared to Level 3 facilities. This may be a reflection of the larger infrastructure, multiple departments and services offered at Level 4 as compared to Level 3 facilities.

As the Kenyan government increases its free maternity program, the cost data will be useful to inform discussions with the private sector on their inclusion in the program, especially regarding the reimbursement rate to different types of private sector facilities for comprehensive and emergency obstetric care. In addition, as NHIF reviews its payments to providers, this data can inform the schedule of case-based payment rates to private providers.

3.4. SUMMARY

Overall, the results show a mixed picture across different facility levels and ownership categories. Surprisingly, Level 2 and 3 have similar operational costs, but the higher utilization rate at Level 3 contributes to lower average cost as compared to Level 2.

The outpatient and inpatient costs are generalizable for services offered at private facilities, while the service-specific results are specific to the conditions presented. Both Levels 2 and 3 show lower outpatient and service-specific costs than Level 4, reflecting more extensive infrastructure and higher cost of medical commodities and human resources at Level 4. Across all levels of care, human resources are the biggest cost driver for both outpatient and inpatient care.

FBO and NGO facilities generally have lower outpatient, inpatient, and service-specific costs as compared to the P4P facilities. This presents an opportunity to improve technical efficiency at P4P facilities. P4P facilities need to further evaluate the drivers of their indirect costs and drug costs, which are higher than FBO/NGO facilities. This is an area requiring further analysis.

Analysis of bed occupancy for inpatient services shows that most facilities have bed occupancy rates below 50 percent. There is unutilized capacity within the private sector that can take some of the burden off overcrowded public services, if patients have financial access to the private sector.

Staff costs (human resources) constitute a significant proportion of service costs for outpatient services such as VCT and family planning; health care is labor-intensive, and medical human resources are expensive and in short supply. Medical commodities and drug costs are also significant for outpatient and inpatient care and services, particularly for expensive drugs and commodities such as ART.

Therefore, to improve technical efficiency, private facilities need to review the workload and staffing of their facilities to ensure they maximize the use of their staff, as the most expensive input and the key driver of costs. A review of workload can also point to rationalization of staffing patterns. Private facilities can leverage task-shifting so that less expensive resources (such as nurse practitioners and clinical officers) begin to take up more clinical roles, freeing up doctors to handle specialized and complicated services.

Efficient procurement can reduce the cost of medical commodities, which are high for outpatient and inpatient care. Pooled procurement can ensure efficient purchasing by increasing purchasing power of providers while allowing for quality assurance of medical commodities.

3.5. IMPLICATION OF RESULTS FOR HIV

The outpatient and inpatient costs are generalizable to all services. For HIV services, the average inpatient or outpatient costs apply to the average cost of a non-ART admission or services for opportunistic infections, as well as antenatal and postnatal care for PMTCT (by facility level and ownership category).

Government- and donor-funded programs have expanded free access to HIV treatment, reducing financial barriers in the public sector. By providing commodities for HIV testing and ART, these programs have also reduced financial barriers to access in the private sector. However, non-ART visits and inpatient care for PLHIV are not subsidized and are paid for OOP. Due to the chronic nature of HIV, PLHIV have more health care needs. Therefore, these costs put them at risk of high health expenditure which can be catastrophic, particularly in the case of an admission. Catastrophic health expenditure can push the patient below the poverty line or deeper into poverty. When private providers increase their technical efficiency, this can reduce average costs of providing care and thus reduce OOP expenses for PLHIV. The results show that the costs of VCT and ART are driven by human resources. Task-shifting to lower levels of care and cheaper human resources (as recommended by national guidelines), while maintaining quality, can reduce costs and thus OOP expenditure.

In addition, HIV programs can refer to these costs in planning health financing mechanisms to support private provision of HIV-related outpatient and inpatient services, in order to expand subsidies to PLHIV accessing care through the private sector.

Studies have shown that HIV-positive women have a higher unmet need for family planning and higher rates of unintended pregnancies than the general population. Integration of FP and HIV care and treatment services has been recognized as a viable strategy to reduce transmission and to ensure that PLHIV can prevent or delay pregnancies. These costs can inform the planning and integration of services to improve access for PLHIV to comprehensive care, including ART and FP, at their choice of facility, public or private.

Childbirth delivery with a skilled provider in a medical facility is an important factor for reducing HIV transmission during childbirth and for addressing other complications. Understanding these costs is necessary to support PMTCT interventions for women living with HIV. Examples of such PMTCT interventions include initiation of ART for HIV-positive pregnant and breastfeeding women, and child delivery by caesarean section. These interventions reduce the likelihood of transmission during pregnancy, delivery, and breastfeeding. Other HIV services that can use these costing data are post-exposure prophylaxis (PEP), including for the newborn, early infant diagnosis, and initiation of ART.

Importantly, components of HIV and PMTCT services (such as VCT, ART, delivery, and family planning) are provided in these costing results to help inform HIV programming towards an HIV-free generation.

4. QUALITY ASSESSMENT STUDY

In parallel to the costing analysis described above, SHOPS contracted PharmAccess to conduct a quality assessment on a sample of 80 private health facilities.¹⁴ These facilities were drawn from the 148 private facilities that participated in the 2013 data collection exercise. This section gives the details of the objectives, methodology used, and results of the quality assessment.

4.1. OBJECTIVES OF THE QUALITY ASSESSMENT

The objectives of the quality assessment were to:

1. Compare the quality of care delivered by private health facilities across different levels of care in different regions of the country.
2. Compare these quality scores to the costs of providing outpatient and inpatient care.
3. Identify facilities that provide high quality care at low cost.

4.2. METHODOLOGY

From the list of 148 facilities, 80 were selected through stratification by facility level and ownership type. The 80 facilities were distributed across 15 of the 47 counties of Kenya. Of these, 10 counties are included in a list of 19 counties in Kenya with the highest HIV burden, where 78 percent of the Kenyan population is living with HIV. Marsabit County, which was included in the 2013 data collection, was excluded from the sampling due to the difficulty of access. In addition, counties in North Eastern province which were excluded in the 2013 data collection were also excluded from the quality assessment. See Annex H for the sampling framework and the breakdown of the sampled private health facilities by county, region, locality, level, and ownership type.

Of the 80 facilities, 25 were FBO, 10 were NGO, and 45 were P4P, distributed across Levels 2, 3, and 4. The SafeCare Essentials Toolkit was used for the assessment. The tool is based on the Joint Commission International's International Essentials of Health Care Quality and Patient Safety™ and it identifies 41 criteria in five primary risk areas related to quality and safety (summarized in Box 3; see Annex I for detailed criteria). Facilities are given a percentage "grade" for performance in the entire set of criteria. The tool provides an objective evaluation of patient safety, as a proxy for quality of care in resource-constrained environments.

¹⁴ Of these 80 facilities, only 31 had reliable data to generate facility unit costs and sector costs.

Box 3. SafeCare Essentials Toolkit risk areas

Risk Area 1: Leadership Process and Accountability

In the leadership and accountability area, documentation is a key component, as it allows for verification of the existing policies on leadership and the level of compliance with accountability standards. Also included here are elements of facility policy that touch on patient and family rights, and the care of high-risk patients (which may be seen as an indicator of critical care).

Risk Area 2: Competent and Capable Workforce

This area covers workforce competence issues, ranging from validation of personnel credentials and the existence of job files for staff, to orienting staff toward their jobs and training them on resuscitative techniques and infection control.

Risk Area 3: Safe Environment for Staff and Patients

The third area focuses on safety of the environment for patients and providers, with managers and administrators playing a central role. A safe environment requires training and implementation of systems to monitor occupational hazards on an ongoing basis. Ensuring occupational safety for staff and a safe environment for patients require risk management procedures to be codified. While procedure details may vary according to facility size and infrastructure, basic materials on the components of a safe environment should be present, including posters and informational material for patients.

Risk Area 4: Clinical Care of Patients

The fourth area looks at clinical care of patients. This encompasses a wide array of processes and procedures for mapping pathways for effective clinical management, monitoring, and organization of patient care in health facilities.

Risk Area 5: Improvement of Quality and Safety

The fifth section emphasizes the monitoring and reporting of essential components relating to the patient care process. This ranges from the monitoring of high risk processes and patients and adverse events, to the assessing of patient satisfaction and the existence of a complaint processes. Lastly, the section puts important emphasis on an inclusive approach to quality improvement, involving sharing of information with staff and the use of clinical guidelines by them.

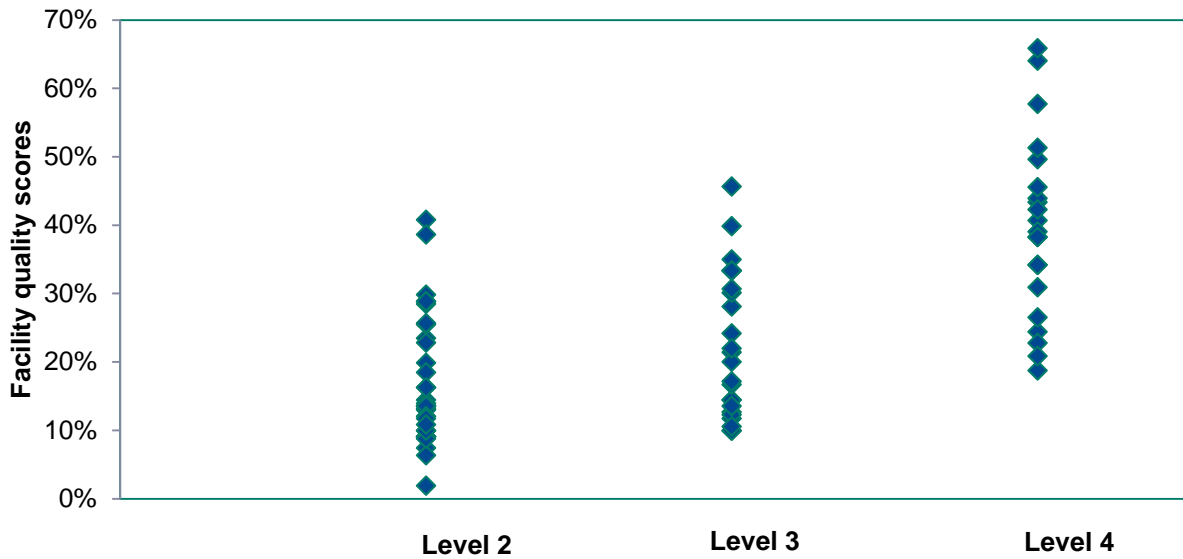
In addition, SHOPS requested PharmAccess to collect data on quality of post-exposure prophylaxis (PEP) to be used as a proxy of quality of care for HIV and AIDS services. SHOPS designed the data collection questions for PEP services.

Data collection for the quality assessment was implemented between April and May, 2014, by three teams of six surveyors each. The PharmAccess SafeCare team supervised the data collection and conducted the data analysis and report writing. Specific facility reports were disseminated individually to the participating facility.

4.3. RESULTS

The analysis of the data was done across all 41 criteria of the five SafeCare risk areas, at facility level and aggregate level. Across the 80 facilities, quality scores varied widely, from 2 percent to 66 percent (Figure 25). Generally, the Level 2 facilities scored lowest and Level 4 scored highest.

FIGURE 25: QUALITY SCORES FOR 80 FACILITIES

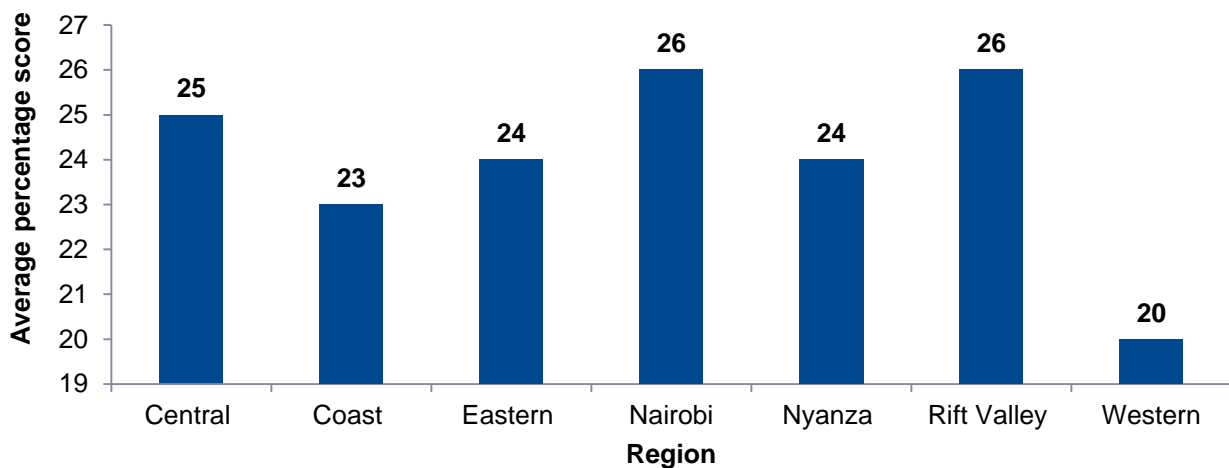


The results below are based on the aggregate analysis for all 80 facilities, broken out by region, location, level, and ownership type.

4.3.1. QUALITY SCORES BY REGION AND LOCALITY

As shown in Figure 26, not much variation is seen across regions, with a difference of just 6 percentage points from the highest to the lowest scoring regions. Overall, Nairobi and Rift Valley had the highest average scores, while Western had the lowest score.

