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Assessing the influence of the Health Labour Market Framework in addressing health worker availability: a case of Turkana County

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Assessing the Influence of the Health Labour Market Framework in Addressing Health Worker Availability: A Case of Turkana County

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DECLARATION

I declare that this work has not been previously submitted and approved of a degree by this or any other university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself:

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APPROVAL

This research has been submitted for examination with my approval as university supervisor.

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ABSTRACT

The United Nations has projected a shortage of 18 million health workers if the Sustainable Development Goals (SDGs') are to be attained. Kenya has developed a national human resources for health strategy which gives policy and strategy guidance to County governments which are now responsible for management of their health workforce. This study referenced the health labour market framework as a basis to review how effectively the county has identified and addressed the health worker demand and supply factors. The study employed a mixed methods approach. The target population was all health workers in level 2-4 facilities in Turkana County. The population comprised of staff at the 153 operational health facilities in Turkana County. The study also targeted the members of the County Public Service board in Turkana and the health management team members in the county including the Chief Officer for Health, the County Human Resources for Health officer and County Public Service Board HR Manager. The sample size of the study was 100 health workers. Stratified sampling was used to sample the health workers while purposive sampling was used to pick the key informants. Data collection involved administration of questionnaires, conducting key informant interviews and review of secondary data. Quantitative data was analysed through descriptive statistics while qualitative data was analysed through content analysis. The study established that the current implementation of the measures has positive effect on availability of health workers across the county. The study recommends that the prioritization and sequencing of measures be aligned to the needs of health workers and that further studies be conducted to determine the factors influencing the implementation of HRH policies in Turkana County.

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DEFINITION OF TERMS

Acceptability is used to describe health workforce characteristics and ability (e.g. sex, language, culture, age, etc.) to treat all patients with dignity, create trust and promote demand for services;

Accessibility describes the equitable distribution of health workers taking into account the demographic composition, rural- urban mix and under-served areas or populations;

Assessment – the process of considering all the information about a situation and making a judgement.

Availability coverage is the most basic dimension that outlines what health services are being provided, where and by whom.

Effective coverage which is the highest and most desired level is defined as the extent to which health services are satisfactory from a quality and safety perspective.

Effectiveness – "the degree to which something is successful in producing a desired result"

Health human resources (**"HHR"**) — also known as **"human resources for health"** (**"HRH"**) or **"health workforce"** — is defined as "all people engaged in actions whose primary intent is to enhance health" (WHO, 2006).

Health worker availability refers to the sufficient supply and appropriate stock of health workers, with the competencies and skill mix to match the health needs of the population.

Health worker shortage refers to the gap between the current level of health worker availability and an established benchmark of the number and types of health workers needed.

HRH Policy -According to WHO, a human resources for health Policy is an expression of commitment to goals and a guide to action for health personnel. The HRH policy should be within the context and consistent with the overall national health policy. (WHO, 2004)

Quality is used to mean health workforce competencies, skills, knowledge and behaviour, as assessed according to professional norms and as perceived by users.

Universal Health Coverage (UHC) is defined as ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while o ensuring that people do not suffer financial hardship when paying for these services. (WHO, n.d.)

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Introduction

The World Health Organisation's health system framework has six building blocks (WHO, 2007). They include Leadership and governance, health care financing, health workforce, medical products and technologies, information and research and service delivery. This study is focussed on the Health Workforce building block otherwise referred to as Human Resources for Health (HRH) or Health Human Resources (HHR). The study considers the management of Human Resources for Health under Kenya's devolved system of governance. The study is organised in five chapters. Chapter 1 is an Introduction to the study that covers the problem statement and formulates the research objectives. Chapter 2 provides a review of literature and concludes with a synthesis of findings, the research gap and conceptual framework for the study. Chapter 3 presents the methodology of the study while Chapter 4 presents the study findings. Chapter 5 provides a discussion of finding while chapter 6provided conclusions and recommendations from the study.

1.2 Background to the Study

As part of the SDGs, all member states of the United Nations (UN) have agreed to the target of achieving universal health coverage (UHC) by 2030. UHC is defined as ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services, (WHO, n.d.). The three goals of UHC include; Equity in access to health services, quality of health services and financial risk protection. Even after all these are ensured, access to health cannot be guaranteed without ensuring that we have an adequate health workforce. To resolve universal access to health, the World Health Organisation (WHO) has developed a framework that comprises six building blocks. The building blocks of the health system framework include; leadership and governance, healthcare financing, essential products vaccines and technologies, Health information systems, service delivery and health workforce (WHO, n.d.).

In the building block on Leadership and governance, the framework addresses matters of health policy, effective oversight of the health function, design of the health system and accountability among others. Health care financing reviews the adequacy of funding for health with the goal of ensuring that people are able to afford the health services they need (Pyone *et al.*,2017). Essential products, vaccines and technologies is a block that ensures equitable access to medical supplies. These supplies must also assure quality, safety, efficacy and cost effectiveness. The technology aspect of this block reviews the soundness of the use of supplies given current scientific knowledge. The Health information systems block is concerned with the production, analysis, dissemination and use of data. The data referred to covers; health determinants, health systems performance and health status. Service delivery is a block that defines "good health services" as "those which deliver safe, quality, personal and non-personal services to those who need them, when and where they need them with minimum waste of resources". The health workforce is a building block which reviews the existence a well performing health workforce given the available resources and context. Health workforce is analysed in terms of sufficiency of numbers and mix of staff, fair distribution, competency, responsiveness and productivity (WHO, 2017).

For the world to achieve the recently set Sustainable development goals (SDGs) there is need to address a projected shortage of 18 million health workers. This shortage is mostly in low and lower- middle income countries (WHO, 2016). Sub-Saharan Africa possesses only 1.3% of the world's trained health workforce despite bearing 25% of the world's disease burden. Limited education and training opportunities for health workers also make health worker production difficult (WHO, 2013). One of the targets in SDG Goal 3 "Good health and well-being" is to substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries.

The global shortage of the health workforce can be explained by an increase in the need for health workers because of factors such as changing disease patterns, ageing populations, low health workforce production, poor management of health staff, inadequate investment in various components of the health system among other reasons. The shortage of health workers has serious implications for the health of billions of people

across all regions of the world (WHO, 2016). According to Global Health Workforce Alliance (GHWA) if the world does not make significant strides in health workforce production and retention, the global health workforce shortage would reach 12.9 billion by 2035.

A meeting of the United Nations High Level Commission on Health Employment and Economic Growth stated that investment in health employment is key to attaining the SDGs, the forum advised countries not to view health employment as a cost but rather recognise it as an investment that yields the triple benefits of health, economic growth and global health security. In Kenya 80% of health budget is spent on compensation for the health workforce (Kiambati, Kiio & Toweett, 2013). This demonstrates that the health sector is labor intensive and heavily dependent of health workers.

1.2.1 Devolution and management of health workforce

Kenya now practices devolution in line with the provisions of the Constitution of Kenya 2010. This system of governance bears immense promise for Kenyan citizens, the objects of devolution as outlined in Chapter 11 include ; "to give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them; to recognise the right of communities to manage their own affairs and to further their development; to protect and promote the interests and rights of minorities and marginalised communities; to promote social and economic development and the provision of proximate, easily accessible services throughout Kenya" among others (The Constitution of Kenya, 2010).

Proponents of devolution and decentralisation argue that decentralisation produces more equitable and efficient health services by giving communities a stronger voice in the issues that affect them and giving actors the opportunity to tailor programs to local needs. A devolved system of governance was expected to establish human resource for health management at the county level and to address associated challenges of equity and access to the health workforce (Williamson & Mulaki, 2015).

Tadesse and Lehmann (2017) in their review of stock and flow of human resources in Kenya conclude that devolution has made human resource planning more complex and

possibly even more critical". They observe that there is need for reliable and timely mechanism to monitor health workforce changes and needs in order for county leaders to respond to health worker shortages.

Kenya's constitution, the Vision 2030, the health policy 2011–2030 and strategic plan for human resources 2014-2018 address the challenges of Human Resources for Health (HRH) in Kenya. The Kenya Health Sector Strategic and Investment Plan 2014-2018 outlines investments in HRH by planning for the availability of appropriate and equitably distributed health workers, the attraction and retention of required health workers among other objectives (GOK, 2014). Kenya also made a commitment at the 3rd Global HRH conference to devolve the HRH Interagency coordinating committee (HRH-ICC) to its forty seven counties. The HRH -ICC is charged with oversight of the implementation of HRH strategies with links to the existing national coordinating mechanism. This study evaluates how effective the Turkana County government has been in ensuring availability of health workers.

1.3 Statement of the Problem

Kenya's vision 2030 has set targets to reduce health workforce shortage by 60%. Staff shortages have affected Kenya's health system country wide. Collection of HRH data in Kenya has been fragmented because the country lacked a mechanism to ensure robust, evidence based planning which links the health workforce shortages to training targets by health training institutions (MOMS & MOPHS, 2012)

A centralised system of governance led to inequitable distribution of health services in the country (Ndavi *et al.,* 2009). A devolved health system is expected to improve access and equity but if manage poorly, may further disrupt delivery of health services. Since devolution, the health sector in most of Kenya's counties has faced challenges including, capacity gaps, lack of institutional and legal infrastructure, rampant corruption that have led to stagnation and a reversal of gains as far as health indicators are concerned (Kimathi, 2017). Though devolution has increased decision making from county level, it has been argued that county level functions were handed over rapidly before the set up of appropriate structures and the development of adequate capacity to manage functions (Tsofa, 2017).

Research for instance by Jakovljevic and Getzen (2016) has shown that there is a significant correlation between a country's level of economic development and the number of human resources for health. Countries with higher gross domestic product (GDP) record more expenditure in health care. With a clear link between density of health workers and a country's GDP (and hence health outcomes), it is important to note that Kenya's devolved governments have disparate socio-economic conditions that place some counties at a disadvantage in terms of attraction and ability to retain health workers.

A HRH assessment of Northern Kenya in May 2013 revealed that health worker coverage in Northern Kenya is largely inadequate compared to other regions in the Country. Health access in the Northern region is further hampered by poor infrastructure, insecurity, nomadic lifestyles and vast geographical spread with low population density (MoH, 2013). The assessment provided an overview of the distribution of human resources across ten counties: Wajir, Mandera, Garissa, Samburu, Turkana, West Pokot, Isiolo, Marsabit, Tana River and Lamu. The identified gaps led to an outline of priorities for devolved governments to focus on in the area of Human Resources for Health. Among the main recommendations from the assessment were; the need to: 1. Increase and retain health workers in these counties; 2.Innovate health delivery systems that meet the needs of their dispersed and mobile populations and 3. Ensure an integrated and multi-sectoral approach to resolving human resources for health challenges (MoH, 2013).

One of the counties in northern Kenya facing substantial challenges in health worker shortage is Turkana County. This county suffers inadequate access to quality health care due to low physical access to health facilities (the average distance between health facilities in 2014 was 50 kilometres whereas the WHO recommended distance is 5 kilometres), low numbers of health staff and low innovation in health service delivery. The county integrated development plan (CIDP) for Turkana described the health staffing level as low with a doctor population ratio of 1: 70,000 and a nurse to population ratio of 1:5200. The turnover of health staff is high with health workers electing to work in the non-governmental sector and other parts of the country. The county's health sector development plan picks up on some of the issues hampering access to health and has included interventions such as; increase of health facilities, establishment of health clinics and

increase in number of health staff as part of the CIDP, (GOK, 2014). The Kenya Demographic Health Survey 2014 reports the proportion at delivery facilities at 20.4%. Though this is a marked improvement it is still the lowest among all the counties in Kenya. Turkana county is the largest in the county it has some of lowest human development indicators in Kenya. The national human development index is 0.5 while Turkana County comes lowest at 0.3. For literacy levels only 8.5% of females and 21.8% of males have attained education above secondary level (UNDP, 2013). Turkana still reports high rate of acute malnutrition with a rise from 21.2% in 2015 to a rate of 24.7% in 2017. These consistently exceed WHO's emergency threshold of 15%. (Save the Children & UNICEF, 2017).

In a study by Ojakaa *et al.* (2014), a smaller proportion of healthcare workers (HCWs) in Turkana feel that they have adequate training for their jobs. Overall, 13% of the HCWs indicated that they had changed their job in the last 12 months and 20% indicated that they could leave their current job within the next two years. In terms of work environment, inadequate access to electricity, equipment, transport, housing, and the physical state of the health facility were cited as most critical, particularly in Turkana. The working environment is rated as better in private facilities. Adequate training, job security, salary, supervisor support, and manageable workload were identified as critical satisfaction factors. From this study, the author states that there are distinct motivational and retention factors that affect HCWs in the three regions.

With devolution previously marginalised regions of the country have benefited from resource allocations for public services as well as some "equalisation funds" to allow more investment in public service delivery given the historical underfunding of their development programmes. County readiness to deliver health services is a key concern raised by various stakeholders. This is evaluated through availability of key health system inputs e.g. health facilities and indicators like county revenue per capita (Barker *et al.,* 2014). In an assessment of county health system readiness in Kenya: Turkana is rated alongside Tana River, Mandera, Wajir, Narok, Kilifi and Bomet as below average for both accessibility and coverage.

This study was conducted to establish the effectiveness of the measures employed by the Turkana County government to address the Health worker shortage in Turkana. To effectively address health worker shortage counties must have a good understanding of the factors influencing the demand and supply of health workers and how these factors interact in their context. Accordingly measures to address health worker challenges should address four policy levers identified in the health labour market framework namely; the production and retention of health workers; improvement of the skills held by health workers, addressing maldistribution and inefficiency and regulating the private sector (Sousa, Scheffler, Nyoni & Boerma, 2013).

1.4 Research Objectives

The main objective of this study was to assess the effectiveness of the health labour market framework in addressing health worker availability in Turkana.

Specific objectives were to;

1. Establish how the measures on production and training of health workers address health worker availability in Turkana County.
2. Establish how the measures to address recruitment and retention of health workers have addressed health worker availability in Turkana County.
3. Find out how the measures to correct maldistribution and inefficiencies have addressed health worker availability in Turkana County.
4. Find out how the measures to regulate the private sector have affected health work availability in Turkana County.
5. To establish the influence of health financing on health worker availability in Turkana.

1.5 Research Questions

1. How have the measures on production and training of health workers addressed health worker availability in Turkana County?
2. How have the measures addressing recruitment and retention of health workers affected health worker availability in Turkana County?
3. How have the measures correcting maldistribution and inefficiencies affected health worker availability in Turkana County?
4. How have the measures on regulation of the Private sector affected health worker availability in Turkana County?
5. What is the influence of health financing on health worker availability in Turkana County?

1.6 Significance of the study

To Academia, this study highlights the existing knowledge in the HRH field and critically assesses the assumptions about which strategies and policies are effective for remote and underserved contexts. It specifically investigates the efficacy of the health labour market framework as a tool for planning and managing the availability of health workers for critically underserved contexts such as those in Northern Kenya. Establishing the effect of the production and training policies will be useful to both the county and national government by highlighting the gaps and opportunities in this arena. The national ministry

of education and county ministries of health and finance will receive evidence based recommendations on production and training strategies. Measures to improve recruitment and retention will highlight the preferences of health workers and guide the sequencing of measures by the county government.

The analysis of health workforce distribution will shed light on how current efforts are ensuring equitable access to health services identifying any trends that need to be managed. The findings on the state of Private sector regulation will highlight opportunities for the county to maintain oversight and coordination of health services from a variety of stakeholders outside the public sector. The influence of health workforce financing on health worker availability will also be highlighted and trends observed to guide areas of improvement. The study is therefore beneficial to the National Government of Kenya, County Government of Turkana and contexts with similar health worker challenges.

1.7 Scope of the study

This study was limited to assessing the effectiveness of the policies implemented by the Turkana County health function to address the existing health worker availability. This was done by examining the key HRH interventions and their influence on health worker availability across the county. Without disregard to the importance of other interventions in the health system, the study was restricted to reviewing the effectiveness of the identified HRH policies and strategies in addressing the health worker recruitment and retention in Turkana County.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covers the challenges of addressing health worker shortages as understood globally whilst highlighting the factors that influence health worker availability. It explains the health labour market framework as a model for analysing and planning for health worker availability. Efforts made by governments to address health worker shortages are highlighted with particular focus being given to studies addressing health worker shortage for underserved populations. The chapter concludes by identifying the research gap and conceptual framework for this study.

