



# Effect of Health Sector Grants on Availability and Quality of Healthcare in Kenya

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## **Abstract**

This study seeks to investigate the effect of health sector grants on availability and quality of primary healthcare in Kenya while focusing on the effect of Health Sector Services Fund (HSSF), an innovative financing mechanism in which funds are channeled directly from the national government to the lowest tiers of healthcare providers in the country: the dispensaries, health centres and first level hospitals. Specifically, we sought to establish the effect of HSSF on availability and quality of healthcare in the country as measured by essential drug availability and provider illness diagnostic accuracy, respectively. The

study used data from the Health Service Delivery Indicators and Public Expenditure Tracking Survey (SDI-PETs) conducted in Kenya in 2012/13. The analysis was based on basic microeconomic theory – the principal-agent theory. We appropriately used Ordinary Least Squares and probit models in regressing availability and quality of healthcare measures on HSSF status and a variety of control variables while controlling for endogeneity of HSSF receipt. The regression results point to the importance of Health Sector Services Grants (HSSF) amount and receipt in improving availability of essential drugs and quality of care, respectively. Thus, direct, and increased funding to lower-level health facilities enhance availability of individual essential medicines at the facility level. Similarly, HSSF funding was important in influencing accuracy in illness diagnosis. Other factors such as facility type and access to power influenced availability of essential drugs while health worker age-group and health worker training as indicated by cadre type were important determinants of provider process quality of healthcare.

## Introduction

Service provision/delivery coupled with other factors such as social determinants is a fundamental input in improvement of population health status. Improving service delivery, therefore, is important for achievement of both international and national goals of enhancing population health. Strengthening of health services is recognized as a priority for meeting the basic health needs of any country's population (Peters et al., 2009). A good health service delivery system entails, among other characteristics, enhanced availability of healthcare inputs, including drugs and other medical supplies and provision of quality health care (UN Human Rights, 2019; WHO, 2010).

Availability of healthcare inputs helps in optimizing access to healthcare (Carillo et al., 2011; Andersen, 1995; Aday and Andersen, 1974) since it presents an opportunity for the population to obtain healthcare when required (Gulliford et al., 2002). However, quantitative improvement of healthcare, for instance through enhanced availability of infrastructural inputs, is necessary but not a sufficient step towards improvement of health outcomes (Powell-Jackson, Mazumdar and Mills, 2015; Okeke and Chari, 2014). In addition to enhanced access and better health infrastructure, quality of care is increasingly being recognized as critical to achievement of better health outcomes, hence the shift in policy debate to its improvement (Lee, Madhavan and Bauhoff, 2016; Peabody et al., 2006).

The Sustainable Development Goals (SDGs) consider access to quality healthcare services as one of the indicators of health-related SDG Goal 3 (Pisano et al., 2015). Kenya's policy framework recognizes the role of both availability of health infrastructural inputs and healthcare quality in improving the health of her citizenry. The Constitution of Kenya grants rights to health care (Government of Kenya, 2010)

whose actualization is premised on, among others, adequate supplies of essential medicines. In addition, the constitution provides for devolution of health care with the aim of promoting availability of health care at the grassroots (Government of Kenya, 2010). Kenya's current development blueprint - the Kenya Vision 2030 - targets to ensure that the entire population has access to quality and effective health services (Government of Kenya, 2007).

There have been considerable efforts to enhance health system human resources, infrastructure, medical supplies, and equipment over the past two decades in Kenya (Mugo et al., 2018; Ministry of Health, 2013). This has led to notable improvement in health outcomes in the country over the years, with statistics indicating a general decline in child and maternal mortality (Dutta et al., 2018; Ministry of Health, 2016; Kenya National Bureau of Statistics, Ministry of Health/Kenya, National AIDS Control Council/Kenya, Kenya Medical Research Institute, National Council for Population and Development/Kenya, and ICF International, 2015) and overall improvement in life expectancy (Ministry of Health, 2016; World Bank, 2014). Generally, available statistics show that the country is doing well in terms of availability of key equipment and essential medicines/drugs recommended for a health facility (Mugo et al., 2018; Martin and Pimhidzai, 2013). Nonetheless, some essential elements of healthcare service delivery are still inadequate. It was observed, for instance, that drug availability for mothers and children stood at 59% and 78%, respectively, in 2013 (Mugo et al., 2018; Martin and Pimhidzai, 2013). This poses a hindrance to achievement of better health for mothers and children in the country.