FIGURE 26: AVERAGE QUALITY SCORES BY REGION



Across most regions, the risk area with the lowest scores was *improvement of quality and safety*; *clinical care of patients* had the highest scores (Figure 27). Nairobi and Rift Valley each had the highest scores in two of the five risk areas. The Western region had the lowest average score and was the worst performing region in four of the five risk areas. By locality, scores ranged from 15 percent in rural areas to 29 percent in urban areas (Table 2).

FIGURE 27: RISK AREA SCORES BY REGION

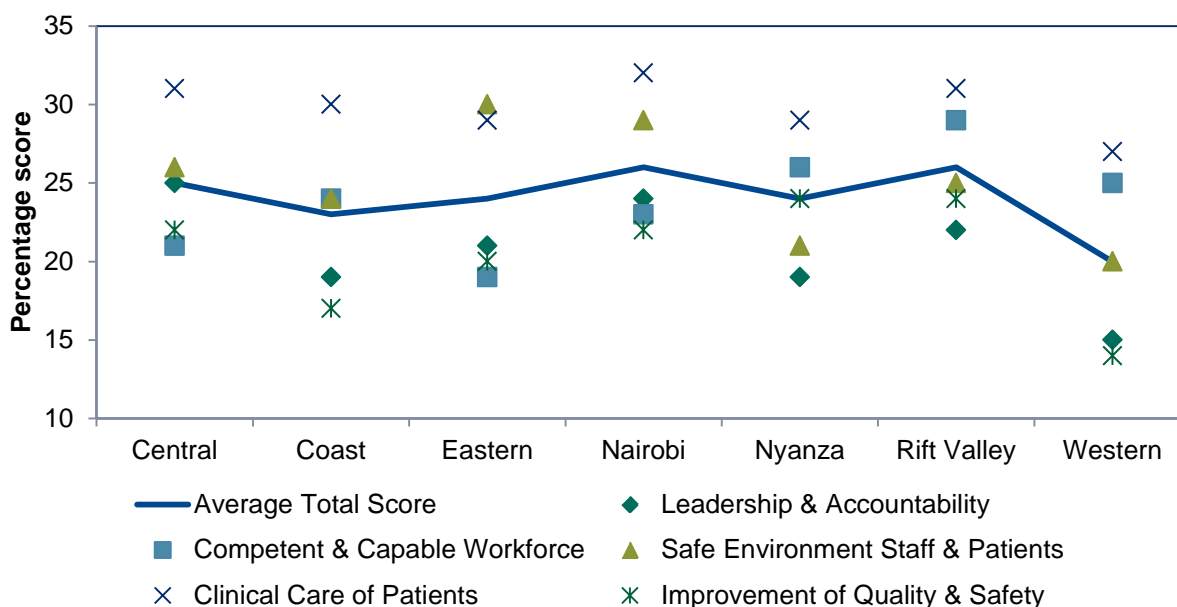


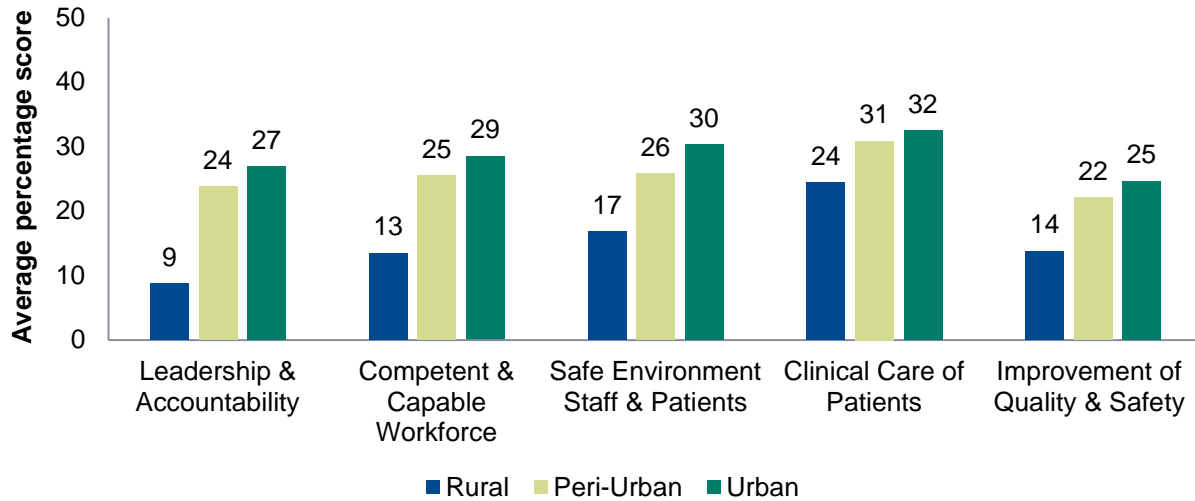
TABLE 2: QUALITY SCORES BY LOCALITY (%)

Urban	Peri-urban	Rural
29	26	15

Facilities in urban areas had the best aggregate scores, while those in rural areas had the lowest. This trend is observable across all risk areas, with facilities in urban areas scoring highest in all risk areas and facilities in rural areas scoring the lowest (Figure 28). The largest rural-urban gap was in the *leadership and accountability* risk area. Urban and peri-urban facilities scored lowest in *improvement of quality and safety*. *Clinical care of patients* was the best performing risk area across all localities.

The disparity in scores may be explained by the disparity in availability of resources as between urban and rural areas. Urban areas are generally better staffed and equipped, and their staff have easier access to training opportunities and relatively better oversight and supervision by regulatory authorities.

FIGURE 28: QUALITY SCORES BY RISK AREA



The low average scores in all regions and localities suggest significant scope for improvement, and they raise concern that the quality of care accessed by residents, including PLHIV, may be compromised. Continued investment in quality of care improvement for HIV services should be considered in future HIV programming.

4.3.2. QUALITY SCORES BY FACILITY LEVEL

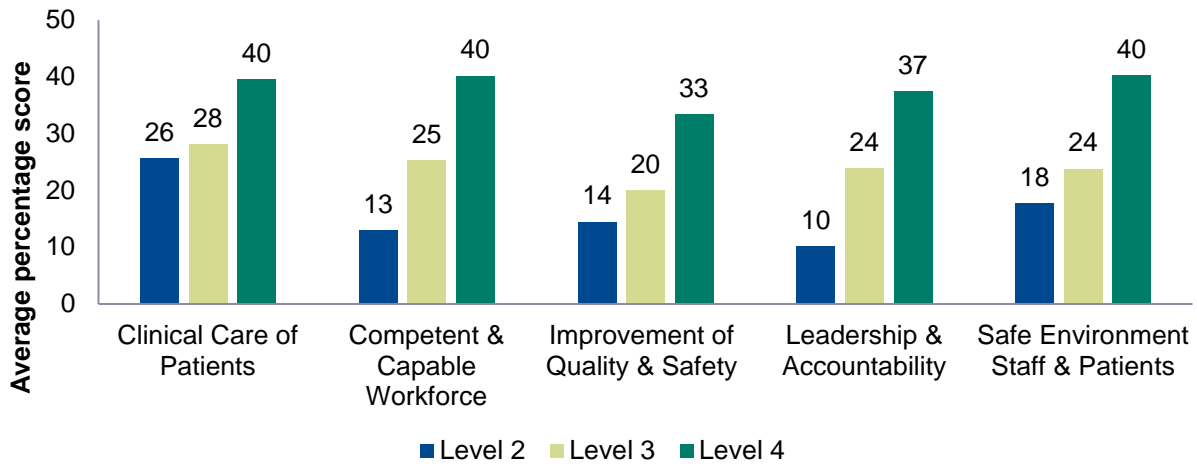
As shown in Table 3, Level 4 facilities had the highest aggregate scores, while Level 2 had the lowest aggregate scores. This pattern held across all risk areas (Figure 29). Level 2 facilities scored lowest in the *leadership and accountability* risk area, while Levels 3 and 4 scored lowest in the *improvement of quality and safety*. *Clinical care of patients* was the best performing risk area across all levels of facilities.

None of the Level 2 facilities sampled had quality improvement teams, and they had poor documentation of quality improvement processes. Level 4 facilities have more personnel that can serve quality improvement roles. In addition, Level 4 facilities were better at documentation of quality improvement processes.

TABLE 3: AGGREGATE QUALITY SCORES, BY FACILITY LEVEL

Level 2	Level 3	Level 4
16	24	38

FIGURE 29: QUALITY SCORES, BY FACILITY LEVEL



4.3.3. QUALITY SCORES BY FACILITY OWNERSHIP

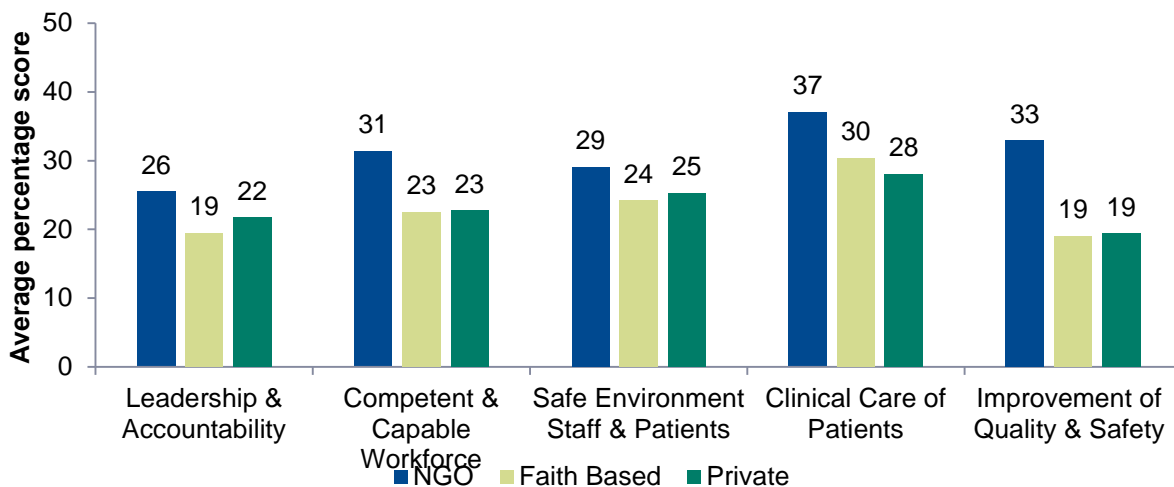
NGO facilities had the highest aggregate scores; FBO and P4P had equal, somewhat lower, scores (Table 4). *Improvement of quality and safety* was the worst performing risk area for FBO and P4P facilities, while *leadership and accountability* was the lowest performing risk area for NGO facilities (Figure 30). Across all facilities, *clinical care of patients* had the highest score.

NGO facilities sampled were all located in urban and peri-urban areas and were linked to organizations that have quality improvement programs. Therefore, NGO facilities are more likely to have access to training opportunities, quality improvement processes, and documentation of these processes.

TABLE 4: AGGREGATE SCORES BY OWNERSHIP

NGO	FBO	P4P
31	23	23

FIGURE 30: RISK AREA SCORES BY OWNERSHIP



4.3.4. POST-EXPOSURE PROPHYLAXIS (PEP) RESULTS

To evaluate the quality of HIV care provided by the sampled facilities, PEP was used as a proxy for all HIV services. The following criteria were used for scoring:

- Effort Level 0: There is no policy or procedure for PEP and no referral process.
- Effort Level 1: There is some aspect of PEP services, with minimum or no documentation.
- Effort Level 2: Records are available for PEP services including follow-ups.
- Effort Level 3: Data are collected, monitored, and evaluated for improvement of PEP services.

Results are presented below by locality, level, and ownership type (Tables 5, 6, and 7).

TABLE 5: PEP RESULTS BY LOCALITY

Location	Level of effort 0	Level of effort 1	Level of effort 2	Level of effort 3	Total
Rural	13	4	0	0	17
Peri-Urban	14	10	9	1	34
Urban	7	17	5	0	29
Total	34	31	14	1	80

As Table 5 shows, 34 of the 80 facilities did not offer the service and had no policy or procedure for PEP. Of this group, 27 facilities were in rural and peri-urban areas, and 31 of the 34 were Level 2 and 3 facilities. The remaining 46 of the 80 facilities offered some Level of PEP services; 14 maintained records, but only one analyzed their data to improve the quality of services offered.

TABLE 6: PEP RESULTS BY FACILITY LEVEL

Facility Level	Level of effort 0	Level of effort 1	Level of effort 2	Level of effort 3	Total
Level 2	20	12	2	0	34
Level 3	11	14	0	0	25
Level 4	3	5	12	1	21
Total	34	31	14	1	80

Of the 46 that offer some Level of PEP services, the majority (18) are Level 4 facilities, and the only facility that analyzes its data is at Level 4. This raises concern about the availability and access of PEP services and quality of care available for populations accessing the Level 2 facilities that are expected to be the first point of contact of formal health care delivery — especially as the majority of Kenyans use Level 2 facilities. Moreover, since Level 4 facilities are commonly located in urban areas, it appears that PEP services are unavailable to the majority of Kenyans, who reside in rural and peri-urban areas.

TABLE 7: PEP RESULTS BY FACILITY OWNERSHIP

Ownership	Level of effort 0	Level of effort 1	Level of effort 2	Level of effort 3	Total
FBO	13	7	3	1	24
NGO	1	5	2	0	8
P4P	20	19	9	0	48
Total	34	31	14	1	80

Of the 34 facilities that lack PEP services or PEP policies and procedures, 33 of the 34 are P4P and FBO facilities. NGO facilities have the highest proportion of facilities offering PEP services, which may be explained by the support and training they receive from related NGO donor-funded programs.