2.2 Description of Key Concepts

2.2.1 Universal Health Coverage

According to Campbell (2013) universal health coverage (UHC) encompasses three dimensions namely; 1. Who is covered, 2.What is covered and 3.How much is covered. These dimensions are subject to expand over time and are addressed within the boundaries of fiscal space, presenting a challenge for all countries. Achieving UHC involves distributing resources, especially human resources for health to match the health needs of a population.

The "Tanahashi Model" for evaluating health service coverage defines coverage in terms of availability, accessibility, acceptability, contact and effective coverage. Without sufficient availability (number, type and appropriate mix of health workers), accessibility to health workers cannot be guaranteed; if health workers are available and accessible, without acceptability, the health services might not be used, when the quality of the health workforce is inadequate, improvements in health outcomes may not be realised.

2.2.2 Human Resources for Health

According to Campbell (2013), Human Resource for Health is a discipline that concerns itself with; the size, composition and distribution of the health workforce, the training of health workers, work-force migration and mobility among other factors. It is influenced by

a country's level of economic development, socio-demographic profile of both the population and the health workforce, geographical and cultural factors among others. Kolehmainen (2004), argues that the relationship between health care and human resources is complex and dictates that the human resource function within a healthcare system should maintain an appropriate mix of the different types of health workers in the numbers and distribution dictated by the context. This ensures the country has the capacity to deliver health services. Dawson and Gray (2010) found that geographical factors like topography influence the ability to access and to deliver health services while the culture of a community can affect their health seeking behaviours.

Kabene (2006), states that health workers are an important part of the economy. Not only does their work contribute to productivity of the population but they also represent a significant proportion of the labour force. According to WHO, 2015, the health sector is a major employer for youth and women. Women represent 90% of health care assistants and 87% of Nurses – engaging a 57.6% participation rate. Investment in HRH therefore has the potential to spur socio-economic development through creation of employment in the health sector.

According to Kiambati, Kiio and Toweett (2013), health worker shortage and uneven geographical distribution of the health workforce stems from various labour market and governance factors. The understanding of labour market dynamics and governance factors is therefore essential for comprehensive analysis and planning of human resources for health.

2.2.3 Devolution and Human Resources for Health

Governance is "the exercise of political, economic and administrative authority in the management of a country's affairs at all levels, comprising the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interests, exercise their rights and obligations and mediate their differences" (UNDP, 1997). In the context of health, governance constitutes the wide range of functions carried out by governments to improve population health while ensuring equity, quality and realisation of rights. It also extends to the roles, responsibilities and interaction of actors

including public, private and voluntary sectors in their pursuit of national health goals. (WHO, n.d.).

Health Sector reform is the "sustained purposeful change to improve the efficiency, equity and effectiveness of the health sector" it involves changes to the way in which public health services are financed, organised and delivered. According to Kabene, Orchard, Howard , Soriano, & Leduc, *2006, a few trends in health reform have been identified, these reforms aim to achieve efficiency, equity and quality of health services*.

There is growing recognition that Human Resources for Health issues need to be prioritised effectively within health sector reforms in order secure a health care workforce to deliver services now and in the future. Kolehmaine,2004, states that *"the implications of decentralisation for human resources for health are greatly influenced by the degree to which political and/or administrative powers are transferred, how new roles are defined, what skills are available at the local level and what administrative linkages exist between the different management levels and between the central health authority and other central government offices that influence resource allocation."* The *success of health sector reform therefore largely depends on the successful analysis and management of human resource issues*.

Lethbridge (2004), in considering some of the effects of health sector reform on human resources for health found that fiscal reform (financial decentralisation) *resulted in pressure to measure the staff outputs of the health sector due to corporatisation of public health institutions*. It was also found that the decentralisation of budgets and administrative functions can result in reduction of resources available for health workers and also result in confusing lines of accountability for health workers. The government of Kenya expected devolution to lead to better uptake of best practices in health workforce management across the counties. This would be demonstrated by conducive work environments to health workers and hopefully improved service delivery and health outcomes. GOK, 2013, the county governments in Kenya have now been given authority to generate and manage financial resources for the county. Turkana receives additional funding in form of the "equalisation fund" to finance its development programmes.

Studies on devolved health systems and decentralisation of human resources for health have shown that the devolution of functions can affect the performance of the health sector, with high impact on human resources for health. In Uganda, despite health sector decentralisation in the early 1990's, health services remained significantly deficient and performance of health workers was thought to be one of the contributing factors. Fiscal decentralisation also led to problems of financial management and corruption at local level, new problems of governance with a lack of accountability and concerns over quality of services (Lutwama, Roos & Dolamo, 2012). Tanzania which had implemented decentralisation reforms in the 1980's reported difficulty in recruiting health workers to remote districts which led the government to partly reinstate central recruitment of health workers in 2006. The study revealed that recruitment of highly skilled health workers under a decentralised arrangement may be both difficult and expensive (Munga, 2009).

In Kenya county governments are responsible for a large part of service delivery in the health sector. The public sector health system is organised into six levels. These levels constitute Level 1 which are the community, level 2: dispensary, level 3: health centre, level 4: sub-county and county hospitals, level 5: regional hospitals and level 6: national referral and teaching hospitals. The National ministry of health is responsible for policy, guidance and training.

Wagana, Nzulwa and Iravo (2013) in analysing the relationship between devolved governance political decentralisation and service delivery, found that knowledge gaps exist in research evaluating the effect of decentralisation on service delivery. They recommend future studies on the link between political decentralisation and service delivery in developing countries particularly in Africa, the studies they recommend should examine the quality of services and include citizen satisfaction perspective. They observe that existing studies suffer methodological drawbacks, for example the use of cross-sectional surveys which limit identification of causality.

KPMG Africa (2013) in reviewing lessons learnt from other countries on Devolution of health care found that there should be clarity in how national and sub-national governments "talk to each other" since there are policies that cut across both levels. They also point out

that whereas historically underfunded regions receive additional funding from the central government, they may be unable to spend the funds effectively. They question how the "legacy of disparities" is addressed when measuring inter-county progress and whether there are county specific progress indicators that can be identified and measured other than the nationally defined progress indicators.

2.2.4 Understanding the Health Labour Market

WHO (2015) states that health systems can only operate with a health workforce. To improve health service coverage and the quality of health services, countries depend on the availability, accessibility, acceptability and quality of health workers. It is important to note that the current discourse on HRH is evolving from an exclusive focus on availability of health workers towards according equal importance to accessibility, acceptability, quality and performance.

Campbell (2013), argues that demand for health workers may be established using two approaches. One way is referred to as Need based approach where the health workforce to population ratios is used, a need based demand for health workers is therefore an estimate of the number of health workers required to meet the needs of the population. While these estimates are useful they are inadequate as a basis for formulation of health workforce policies because they do not take into consideration of other factors affecting the health labour market. For instance needs based approaches may project the number of staff required whilst ignoring the absorption capacity of the prevailing health labour market. In this case policies may ensure more health workers are trained but not create adequate employment opportunities to engage them. The second approach is referred to as demand-based, this approach considers the health needs of the particular population and the existing demand for health services. The institutions that are willing and able to pay for health workers in both Public and Private sectors represent "demand".

Based on the calculation of median values of the density of health workers in countries where socio-economic conditions and health financing are conducive to universal health coverage, the International Labour organisation (ILO) estimates that 41.1 health workers per 10000 populations are necessary to serve those in need (ILO, 2014).

Sousa, Scheffler, Nyoni and Boerma (2013) assert that understanding the health labour market framework enables us to fully understand the forces behind health workforce supply and demand and hence determine comprehensive health workforce policies. To address health worker shortages, countries propose policies that optimise the supply of health workers. This process must be preceded by an analysis of the health labour market in order to identify the forces that affect supply and demand of health workers. Policy makers need to both respond to as well as shape the labour market conditions by estimating the number and category of health workers required to address the health needs of their populations, addressing their capacity to produce sufficient qualified workers and the country's capacity to employ and retain health workers.

The framework presented in Figure 2.1 provides a comprehensive picture of health labour market dynamics and of the contributions of four groups of health workforce policies to the attainment of equitable access to quality health services and universal health coverage.

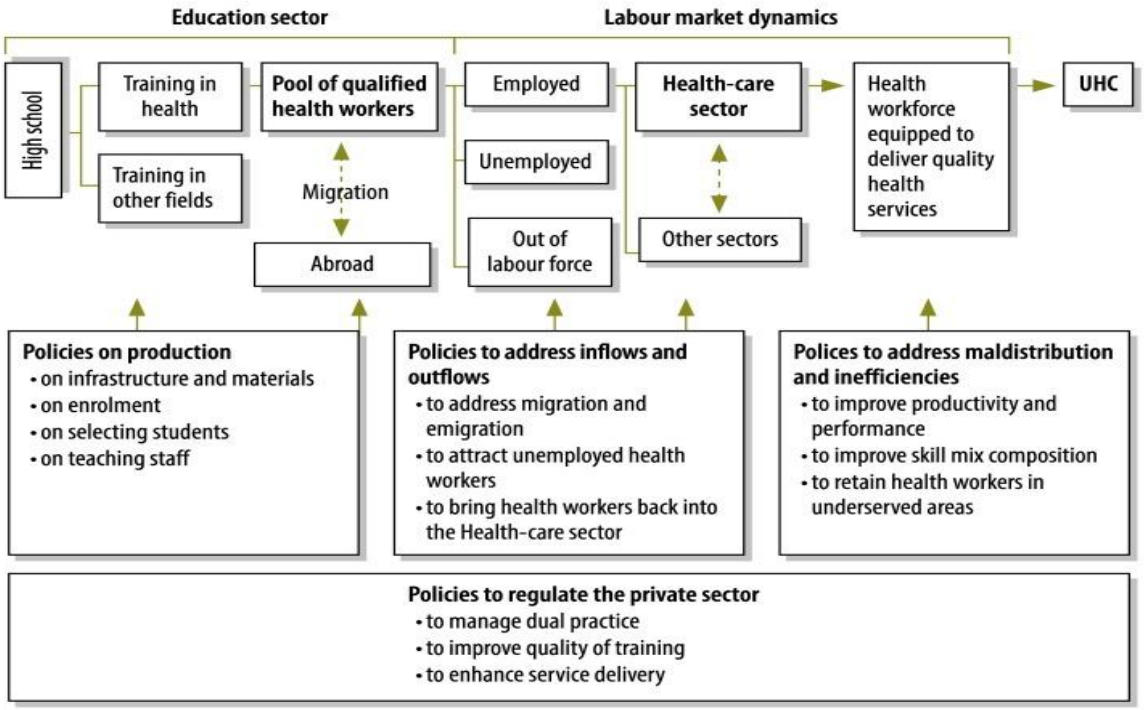


Figure 2:1: The Health Labour Market Framework

Source: Sousa *et al.* (2013).

The supply of health workers is made up of the pool of qualified health workers willing to work in the health sector. It is determined by wages, working conditions, safety and career opportunities. The supply of health workers is undermined by migration and attrition of health workers which may be triggered by factors like conditions of employment, dissatisfaction with wages and allowances among other factors. The health labour market competes with other labour markets to attract workers. This is done through wage rates, hiring practices, working conditions, labour regulations etc.

Kiambati, Kiio and Toweett (2013) on understanding the labor market of human resources for health in Kenya found that Kenya suffers from both shortages and poor distribution of health workers largely because the approach to human resources for health planning and programming is not informed by a good analysis of the health labor market. Resolving the challenge of shortage and poor distribution of health workers and thus achieving universal health coverage depends largely on how Kenya succeeds in undertaking an in-depth analysis of the health labor market to understand the driving forces that affect the supply and demand of the health workforce, both in Kenya and at the global level.

2.3 Theoretical Review

2.3.1 Maslow's Hierarchy of Needs

Maslow's hierarchy of needs theory divides the needs of people into two categories; "Deficiency needs" which include the physiological and safety needs of human beings and "Growth needs" which include belonging, self-esteem and self-actualisation. The theory demands that the deficiency needs are satisfied first. Left unfulfilled these lower level needs will inhibit and stifle development to growth needs which are higher in the hierarchy of needs(Meyer, Becker , & Vandenberghe, 2004).Herzberg when studying motivation introduces the concept of hygiene factors versus Motivators. This theory separates "motivators" from "de-motivators". He introduces the concept of movement versus motivation. He asserts that hygiene factors determine dissatisfaction while motivation factors determine satisfaction (Ramlall, 2004).

2.3.2 Vrooms Expectancy Theory

Vrooms expectancy theory separates effort, performance and outcomes by assuming that behaviour results from conscious choices among alternatives. People make choices

that maximise pleasure and minimise pain. Vroom explains that effort draws from motivation and uses three variables namely, expectancy, instrumentality and valence to explain this theory. Expectancy is the belief that effort will increase performance, instrumentality is the belief that a valued outcome will be received if one performs well while valence is the importance one places on the valued outcome (Ramlall, 2004). For Vroom motivation is therefore less about self-interest in rewards and more about the association people make towards desired outcomes. This theory means that different employees will attach value to different things based on their own choices of which outcomes they value and should pursue.

2.4. Empirical Literature Review

For effective policy development countries need to understand the health market dynamics. *Sousa et al.*(2014), in a comprehensive analysis of health labour market policies in Cameroon, Kenya, Sudan and Zambia found that despite increased availability of health workers in the four countries, major shortages and maldistribution persisted. In Kenya introduction of allowances reduced the migration of nurses but was not sufficient to reduce the exits of medical doctors and community nurses. Kenya had implemented specific policies to increase retirement age of civil servants from 55-60 years to tackle the problem of ageing nurses and other cadres of health workers, these efforts have changed the health profiles of the health workforce however they may result in high rates of unemployment and brain drain among new graduates – compromising availability of health workers (despite a good production policy) in the medium and long term and hence affect attainment of universal health coverage.

Prior to devolution, the distribution of health providers in Kenya was skewed against many rural areas, with many doctors found in the urban areas as compared to rural areas. A study by Ojakaa, Olango and Davis, (2014) that examined factors influencing the retention and motivation of health workers in three disparate regions of Kenya, notes that Kenya is a diverse country in both culture and geography resulting in different working conditions for health workers in different counties. They point out the importance of understanding the different contexts in order to effectively address existing challenges. WHO (2010) advises that addressing the policy, economic and political factors at sub-national, national and global level would aid in addressing

retention by ensuring that the choice of policy interventions are anchored on and tailored to the specific context.

To respond to the growing demand for health workers, the world needs to train and deploy 40 to 50 million health and social service workers (WHO, 2015). Understanding the health labour market forces at county, national and global levels is a first step to development of effective health workforce plans and strategies.

2.4.1 Policies on Production and Training of Health Workers

Education and training of current and future workforce is an area of focus that addresses both the quantity and quality of HRH. Policies addressing production and training of health workers should address supply by determining the production of new health workers. It is essential to consider education of healthcare workers when addressing inequitable access quality of services and reach. Chen and Frenk (2010) describe the reasons for poor health worker education as systemic. They highlight the mismatch of competencies to patient needs mentioning that professional education has not kept pace with existing health challenges largely because of "fragmented, outdated and static curricula that produces ill-equipped graduates". Other issues highlighted include persistent gender stratification of professional status, narrow technical focus without broader contextual understanding among others. The authors point to the "tribalism of professions (tendency of various professions to act in isolation from or even in competition with each other) as one of the issues that makes it difficult to address existing competency deficiencies.

According to World Health Report (2006) on preparing the health workforce; in order to create an effective workforce for the delivery of health care, there is need to focus on the entry of health workers into the workforce and on the health training institutions which provide them with the knowledge and competencies for the jobs they will be required to do. Partnerships between key health players from academia and the private sector, can help develop relevant competencies that are needed by the health workers to deliver services.

This corroborates the findings of Yarber *et al.* (2015), who studied HRH interventions that address health worker education. He found that these have focused on review of curriculum and enhancement of practical components of training to address the gap demonstrated by highly knowledgeable workers who have low levels of skill. Other

interventions have included training of trainers, accreditation and certification, improved teaching styles, investing in transferable skills, formation of new cadres of health workers, a move to task-sharing amongst health workers to broaden the range of tasks delivered by the workforce, provision of scholarships, opening of new institutions, aligning health worker training to population needs or training of new cadres of health workers among others. It is important to note that these policies on their own cannot address health worker supply. The production and training policies have to be implemented in tandem with policies that ensure that the new health workers are absorbed into the health system and distributed effectively, (Sousa *et al.*, 2013).