Along with existing gaps on availability of key infrastructure inputs, there are quality of care gaps in terms of clinical performance. The Service Delivery Indicator (SDI) survey, funded by the World Bank and data collected in 2012/13 by Kenya Institute of Public Policy Research and Analysis (KIPPRA) and Kimetrika, indicated that there was provider knowledge gap in illness diagnosis and in adherence to illness treatment guidelines. Specifically, the survey observes that only 16% of the providers were able to correctly diagnose five (5) tracer conditions, namely: malaria with anaemia, diarrhea, pulmonary tuberculosis, diabetes, and pneumonia (Martin and Pimhidzai, 2013). Also, only 43% of providers in public facilities adhered to clinical guidelines for the five (5) tracer conditions, with only 13% of healthcare providers adhering to at least half of the clinical guidelines.

Health financing is a key input in the provision of quality healthcare as it enhances provision of healthcare facilities, purchase of drugs and health equipment, personnel remuneration and operations and maintenance (Kimani et al., 2004). Indeed, how communities pay for healthcare together with the amount of resources devoted to health not only affects the care that people receive but also its quality (Chalkly and Malcomson, 1998). While sources and magnitude of financing are important in health service delivery, a resource allocation mechanism that incentivizes provision

of basic health facilities as envisaged in the international and national commitments, identifies funds priority areas, and promotes accountability for funding and health outcomes is essential. Giacomini, (1996) observes that any system of funding creates financial incentives, but two scenarios are possible, a policy maker may design choices not motivated by the desire to communicate policy objectives through financial incentives and; a policy maker may choose to use financial incentives as the instrument for communicating policy objectives and changing behaviour.

The call for use of health sector financial incentives, both at the household level (demand side) and facility level (supply side) is mostly intended for behaviour change through encouragement of utilization and provision of quality healthcare services, respectively (Mills, 2014). Existing literature documents the contribution of demand side financial incentives mainly by conditional cash transfers to change household behaviour (Glassman et al., 2013; Lagarde, Haines and Palmer, 2009). A focus on the supply side also points to the important role of financial incentives, largely, pay-for-performance/results grants (where payments are based on predefined healthcare provider performance (Fan et al., 2013) in improving provider quality of healthcare (Gertler and Vermeersch, 2013; Olken et al., 2014. Incentives may also be used in removal of financial barriers with a focus on improving care (McLoughlin and Leatherman, 2003).

Kenya's devolved system of governance in 2010 led to the delegation of some government services previously provided by the national government to the forty-seven (47) county governments (KPMG Africa, 2014). This system saw the division of healthcare responsibilities between the county and national governments. Accordingly, essential health service delivery is assigned to county governments, while the national government retains health policy, technical assistance to counties, and management of national referral health facilities. Devolution resulted to fiscal decentralization, which was assumed to provide incentives to the decentralized county governments for efficient service delivery through better targeting of development interventions to local community needs and the inherent increased competition among the local governments for national grants (Davoodi and Zou, 1998).

The main source of funding for the county governments includes an equitable share of the national revenue (at least 15%), the Equalization Fund for marginalized communities representing 0.5% of the national revenue and conditional and unconditional grants from the national government (Commission on Revenue Allocation, 2014). Between 2014/15 and 2016/17, the share of budgetary allocation to health in the counties increased from 56% to 59% (Republic of Kenya, 2018). The county governments also generate revenues from property taxes, business licenses and entertainment taxes. The national allocations to counties are normally given as a block grant and counties determine the share to be allocated to health. Some national allocations to county health sectors are, however, conditional in nature.