4.4. LIMITATIONS OF THE QUALITY STUDY

The following challenges were experienced during the data collection exercise:

- Communication with facilities was done in advance through a letter and, where possible, a phone call. However, due to inaccurate contact information, some communication did not reach facility management as intended, leading to delays in the start of data collection.
- Participation in the study was voluntary. Ten of the original 80 sampled facilities declined to participate, including all of the Kenya Conference of Catholic Bishops (KCCB) facilities. This necessitated seeking replacement facilities intended to maintain the original distribution per region, locality, level, and ownership, which was not possible in some areas due to time and budget constraints.

Limitations of this study include the following:

- Hard-to-reach areas were excluded due to budgetary and security concerns, skewing the sample to urban and peri-urban areas.
- Replacements for the KCCB facilities skewed the sample further, as CHAK facilities were oversampled. As KCCB and CHAK offer similar services, with the exception of family planning, and they are both affiliated with church networks and receive similar support from government and KEMSA, CHAK facilities were judged to be representative of all FBO facilities.

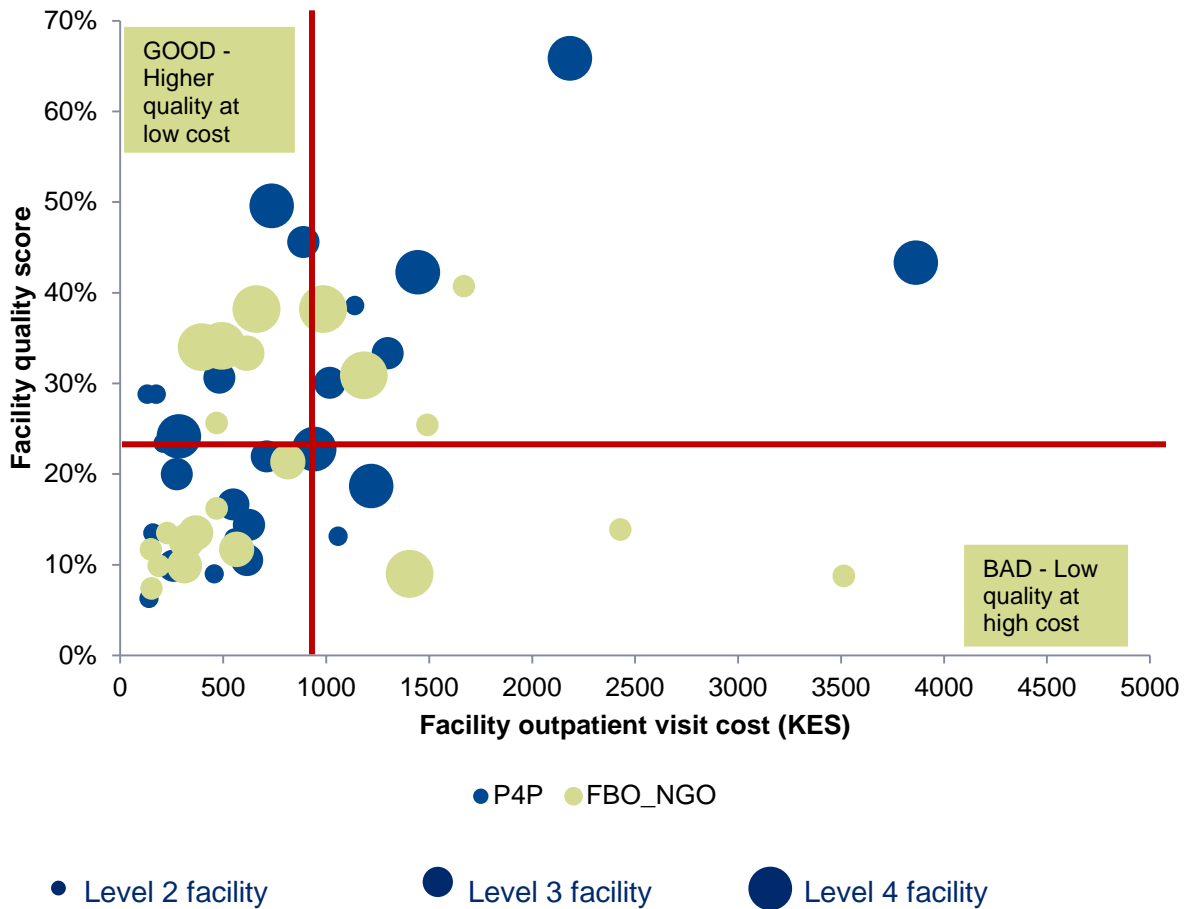
5. QUALITY VERSUS COST

For the purpose of this section, technical efficiency was measured by cost of services in relation to quality of care: higher efficiency is associated with higher levels of quality of care and lower costs. Quality scores of the facilities came from the quality study; average outpatient visit and inpatient bed day costs were computed using the MASH costing tool.

Of the 80 facilities included in the quality study, only 51 were used for this quality and cost analysis. The remaining 30 facilities did not have complete costing data to generate unit costs and were excluded from this analysis. The average outpatient visit costs and the average quality scores for each level provided benchmarks against which individual facility cost and quality scores were compared. The quality scores for the original sample of 80 facilities ranged from 2 percent to 66 percent, with an average score of 25 percent; quality scores for the 51 selected facilities were very similar, ranging from 6 percent to 66 percent, with an average score of 23 percent. (The large majority of the 80 facilities scored below 50 percent on quality.)

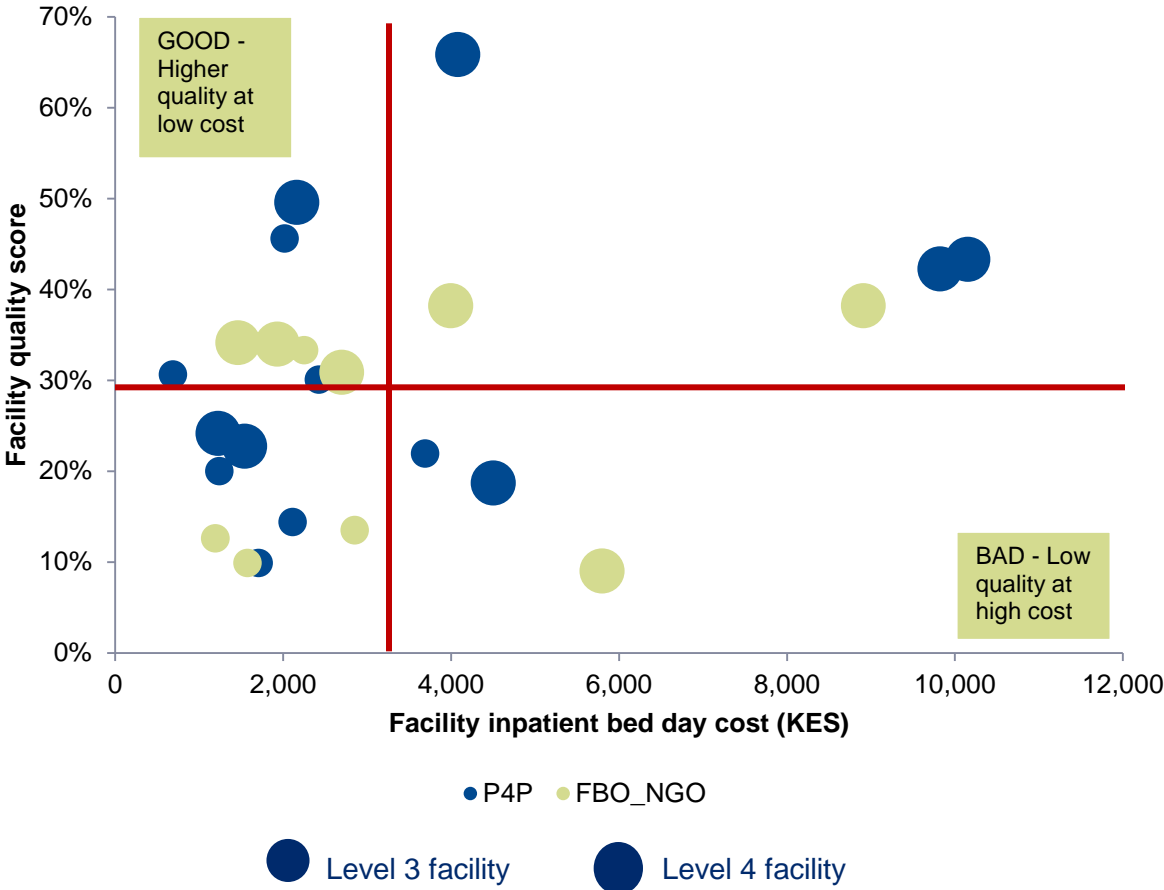
Figure 31 shows the spread of the 51 facilities' combined outpatient visit costs and quality scores. The red vertical line represents the average outpatient visit cost of the 51 facilities (KES 822); the red horizontal line represents the average quality score of the 51 facilities (23 percent). Only two facilities had quality scores of 50 percent or above. Of interest are the facilities at higher quality and relatively lower cost, shown in the upper left quadrant. Of greatest concern are the facilities in the lower right quadrant that show lower quality of care and relatively higher cost, raising questions about the value for money offered by these providers.

FIGURE 31: COMPARISON OF FACILITY-SPECIFIC QUALITY SCORES AND OUTPATIENT VISIT COSTS



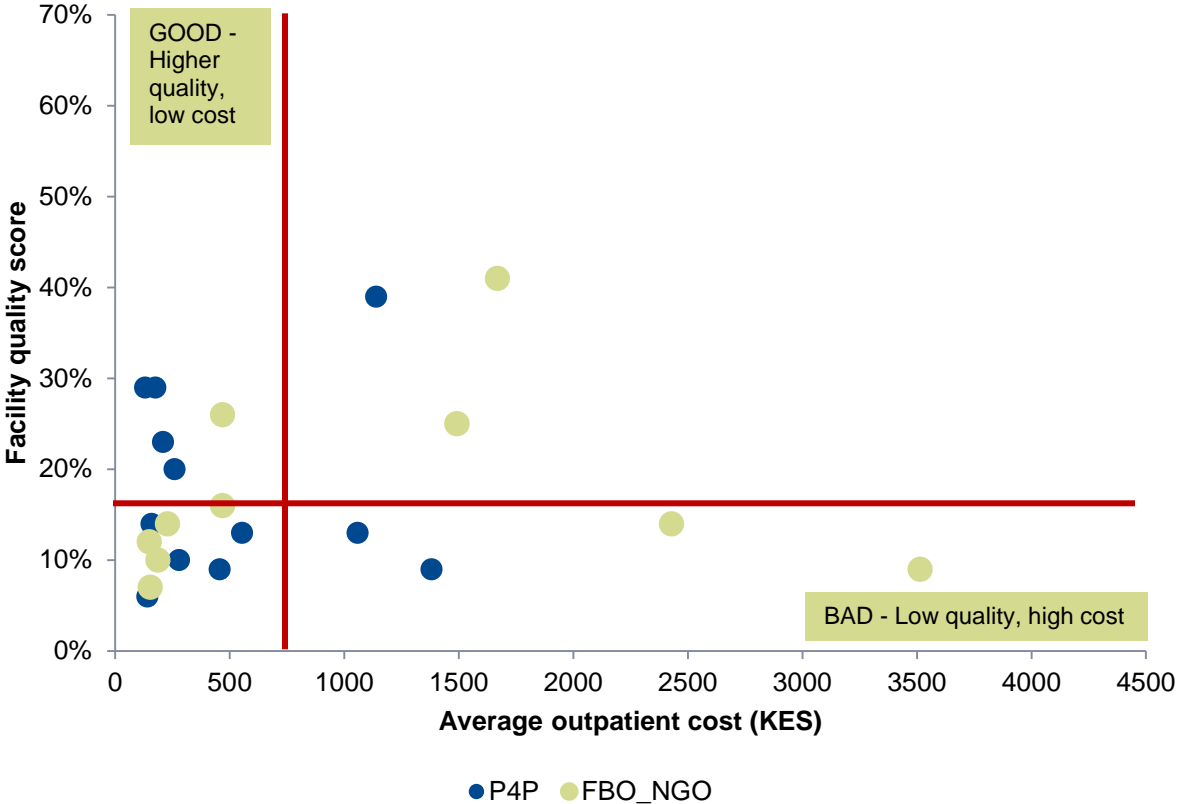
A comparison of average inpatient bed day costs with quality scores for the 24 Level 3 and 4 facilities shows a similar pattern (Figure 32). The average cost per inpatient bed day for Level 3 and 4 facilities was KES 3,338, shown by the red vertical line. The red horizontal line denotes the average quality score of the 24 facilities, 29 percent. Only one facility had a quality score higher than 50 percent. Eight of the facilities had low cost and lower quality scores than the sample average. Five had above average quality plus higher-than-average cost per bed day. Three facilities had lower than average quality coupled with higher than average cost per bed day. Of interest are the eight facilities at higher quality and relatively lower cost, shown in the upper left quadrant. These facilities can provide lessons on providing low-cost, good quality care. Any insurance arrangement would need to look carefully at quality of care, because poor quality could elevate the number of repeat visits and admissions for the same condition.

FIGURE 32: COMPARISON OF FACILITY-SPECIFIC QUALITY SCORES AND INPATIENT BED DAY COSTS



Twenty-two Level 2 facilities were analyzed, showing quality scores ranging from 6 percent to 41 percent and outpatient visit costs ranging from KES 131 to KES 3,514 (Figure 33). The red vertical line represents the average outpatient visit cost for a Level 2 facility (KES 745) and the red horizontal line represents the average quality score (16 percent). Generally the majority of the Level 2 facilities were in the lower half of the graph, with quality scores below the 16 percent average quality score. All Level 2 facilities scored below 50 percent. This may reflect the small size of Level 2 facilities, where staff may not be available to champion quality improvement processes.