Recommendations from the Global Health Workforce Alliance (GHWA) working group on Transforming education include; Investment in public sector education to maintain capacity, faculty and quality of training institutions , changes in teaching, use of in-service training and CPD and functioning of training institutions, introducing competency-based learning, inter-and trans-professional education and team building and community based-learning, adapting intake approaches and modifying health education institutions (Mubanga, 2012).

Dawson (2010) in studying HRH information systems recommends development of common education platforms across cadres and sectors, broadening the range of skills at lower level and improving the ability to task-share between the different health cadres. The World Health Report (2006) recommends that, in relatively poor countries where efforts to scale up the health workforce using workers with less formal training are widespread, ingenuity is required to ensure effective training, including providing the modest financial resources to sustain it.

2.4.2 Policies Addressing Recruitment and Retention of Health Workers

Health worker supply even when established can be undermined by the migration of health workers and health worker attrition. Policies in this lever are geared at discouraging migration of health workers and mobilising the unemployed. To attract and retain health workers, governments increase wages and allowances, improve working conditions, offer training and revise recruitment strategies (WHO, 2014).

A study by Ndetei, Khasakhala and Omolo (2008) on incentives for health worker retention in Kenya established that 61% of Physicians are unwilling to work under

prevailing wages and working conditions and hence migrate to the United States of America, Australia and Namibia. As far as incentives and remuneration the authors found that utilisation of practical remuneration methods (non-financial incentives) other than salaries and contextualisation of pay to local needs is essential.

Adano (2008) conducted a study on health worker recruitment and deployment process in Kenya. A stakeholder group was formed to bring together leaders from several sectors to design and implement a fast-track hiring and deployment model that would mobilize 830 additional health workers. This model used the private sector to recruit and deploy new health workers and manage the payroll and employment contracts, with an agreement from the government to transfer these staff to the government payroll after three years. The study found out that providing job orientation and on-time pay checks, the program increased employee retention and satisfaction. The study concluded that it is essential to establish partnerships and foster commitment and collaboration to create needed change in human resource management.

To improve staff supply, the need for strong health information systems across sectors relevant to HRH is emphasised. To determine workforce needs at community level, the basis should derive from accurate data. (Dolea, Stormont & Braichet, 2010).

Dolea, Stormont and Braichet (2010) in evaluating strategies to increase attraction and retention of health workers in remote and rural areas focused their analysis on studies that have evaluated the impact of policy interventions to increase availability of health workers in rural areas. They identified gaps in the published evidence mainly a bias to "Physician targeted programmes" and towards developed countries. They recommended that evaluations target other types of health workers and in particular health teams and programmes from developing countries with effort made to strengthen HRIS so that sound analysis can be conducted. Understanding the motivations of health workers is also key to addressing health worker attraction and retention.

Okioga (2012) investigated the influence of Reward on employee retention in the manufacturing sector by focusing on the case of Kisii Bottlers Limited. The research was conducted from the entire population of employees working in Kisii Bottlers Limited. The total workforce comprised of 170 employees and the researcher sampled 60 of them as respondents. Data was collected using questionnaires and analyzed

through descriptive statistics. The study established that rewards have a great influence on employees' retention and are the major reasons why former employees left the organization. The study recommends that employees should be involved in the formulation and revision of Reward system so that they may feel that their needs are taken care of.

In another study, Msengeti and Obwogi (2015) conducted a study on the effects of pay and work environment on employee retention. The study sought to identify the effects of the pay and work environment on the retention of employees in the Hotel Industry in Mombasa County. Findings revealed that pay had a weak influence on employee retention while work environment had the strongest influence. The study concludes that work environment plays a major role in employee retention.

Babu, Prince and Chacko (2016) conducted a study to establish the impact of compensation package on employee retention. The population under the study was 71 employees of Kollam. Primary data was collected using questionnaire. The study found out that there exists a significant relationship between compensation package and employee retention. The more an employee is rewarded or compensated, the longer they remain in an organization since compensation package enhances job satisfaction. The result proved that there is a significant relationship exists between job satisfaction and employee retention, the more an employee is satisfied, the longer they remain in an organization.

Studies by Shubaka (2014) and Saporta and Farjoun (2013) also found out that promotion arrangements can reward individual behavior by providing security, status, and skill development. They can also benefit an institution by helping it reach its productivity and performance goals. Particularly, promotion arrangements can contribute to retaining employees and motivating them to perform, thus reducing costs of training, recruiting, and turnover.

Naharuddin and Sadegi (2013) conducted a study to examine the factors of workplace environment that affect employee performance in Malaysia. Data was collected through the survey method; a total of 139 employees were interviewed from three main workplaces in Miyazu. The study found out that job aid and physical workplace environment have a significant relationship with employee performance. The study revealed that workplace environment includes not only the physical elements around

the work area of an employee but also all things that form part of the employee's involvement with the work itself.

Umamaheswari and Krishnan (2016) examined the role of work environment, organization commitment, supervisor support and training & development on work force retention in India. A survey was completed by 416 employees working in five ceramic sanitary ware factories located at different places in India. The study found out a significant relationship prevails between organization work climate and employees commitment towards organization.

2.4.3 Policies Addressing Maldistribution and Inefficiencies

Health Worker maldistribution, and inefficiencies like, poor supervision, low productivity and poor performance undermine the health coverage of a population. Deploying and keeping health workers where they are needed requires careful planning and continuous monitoring. Workforce inequalities arising from low retention of workers in poor areas is a common phenomenon. As an example Yaoundé, Cameroon has 4.5 times health workers per inhabitant than the country poorest province. Another is an example of the health dynamics in Togo where 890 doctors are trained, 250 migrated, 20 retired, 20 are unemployed, and 200 serve fulltime in private sector employment, 400 are employed by government with only 50 of these serving 80% of the population. Of the 600 employed by both government and private sector, 75% serve in urban areas where only 20% of the population live (WHO, 2010). According to WHO (2010) there are multiple factors influencing a health worker's decision to relocate, stay or leave a post in rural or remote areas. They are complex and interconnected factors, linked to health professional's characteristics and preferences, related to health systems organization and wider social, political and economic environment.

The policies addressing inflows and outflows of health workers should consider geographic distribution of the current health workforce, skill mix composition, allocation of health workers to public and private sectors, health worker productivity and performance among others. For existing health workers, performance improvement measures should cover regulation, performance improvement and standards. This may include regulating the professions through effective collaboration with professional associations, integrating competencies in in-service training, strengthening capacity of staff to manage own performance at all levels and developing

standards of accreditation and external quality evaluation. To address health worker performance, it is recommended that a systems approach to measuring targets and goals against agreed standards is used. This would involve, linking supervision to supportive activities aimed at mid-level health staff, coupled with the need for supportive supervision across all cadres and at different stages of employment. The performance measures to be monitored would hence cut across training curricula, service delivery goals, quality of Job descriptions, selection procedure, career planning etc. Policies to increase efficiency and eliminate resource wastage include; opening of new vacancies, matching of worker skills and tasks, training of local health workers among others in order to deploy and keep health workers where they are needed. Overall retention packages should be coherent and integrated within the bundle of strategies developed for the context (Dolea, Stormont, & Braichet, 2010).

Lutwama, Roos and Dolamo (2012) in a descriptive study of health workforce performance after decentralisation of health services in Uganda found that health workers were capable of performing according to client expectations which is providing quality health care. But factors outside their control like inadequate supplies and equipment, lack of professional support in decentralised facilities made them fall short of stakeholder expectations. The author recommended that local governments should put in place efficient mechanisms for attracting and retaining health workers in rural areas and set clear indicators for measuring productivity of health workers.

Serneels *et al.* (2010) conducted a study to understand the factors influencing health workers' choice to work in rural areas as a basis for designing policies to redress geographic imbalances in health worker distribution. A cohort survey of 412 nursing and medical students in Rwanda provided unique contingent valuation data. These data were also combined with those from an identical survey in Ethiopia to enable a two-country analysis. The study found out that health workers with higher intrinsic motivation - measured as the importance attached to helping the poor - as well as those who had grown up in a rural area and those who had participated in a local bonding scheme were all significantly more willing to work in a rural area. The main result for intrinsic motivation in Rwanda was strikingly similar to the result obtained for Ethiopia and Rwanda combined. It was concluded that intrinsic motivation and rural origin play

an important role in health workers' decisions to work in a rural area, in addition to economic incentives, while faith-based institutions can also influence the decision.

In another study Chen (2010) examined how to strike the right balance of health workforce retention in remote and rural areas. The study acknowledged that Maldistribution is arguably the most critical workforce challenge, not only for achieving universal coverage but also for addressing inextricably linked workforce problems such as shortages and skill imbalances. It revealed that excessive concentration of health care professionals in urban areas might also be contributing to overutilization or inappropriate use of services, such over-prescription of drugs or laboratory tests, leading to wastage of scarce resources.

Araújo and Maeda (2013) developed a guidance note on how to recruit and retain health workers in rural and remote areas in developing countries. The paper revealed that local environment and good living conditions are essential to influence worker decisions to move and stay in a particular area. They include factors such as the availability of facilities, safety and security, good staff accommodation, and basic infrastructure such as supply of drinking water, roads and transport. There are also individual or personal factors (such as his or her place of origin (rural or urban), gender, ethnicity, age, personal values and beliefs); Community, local environment, and local living conditions - good living conditions are essential to influence worker decisions to move and stay in a particular area; work-related factors - working conditions and organizational environment.

Nkomazana *et al.* (2016) conducted a study to explore how district health managers can change their practice to create a more supportive environment for primary healthcare providers. The study found out that supportive supervision is associated with higher levels of health workers' motivation, performance, retention, and patient outcome. Moreover, Wurie *et al.* (2016) examined the shortage and maldistribution of staff in Sierra Leone in its post-conflict period; and found out that rural posting is often considered less desirable by health workers due to a number of factors. The study revealed that supportive supervision is a way to foster performance, productivity, motivation, and retention of health workforce.

Hazarika (2013) conducted a study to assess health workforce distribution, identify inequalities in health worker provision and estimate the impact of this maldistribution on key health outcomes in India. Health workforce availability and production were assessed by use of year-end data for 2009 obtained from the Indian Ministry of Statistics and Programme Implementation. Inequalities in the distribution of doctors, dentists, nurses and midwives were estimated by use of the Gini coefficient and the relation between health worker density and selected health outcomes was assessed by linear regression. The study found out that inequalities in the availability of health workers exist in India. Certain states are experiencing an acute shortage of health personnel. Inequalities in the distribution of health workers are highest for doctors and dentists and have a significant effect on health outcomes. It was concluded that although the production of health workers has expanded greatly in recent years, the problems of imbalances in their distribution persist. As India seeks to achieve universal health coverage by 2020, the realization of this goal remains challenged by the current lack of availability and inequitable distribution of appropriately trained, motivated and supported health workers

2.4.4 Policies to Regulate the Private Sector

The Private sector health market is expanding. The government should ensure equitable access to health services for the population. This demands regulation aimed at harnessing private sector and not-for profit sector capacity for public sector goals. A phenomenon like unregulated dual practice where health workers work in both the public and private sector informally jeopardises the availability of health workers for the public sector and also has effect on quality of health services. Some of the policies developed in this arena are those covering the standards in training, quality of service and dual practice.

Studies by Harding (2009), and Basu *et al.* (2012) established that effective collaboration with the private and not-for profit sectors includes ensuring that private teaching institutes serve the public health needs of the population, that they develop effective and standardized accreditation, regulation and licensing systems. Sousa *et al.* (2014) found that despite increased availability of health workers in the four countries Cameroon, Kenya, Sudan and Zambia major shortages and maldistribution persist. The

Public sector can also benefit by learning from private sector about improving working conditions for health workers and innovative approaches to performance management.

Most of the active roadblocks to changes in the health workforce policies and systems are 'human' and not technical, stemming from a lack of leadership, a problem-solving mind-set and the alignment of stakeholders from several sectors.

2.4.5 Other Factors Influencing Health Worker Availability

Health worker availability is also influenced by technical leadership or governance of the health function and the availability of financial resources.

Technical Leadership and Governance

HRH policies would succeed if a high level of political engagement were coupled with long-term financial investment to scale up the workforce, Crisp et al 2008. Poor socio-political awareness and interventions that are not context specific are among barriers to HRH policy formulation and implementation. Health workforce development can be said to be a partly technical process that requires expertise in planning of HRH, education and production systems and improving the management of the health workforce. The capacity to establish this as part of a health system's long term vision is critical for effective health workforce development. In addition to the technical expertise, it is also a political process that requires managers or leaders to sustain the will and capacity to coordinate efforts by different actors and sectors.

Contextualisation of health workforce policies is important as it determines the combination of health worker policies that are appropriate for the context and the health needs of the population. Strong leadership is required to mobilize the evidence, economic and social equity arguments that are needed to persuade investment in HRH. Leaders should assertively build and nurture coalitions of public and private sources for HRH funding (WHO technical working group on Investment).

HRH Financing

Mobilizing adequate financial resources and securing strategic use and long term financial investment is another area of focus in HRH. This involves the effective use of available domestic resources through cost-effective resource allocation and developing health care delivery models that are appropriate and sustainable. When planning and managing a health system, resource allocation is pertinent. Health planners are advised

to balance between investments in human as well as physical resources. The costs of health system inputs like infrastructure and consumables are high and may consistently increase, affecting a systems ability to invest in human resources through hiring and sustaining an adequate health workforce (Ogura & Jakovljevic, 2014).

In its recommendations to the GHWA, the WHO Technical Working Group on Investment states that - to resolve human resources for health challenges, substantial financial investment is required especially in low income environments. In their report they identify HRH funding sources to include ; The general budget, social health insurance, ring-fenced excise taxes, corporate social responsibility (CSR) funding from extractive industries, enacting tax reduction incentives for companies that support HRH improvement initiatives, enhanced budget sharing among health and education systems for targeted development of community health workers among others.

At the global level, donors should be encouraged to pool and harmonize their investments at the regional and country bodies, such as the European Union, the Asian and Pacific HRH Alliance, the African Platform on HRH, the East African Community, ECSA and WAHO and other (WHO, 2015).

2.5 Research Gap

Sousa *et al.* (2014) found that despite increased availability of health workers in the four countries Cameroon, Kenya, Sudan and Zambia major shortages and maldistribution persist. They found that an understanding of the interactions between the factors that determine demand and supply of the health workforce (the health labour market dynamics) is critical if countries are to develop effective policies. For example the growth of the private health labour market though beneficial should demand regulation of the quality of training and service delivery and manage the issue of dual practice among health workers in order to ensure equitable access to health services.

In the Kenya context, management of Health services has now been allocated to County governments under devolved governance. With counties, receiving resource allocations generating their own revenue and setting their own development priorities and policies, this study sought to establish how a county with some of the lowest socio-economic indicators is addressing the challenge of health worker shortage. There is little literature that addresses how devolved units of government have effectively managed health

worker availability. This study will provide insight on what county governments have done and can do to address health worker shortage.

Kolehmainen (2004) in reviewing implications and impact of Decentralisation and Human Resources found that countries where decentralisation has taken the form of devolution (transfer of staff and operations outside central government control) had the most glaring problems such that decentralisation had jeopardised important aspects of human resources development because Human resource implications are not considered and addressed early in the devolution process. This study sets out to elaborate the evidence of successful health reform in decentralised/devolved settings.

In analysing the relationship between devolved governance political decentralisation and service delivery, Wagana, Nzulwa and Iravo (2013) found that knowledge gaps exist in research evaluating the effect of decentralisation on service delivery. They recommend future studies on the link between political decentralisation and service delivery in developing countries particularly in Africa, the studies should examine the quality of service and give a citizen satisfaction perspective. They further mention that existing studies suffer methodological drawbacks like use of cross-sectional surveys which limit identification of causality.

Munga (2003), in his study on decentralisation –centralisation dilemma: in remote districts of Tanzania found recruitment under a decentralised arrangement was not only characterised by complex bureaucratic procedures but also severe delays and failure to get health workers. Decentralised recruitment was more effective in recruiting low cadre health workers. He recommended a hybrid form of organisation to harness the benefits of the two. He emphasised that the optimal way to organise recruitment of health workers would strongly depend on contextual factors. The author recommended further research to identify how to optimally balance the involvement of the central government against the autonomy of local authorities.

Dolea, Stormont and Braichet (2010) observed that many descriptive studies have highlighted the extent of geographical imbalances and deficits in rural and remote areas. While the studies recommend potential interventions for different contexts, there are not many studies that have analysed the effects of these interventions. This study sets out to establish the influence the recommended interventions are having on health worker availability in remote contexts.