These include allocations to: county referral hospitals (level 5 hospitals), free maternal healthcare and compensation for foregone user fees (Republic of Kenya, 2017). It is also important to note that the private sector, mainly consumers, remain the largest source of health financing in Kenya, contributing to about 40% of healthcare funding in 2015/16 compared to a contribution of 37% and 23% by the public sector and donors, respectively, in the same period (Republic of Kenya, 2018).

County governments' health sector services also benefit from direct funding from the national government and donors through an innovative health financing system known as the Health Sector Services Fund (HSSF). HSSF channels funds directly from the national government to the lowest tiers of healthcare providers in the country, hence partly solving the problem of access to finance at these levels; the dispensaries, health centres and lower-level hospitals. The fund was operationalized in the country in 2010 after its initial pilot in Coast region in 2005 (Opwora et al., 2010). The structure and the conditions of the fund are likely to incentivize the funded health facilities to comply with government accounting procedures (World Bank, 2014) and to strengthen community accountability through inclusion of community members in the fund management at the facility level (Waweru et al., 2013). HSSF funding sources are the government and development partners, mainly Danish International Development Agency (DANIDA) and the World Bank. The funds are credited directly to the facility's bank account quarterly and managed by the Health Facility's Management Committee (HFMC). The main purpose of the funds is to pay for the facility's operational expenses (Republic of Kenya, 2009), including facility maintenance, refurbishment, support staff, allowances, communications, utilities, medical supplies, fuel, community-based activities to improve the quality of services (Waweru et al., 2013; Health Rights Advocacy Forum, 2012). Table 1.1 presents the total number of health facilities receiving HSSF disbursements since October 2010.

**Table 1: Total number of health facilities receiving disbursements since October 2010**

Financial Year	Period of disbursement	Health Centres	Dispensaries
2010/11	1 <sup>st</sup> disbursement	589	
	2 <sup>nd</sup> disbursement	589	
	3 <sup>rd</sup> disbursement	653	
2011/12	1 <sup>st</sup> disbursement	673	482
	2 <sup>nd</sup> disbursement	706	2,092
	3 <sup>rd</sup> disbursement	718	2,291
	4 <sup>th</sup> disbursement	720	2,296
2012/13	1 <sup>st</sup> disbursement	765	2,330
	2 <sup>nd</sup> disbursement	770	2,384
	3 <sup>rd</sup> disbursement	751	2,349

Source: Waweru et al. (2013)

The uniqueness of the design of HSSF (World Bank, 2014) presents an opportunity to analyze the effect of direct funding approach on availability and quality of primary level healthcare. This study focuses on how incentivizing provision of medical supplies and quality of healthcare through removal of financial barriers (HSSF attempts to address delay in disbursement of funds from the Ministry of Health to the lowest levels of healthcare) could lead to improved service delivery through improvement in the availability of essential medicines at the facility and provider quality of care. HSSF also incentivizes adherence to accounting guidelines and community involvement (Health Rights Advocacy Forum, 2012), which could affect quality of healthcare provision. Given the uniqueness of the HSSF, we sought to examine the effect of this healthcare grant on healthcare service delivery measures, mainly availability of essential tracer medicines and quality of healthcare as measured by provider illness diagnostic accuracy in Kenya.

The concepts of availability and quality of healthcare as used in this study are guided by Donabedian's framework for quality-of-care assessment, which categorizes healthcare quality measures into three domains: structure, process, and outcomes (Donabedian, 1988). Structural measures are most relevant to availability (Kuhlthau, 2011) and mainly focus on the environment in which healthcare takes place - the buildings, human resources and availability of medical supplies and equipment. Process quality entails what is done in providing and receiving care. Process quality measures are a direct measure of facility-level healthcare quality (Mant, 2001). Outcome measures of quality refer to the impact of availability and quality on recipients of healthcare. This study assesses availability and quality of healthcare as indicated by provider competency in clinical performance.