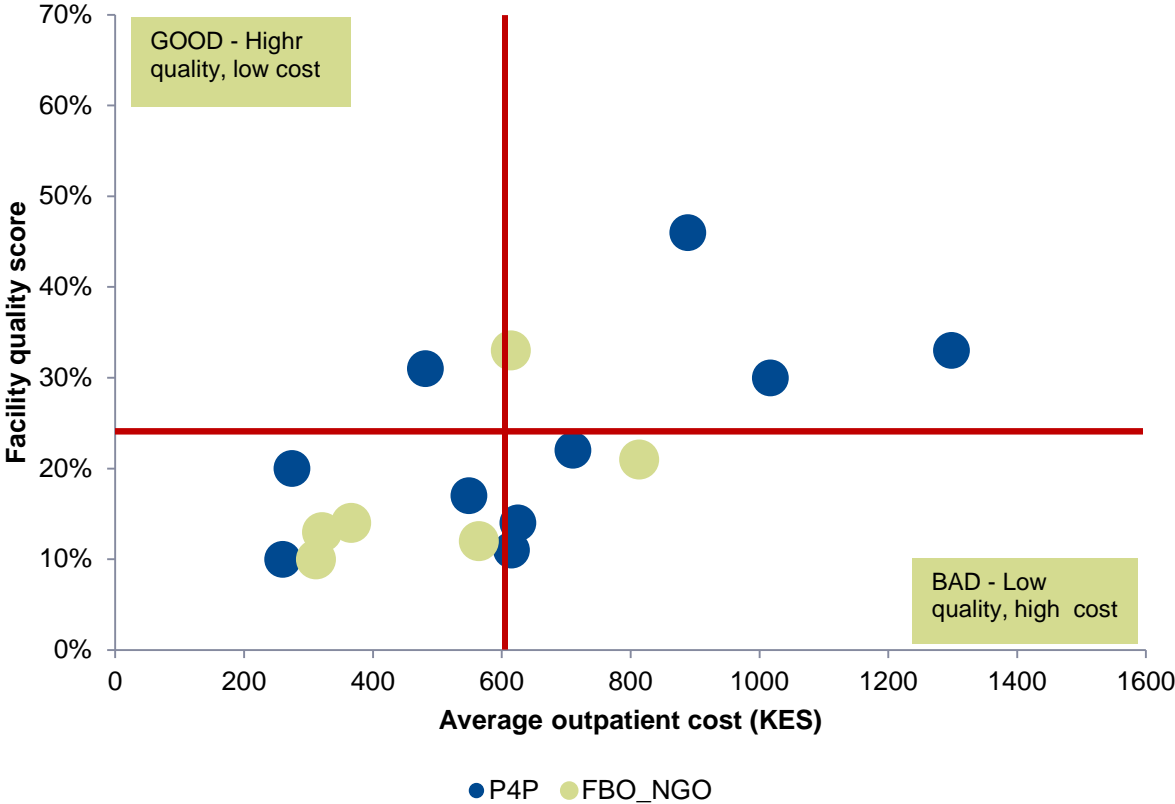
FIGURE 33: COMPARISON OF LEVEL 2 FACILITY-SPECIFIC QUALITY SCORES AND OUTPATIENT VISIT COSTS



Nine of the 22 facilities were clustered at the lower left quadrant of the graph, with poor quality scores — even below 16 percent — and low outpatient visit costs. Six of the facilities occupied the upper left quadrant, showing higher quality scores and low outpatient visit costs. These facilities present opportunities for learning on how to offer higher quality of care at low cost. Three facilities in the upper right quadrant had higher quality scores but higher outpatient visit costs. These facilities could learn from those in the upper left quadrant on how to optimize resource use to improve efficiencies while maintaining higher quality of care. Of concern are the four facilities in the lower right quadrant, with low quality scores and high outpatient visit costs. If these costs translate into an equally high price for the services they deliver, these four facilities raise concerns of quality of care and value for money offered by these providers to the clients they serve.

Sixteen Level 3 facilities were analyzed, with quality scores ranging from 10 to 46 percent and outpatient visit costs ranging from KES 274 to KES 1,298 (Figure 34). The red vertical line represents the average outpatient visit cost for a Level 3 facility (KES 608), and the red horizontal line represents the average quality score for Level 3 (24 percent). Again, most of the facilities performed below average. Eleven of the 16 appear in the lower half of the graph, and all the Level 3 facilities scored below 50 percent. Seven of the 16 were clustered at the lower left quadrant of the graph, with poor quality scores and low outpatient visit costs. There were four facilities in the upper right quadrant, with higher quality at high cost, and four in the lower right quadrant, with low quality scores but high outpatient visit costs — raising concerns about both quality of care and value for money. Only one facility offered higher quality of care at relatively low cost.

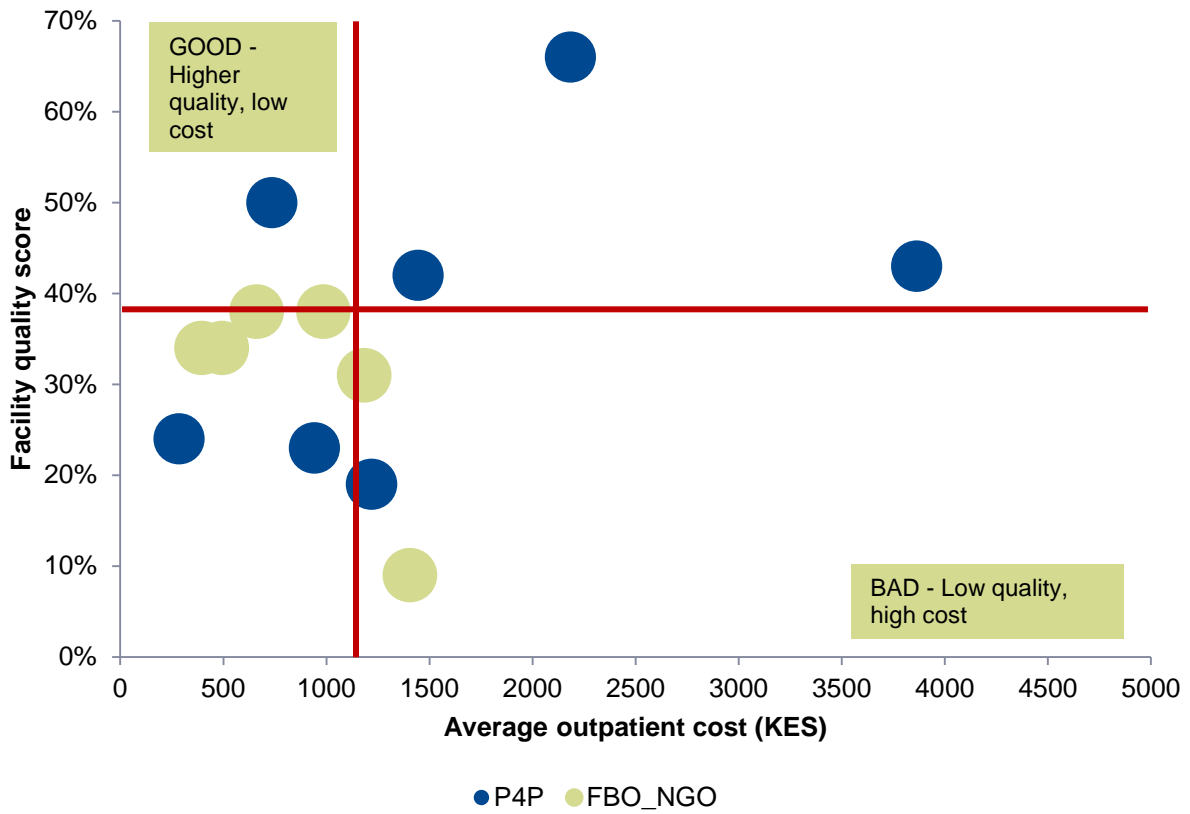
FIGURE 34: COMPARISON OF LEVEL 3 FACILITY-SPECIFIC QUALITY SCORES AND OUTPATIENT VISIT COSTS



Thirteen Level 4 facilities were analyzed, with quality scores ranging from 9 to 66 percent and outpatient visit costs ranging from KES 394 to KES 3,863 (Figure 35). The red vertical line represents the average outpatient visit cost for a Level 4 (KES 1,160), and the red horizontal line represents the average quality score for a Level 4 (38 percent). Only two facilities scored 50 percent or above. However, individual facility quality scores were much higher in Level 4 than for Levels 2 and 3, which may be explained by the larger size of the Level 4 facilities, with more personnel available to dedicate to quality improvement programs.

Only three of the 13 facilities (shown in the upper left quadrant of the graph) provided higher than average quality at lower than average cost. Three facilities appear in the lower right quadrant of the graph, with poor quality scores and higher outpatient visit costs. Again, these facilities in the lower right quadrant present concerns of both quality of care and value offered by these providers to the clients they serve. These facilities can benefit by learning from those in the upper left quadrant how to improve quality of care while controlling costs.

FIGURE 35: COMPARISON OF LEVEL 4 FACILITY-SPECIFIC QUALITY SCORES AND OUTPATIENT VISIT COSTS



6. POLICY IMPLICATIONS

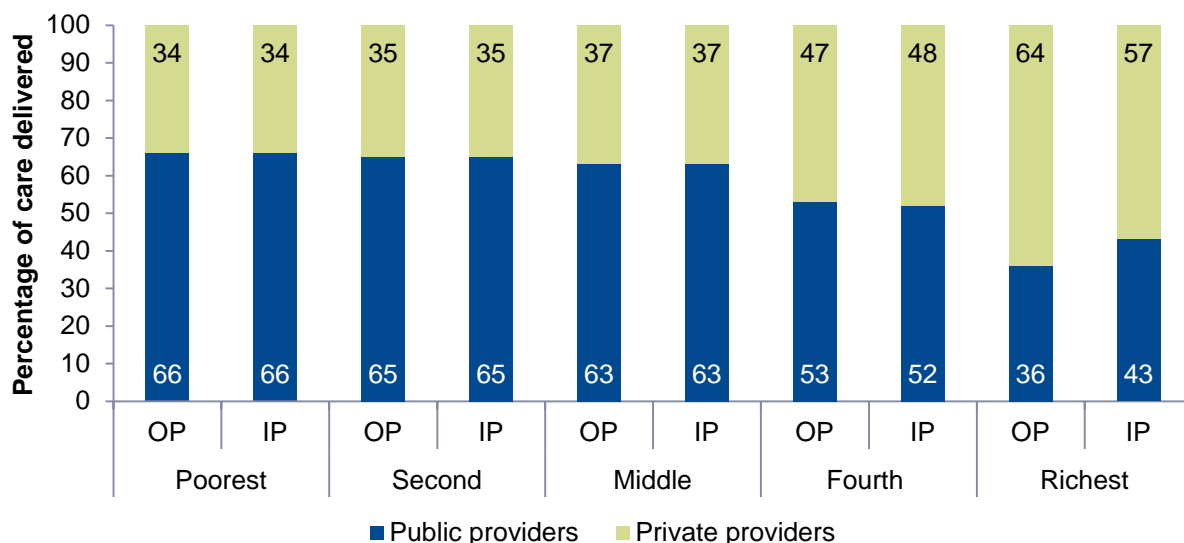
The MASH costing analysis provides estimates for the average cost of private sector outpatient and inpatient services, as well as service-specific costs (such as for VCT, ART, delivery and FP). The findings of this study can be used for the following purposes:

- Performing comparisons (by facility levels and ownership categories) to define benchmarks for costs of care and identify opportunities for efficiency gains
- Informing the Ministry of Health and other potential contractors about private provider unit costs, for planning and budgeting purposes
- Assisting the NHIF and private sector providers in establishing payment terms under new insurance schemes
- Developing new, innovative private sector low-cost health insurance products, and improving and scaling up existing ones
- Informing contracting arrangements between private providers and insurers using various payment mechanisms, such as fee-for-service, capitation, and pay for performance plans

In addition, the quality study was intended to provide information for benchmarking quality of care, and to inform discussions on provider payment mechanisms to incentivize improvements in quality of care.

As shown in Figure 36, all income quintiles are served by both public and private sectors.