Various studies mention that comprehensive policy packages are more effective because they address all or most of the determinants of the health labour market. The health labour market framework provides opportunity for this study to complete a comprehensive analysis that reveals the forces behind supply and demand of health workers in the Turkana context and how the existing raft of recommended policies and strategies identify and address the push and pull forces within the health labour market as experienced in the Turkana Context.

A HRH Assessment report for Northern Kenya in 2013 found that the distribution of health workers is disproportionate to the population ratios and the Kenya Essential Package for Health (KEPH) levels, vacancy rate is below the minimum 24% requirement. Among many recommendations was the need to improve on empirical evidence by establishing and maintaining a good HR information system. This study sets out to investigate how management of information systems has supported empirical evidence.

When evaluating strategies to increase attraction and retention of health workers to remote and rural areas, Dolean*et al*. (2010) focused their analysis on studies that have evaluated the impact of policy interventions in increasing availability of health workers in rural areas. They identified the gaps in the published evidence as having a bias to Physician targeted programmes and being focused on developed countries. They recommend that future evaluations target other types of health workers and in particular health teams and programmes from developing countries with more effort given to strengthening HRIS so that sound analysis can be conducted.

The studies above demonstrate that more research is needed to highlight the outcomes of devolution/decentralisation reforms in the Health sector.

While previous studies targeted physicians or Nurses in developed countries, this study targets the other types of health workers and in particular health teams and programmes from a developing country.

2.6 Conceptual Framework

The research study uses the conceptual framework below which is drawn from the health labour market framework for attainment of UHC and other factors influencing health worker availability as evidenced from the literature reviewed. There are four

independent variables: The bundle of health work-force policies (Production and training of health workers, management of inflows and outflows of health workers, addressing maldistribution and inefficiencies and regulating the private health sector) and the intervening variables which include availability and use of fiscal resources.

Independent Variables

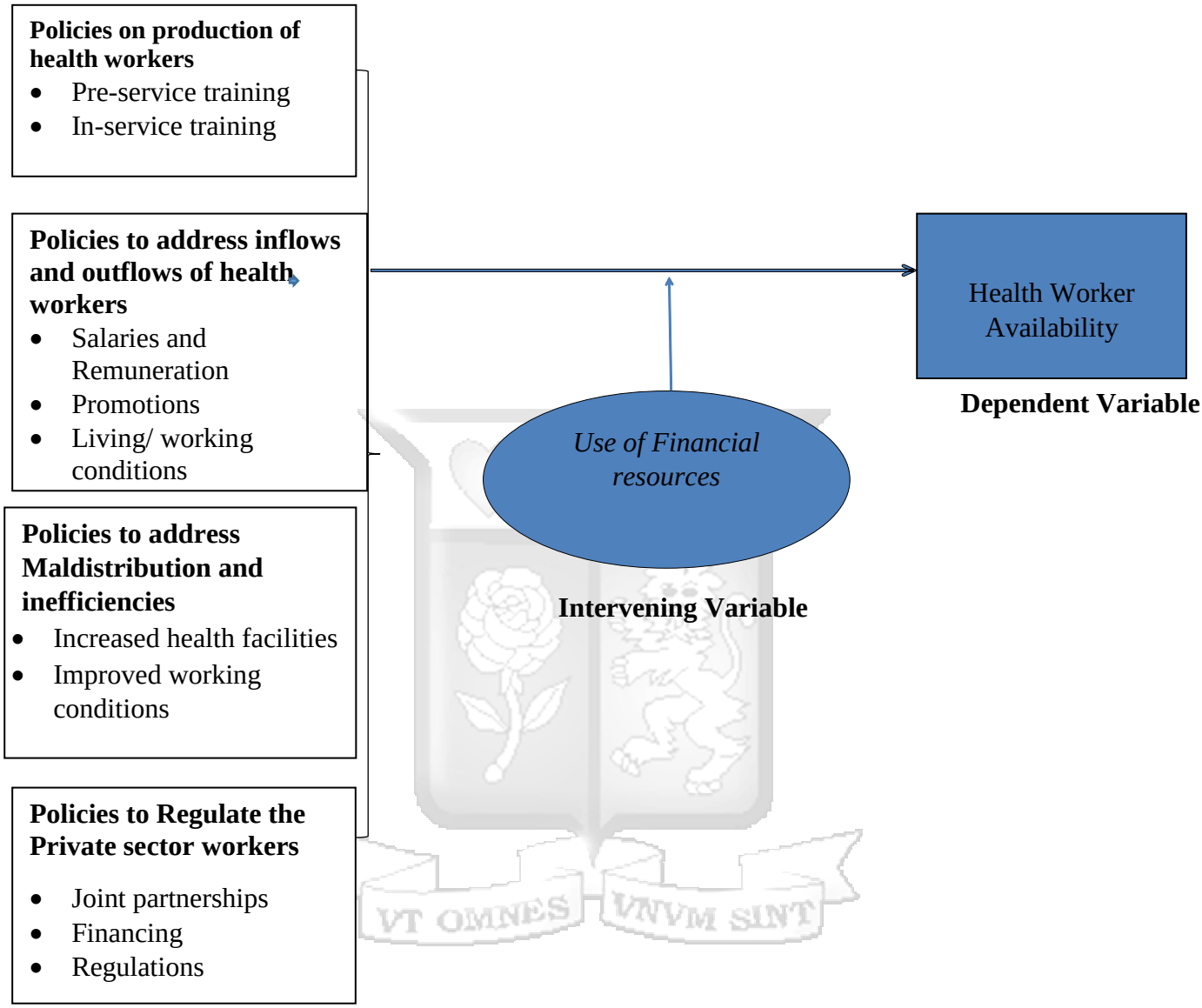


Figure 2.2: Conceptual Framework

The framework above explains how the independent variables i.e. (the policy levers in the health labour market framework) interact with the dependent variable (health worker availability). For success to be achieved, county governments have to analyse the factors leading to health worker shortage and formulate policies within the four policy arenas mentioned in the health labour market model. This conceptual framework provides a model by which health worker availability can be achieved through evidence driven policy formulation. The intervening variable is a critical factor that influences the policy implementation, without proper investment of fiscal resources the human resources for health policy interventions cannot be effective.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the overall strategy used in establishing the effect the HRH policies have had on health worker availability in Turkana County. It includes explanations on the methods used to collect, measure and analyse data, a rationale for selecting the procedure or technique is also provided. The section clearly defines the target population, sampling procedure, the validity and reliability of tools used and ethical considerations.

3.2 The Research Design

The study employed a mixed methods design combining elements of both quantitative and qualitative approaches to enable breadth and depth of understanding. The Mixed methods design takes a transformative approach where the qualitative and quantitative data collection and analysis are carried out concurrently or sequentially. This design enables effective research within a specific theoretical framework. In this study we employ different research methods in order to benefit from the strengths of each method and also offset or complement the weakness of the different methods. To identify the policies implemented by the county in an effort to improve health worker availability, a qualitative approach employing in-depth interviews and document analysis is used. To trace the influence the policies are having on health worker availability, a quantitative approach is adopted where trends in staffing are analysed from the Human resources information system (HRIS). The benefits of the mixed methods approach include triangulation, corroboration and comprehensiveness where the researcher will be able to present the trends and observations from the quantitative analysis whilst explaining issues (that may not be observed in existing data) with information from qualitative methods like the in-depth interviews and the health worker survey.

3.3 Target Population

The target population was all health workers in level 2-4 facilities in Turkana County. In Kenya county governments are responsible for a large part of service delivery in the health sector. The public sector health system is organised into six levels. These levels constitute Level 1 which are the community health activities that focus on preventive and health promotion work, referral to health centres etc. level 2: dispensary, level 3: health centre, level 4: sub-county and county hospitals, level 5: regional hospitals and

level 6: national referral and teaching hospitals. The study focused on health workers based in facilities managed within Counties i.e. Level 2-4.

The study targeted health facility staff at the 153 operational health facilities within Turkana County, according to Turkana County Annual Development Plan (2016). The study also targeted the members of the County Public Service board in Turkana and the health management team members in the county including the Chief Officer for Health, the County Human Resources for Health officer and County Public Service Board HR Manager.

3.4 Sampling

For the Health worker questionnaire, stratified sampling is used. Health workers are not a homogeneous population, the different cadres are likely to vary quite significantly in terms of needs, motivations and preferences. The researcher adopted a stratified samping technique. Denscombe (2014) defines stratified sampling as one in which every member of the population has an equal chance of being selected in relation to their proportion within the sub category or strata.

Table 3.1: Stratified Sample for Health Worker Survey

Levels	**Cadre Category**	**% Pop**	**Sample Split**
Admin	22	4%	4
L2	267	49%	49
L3	105	19%	19
L4	155	28%	28
Grand Total	**549**	**100%**	**100**

Purposive sampling was used for the in-depth interviews. This method is a non-probability sampling method that is drawn specifically based on existing knowledge of population characteristics in order to serve a specific need of a study question.

3.5 Research Tools

The research tools for data collection are semi-structured questionnaire, an in depth-interview guide and a document analysis guide. The semi-structured questionnaire enabled collection of a large amount of data from a large number of people in a short period of time. The questionnaire had both open ended and closed ended questions to

allow for collection of as much information as possible. The questionnaire and In-depth Interview guide were organised in relation to the variables under study in order to extract specific information that addressed the research objectives and answered the research questions. The variables under study included; Production and training measures, Attraction and retention measures, Distribution and efficiency measures and Private sector regulation measures.

3.5.1 Pilot Testing of the Tools

The research tools were pretested with a number of health workers to ensure that questions in the tools are stated clearly and have the same meaning to all respondents. The researcher was able to assess the ease of use, appropriateness and completeness of the tools before actual data collection.

3.5.2 Validity of the tools

The validity of the research tools measures the extent to which the tool measures what it is intended to measure. To ensure internal validity, the researcher ensured all independent variables were clearly defined and included clear instructions on the questionnaires and ensured clear and simple language. This would ensure extraneous variables were not influencing the responses received or trends observed. A review of the key concepts in this area of research helped to ensure accurate use of terminology and explanations and guidelines in the tools. For external validity, the researcher worked to ensure that the results could be generalised to health workers in similar contexts by describing the factors in ways that apply to health workers in low resource settings.

3.5.3 Reliability of the Tools

To ensure the questions in the questionnaire produced reliable responses, the researcher conducted a pre-test study on the tools by administering the same questionnaires twice to two health facilities in Turkana County. Questions that might elicit varied responses due to vagueness were identified and corrected. Feedback from respondents of the pre-test study was used to improve the tools.

3.6 Data collection

Data collected was both qualitative and quantitative. The study collected primary data through in-depth interviews and survey questionnaires. The questionnaire were used to gather information from the health workers to identify what factors attracted them to work in the county and the incentives that enabled better retention and which policies they were aware of, being implemented in the County. In-depth interviews were conducted on Turkana County health officials who included: Chief Officer for Health, the County Human Resources for Health officer and County Public Service Board HR Manager.

Questionnaires have been observed by researchers to be the ideal instrument for data collection in survey studies (Saunders *et al.*, 2009). The questionnaire is considered as the appropriate data collection instrument for this study since they provide a high degree of data standardization, they are relatively quick to collect information from people in a non-threatening way and they are cheap to administer. Questionnaires are also able to give a detailed answer to complex problems (Kombo & Tromp, 2009). The in-depth interviews helped to gain depth of understanding from the County health management team and to clarify information from the secondary sources and survey. Interviews give a researcher the opportunity to elicit information and to observe the subject and the situation to which the subject is responding to (Qu & Dumay, 2011).

Secondary data was obtained from records, policies and reports held by the County ministry of health, Human resource information system, donor and stakeholder reports and the County development plans and budgets. Data collected included; interventions and HRH policies that have been implemented and their expected outcomes. These were to be identified from the National and Country HRH strategy and plans.

3.7 Data Analysis

Once collected, the data was grouped, organized and categorized according to the research objectives and research questions. Quantitative data was coded, entered and analysed using Statistical Package for Social Sciences (SPSS) Version 17. Secondary data collected from HRH reports and the County HRIS was analysed to observe vacancy rates, retention rates, time to fill rate, turn- over rates among other human resources metrics. The data was also used to report on distribution and production metrics. The data was analysed using frequency counts and percentages to allow the

use of descriptive statistics. This data was presented in tables. Qualitative data was analysed by grouping all the data with similar content, organizing it into themes, and analysing by cross referencing.

3.8 Ethical considerations

Before the research was conducted the researcher sought approval to conduct the study from Strathmore University's Ethical Review Board. Approval was also sought from the County Executive Officer for Health. Before information was collected, informed consent was sought from the respondents and anonymity was maintained. The information provided by the respondents was treated with confidentiality and for the purpose of this research only.

CHAPTER FOUR: RESEARCH FINDINGS AND INTERPRETATION

4.0 Introduction

This chapter presents the findings and interpretation of the study. The study sought to establish how effective the measures employed by the health function are in addressing the health worker shortage in Turkana. It specifically sought to; establish how measures on training and development of health workers have addressed health worker availability in Turkana County; How measures addressing recruitment and retention of health workers have affected health worker availability in Turkana County; How the measures correcting maldistribution and inefficiencies have affected health worker availability in Turkana County; and how measures on regulation of the Private sector have affected health worker availability in Turkana County.

4.1 Response Rate

Response rate involves the computation of the questionnaire return from the respondents. It is the extent to which the final data set includes all sample members and is calculated from the number of people with whom interviews were completed divided by the total number of people in the entire sample. This includes those who declined to participate and the unavailable. The study targeted members of the county health management team, sub-county health teams and health workers from the seven sub-counties in Turkana. A questionnaire was administered to a sample

The questionnaire return rate results are shown in table 4.1 below.

Table 4.1: Response Rate

Category	Frequency	Percentage
Responded	56	56%
Not Responded	44	44%
Total	**100**	**100%**

From the data collected, out of the 100 questionnaires administered, 56 were filled and returned, which represents 56% percent response rate. According to Bailey (2000) a response rate of 50 percent is adequate, while a response rate greater than 70% is very good.

4.2 Demographic Information

This section presents the demographic characteristics of the respondents with an aim of presenting the general background of the respondents that participated in the study. The areas that will be discussed include, gender, cadre, level of facility and length of service.

4.2.1 Age Distribution for Health Worker Population

From the findings as shown in Figure 4.1, Turkana's health workforce is generally youthful with the dominant population (57.5%, n= 443 staff) being 26-35 years. A further 25.2% of the health workforce was between 36-45 years. Those nearing retirement age (56-60 years) constitute 3.2%.

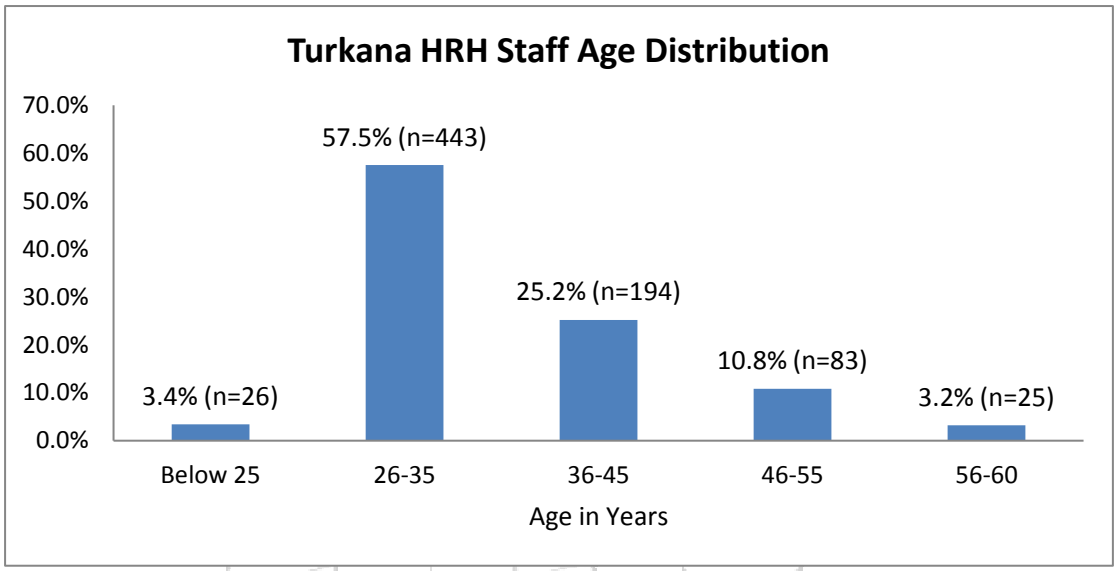


Figure 4.1: Age Distribution of Health workers In Turkana County

Source: Turkana HRH Report

4.2.2 Distribution of Respondents by Gender

The findings in table 4.2 show that majority of the respondents (77%) were male while 23% were female.