A good number of the Kenyan population (40%) who use public facilities for outpatient services seek healthcare from levels 2 and 3 of healthcare facilities; that is, the dispensaries and health centres (Ministry of Health, 2014; Republic of Kenya, 2018). As such, the responsibility of provision of primary healthcare falls heavily on dispensaries and health centres. An assessment of health service delivery at these levels indicates that the availability of infrastructure such as water, sanitation and electricity is generally positive. However, there are performance gaps in terms of essential drugs' availability and provider knowledge. While essential tracer drugs are always supposed to be available, the Service Delivery Indicator Report observes that none of the health facilities had all essential drugs as recommended by the World Health Organization (Martin and Pimhidzai, 2013). Even more disconcerting is the finding that there is provider knowledge gap in illness diagnosis with only 16% of the providers being able to diagnose correctly five (5) common illness, namely malaria with anaemia, diarrhea, tuberculosis, diabetes, and pneumonia (Martin and Pimhidzai, 2013).

Kenya's healthcare system seeks to enhance access to quality healthcare for all Kenyans through Universal Health Coverage (UHC). To achieve this goal, Kenya needs innovative means to mobilize and utilize financial resources (Barasa et al., 2018; Dutta

et al., 2018; Government of Kenya, 2007). While the current reforms in the country targeting expansion of health insurance through the National Hospital Insurance Fund (NHIF) are critical for achievement of UHC, it may not be sufficient to meet other investment requirements such as availability of commodities, equipment, and the workforce (Dutta et al., 2018). Basically, funding mechanisms to health facilities, in particular lower-level healthcare facilities, remain a challenge. Previously in Kenya, only 50% of the targeted healthcare grants could reach these facilities due to delays at the Ministry of Finance and Ministry of Health headquarters, shortfalls in quarterly allocations, liquidity problems and failure to comply with government accounting procedure (Health Rights Advocacy Forum, 2012). This translated to low coverage and poor quality of health services in Kenya's healthcare system. With the devolved system of governance, the sub-national governments receive block grants. The allocation of these grants to the various sectors is mostly discretionary. On average, the county budget allocation to health is low (approximately 5%), implying lower health facilities share, hence impacting on the quality of healthcare (Kimathi, 2017).

Kenya's HSSF was established specifically to deliver operational finances directly to primary health care facilities, which include the dispensaries and health centres (Health Rights Advocacy Forum, 2012). The receipt of the fund by health facilities is based on work and expenditure plans approved and confirmed by the District Health Management teams (Health Rights Advocacy Forum, 2012). The innovative approach to disbursement of HSSF is expected to address the challenges of financing, which will in turn enhance availability of essential medical supplies and delivery of quality essential health services in an equitable and efficient manner. Indeed, results-based financing and direct-to-facility funding mechanisms (of which HSSF is an example) has been credited for ensuring quality and availability of health care (Lee, Tarimo and Dutta, 2018).

Existing empirical studies document the effect of financial incentives the role of financial incentives directed to healthcare workers in improving healthcare quality (Gertler and Vermeersch, 2013; Olken et al., 2014). The HSSF financial incentive, however, differs from the health worker incentives in that the incentive aims at removing financial barrier at the facility level, hence the need to investigate the effect of this fund on availability and quality of healthcare in Kenya. To the best of our knowledge, a few studies empirically examine the role of grants such as HSSF in improving the performance of primary health care facilities in Kenya, hence the focus of this paper. This study addresses the existing gap in health financing literature by investigating the effect of HSSF, a health sector grant on availability and quality of healthcare.