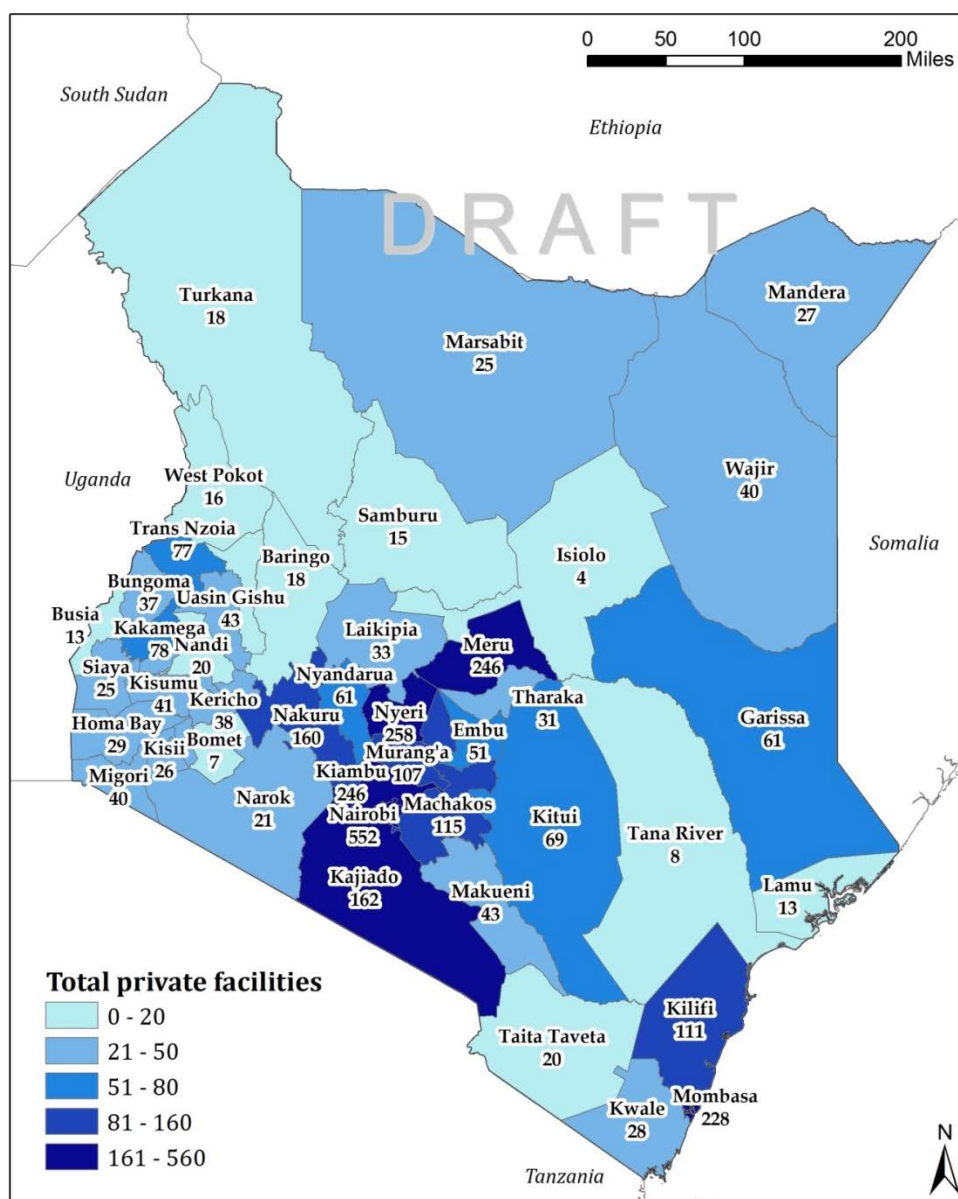
FIGURE 36: UTILIZATION OF OUTPATIENT AND INPATIENT CARE BY INCOME QUINTILE



SOURCE: Adapted from a presentation on the 2013 Household Health Expenditure and Utilization Survey by Thomas Maina from the Health Policy Project, delivered at Naivasha on November 20, 2014.

In addition, as shown in Figure 37, private sector providers are present in all of Kenya's counties.

FIGURE 37: DISTRIBUTION OF PRIVATE SECTOR FACILITIES IN KENYA



NOTE: Map prepared by Abt Associates Inc. using the MOH e-health master facility list (<http://www.ehealth.or.ke/facilities/>)

These costing and quality results will provide a better basis for measuring and rewarding efficiency and quality, in particular to better serve uninsured, low-income populations in Kenya through the private sector.

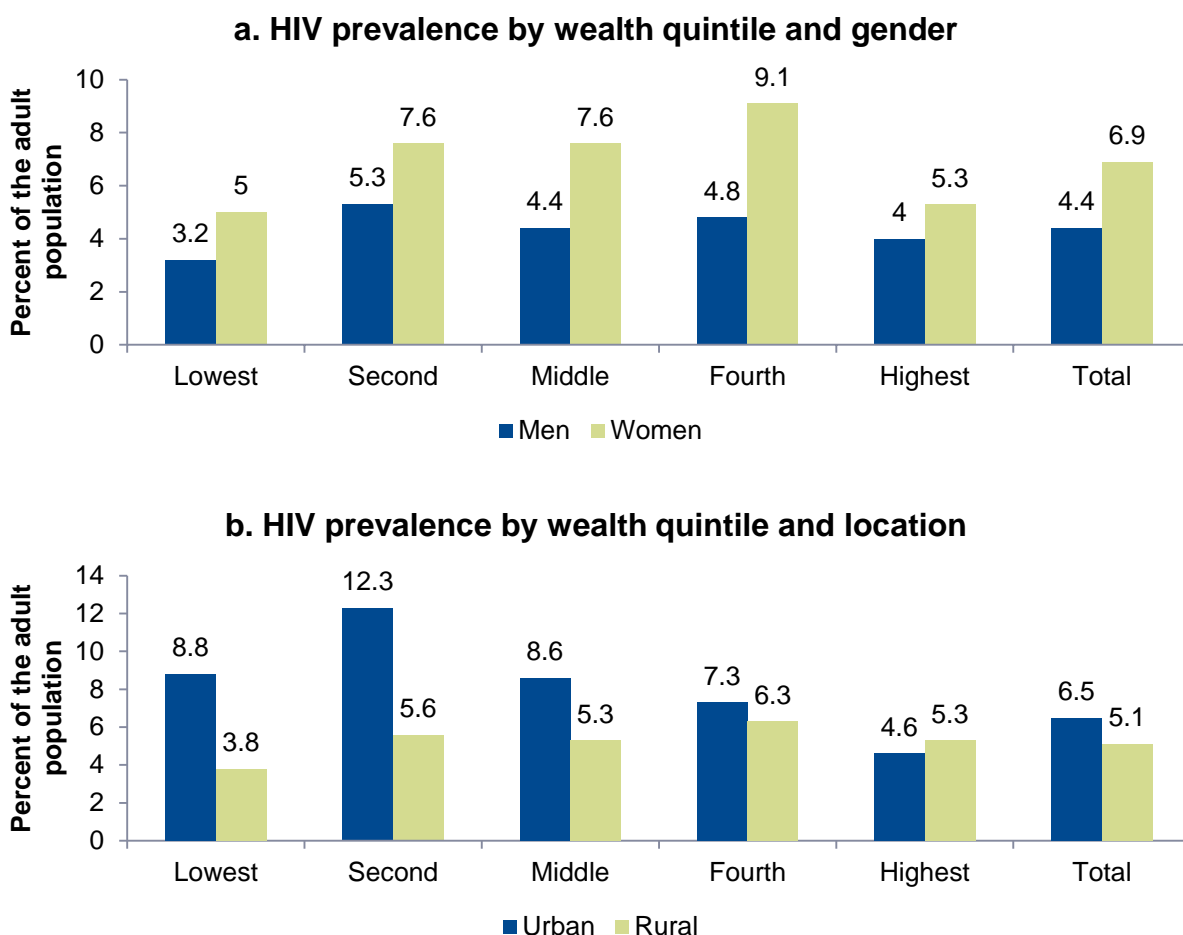
A consequence of the free maternity care and free primary health care introduced by the Kenyan government in June 2013 is that public facilities are overstretched with increased workloads, resulting in declining quality of care. In addition, as there is no targeting, public services may continue to benefit upper rather than lower quintile consumers, as evidenced in Figure 36. The government can better utilize existing public resources by targeting those most at need; it can take advantage of private sector capacity by contracting private sector providers serving lower income quintiles to provide maternity care and PHC to vulnerable populations. This can be done through demand-side approaches, such as output-based payments for services utilized or subsidized health insurance, as opposed to the current practice of financing

inputs and budgets to facilities. Fifty-one percent of health facilities in Kenya are owned by the private sector, providing a significant opportunity to improve physical access to health care and scale up HIV care and treatment.

Government and private sector purchasers will require costing data to inform future negotiations and contracting with private health care providers. For the purpose of NHIF contracting, the inpatient visit costs and maternity costs derived in this study are immediately available and applicable. In addition, information on outpatient and other service-specific costs for HIV and FP will become useful when the NHIF's benefit package is expanded to include these services.

Specifically for HIV, the burden of the disease is higher in urban areas, where the private sector is more dominant (Figure 38b). Coupled with the high HIV prevalence among the second, third and fourth income quintiles (NASCOP 2014), there is scope to market products to populations who can afford to pay for their health care through health insurance.

FIGURE 38: HIV PREVALENCE BY GENDER, LOCATION, AND WEALTH QUINTILE



SOURCE: Adapted from the Kenya AIDS Indicator Survey 2012 (NASCOP 2014).

The 2009/2010 National Health Accounts show that 71 percent of HIV prevention, care, and treatment provided by the private sector is paid for through OOP expenses by patients (Government of Kenya 2010). OOP expenditures affect households that require more health care the most, including those with HIV. Just as long queues in the public sector are a significant barrier to care, OOP expenditures in the private sector are significant barriers to

access and can affect adherence to treatment. Adherence is essential for viral suppression and positive health outcomes for PLHIV, as well as for preventing transmission of the virus. Health insurance is an important tool to reduce financial barriers to access to private health care.

Private health insurance can play a role in: 1) diverting patients from an overburdened public sector; 2) raising revenue through premiums for a sustainable HIV response; and 3) enabling better targeting of donor funding and public resources for the poor who cannot afford to pay. The costing data from this study can be used by private insurers in their actuarial analysis and in benefits design of health insurance products. With more reliable cost data, they can more accurately price HIV services in a benefits package, thereby increasing access to private care and reducing financial barriers.

HIV programs can use the results to understand the cost of HIV prevention, care, and treatment services, including, VCT, ART, and aspects of PMTCT (such as ART for antenatal care, FP and child delivery). This can inform discussions toward output-based financing: incentivizing providers through performance-based financing pegged on outputs and quality of care.

With flat, and in some cases declining, donor support, and with Kenya's recent reclassification into middle-income status, Kenya is expected to increase domestic spending on HIV services. To this end, Kenya is developing an investment case for HIV programs, to develop sustainable financing for HIV prevention, care, and treatment. This is critical, as HIV programs currently receive 51 percent of funding from donors. To meet the treatment gap of 900,000 PLHIV and to meet the UNAIDS 90-90-90 goal, Kenya will need to increase the scale of HIV services. The private sector, representing 51 percent of health facilities, provides a ready opportunity to do so. The MOH can use these cost data to inform the investment case and to budget for provision of HIV services through the private sector and to lobby for increased allocations to the health sector. The cost data can also be used by the MOH to support county government health departments to plan, budget, and negotiate with the private sector to provide needed services to their populations.

Private insurers currently provide health benefits predominantly through private health care providers. The majority of health care providers in Kenya are low-cost private providers (including P4P, FBO, and NGO facilities) that are well positioned to serve the urban informal sector and low-income formal sector. Spiraling medical inflation, coupled with the need to expand the health insurance market, will require innovative insurance products, featuring prospective payment mechanisms and other cost-controlling features. Accordingly, these results should inform actuarial analysis directed toward new product design and improvement of current products to ensure they are evidence-based.

In prior work, SHOPS has supported private insurers and providers in experimenting with prospective payment mechanisms such as capitation. Prospective payment mechanisms provide predictable claims costs for insurers and predictable revenues for providers, with reduced administrative burden for both insurers and providers. Such mechanisms can control medical inflation and thus improve the financial viability of health insurance schemes. This may translate to lower premiums for Kenyans, thus improving affordability and reducing the financial barriers to uptake of health insurance products.

Ongoing discussions have identified social health insurance, offered by the NHIF, as the vehicle to achieve UHC. As private sector providers will continue to provide services for NHIF members, this study's costing information will provide a basis for negotiation of payment rates for inpatient and outpatient benefit packages. In addition, as the NHIF expands coverage to informal sector groups and the indigent, these results will inform the design of additional programs, such as the health insurance subsidy program and future programs aimed at expanding NHIF coverage.

Both NHIF and private insurers can use quality scores to set differentiated reimbursement rates based on quality of care to create incentives to improve the quality of care, which in the long run could improve health outcomes for all Kenyans. However, the results from this study show relatively poor quality of care, which should be a concern for regulatory institutions. This finding reveals a need for strengthening existing oversight, or creating a new ombudsman, to ensure that Kenyans are accessing appropriate care. The structure should provide oversight of quality of services and ensure that consumers are receiving value for their money.

Overall, the costing results show that there is significant opportunity to improve efficiency in private facilities to reduce the cost of providing care. Contrary to most perceptions, the quality results show that relatively better quality of care can be provided at relatively low cost. Information sharing is needed, for facilities with lower quality scores to learn from facilities that provide higher quality services at lower cost. More support is required for Level 2 and 3 facilities to improve their quality of care and to institutionalize quality improvement processes.

7. CONCLUSION

This comparison of costing analysis of private health facilities using the MASH tool with quality data is the first of its kind in Kenya. The results provide a benchmark for future costing studies, and they support dialogue between public and private insurers and health care providers to set payment rates, design prospective payment mechanisms, and develop insurance products.

As the Kenya government looks to expand access to health care and achieve UHC, the private sector will be an important partner to help reduce the financial and physical barriers to health care. The private sector will also contribute to increasing the choice of health care providers for PLHIV beyond the public sector, thus reducing overcrowding at public facilities.

The results can inform policy and planning as the private sector is included in national planning. In addition, the new county governments that are responsible for providing health care services to their residents will find costing information critical for planning and contracting with private providers. Quality information will support accreditation and quality assurance processes at both national and county levels.

Fifty-one percent of HIV prevention, care, and treatment services are funded through donor support. The results in this report will support Kenya's planning for a more sustainable HIV response by developing a credible investment case. The costing data will be useful in accounting for the private sector contribution and in planning for broader inclusion of the private sector in service provision and mobilizing domestic resources for HIV — while the quality data can help institutionalize quality improvement processes.