Table 4.2: Distribution of the Respondents by Gender

Gender	Frequency	Percent
Male	43	77
Female	13	23
Total	**56**	**100**

Source: Survey Data (2018)

According to Turkana HRH Report (2016), majority of the health workers in Turkana County are male (59%) with females at 41%. This could be attributed to the working conditions in the county.

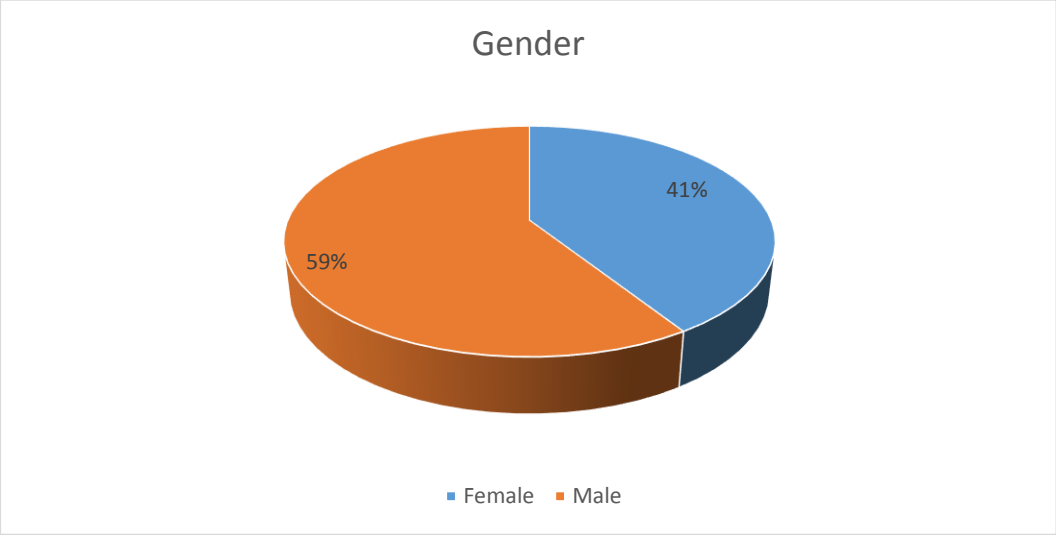


Figure 4.2: Gender Distribution for Health Worker Population

Source: **Turkana HRH Report (2016)**

4.2.3 Distribution of Respondents by Duration of Service at the Health Facility Level

The researcher was interested in establishing the duration of time that the staff had served in their respective health facilities. This helped the researcher to evaluate whether their responses are founded on their experience in working at the various health facilities or not.

Table 4.3: Distribution of Respondents by Duration of Service at the Facility

Duration of service	Frequency	Percent
Less than one year	7	12.5
Over 1 year	49	87.5
Total	**56**	**100**

Source: Survey Data (2018)

4.2.4 Distribution of Respondents by Cadre

The questionnaire recorded the cadre of each respondent. The results were tabulated in frequencies and percentages and are presented in Table 4.4

Table 4.4: Distribution of Respondents by Cadre

Staff Cadre	Frequency	Percent
Doctors	5	8.9
Nurses	19	33.9
Sub County Medical Officer Of Health	7	12.5
Clinical officers	7	12.5
Public Health officers	3	5.4
Pharmacists	3	5.4
Laboratory technicians/technologists	2	3.6
Health records officers	2	3.6
Nutritionists	2	3.6
Community Health Extension Workers	5	8.9
Radiographers	1	1.8
Total	**56**	**100**

Source: Survey Data (2018)

According to the findings the majority of the respondents at 33.9% are Nurses, Medical Officers and Clinical Officers follow at 12.5% each. This is consistent with the population where Nurses comprise the majority of health workers in the health system.

4.2.5 Respondents Type and Level of Health Facility

The researcher was interested in having a basic understanding of the characteristics of the health facilities that the study targeted in terms of the location of the facility, ownership of the facilities and the level of facility as per the Kenya Essential Package for Health (KEPH).

Table 4.5: Health Facilities Information

		Frequency	%
Level of Service Delivery	Level II: Dispensary	15	26.79
	Level III: Health Centre	16	28.57
	Level IV: Sub-County Hospital	25	44.64
	Total	56	100
Ownership	County Government	35	62.5
	FBO	21	37.5
	Total	56	100

Source: Survey Data (2018)

Majority of the respondents to the survey (44.64%) were from Level IV facilities while 28.57% and 26.76 % were from Level III and Level II facilities respectively. The highest level of service delivery at the sub county is level IV. The sub-county hospitals had higher response rate because many are in urban centres where they had access to a phone network and internet access. 62.5% of the respondents were from health facilities owned by the County government of Turkana, while 37.5% were from facilities owned by Faith Based Organizations mainly the Africa Inland Church and the Catholic Diocese of Lodwar. This is representative of the distribution of facilities where majority of facilities are now run by the county government of Turkana.

4.3 Study Variables

Below are findings summarised by each independent variable.

4.3.1 Measures addressing Production and Training of Health Workers

The study investigated how the measures implemented under training and development have contributed to the availability of health workers. The variable was broken down into Measures under pre-service training which lead to production of health workers and measures under in-service training which result in additional higher qualifications and higher performance.

4.3.1.1 Measures employed in Pre-service training

In this variable we sought to establish whether the county was working to ensure there were more health workers available for hire. The study established that there were two training institutions providing health training in the county. They are Kenya Medical training college (MTC) and Mount Kenya University (MKU).The study also found that majority of the students enrolled for the courses at Lodwar MTC are from other counties and that there were no degree level courses available from the institutions in Lodwar. The study also observed that there were no bursaries or scholarships targeted at health training for high school graduates.

4.3.1.2 Measures employed in In-Service Training

The study sought to identify how training and development is planned and managed in the County, in addition the study sought to determine access to training for all health workers and review the investment in training and its effect on health worker availability.

A review of financing for health worker training revealed there is an MOU between MKU and the county government for financing of courses for health workers. For specialist training the county has an agreement with Duke University which also gives opportunity for exchange programs. The health workers mentioned the presence of the Afya-Elimu fund managed through the Higher education Loans board. This mechanism enables them to apply for loans for further training.

Knowledge of Training Plan and Policy

The health-workers were asked to indicate their knowledge of the training policy and process in the county.

Table 4.6: Knowledge of Training Plan and Policy

Response	**Percentage**
Conversant	40
Not conversant	60
Total	**100**

Source: Survey Data (2018)

The study findings show that 60% of respondents were not conversant with training policy and the process for identification and application for training needs. Comments

to this question indicate that training opportunities were initiated by the county. Comments indicated Staff had also initiated and funded their own professional training for career-development.

Table 4.7: Health Workers Trained in the last 2 years

Response	**Percentage**
Not Trained	37.5
Trained	62.5
Total	**100**

Source: Survey Data (2018)

Training opportunities were well distributed among the staff across the county, facility levels and cadres with 62.5% indicating they had attended training.

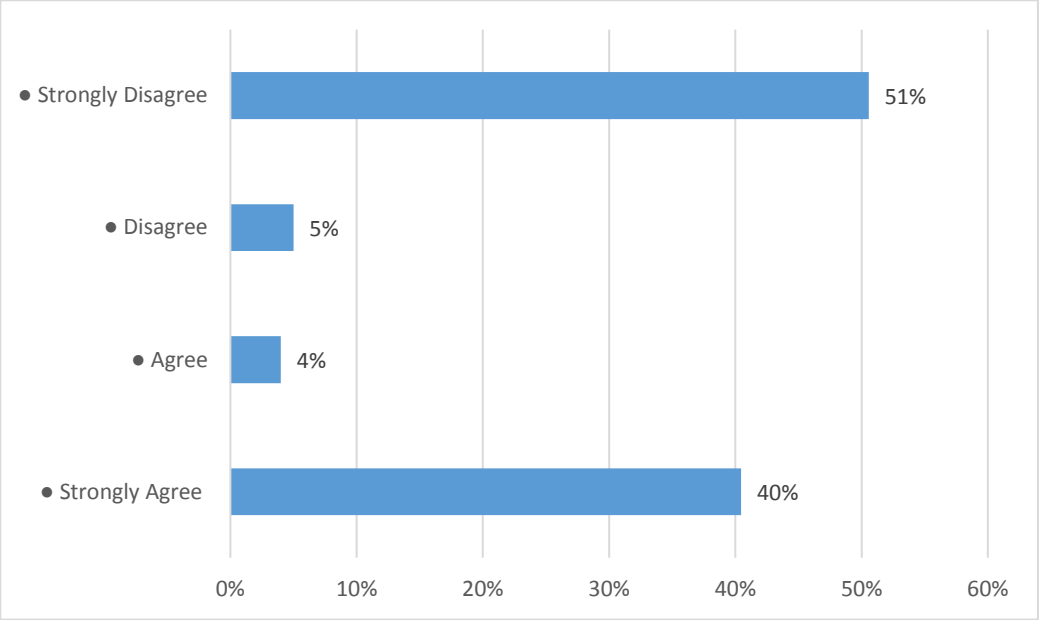


Figure 4.4: Training Need Identification Process

Source: Survey Data (2018)

From the responses, majority of the respondents (51%) strongly disagreed while 5% disagreed that training needs have been identified and planned for through a formal process. However, 40% strongly agreed while 4% agreed that training needs were identified and planned for through a formal process.

The In-depth interviews revealed that all professional development training is managed through the County Public Service Board (CPSB). Professional upgrading for technical staff is handled at national level. The selection for training sponsorship among health workers is still skewed to medical officers and bonding is double, carried out at both County and National level.

The County HRH Unit is developing an updated education and training policy guideline to match health workforce needs. It is envisaged that the process will result in demand driven CPD and e-learning modules that are cost effective for re-licensure in line with the National health training policy. The county ministry of health plans to collaborate with the ministry of education and training institutions to develop a framework that will support health workers' admission to education and training courses and bond them to work in the county for a specified period of time in line with prevailing labour laws.

Number of staff with CPD/In-service training opportunities

Analysis of training records reveal a steady increase in the number of staff trained in the period 2013 to 2016. A total of 613 health workers were trained with 2016 having a higher number of staff trained.

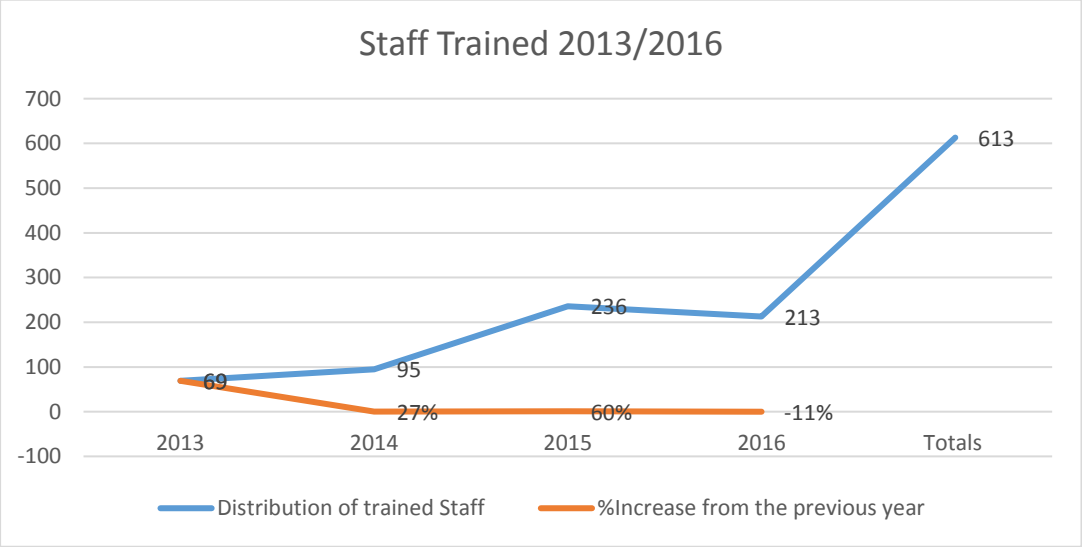


Figure 4.4: No. of staff with CPD/In-service Training Opportunities

Source: Situation analysis Report (2016)

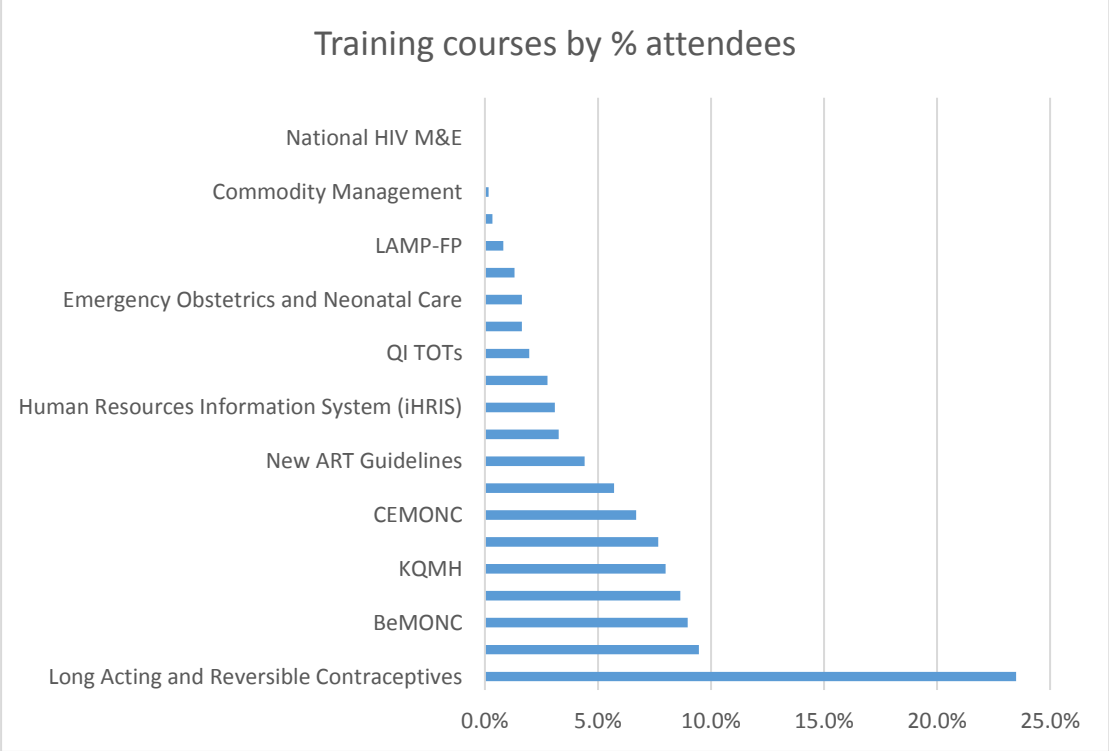


Figure 4.7: Training Courses Attended

Source: Situation analysis Report (2016).

Most of the Training was in form of short courses aimed at skill building and improving service delivery. Analysis of county budget revealed inadequate financing for health worker training. Most of the health worker training was funded by UNICEF, AMREF, and Save the Children International.

4.3.2 Measures to address Recruitment and Retention of Health Workers

The study sought to establish if the terms and conditions of work had improved to enable attraction and retention of health workers. From the in-depth interviews, the study established that guidelines for management and retention of the health workforce were developed for Turkana County in collaboration with IntraHealth international who are implementing a country-wide Human Resources for health project. The guidelines detail an incentive framework that includes financial and non-financial incentives and measures to make work conditions more attractive to health workers.

The County Public Service Board (CPSB) had also ensured an improved and competitive package for health workers by seeking approval from the Salaries and Remuneration Commission (SRC) to place Turkana health workers one grade higher than the national pay scale. The pay bands in the county have also been designed to encourage retention by allowing for promotions after completion of set periods of service, as well as step increments based on additional qualifications attained by staff. This ensures staff are correctly placed, competitively paid and promoted on time. Another measure that the CPSB mentioned was influencing budgeting for the county ministry of health to strategically plan for promotions and anticipated changes in the health staffing budget. This was preceded by a HR audit to establish levels of health workers across the county and to record data that allowed for better planning of remuneration. A process of ensuring that all overdue and due promotions and payment of allowances are effected is underway.

The survey of the health workforce revealed that 62.5% of staff recognised the competitive wage policy and timely pay increases as a strength that motivated them to stay in the county.