The Constitution of Kenya 2010 and the consequent devolved system of governance calls for establishment of new health financing mechanisms that will ensure equitable and effective service delivery in the key service sectors of the economy, which includes the health sector. An adoption of granting framework that will incentivize quality



healthcare provision is essential for the achievement of these objectives (Chen et al., 2014). This will in turn help in achieving the Kenyan citizen's constitutional right to highest standard of health (Republic of Kenya, 2010) and the health-related SDG Goal 3, which aims at ensuring healthy lives and promoting well-being for all ages (Pisano et al., 2015).

An empirical study on the effect of grants channeled to the health sector on availability and quality of healthcare measures will contribute to the debate on appropriate healthcare funding mechanism for the devolved system of governance in Kenya. The study will be important to policy makers, practitioners, and consumers of healthcare services, both at the national and sub-national levels of government.

## Data sources

This paper used data from Health Service Delivery Indicators and Public Expenditure Tracking Survey (PETS) conducted in Kenya in 2012/13. This data collected information from 294 public and non-profit private health facilities and 1,859 healthcare workers at three levels of healthcare; that is, dispensaries, health centres and first level hospitals. The survey collected data on quality-of-service delivery as indicated by environment in which healthcare is conducted, including availability of key inputs such as drugs, medical equipment and infrastructure and provider and health worker knowledge and effort. Besides, this data collected information on facility sources of funding, including HSSF grant which was introduced in primary health facilities between 2010 and 2011.

## Conclusion and policy recommendations

This paper sought to examine the effect of health sector grants on healthcare service delivery as measured by facility level availability and quality of healthcare. The indicators for availability and quality of healthcare are availability of essential drugs and accuracy in illness diagnosis. The results of the analysis indicate that availability of some essential drugs was low (ampicillin, azithromycin, cefixime, metronidazole, magnesium sulphate). While we note that some drugs in the same classification were available, the low availability of these essential drugs implies that health facilities would not be able to respond to patient's urgent treatment needs.

This study highlights the importance of health sector grants, specifically HSSF amount, in determining essential drug availability composite index. Further, HSSF receipt increases the chance of availability of individual essential drugs at the facility level, including cefixime, benzathine benzylpenicillin and nifedipine. However, while HSSF



receipt had a positive effect on quality of healthcare measure, HSSF amount was not important in influencing provider process quality of healthcare; that is, accuracy in illness diagnosis. This is perhaps because the design of the fund does not motivate provision of quality healthcare by health workers.

Among the control variables, facility type was a significant determinant of both availability and quality measures. A higher level of facility type, that is a health centre or hospital as opposed to dispensary was associated with both higher score of drug availability and better accuracy in illness diagnostic accuracy. Facility location and ownership were key in influencing essential drug availability measure. Additionally, access to source of power and number of outpatient visits had a significant influence on essential drug availability composite index. Also, age of healthcare provider had a significant effect on health worker diagnostic accuracy.

Based on the observed results, there is need to institute funding programmes aimed at improving facility level and health worker quality of healthcare in the country. These programmes should focus on channeling grants directly to health facilities and should have a component of pay for performance to motivate health workers to improve on quality of healthcare. This will also curb absenteeism among healthcare workers, and further enhance provider quality of healthcare.

Besides the funding mechanism, there is need for an increase in level of funding especially to the lowest level of healthcare. The importance of facility type in influencing both availability of healthcare and process quality of healthcare points to the need to increase funding at the lowest levels of primary healthcare, mainly at the dispensary level, with the aim of improving quality of healthcare at this lower level. Worker training is an important factor in enhancing health worker quality of healthcare. Besides formal training, continuous refresher courses should be offered to health workers at all levels and especially at the lower cadres since they remain the majority and are located more in the rural areas.

Development of infrastructure is key in improving healthcare quality. The country should therefore focus on enhancing access to source of power, mainly electricity or alternative sources. This will enhance both availability of essential drugs at the lower levels and reduce uneven distribution of health workers across the county.

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