Based on this costing and quality analysis, the following recommendations are proposed:

1. Perform regular costing studies to increase knowledge and inform decision making regarding the private sector.
2. Improve record keeping at private facilities to aid further data collection.
3. As part of health systems strengthening, include the private sector in financial management capacity-building initiatives.
4. Expand the scope of future costing studies to ensure representation of all counties; include a quality assessment to compare the quality of care with its cost.
5. Improve accreditation and quality assurance systems to protect patients.
6. Consider adopting a societal perspective to evaluate the non-medical cost of accessing care, as these costs may be a significant barrier to vulnerable groups such as PLHIV despite subsidized HIV services.

ANNEX A: 2013 DATA COLLECTION SAMPLING FRAMEWORK

Seventeen of the 47 counties of Kenya were randomly selected to be part of this study, taking into account geographical characteristics. (Mandera, Wajir, and Garissa were eliminated from consideration due to security issues.) The sample was stratified by ownership, level, and county to ensure representation across these characteristics. The team purposively selected 238 facilities for this study. Tables A.1 and A.2 summarize the sample distribution by county, ownership, and level.

TABLE A.1: NUMBER OF SAMPLED HEALTH FACILITIES, BY COUNTY AND OWNERSHIP TYPE

County	Public	FBO/NGO	P4P	Total
Bungoma	2	4	2	8
Embu	3	4	2	9
Kakamega	3	5	4	12
Kericho	6	1	6	13
Kiambu	8	7	11	26
Kisii	6	2	6	14
Kisumu	7	7	4	18
Machakos	5	3	6	14
Marsabit	4	3		7
Meru	5	3	2	10
Mombasa	6	5	10	21
Nairobi	12	4	12	28
Nakuru	6	3	10	19
Narok	3	6	4	13
Nyeri	8	4	4	16
Taita Taveta	5	1	3	9
Uasin Gishu	1			1
Grand Total	90	62	86	238

TABLE A.2: NUMBER OF SAMPLED HEALTH FACILITIES, BY LEVEL AND OWNERSHIP

Facility Level	FBO/NGO	P4P	Public	Total
Level 2	23	33	38	94
Level 3	16	28	15	60
Level 4	23	25	25	73
Level 5			10	10
Level 6			2	2
Grand Total	62	86	90	238

ANNEX B: LIST OF COST CENTERS, EXPENDITURE TYPES, AND ALLOCATION FACTORS

For this costing study, the following cost centers were used in the MASH costing tool (Table B.1).

TABLE B.1: ADMINISTRATIVE SERVICES AND LOGISTICS, ANCILLARY HEALTH CARE SERVICE, AND PATIENT CARE COST CENTERS

Cost Center Group	Cost Center Name
Administrative Services and Logistics	Building Maintenance
	Cleaning
	Financing and Accounting
	General Administration
	Human Resources
	Kitchen
	Transport
Ancillary Medical Services	Laboratory
	Operating Room
	Pharmacy
	Public Health
	Radiology
	Sanitation
	Ancillary Medical Services - Other
Direct Patient Care	Outpatient General
	Outpatient Gynecology
	Outpatient Family Planning
	Outpatient ANC
	Outpatient PNC
	Outpatient Newborn
	Outpatient Paediatric
	Outpatient HIV
	Outpatient STI
	Outpatient TB
	Outpatient ER
	Outpatient Surgery
	Outpatient Private
	Outpatient - Other
	Inpatient General Ward
	Inpatient General Surgery Ward
	Inpatient Female Ward
Inpatient Female Surgery Ward	

	Inpatient Male Ward
	Inpatient Male Surgery Ward
	Inpatient Gynecology ward
	Inpatient Obstetrics Ward
	Inpatient Newborn
	Inpatient Pediatrics
	Inpatient ER
	Inpatient ICU
	Inpatient Oncology
	Inpatient Private
	Inpatient - Other

Facility expenditures were categorized into expenditure types and populated into the MASH costing tool, using the following default allocation factors (Table B.2). If the default allocation factor data was not available, the clinic/ward service utilization was used to allocate the cost.

TABLE B.2: EXPENDITURE TYPE AND ALLOCATION FACTORS

Expenditure Type	Allocation Factors
Staff Salary	Number of FTE staff assigned to cost center
Lab Supplies	Number of tests administered for cost center
Surgery Supplies	Number of surgeries conducted for cost center
Pharmaceuticals	Value of pharmaceutical supplies in Kenyan Shillings provided to cost center
Radiology Supplies	Number of projections conducted for cost center
CSS Supplies	Number of sterilized tools and equipment sets given to cost center
Other Clinical Supplies	Number of patient-days + 1/5 outpatient visit proportion attributable to cost center
Heating Fuel	Proportion of direct cost attributable to cost center
Electricity	Proportion of direct cost attributable to cost center
Water	Proportion of direct cost attributable to cost center
Transport	Proportion of direct cost attributable to cost center
Communication	Proportion of direct cost attributable to cost center
Building Maintenance	Proportion of direct cost attributable to cost center
Food Services	Number of patient-days attributable + number of FTE staff assigned to cost center
Laundry	Number of patient-days + 1/5 outpatient visit proportion attributable to cost center
Stationaries	Number of FTE staff assigned to cost center
Other Indirect Costs	Proportion of direct cost attributable to cost center

ANNEX C: DATA AGGREGATION AND TREATMENT PROCESS TO POPULATE MASH COSTING TOOL

Service Utilization Data

SHOPS and GIZ collected four types of data, where applicable and available at the health facility: (1) number of outpatient visits per clinic; (2) number of inpatient admissions per ward; (3) number of inpatient days per ward; and (4) number of inpatient beds available per ward. The MASH costing tool was populated with these data.

The team collected utilization data for ancillary health care services, such as pharmacy, by relevant clinic or ward. Frequently, facilities did not have these data disaggregated by the clinic or ward, but rather only at the facility level. In that case, the utilization data was assigned to the ancillary services' cost center, to be later allocated during the step-down process.

Staff Allocation and Salary Data

The team collected the monthly salary rate including allowances for each staff. The salary was multiplied by 12 to calculate the annual salary and aggregated to the following cadre categories:

1. Medical Officer
2. Clinical Officer and Nursing Officer
3. Technician (see Annex G for cadres included in this group)
4. Non-Medical Staff (see Annex G for cadres included in this group)

If the facility categorized a staff member as someone who works solely for one clinic or ward, one full-time equivalent (FTE) for the cadre category was allocated accordingly to that clinic or ward. More often, the facility assigned staff to "outpatient clinic" or "inpatient ward" without specifying the type of clinic or ward. If so, one FTE was proportionately allocated to all the outpatient clinics or inpatient wards, based on the number of outpatient visits at that clinic or inpatient days for that ward. For example, if the facility had a general outpatient clinic that had 1,000 visits and a maternal and child health (MCH) clinic that had 500 visits, a nurse's time assigned to outpatient clinics would be allocated 0.66 FTE to the general outpatient clinic and 0.33 FTE to the MCH clinic. If a staff member worked in both outpatient clinics and inpatient wards, the inpatient ward bed days were weighted heavier than the outpatient clinic visits by a ratio of five-to-one. That is, one inpatient-day equaled five outpatient visits.

Facility Expenditures

Staff salary was allocated to cost centers based on the staff allocation. Clinical supplies associated with specific ancillary services were allocated to cost centers based on the use of the cost center services by clinics and wards. If clinical supply cost could not be assigned to a

specific ancillary service cost center, the expenditure was allocated to cost centers proportionately, based on clinic and ward utilization. Indirect costs were allocated either by outpatient and inpatient utilization or staffing allocation. See Annex B for allocation factors for each type of expenditure.

Capital cost was not included in this costing exercise, as the majority of health care facilities did not keep an accurate account of the value and age of their equipment.

ANNEX D: 2014 DATA QUALITY CHECK SAMPLE

The 31 facilities were randomly selected, stratified by level, from the 148 private health facilities in the 2013 data collection sample. To replace Catholic facilities that declined to participate in the verification exercise, attempts were made to randomly select another FBO or NGO facility in the same county and level.

TABLE D.1: 2014 DATA QUALITY CHECK EXERCISE SAMPLE, BY COUNTY, LEVEL, AND OWNERSHIP

County	Facility Level			Ownership		Total
	2	3	4	P4P	FBO/NGO	
Embu	2	1		2	1	3
Kakamega	1				1	1
Kericho		1	1	1	1	2
Kiambu	3	1		3	1	4
Kisii			1		1	1
Kisumu		3	1	2	2	4
Machakos	1				1	1
Meru	1				1	1
Mombasa	2		2	1	3	4
Nairobi	1	1	1	2	1	3
Nakuru	1	1	1		3	3
Nyeri	1	1	2	1	3	4
Grand Total	13	9	9	12	19	31

ANNEX E: BREAKDOWN OF FACILITIES WITH COSTING RESULTS

TABLE E.1: BREAKDOWN OF 91 FACILITIES WITH OUTPATIENT VISIT COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 2	Level 3	Level 4	Total
FBO/NGO	17	7	12	36
P4P	27	15	13	55
Total	44	22	25	91

TABLE E.2: BREAKDOWN OF 40 FACILITIES WITH INPATIENT BED DAY COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 3	Level 4	Total
FBO/NGO	4	12	16
P4P	12	12	24
Total	16	24	40

TABLE E.3: BREAKDOWN OF FACILITIES WITH VCT VISIT COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 2	Level 3	Level 4	Total
FBO/NGO	2	3	2	7
P4P	2	5	6	13
Total	4	8	8	20

TABLE E.4: BREAKDOWN OF FACILITIES WITH FP VISIT COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 2	Level 3	Level 4	Total
FBO/NGO	4	3	2	9
P4P	4	6	6	16
Total	8	9	8	25

TABLE E.5: BREAKDOWN OF FACILITIES WITH NORMAL CHILD DELIVERY COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 3	Level 4	Total
FBO/NGO	3	2	5
P4P	6	6	12
Total	9	8	17

TABLE E.6: BREAKDOWN OF FACILITIES WITH CAESAREAN CHILD DELIVERY COST RESULTS, BY LEVEL AND OWNERSHIP

Facility type	Level 3	Level 4	Total
FBO/NGO	1	2	3
P4P	3	5	8
Total	4	7	11

ANNEX F: ADDITIONAL COSTING AND QUALITY RESULTS

TABLE F.1: MINIMUM AND MAXIMUM COST OF AN OUTPATIENT VISIT IN THE PRIVATE SECTOR, BY FACILITY LEVEL AND OWNERSHIP (KES)

Facility type	Min of OP - Total per visit	Max of OP - Total per visit
Level 2	131	3,514
FBO/NGO	149	3,514
P4P	131	1,838
Level 3	248	1,298
FBO/NGO	281	813
P4P	248	1,298
Level 4	266	3,863
FBO/NGO	266	1,405
P4P	285	3,863

TABLE F.2: AVERAGE COST OF AN OUTPATIENT VISIT IN THE PRIVATE SECTOR, BY FACILITY LEVEL AND OWNERSHIP (KES)

Facility type	Cost of staff per visit	Cost of clinical supplies per visit	Cost of indirect costs per visit	Total outpatient visit cost
Level 2	326	230	188	745
FBO/NGO	527	219	214	959
P4P	200	237	172	610
Level 3	275	163	169	608
FBO/NGO	215	130	122	467
P4P	303	178	192	673
Level 4	410	465	285	1,160
FBO/NGO	290	244	169	702
P4P	530	687	401	1,618
Grand Total	336	276	209	822

TABLE F.3: MINIMUM AND MAXIMUM COST OF AN OUTPATIENT VISIT BY COST BRACKET (KES)

Cost Bracket	Facility Level	Outpatient Visit Cost		Average Cost	N
		Minimum	Maximum		
Low Cost (KES 100-500)	2	131	490	291	24
	3	248	481	329	9
	4	266	493	381	5
MEdium Cost (KES 501-1,000)	2	512	924	677	5
	3	549	889	683	10
	4	609	985	730	10
High cost (KES 1,001 and above)	2	1,058	3,514	1,696	12
	3	1,017	1,255	1,190	3
	4	1,059	3,863	2,070	9

TABLE F.4: MINIMUM AND MAXIMUM COST OF AN INPATIENT BED DAY IN THE PRIVATE SECTOR, BY FACILITY LEVEL AND OWNERSHIP (KES)

Facility type	Min of IP - Total per bed day	Max of IP - Total per bed day
Level 3	687	6,451
FBO/NGO	1,191	2,851
P4P	687	6,451
Level 4	920	10,152
FBO/NGO	920	8,909
P4P	1,223	10,152

TABLE F.5: AVERAGE COST OF AN INPATIENT BED DAY IN THE PRIVATE SECTOR, BY FACILITY LEVEL AND OWNERSHIP (KES)

Facility type	Cost of staff per visit	Cost of clinical supplies per visit	Cost of indirect costs per visit	Total outpatient visit cost
Level 3	1,435	489	692	2,617
FBO/NGO	1,217	282	466	1,966
P4P	1,508	558	767	2,834
Level 4	1,487	1,327	1,026	3,840
FBO/NGO	1,079	1,091	753	2,923
P4P	1,932	1,585	1,324	4,840
Total	1,466	984	889	3,338

TABLE F.6: MINIMUM AND MAXIMUM COST OF AN INPATIENT BED DAY BY COST BRACKET (KES)

Cost bracket	Facility Level	Inpatient bed day cost		Average cost	N
		Minimum	Maximum		
Low Cost (KES 2,000 and below)	3	687	1,706	1,201	6
	4	920	1,928	1,369	10
MEdium Cost (KES 2,001-5,000)	3	2,017	3,691	2,504	7
	4	2,159	4,499	3,163	8
High cost (KES 5,001 and above)	3	5,173	6,451	5,711	3
	4	5,798	10,152	8,423	6

TABLE F.7: QUALITY SCORES BY REGION

Risk Area	Percentage score						
	Central Region	Coast Region	Eastern Region	Nairobi Region	Nyanza Region	Rift Valley Region	Western Region
Leadership & Accountability	25	19	21	24	19	22	15
Competent & Capable Workforce	21	24	19	23	26	29	25
Safe Environment Staff & Patients	26	24	30	29	21	25	20
Clinical Care of Patients	31	30	29	32	29	31	27
Improvement of Quality & Safety	22	17	20	22	24	24	14
Average Total Score	25	23	24	26	24	26	20

ANNEX G: DEFINITION OF TECHNICIAN AND NON-MEDICAL STAFF GROUP

For this costing study, the following cadres of facility staff were categorized into either Technician or Non-Medical Staff.