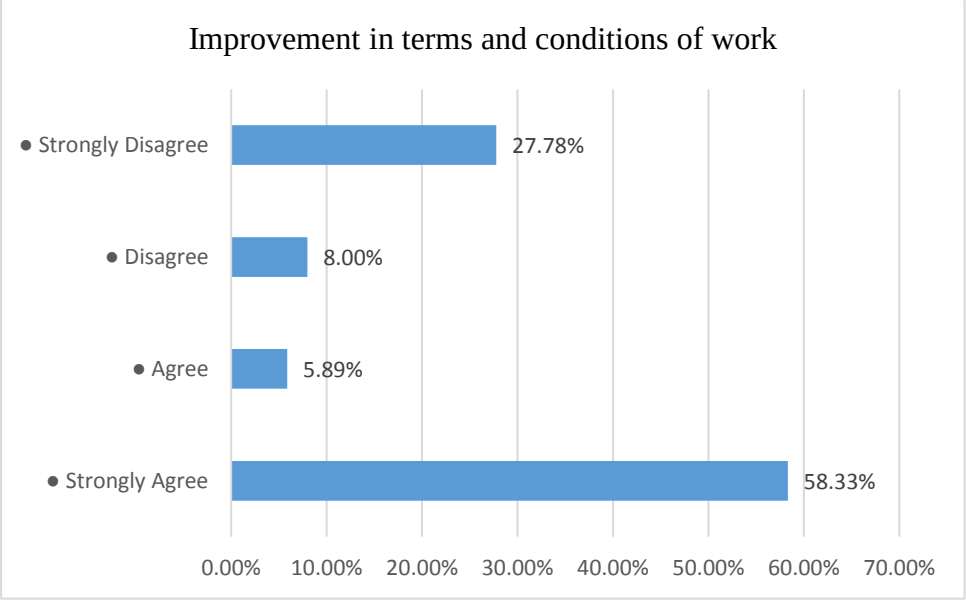


Figure 4.8: Whether Respondent's Terms and Conditions of work had Improved in the Last 3 years

Source: Survey 2018

From the findings Majority (58%) of the respondents indicated that terms and conditions of work had improved in the last 3 years while 28% disagreed. The changes included promotions, re-designations, additional allowances, improved facilities, provision of transport and housing. Those whose terms had not improved were awaiting harmonisation of terms to match new staffing terms set by the county public service board.

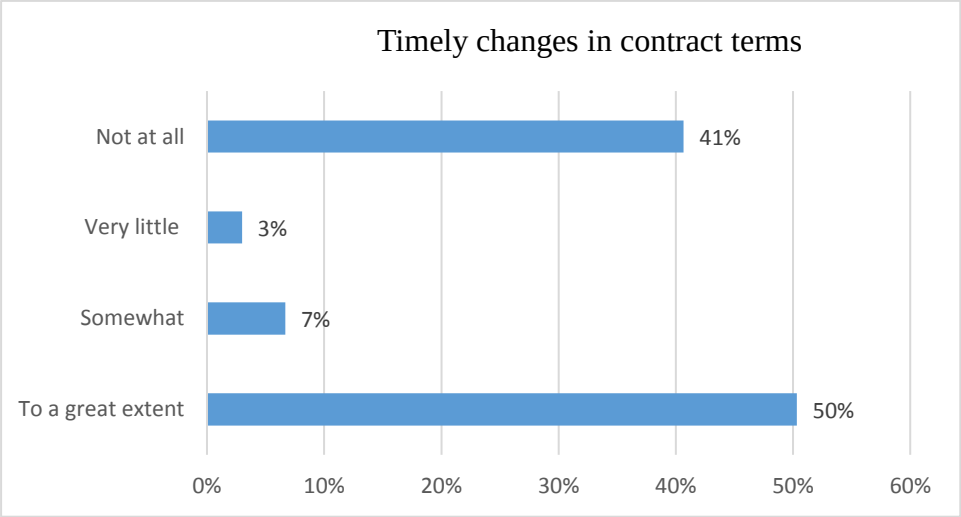


Figure 4.9: Whether Changes to Contract are effected in a Timely Manner

Source: Survey 2018

Changes to contract are effected in a timely manner as shown by 50% of the respondents.

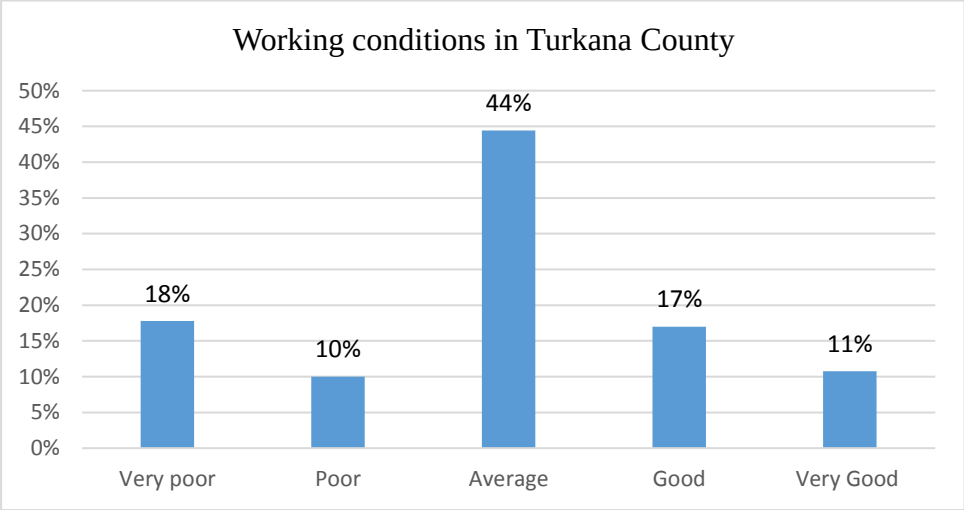


Figure 4.10: Rating the Working Conditions in Turkana County

Source: Survey Data (2018)

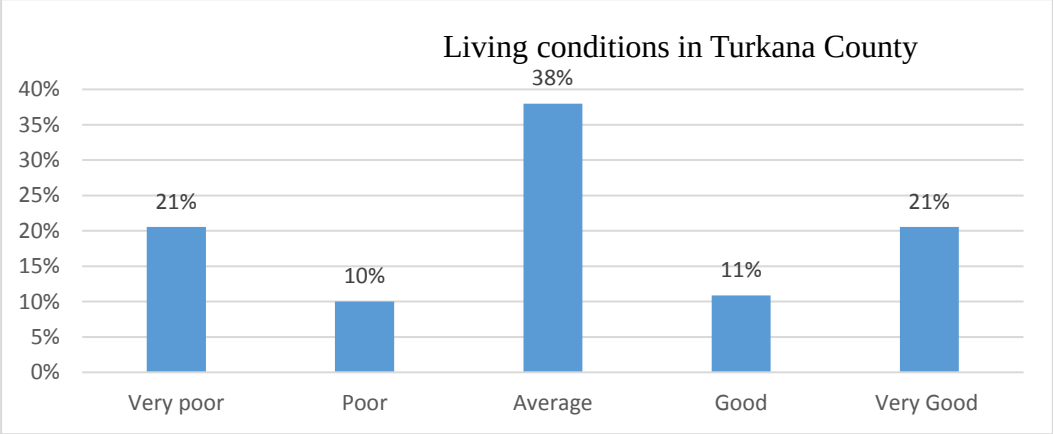


Figure 4.11: Rating the Living Conditions in Health facilities in Turkana County

Source: Survey Data (2018)

Majority of the respondents (38%) rated the living conditions in Health facilities in Turkana County as average, 33% rated good while 31% rated the living condition as poor. For both working and living conditions, the lack of water, lighting, access to transport and mobile and internet communication represented a high concern for staff in level 2 and level 3 facilities.

The study sought to find out the priorities in improvement of terms and conditions of work as preferred by health workers in the county. From the findings improving living

conditions of health worker is the number one priority followed by health workers working conditions and adequate working facilities.

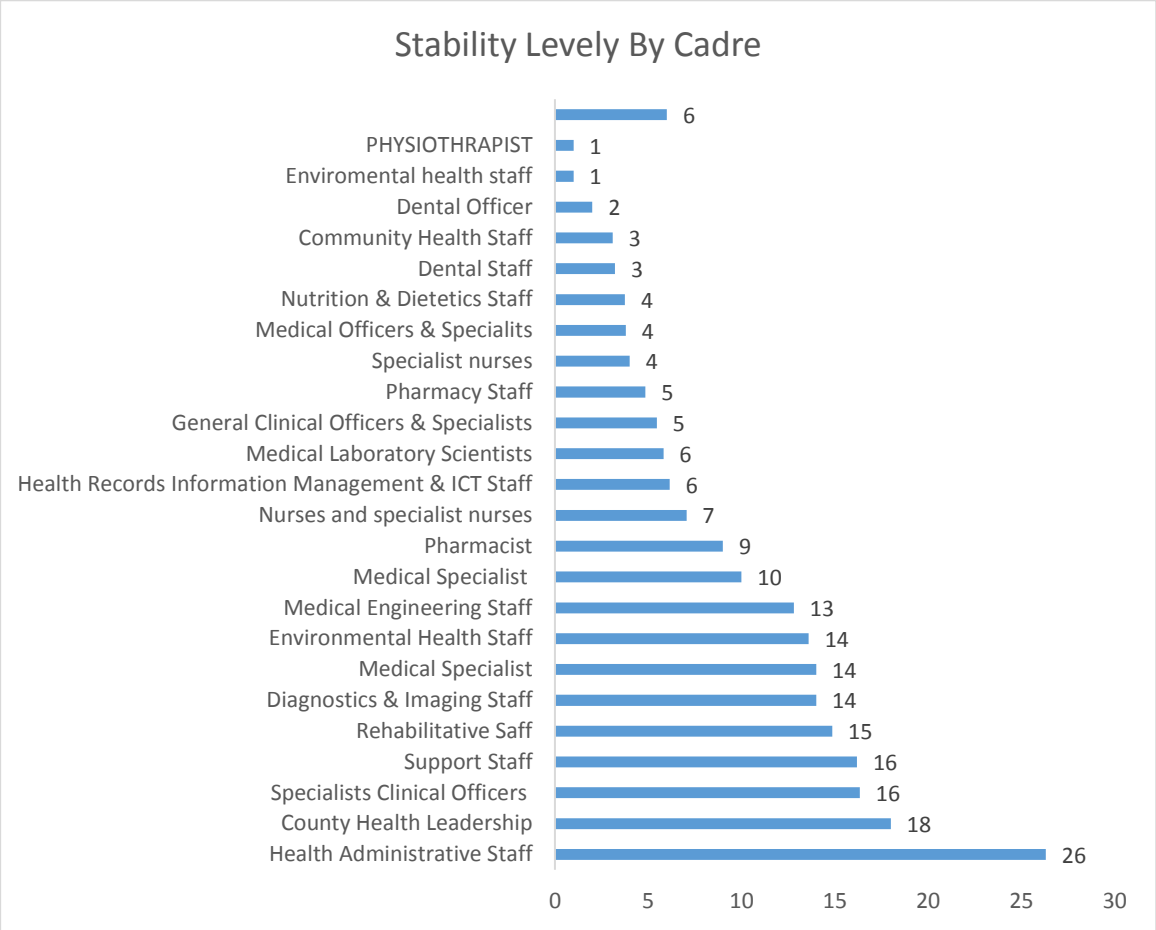
Figure 4.12: Ranking Health Worker Priorities

Source: Survey Data (2018)

Respondents ranked the measures most pertinent to them as; improvement of living and working conditions, improvement of health worker numbers and resources to facilities, improving remuneration amongst others.

To assess the effectiveness of measures in retaining staff in Turkana County, the staff list was analysed to establish staffing stability, the survey also investigated attrition rates.

Figure 4.13: Stability Level by Cadre



Source: Turkana HRM Report 2016/2017

Findings on the Staff Stability include average length of service length which was 6 Years. Majority of staff who had served longest were Health Administrative staff.

Rating the Attrition levels in the Department

The study sought to find out the respondent feeling of the attrition levels in their department.

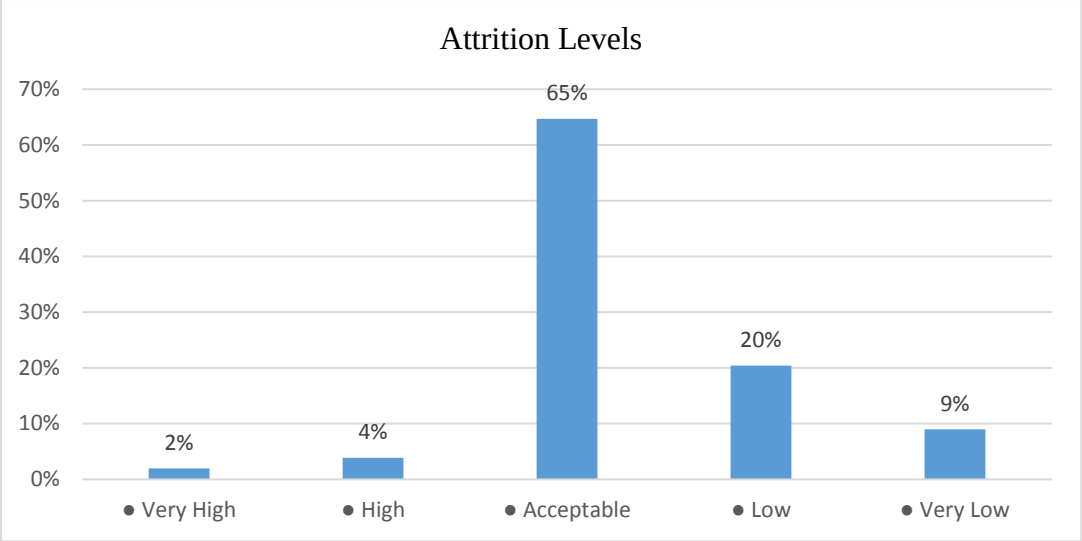


Figure 4.14: Rating the attrition Levels in the Department

Source: Survey Data (2018)

From the findings (65%) indicated that the attrition levels were acceptable while 29% indicated that the attrition rates were low.

Staff records and HR reports were analysed to establish the effect of recruitment efforts on health worker numbers. From the findings Turkana County had significantly increased the health staff from a total of 37 in 1978 to a total of 771 as at 2016. The year when majority of the staff were recruited was 2014.

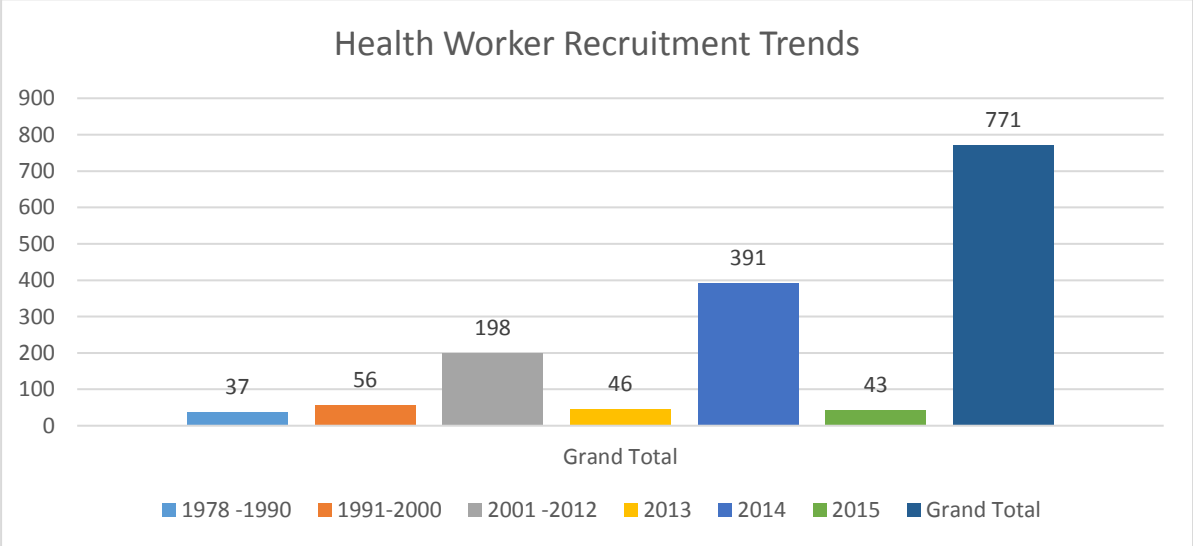


Figure 4.15: Health Worker Recruitment Trends

Source: Source: Turkana HRH Database Sept 2016

The study further analysed recruitment by cadre to establish where gains had been made.