TABLE G.1: DEFINITION OF TECHNICIAN AND NON-MEDICAL STAFF GROUP

Staff Group	Cadres Included in the Staff Group
Technician	<ul style="list-style-type: none"> • Dental technicians (Dental doctors are medical doctors) • Laboratory technician • Pharmacist doctors • Pharmacist technicians • Public Health/Social Worker • Community Outreach Worker/ CHWs • Radiologists • Anesthesiologist • Mortuary • Nutritionist • Occupational Therapist • Physical Therapist • Sterilization technician
Non-Medical Staff	<ul style="list-style-type: none"> • HMIS, Information Technology, Medical/health records • Reception, Front Office, Registration • Grounds keeping, Compound • Maintenance, Carpentry, Artisan • General/ Biomedical Engineer • Transportation, Drivers • Operations, Logistics • Security • House Keeping, Laundry, Tailoring • Catering, Kitchen • Administration, Office Clerks • Accounts Clerks, Finance Officers, Cashiers • Procurement and Purchasing • Marketing, Public Relations • Legal

ANNEX H: QUALITY ASSESSMENT SAMPLING FRAMEWORK

The 80 facilities were sampled from the 149 private health facilities included in the 2013 data collection and stratified by facility ownership and level to ensure representation across these characteristics. The 80 facilities were drawn from 15 of the 47 counties of Kenya. (Counties from the Upper, Eastern, North Rift and North Eastern regions were excluded due to accessibility and security concerns.) Participation in the study was voluntary, and facilities that declined to participate were replaced with facilities at the same level, ownership and county. The Kenya Conference of Catholic Bishops declined to participate in the quality assessment, and these facilities were replaced with facilities from the Christian Health Association of Kenya. The tables below summarize the sample distribution by county, region, locality, ownership, and level.

TABLE H.1: NUMBER OF SAMPLED HEALTH FACILITIES, BY COUNTY AND OWNERSHIP TYPE

County	FBO	NGO	P4P	Total
Bungoma	1			1
Embu	1	1	1	3
Kakamega	2		1	3
Kericho	1	3	2	6
Kiambu	5		6	11
Kisii			4	4
Kisumu	3	2	2	7
Machakos	2	1	4	7
Meru	2		2	4
Mombasa	1		7	8
Nairobi		2	6	8
Nakuru	1	1	5	7
Narok	2		1	3
Nyeri	3		3	6
Taita Taveta	1		1	2
Total	25	10	45	80

TABLE H.2: NUMBER OF SAMPLED HEALTH FACILITIES, BY REGION AND OWNERSHIP TYPE

Region	FBO	NGO	P4P	Total
Western	3	0	1	4
Nyanza	3	2	6	11
Rift valley	4	4	8	16
Central	8	0	9	17
Nairobi	0	2	6	8
Eastern	5	2	7	14
Coast	2	0	8	10
Total	25	10	45	80

Facilities were located in rural, peri-urban, and urban areas. The following definitions have been used:

- Urban: inside a town, including the suburbs
- Peri-urban: immediately adjoining an urban area; between the suburbs and the countryside
- Rural: in the countryside

TABLE H.3: NUMBER OF SAMPLED HEALTH FACILITIES, BY OWNERSHIP TYPE AND LOCALITY

Ownership type	Rural	Peri-Urban	Urban	Total
FBOs	8	13	4	25
NGO	0	6	4	10
Private	8	16	21	45
Total	16	35	29	80

TABLE H.4: NUMBER OF SAMPLED HEALTH FACILITIES, BY LEVEL AND OWNERSHIP

Facility Level	FBO	NGO	P4P	Total
Level 2	11	6	17	34
Level 3	6	2	17	25
Level 4	8	2	11	21
Grand Total	25	10	45	80

ANNEX I: SAFECARE ESSENTIALS CRITERIA FOR ASSESSMENT

TABLE I.1: SAFECARE ESSENTIALS RISK AREA AND CRITERIA

Risk area	1. Leadership Process and Accountability	2. Competent and Capable Workforce	3. Safe Environment for Staff & Patients	4. Clinical Care of Patients	5. Improvement of Quality and Safety
Criteria 1	1.1 Leadership responsibilities & accountabilities identified	2.1 Personnel files and job descriptions for all staff	3.1 Regular inspection of buildings	4.1 Correct patient identification	5.1 There is an adverse event reporting system that includes analysis of the data or events
Criteria 2	1.2 Leadership for quality and safety	2.2 Review of credentials of physicians	3.2 Control of hazardous materials	4.2 Informed consent	5.2 High risk processes and high risk patients are monitored
Criteria 3	1.3 Collaborative management	2.3 Review of credentials of nurses and other health care officials	3.3 Fire safety program	4.3 Medical and nursing assessments for all patients	5.3 Patient satisfaction is monitored
Criteria 4	1.4 Oversight of contracts	2.4 Staff orientation to their jobs	3.4 Biomedical equipment safety	4.4 Laboratory services are available and reliable	5.4 There is a complaint process
Criteria 5	1.5 Compliance with laws and regulations	2.5 Training in resuscitative techniques	3.5 Stable water and electricity sources	4.5 Diagnostic imaging services are available, safe, and reliable	5.5 Clinical guidelines and pathways are available and used
Criteria 6	1.6 Commitment to patient and family rights	2.6 Staff education on infection prevention and control	3.6 Reduction of health care-associated infections (hand hygiene)	4.6 Anesthesia and sedation are used appropriately	5.6 Staff know how to improve processes and quality improvement information is shared with staff
Criteria 7	1.7 Policies and procedures for the care of high risk patients	2.7 Communication among those caring for the patient	3.7 Barrier techniques are used (gloves, masks, etc.)	4.7 Surgical services are appropriate to patient needs	5.7 Clinical outcomes are monitored
Criteria 8			3.8 Proper disposal of sharps and needles	4.8 Medication use is safely managed	
Criteria 9			3.9 Proper disposal of infectious waste	4.9 Patients are educated to participate in their care	
Criteria 10			3.10 Appropriate sterilization and cleaning procedures are used	4.10 Care that is planned and provided is written down in a patient record	

TABLE I.2: GENERAL COMMENTS ON CRITERIA AND GUIDELINES FOR SAFETY IMPLEMENTATION

Criteria		Comment name	Guideline for implementing safety compliance
1.1	Leadership responsibilities and accountabilities are identified	Design Organization Chart	Design an organizational chart or document which describes the lines of authority and accountability from governance and within the service.
1.2	Leadership for quality and patient safety	Introduce Quality Management System	Introduce a quality management system in the facility (appoint quality manager, train staff, organize bi-weekly quality team meetings, keep minutes of these meetings).
1.3	Day-to-day planning is collaborative	Develop Quality Improvement & Patient Safety Plan	Develop, implement, and monitor a quality improvement and patient safety plan, including specific objectives and performance indicators per department, responsibilities and timelines.
1.4	Clinical and managerial contracts are effectively managed	Include Quality Requirements in All External Contracts	Include quality requirements in all external contracts and monitor these arrangements / services to ensure that the terms of the contracts are met (laboratory services, equipment maintenance, cleaning, specialist, etc.).
1.5	Compliance with laws and regulations related to the clinic	Ensure Policies Comply with Laws/Regulations	Develop policies and procedures in compliance with applicable laws and regulations, and design a mechanism so that these policies are known and implemented.
1.5	Compliance with laws and regulations related to the clinic	Contribute to External Databases	Ensure that the health facility contributes to external databases (e.g., number of TB and HIV cases, number of laboratory assays performed, etc.) when required by laws or regulations.
1.5	Compliance with laws and regulations related to the clinic	Ensure Policies Comply with Applicable Standards	Ensure that written policies and procedures address compliance with applicable standards, laws and regulations and make sure that local rules relating to current Ionizing Radiation regulations are available and implemented.
1.6	Clear commitment to patient and family rights	Introduce Patient/Family Rights Charter	Include, where applicable, relevant charters, laws and regulations in organizational policies regarding patient and family rights and make them accessible to the patients.
1.7	Policies and procedures for high-risk procedures and patients	Review Risk Management Systems	Ensure that risk management systems are reviewed whenever there are changes in organizational systems and processes, or physical facilities.
2.1	All staff have personnel files and job descriptions	Introduce Job Descriptions and/or Personnel Files	Ensure that a job description is available for each individual staff member, and signed by the staff member for approval.

2.2	The credentials of physicians are reviewed	Evaluate/Verify Credentials of Physicians	Develop a system for evaluating and verifying credentials of physicians (registration / license, education, training and experience), to guarantee that provision of clinical services are consistent with staff's qualifications.
2.3	The credentials of nurses and other health professionals are reviewed	Evaluate/Verify Credentials of Other Health Professionals	Develop a system for evaluating and verifying credentials of other health professionals (registration / license, education, training and experience), to guarantee that provision of clinical services is consistent with staff's qualifications.
2.4	Staff members are oriented to their jobs	Implement Personnel Orientation & Induction Programs	Document and implement programs for personnel orientation and induction to the health facility, including contract workers and volunteers.
2.5	Patient care staff are trained in resuscitative techniques	Develop Resuscitation Policy/Protocol	Develop and implement a resuscitation policy / protocol, defining the required equipment and medicines, and clear instructions on how to manage common emergencies. Policy includes training schedule and record keeping of staff attendance at such training.
2.6	Staff are educated on infection prevention and control	Include All Service Areas in Infection Control Program	Include all patient, staff, and visitor areas in the documented infection control program.
2.6	Staff are educated on infection prevention and control	Identify Training Needs on Waste Disposal/Infection Control	Identify training needs for all staff on waste disposal and infection control, organize monthly trainings, keep records of risk management training topics and attendees, and adjust topics and/or frequency according to need.
2.7	Communication among those caring for the patient	Review Patient Records Regularly	Review patient records regularly, and analyze them as part of the quality improvement process.
2.7	Communication among those caring for the patient	Ensure Ready Availability of Patient Records	Ensure that a complete patient record with notes by medical, nursing and other professionals is readily available. The patient record includes a unique patient number, medications, adverse drug reactions, referrals etc.
3.1	Regular maintenance of buildings	Implement Documented Risk Management Processes	Implement documented risk management processes for identifying all physical, environmental, medico-legal, operational etc. risks relating to processes, systems, personnel, patients, visitors, and physical facilities.
3.1	Regular maintenance of buildings	Supervise Implementation of Risk Management System	Appoint one or more qualified, skilled, and experienced individuals to supervise the implementation of the risk management system.
3.1	Regular maintenance of buildings	Document Inspections of Buildings/Installations/Machinery	Document regular inspections of all buildings, installations, and machinery.
3.1	Regular maintenance of buildings	Ensure Availability of Sufficient Electrical Sockets	Ensure that sufficient electrical sockets are provided in all areas to avoid overloading of individual outlets and to minimize the risk of fire.
3.2	Control of hazardous materials	Inventory Hazardous & Flammable Materials	Prepare an inventory list of all hazardous and flammable materials on the premises, including their current location, and store them in accordance with relevant regulations.

3.3	There is a fire safety program	Ensure Availability of Certification of Compliance	Ensure that documented certification is available from the relevant authority to show that the facility complies with applicable laws and regulations in relation to fire safety (e.g., fire clearance certificate).
3.3	There is a fire safety program	Ensure Availability of Fire Fighting Equipment	Ensure that firefighting equipment is available in each department, inspected and serviced at least annually, and that the date of service is recorded on each apparatus.
3.3	There is a fire safety program	Develop Written Emergency Plan	Develop and implement a written plan to deal with emergencies (bomb threats, fire, flooding, natural disasters, failure of water and electrical supplies).
3.4	Biomedical equipment is maintained in a safe condition	Include Theater Equipment in Replacement Programs	Ensure that all theater equipment, including resuscitation equipment, is included in the organization's equipment replacement and maintenance program.
3.4	Biomedical equipment is maintained in a safe condition	Document Testing/Calibrating of Equipment	Keep documented evidence that equipment is tested and calibrated in accordance with organizational policy / SOP.
3.4	Biomedical equipment is maintained in a safe condition	Include 3-year Forecasting Period in Plans/Budgets	Include a 3-year forecasting period in the organization plans and budgets (e.g., required upgrading / replacement of systems, buildings or equipment).
3.4	Biomedical equipment is maintained in a safe condition	Ensure Qualified Supervision of Medical Equipment	Ensure that a qualified individual supervises the management of medical equipment (up-to-date inventory list, appropriate inspection, testing and preventive maintenance).
3.5	Stable water and electricity sources are available	Ensure Uninterrupted Supply of Power & Water	Ensure availability of uninterrupted power and water supply in all essential areas (7 days, 24 hours).
3.5	Stable water and electricity sources are available	Document Servicing/Testing of UPS & Backup Systems	Document servicing and testing of the uninterruptible power supplies (UPS) and/or battery backup systems.
3.5	Stable water and electricity sources are available	Ensure Availability of Sufficient Fuel	Ensure availability of sufficient fuel (e.g., diesel) to provide power for 24 hours.
3.5	Stable water and electricity sources are available	Identify Risk Areas for Water Contamination	Identify areas and services at risk in case the water is contaminated or supply is interrupted, and make provisions for an alternative water supply.
3.6	Reduction of health care-associated infections through proper hand hygiene	Ensure Hand Washing & Disinfecting Facilities	Ensure that hand washing and disinfecting facilities, including water, soap, paper towels or hand sanitizers, are available in all relevant areas.
3.6	Reduction of health care-associated infections through proper hand hygiene	Implement Reminders for Effective Hand Washing	Ensure that personnel are constantly reminded of the importance of effective hand washing (i.e. via posters).
3.7	Barrier techniques are used	Prescribe Protective Clothing to Be Worn	Prepare a document describing what protective clothing should be worn (gloves, masks, aprons, etc.), by whom (laboratory staff, operating theater staff, doctors, nurses, pharmacy staff, cleaning staff), and when (activities).

3.7	Barrier techniques are used	Ensure Appropriate Shielding/Protective Clothing	Ensure that appropriate shielding and protective clothing is available in the presence of biohazards (including lasers) or radiographic equipment.
3.8	Proper disposal of sharps and needles	Implement Waste Management System	Implement a waste management system consistent with current local (by) laws and regulations that includes a color-coded collection strategy, proper usage of containers and bags. (E.g., separate color-coded containers for sharps, infectious waste, etc.)
3.9	Proper disposal of infectious waste	Implement Waste Removal/Incineration System	Implement a system for removal of waste by an authorized company, or document a procedure on operating an incinerator, and add the incinerator to the internal maintenance schedule (e.g., ensure incinerator meets country requirements, include SOPs).
3.10	Appropriate sterilization and cleaning procedures are used	Implement Daily Testing of Autoclave Sterility	Implement a system where autoclave sterility is tested daily, the test results are recorded and the sterility of each pack is shown on indicator tapes that are suited to the processes used.
3.10	Appropriate sterilization and cleaning procedures are used	Implement Processes for Cleaning/Decontaminating	Define and implement suitable processes for cleaning and decontaminating surfaces, floors, and equipment.
3.10	Appropriate sterilization and cleaning procedures are used	Ensure Availability of Clean Toilet/Washroom Areas	Ensure that toilet / washroom facilities are clean and in working order.
3.10	Appropriate sterilization and cleaning procedures are used	Clean/Dry Mops & Brooms before Storing	Clean and dry mops and brooms before storing.
4.1	Correct patient identification	Screen Patients at First Point of Contact	Document and implement a system, which includes patient identification, for initiating screening at the point of first contact.
4.1	Correct patient identification	Document System for Patient Identification	Implement a documented system for patient identification before medications are administered, in accordance with health care facility policy.
4.2	Patient education about high risk procedures and informed consent	Introduce Process for Recording Patient Education	Introduce a uniform process for the recording of patient education information.
4.2	Patient education about high risk procedures and informed consent	Document Evidence of Obtaining Informed Consent	Implement a system which ensures that documented evidence of informed consent is available for all patients undergoing surgery (in the patient records).
4.2	Patient education about high risk procedures and informed consent	Implement Policies for Gaining Informed Consent	Document and implement policies and procedures to guide personnel in the process of gaining informed consent.
4.3	Medical and nursing assessments for all patients	Implement Policies for Assessing Patients on Arrival	Document and implement policies and procedures for assessing patients on arrival and during ongoing care.
4.4	Laboratory services are available and reliable	Actively Validate All Laboratory Results	Implement a system that actively validates all laboratory results, which includes unique patient number, patient name, DOB, date of testing / reporting, and name of the requesting physician on
4.4	Laboratory services are available and reliable	Develop Guidelines for Appropriate Specimen Collection	Develop and implement guidelines that ensure appropriate specimen collection, labeling (unique patient identification, DOB, date of collection), and storage (temperature and duration).

4.4	Laboratory services are available and reliable	Implement SOPs for Laboratory Tests	Develop, implement and maintain SOPs for all laboratory tests performed, starting with the 10 most frequently requested tests.
4.4	Laboratory services are available and reliable	Ensure TB Activities Are Performed in Well-Ventilated Areas	Ensure that the TB activities are performed in a dedicated, well ventilated area.
4.5	Diagnostic imaging services available, safe, and reliable	Ensure Availability of Radiation Safety Report	Ensure that a copy of the most recent radiation safety report is available.
4.5	Diagnostic imaging services available, safe, and reliable	Establish Radiation Safety Program	Establish a radiation safety program that addresses potential safety risks and hazards encountered within or outside the department.
4.6	Anesthesia and sedation are used appropriately	Implement Guidelines for Use of Anesthetics	Document and implement procedures in compliance with current guidelines of a professional society for the provision and use of anesthetic mixture components and other peri-operative medication.
4.6	Anesthesia and sedation are used appropriately	Document System for Registering Medication(s)	Implement a documented system which ensures that medications controlled by law or organizational policy are accurately accounted for in a specific register.
4.7	Surgical services are appropriate to patient needs	Record Pre/Post-Operative Diagnosis of Patients	Implement a system for standardized recordings of pre- and post-operative diagnosis of surgical patients, including intra operative reporting.
4.7	Surgical services are appropriate to patient needs	Document Names of Attending Personnel	Document the name of the surgeon, and other personnel as required by law.
4.7	Surgical services are appropriate to patient needs	Compile Guidelines for Preparing for Surgery	Compile current guidelines of the professional society for the preparation of patients for surgery and develop and implement policies and procedures in compliance with these guidelines.
4.7	Surgical services are appropriate to patient needs	Ensure Monitoring of Patient's Physiological Status	Ensure that the patient's physiological status is continuously monitored and recorded during anesthesia and surgery.
4.8	Medication use is safely managed	Implement Policies for Pharmacy Practice	Implement policies in compliance with national legislation for pharmacy practice (e.g. requirements prescriptions, appropriate storage conditions, expiry dates, minimum / maximum stock Levels, essential drugs list, stock control).
4.8	Medication use is safely managed	Implement System for Integrated Pharmacy Policies	Design and implement a documented system which ensures that the pharmacy is integrated in the health care facility (e.g., process for prescription, patient identification, administration of prescribed medication, stock control.)
4.9	Patients are educated to participate in their care	Promote Taking Responsibility of One's Health Care	Promote the concept of taking responsibility for one's own health care during patient and family education sessions.
4.10	Care that is planned and provided is written down in a patient record	Develop Policy for Retention of Patient Records	Develop and implement a policy on the retention of patient records and other data and information; ensure that the retention process provides the necessary confidentiality and security.

5.1	There is a process for collecting and reviewing events that are unexpected and/or potentially harmful to patients	Introduce Policies for Loss/Misuse of Patient Information	Implement policies and procedures to prevent the loss or misuse of patient information. Any issues have to be compiled in a logbook in which corrective actions are described.
5.1	There is a process for collecting and reviewing events that are unexpected and/or potentially harmful to patients	Develop & Use Indicators	Develop and use indicators, such as needle stick incidents, near misses, adverse drug reactions, mortality rate etc. for quality control. Keep records of corrective and preventive actions discussed during quality team meetings.
5.1	There is a process for collecting and reviewing events that are unexpected and/or potentially harmful to patients	Record/Report Adverse Drug Reactions	Implement a documented system for reporting adverse drug reactions (e.g., how to observe, monitor, act on, and report).
5.2	High-risk processes and high-risk patients are monitored	Write Guidelines for Emergency Services	Write guidelines for providing primary emergency services and all services to high-risk patients, monitor correct implementation of processes.
5.3	Patient experience is monitored	Develop Process to Monitor Patient Satisfaction	Develop and implement a process for monitoring patient satisfaction about the health care process, the health care environment and the health care staff and record results of patient satisfaction measurements / opinions.
5.4	There is a complaint process	Implement Patient Complaint System	Implement a system for patients to raise complaints. Ensure that there is a system in place to respond to these complaints and that corrective and/or preventive measures are taken.
5.5	Clinical guidelines and pathways are available and used	Write Clinical Guidelines for Standardized Care	Document and implement clinical guidelines in order to standardize relevant care processes, including development and implementation of SOPs for the 10 most common diseases in the facility.
5.6	Staff understand how to improve processes	Develop System for Registration of Staff Members	Develop a system that guarantees that the staff member's registration, education, training, and experience are used to authorize the individual to provide clinical services consistent with his / her qualifications.
5.6	Staff understand how to improve processes	Develop Staff Training Strategy	Design a development strategy for the facility that ensures that all staff receive the training required to fulfill their responsibilities.
5.6	Staff understand how to improve processes	Ensure Presence of Midwife/Nurse during Births	Document and implement a system which ensures a registered / professional nurse with midwife training / experience is present at every birth.
5.7	Clinical outcomes are monitored	Use Data to Monitor Performance	Use administrative, financial, and medical data to monitor the performance of the facility, and to adapt plans and budgets. Select 5 indicators that can be used to monitor performance.
5.7	Clinical outcomes are monitored	Register/Log Outcome of Deliveries	Record information on cases and the outcome of deliveries in a register / logbook.

5.7	Clinical outcomes are monitored	Compile National Reporting Requirements	Compile national reporting requirements and design a monitoring system that complies with these requirements, which is known and implemented by all relevant staff.
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REFERENCES

- Barnes, J., O'Hanlon, B., Feeley III, F., McKeon, K., Gitonga, N., and Decker, C. 2010. *Private health sector assessment in Kenya*. World Bank.
- Bor, J., Herbst, A., Newell, M.-L., and Bärnighausen, T. 2012. "Increases in adult life expectancy in rural South Africa: Valuing the scale up of HIV treatment." *Science* 339: 6122.
- Chuma, J., and Maina, T. 2012. "Catastrophic health care spending and impoverishment in Kenya." *BMC Health Services Research* 12(1):413. Accessed January 14, 2015: <http://www.biomedcentral.com/1472-6963/12/413#B4>.
- Deloitte. 2011. *Market Assessment of Prepaid Schemes in Kenya*.
- Flessa, S., Moeller, M., Ensor, T., and Hornetz, K. 2011, "Basing care reforms on evidence: The Kenya health sector costing model." *BMC Health Services Research* 11: 128.
- Government of Kenya, 2007. HIV and AIDS Prevention and Control Act. No 14 of 2006. Kenya Gazette, Nairobi.
- Government of Kenya. 2009. Kenya Household Survey of Health Care Utilization and Expenditure 2007. Nairobi: Ministry of Health.
- Government of Kenya. 2010. Kenya National Health Accounts 2009/10. Nairobi: Ministry of Health.
- Government of Kenya. 2011. Implementation of The Constitution in the health sector: Position Paper One. Nairobi: Ministry of Health.
- Government of Kenya. 2014. Kenya Service Availability and Readiness Assessment Mapping (SARAM). Nairobi: Ministry of Health.
- Government of Kenya and Health Systems 20/20 Project. August 2010. *Report of the Technical Working Group on Sustainability for the Kenya HIV/AIDS Program*. Bethesda, MD: Abt Associates Inc.
- Haacker, Markus. 2014. *The Costs and Returns to Investment of Kenya's Response to HIV/AIDS*. HIV Investment Case Technical Paper. Nairobi, Kenya.
- Institute of Economic Affairs (IEA). 2012. "Informal sector and taxation in Kenya." *The Budget Focus* (A publication of the IEA Budget Information Programme) no. 29. Nairobi.
- Kenya National Bureau of Statistics (KNBS). 2010. *The 2009 Kenya Population and Housing Census*. Nairobi.
- Kenya National Bureau of Statistics (KNBS). 2014. *Kenya Facts and Figures 2014*. Nairobi.
- Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. *Kenya Demographic and Health Survey 2008-09*. Calverton, Maryland.
- National AIDS and STI Control Programme (NASCOP). 2014. *Kenya AIDS Indicator Survey 2012: Final Report*. Nairobi.
- Ministry of Health (MOH). 2009. Draft healthcare financing strategy. Nairobi.
- Ministry of Health. 2014. eHealth-Kenya facilities. Accessed August 22, 2014: <http://www.ehealth.or.ke/facilities>.
- Ortblad, K. F., Lozano, R. and Murray, C. J. 2013. "The burden of HIV: Insights from the Global Burden of Disease Study 2010." *AIDS* (London, England) 27(13): 2003–2017.
- Partners for Health Reformplus. 2004. *Management Accounting System for Hospitals (MASH) Manual*. Bethesda, MD: Abt Associates Inc.

- Schellekens, O. 2014. Presentation: Investing in health in Africa - Institutionalizing quality of care. PharmAccess. Naivasha 20 November 2014.
- World Bank. 2014. *World Development Indicators*. Accessed 25 March 2015.
<http://data.worldbank.org/country/kenya>.
- World Health Organization (WHO). 2013. Global Health Observatory (GHO) Data Repository. Country profiles: Kenya – country health profile.
- World Health Organization (WHO). 2014. Noncommunicable Diseases (NCD) Country Profiles, 2014.
- World Health Organization (WHO). [Kenya country page, accessed July 11, 2013]:
<http://www.who.int/countries/ken/en/>.
- Xu, K., Evans, D. B., Carrin, G., Aguilar-Rivera, A.M., Musgrove, P., Evans, T. 2007. "Protecting households from catastrophic health spending." *Health Affairs* 26(4): 972–83. (PubMed PMID: 17630440.)
- Xu, K., Evans, D. B., Kawabata, K., Zeramdini, R., Klavus, J., Murray, C. J. 2003. "Household catastrophic health expenditure: A multicountry analysis." *Lancet* 362(9378): 111–117. (PubMed PMID: 12867110.tt.)