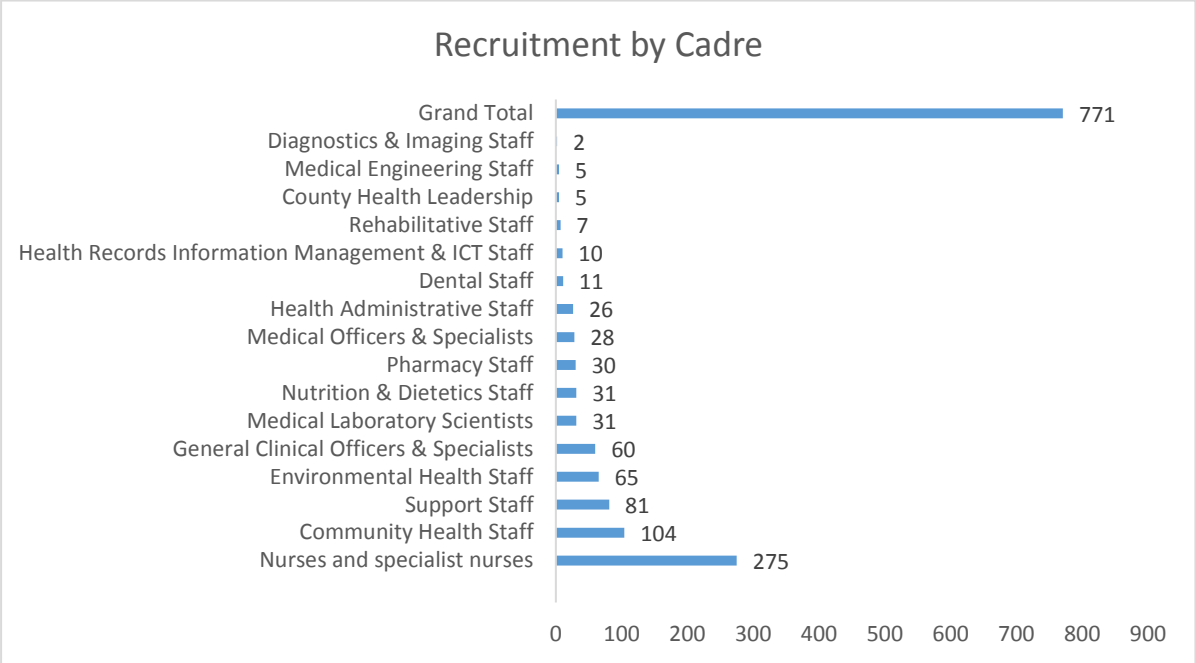


Figure 4.16: Recruitment by Cadre

Source: Turkana HRH Database Sept 2016

Much Emphasis has been put on the recruitment of Nurses and Community health staff with little emphasis on Diagnostics and Imaging staff and Medical Engineering Staff. One Cadre, Community health staff are above the recommended norm.

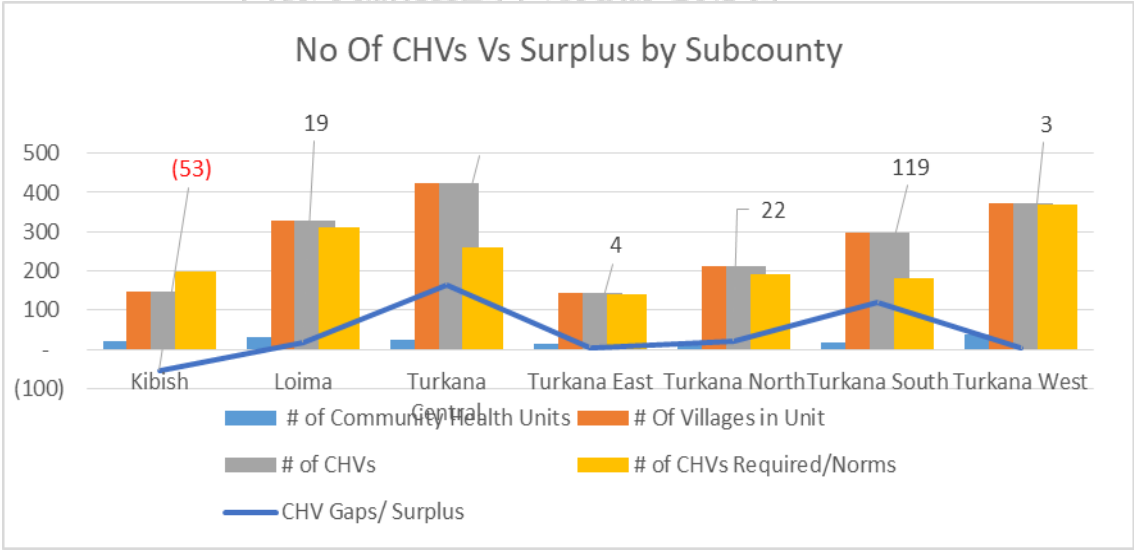


Figure 4.17: No. of CHVs Vs Surplus

Source: Turkana HRH Database Sept 2016.

4.3.3 Measures to Address Maldistribution and Inefficiencies

To assure appropriate distribution of health workers, the study analysed how existing and new health workers are deployed to health facilities across the county.

4.3.3.1 Distribution of staff in Turkana County

An analysis of the distribution of health facilities by sub-county was first carried out. The health facilities serve as a basis for the deployment of health workers.

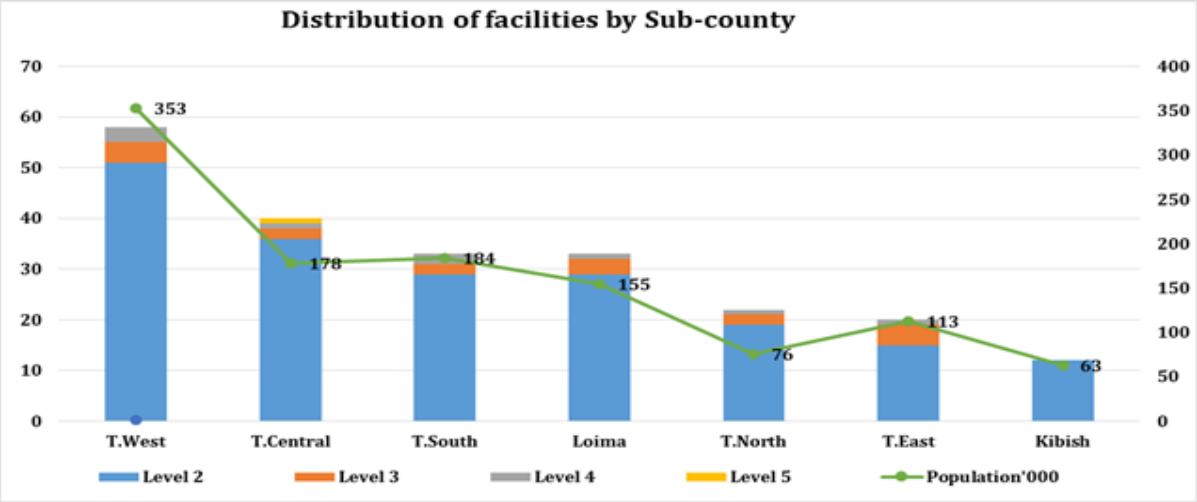


Figure 4.18: Distribution of Facilities by Sub-County

Source: Student computation based on DHIS data.

The size of the population and its density determine the number and type of health facilities. In figure 4.1 above Turkana Central is the only sub-county that has a level 5 facility. The number of level 2 facilities (dispensaries) is higher than the combined totals of all the other facilities. Based on the population needs, Turkana North have more facilities than Turkana East considering Turkana East have a higher population than Turkana North. This is similar to Turkana south which has less facilities than Central which has a higher population.

Table 4.8: Distribution of Facilities per Sub-county by Population Density – HRH development plan 2016

Sub-County	Area in Square Kms	Population in '000 (projections 2015)	Population Density	Health Facilities (Level 2)	KEPH Norms (Level 2)
Turkana Central	5675.90	197,768	35	36	20
Turkana East	5621.5	132,849	24	15	13
Turkana South	7363.8	199,588	27	29	20
Turkana West	17,450	360,262	21	51	36
Loima	7776	176,120	23	29	18
Turkana North	10,539	100,925	10	19	10
Kibish	5633.2	88,640	16	12	9

Though Turkana has vast areas with low population density, the county has significantly increased the number of health facilities across the sub-counties since 2013. A higher population density calls for fewer facilities than the norms require. Sub-Counties with lower population density require more facilities to ensure access.

The HRH Management development plan records that in 2014/15, 60 new facilities have been built and 39 health centres have been upgraded. Access to health facilities has been improved by reducing the distance from health facilities from 55km before devolution to 35 km.

Table 4.16 below shows the planning and actual completion of facilities across the county in FY2014/15

Table 4.9: Facility Building Plan FY14/15 - HRH development plan 2016

Sub-County	Population	Total Health Facilities targeted	Total new Health facilities 2014/15	Number Completed by end FY 2014/15	Number partially Completed by end FY 2014/15
Turkana Central	197,768	53	15	2	1
Turkana West	360,262	47	21	2	1
Loima	176,120	31	12	2	1
Turkana North	100,925	32	15	2	1
Kibish	88,640	15	3	2	1
Turkana South	199,588	34	15	2	1
Turkana East	132,849 1,256,152	18 230	9 90	2 14	1 7
Total	2,512,304	460	180	28	14

The highest number of facilities were planned for Turkana Central, Turkana West and Turkana North. Turkana North has a low density and would merit additional facilities. Kibish had low prioritisation relative to its population density.

The second level of analysis was to determine the distribution of health workers across the county with a review of how appropriate the numbers, type and mix are for the size of the population. Figure 4.19 below shows the increase in number of staff in the county after devolution.

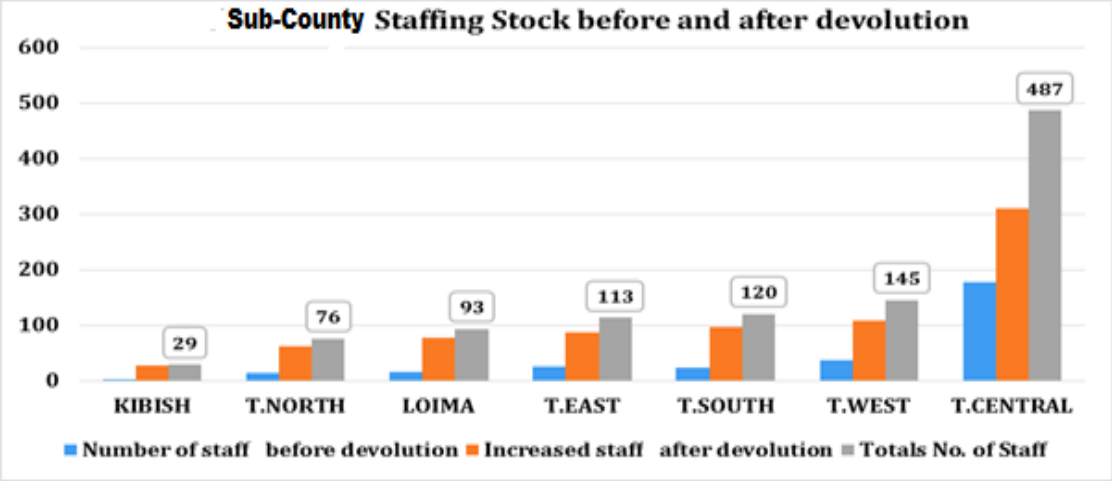


Figure 4.19: Staffing Increase in Sub-Counties

Source: Student's own computation from Turkana county HRIS data April 2017

The figure above shows that there has been an increase in number of staff for all sub counties although most of those who have been recruited after devolution are in Turkana Central. The number of staff before devolution was very low in far flung regions like Kibish and Turkana North. Staff were concentrated in Turkana Central sub-county. The increase in staffing demonstrated that this trend has not shifted despite the significant increase in staff numbers for the County. Further analysis of staffing gaps by cadre reveals a huge shortfall in the staffing mix (Appendix c) but significant increases in stocks of Doctors, Clinical Officers, Nurses and Pharmacists.

According to the HRH development plan, the county has 771 health workers excluding 152 partner contracted staff. The number of health workers in the Private sector had not been established due to non- availability of data while the total number of FBO/NGOs staff was 262 bringing the total number of known staff to 1,010 health workers against a norms requirement of 12,672, constituting only 7.9% of the required HRH work force in the county.

A further analysis of the relationship among three variables population, staff increase and health facilities in all the sub counties is as shown in figure 4.21 below.

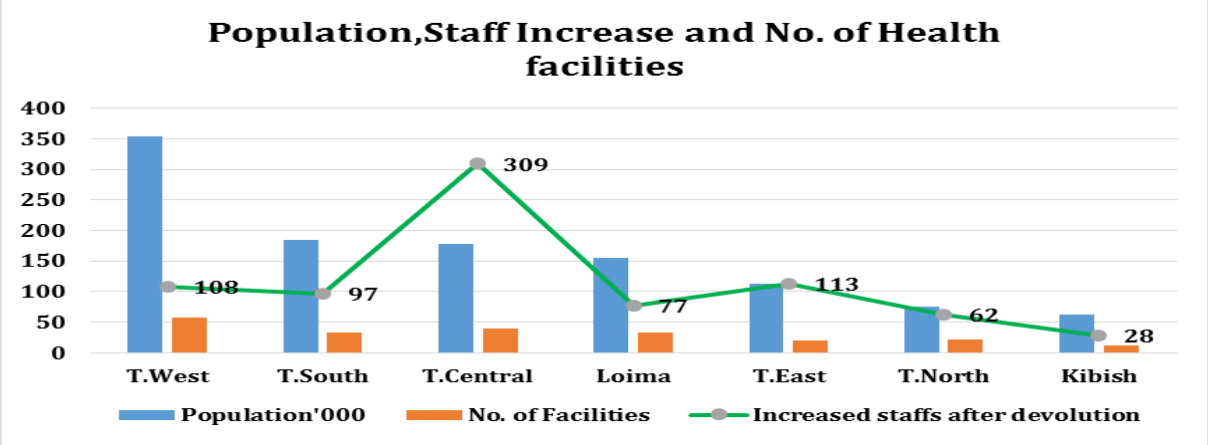


Figure 4.20: Relationship between Population, Staff Increase and No. of Health facilities

Source: Own Computation Using Turkana County DHIS and HRIS Data

Turkana Central received the highest proportion of staff in the period 2013- 2016 despite serving a relatively lower population. Kibish and Turkana South and Turkana West sub counties received relatively low numbers of additional staff given their population size. Figure 4.21 shows that distribution of new staff was skewed toward sub-counties with already high numbers of staff and better working conditions.

From the Key Informant Interviews, the study found that there were measures to de-congest regions and facilities that were relatively well-staffed through transfers and redeployment to understaffed facilities and regions. The transfer and redeployment of staff to new facilities was accompanied by added responsibilities to manage a facility and its budget, staff had opportunity to realise career growth. For hard to work areas the directors mentioned an initiative to rotate the doctors across different levels and locations of facilities to allow them to maintain reasonable practicing levels for their cadre. The budget allocations were improved to ensure operation of existing and new health facilities. 70% of respondents however expressed that these funds were hardly adequate to cover the costs incurred in most level 3 and level 2 facilities across the county. Costs to be funded include fuel and maintenance for vehicles and motorbikes, salaries for auxiliary staff, food for inpatients among others.

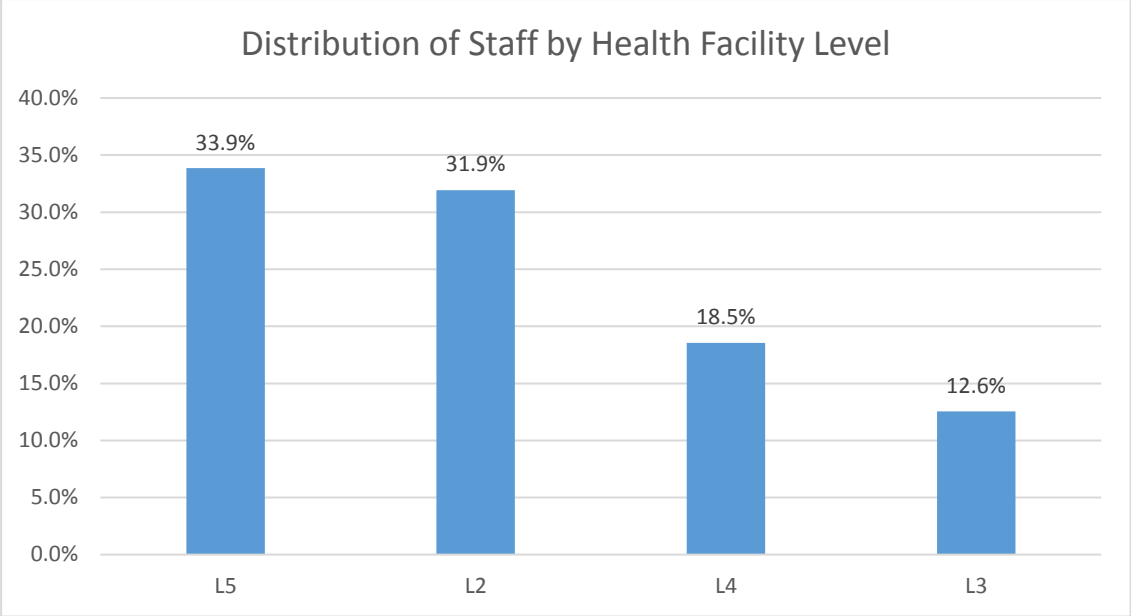


Figure 4.21: Distribution of Health Workers by Health Facility Levels

Source: Turkana County HRH Staff Database (2016)

From the finding Majority of the Staff (33.9%) are working at Level 5 followed closely by 31.9% working at level 2.

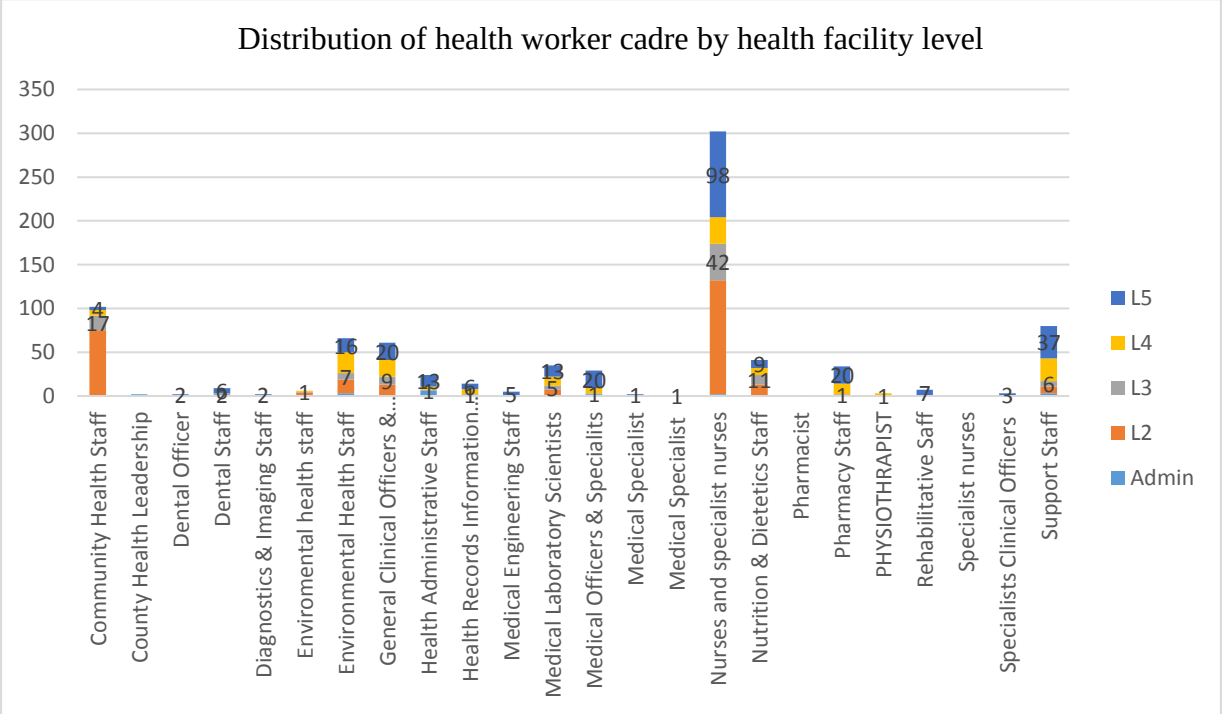


Figure 4.22: Distribution of health worker cadre by Health facility Level

Source: Turkana County HRH Staff Database (2016)

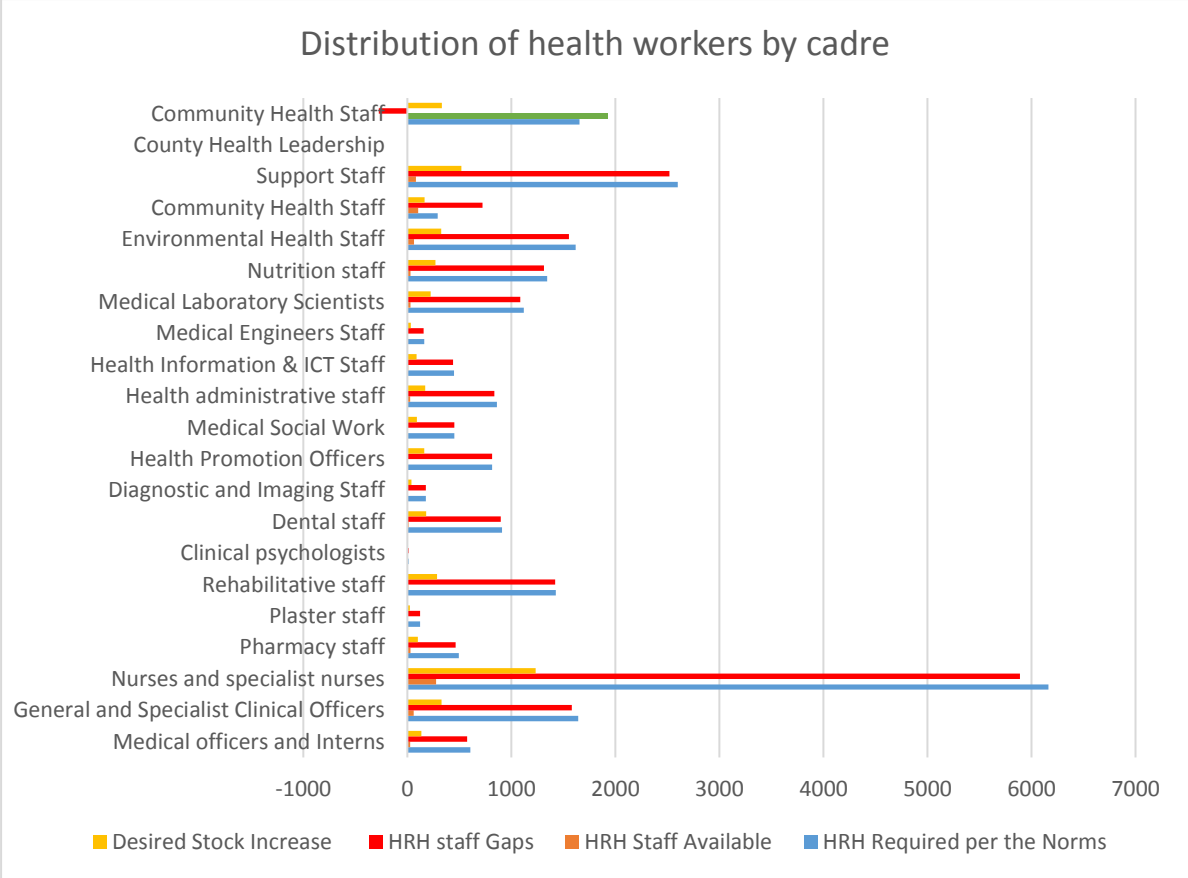


Figure 4.24: Distribution of health workers by Cadre

Source: Turkana HRH Staff Database (2016)

4.3.3.2 Measuring Increase in Efficiency

To assess increase in efficiency, the staff survey assessed the adequacy of supportive supervision and performance management practices within the facilities. The responses are as in Table 4.11 below.

Table 4.10: Health Workers Receive Adequate Supportive Supervision

	Percentage
Received adequate supportive supervision	72.5
Do not receive adequate supportive supervision	27.5
Total	**100**

Source: Survey 2018

The study findings show that 72.5% of staff reported that they received adequate supportive supervision. Staff had an established process of reviewing performance within the facility and with the sub-county health management team. From the in-depth

interviews the study gathered that the CHMT leveraged the opportunity presented by devolution to further devolve management and responsibility for health service delivery by creating sub-county and ward level teams and positions. This resulted in opportunities to recognise and motivate staff through promotions, job enrichment and re-designations.

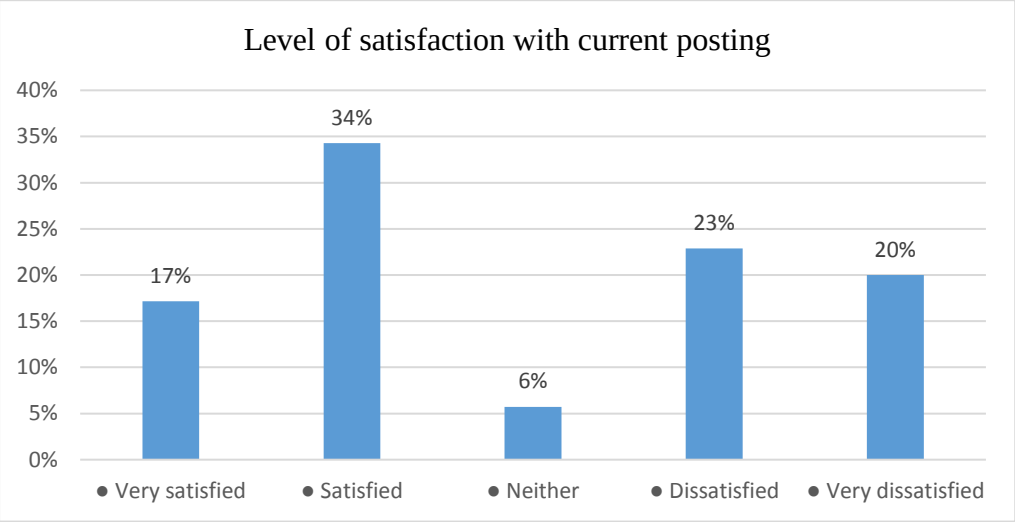


Figure 4.25: Level of Satisfaction with Current Posting

Source: Survey 2018

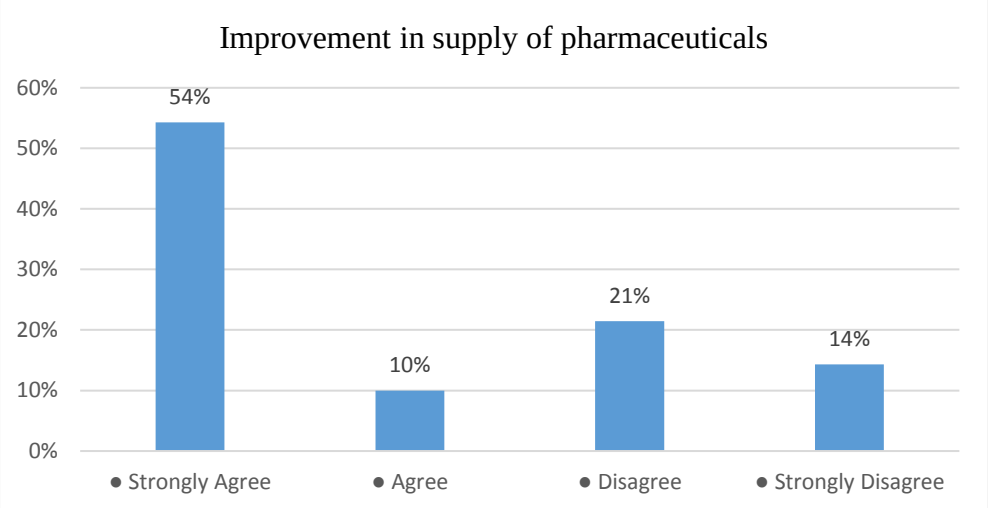


Figure 4.26: Level of agreement on improved supply of pharmaceuticals

Source: Survey 2018

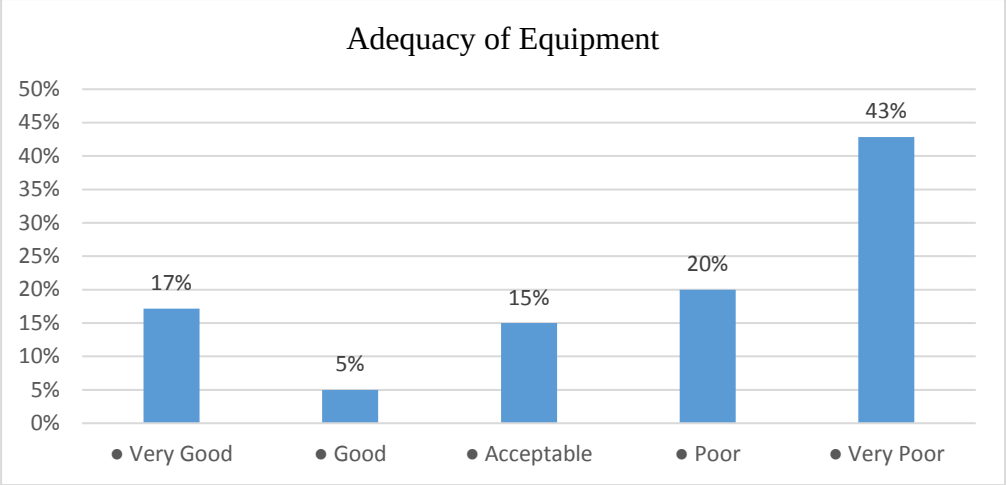


Figure 4.27: Rating the Adequacy of Equipment to Perform Duties

Source: Survey 2018

The study sought to find out the respondents rating on the adequacy of equipment to perform duties. From the findings 43% of the respondents indicated that the adequacy of equipment to perform duties was poor while only 15% indicated that the equipment were acceptable.

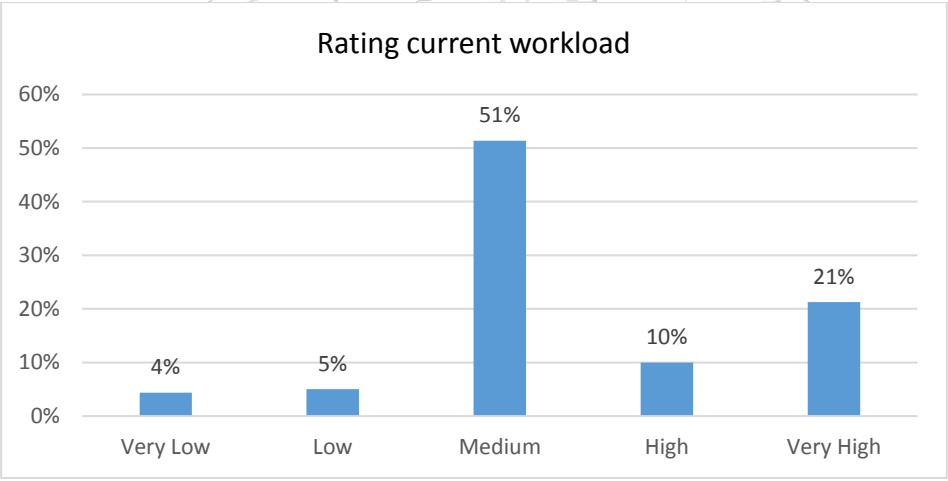


Figure 4.28: Rating current workload

Source: Survey 2018

Majority of the respondents 51% indicated that their workload was medium level while 31% indicated that their workload was high.

4.3.4 Measures to Regulate the Private Sector

The situation analysis records that 55.32% of the hospitals in the County are government owned. The Catholic Diocese of Lodwar and the Africa Inland Church Health Ministries are key providers of health care in some of the most remote areas of Turkana County. There was evidence of coordination with NGOs and FBOs at Sub-County and Ward level through reports of joint training, existing funding arrangements, sharing of data etc. The HRH development plan mentioned that the County Government has an MOU with the Lodwar Catholic Diocese on support for HRH financing, secondment of health workers to the diocese facilities and outreach support. The health department had assigned critical importance to the HRH partnerships that involve staff contracting, training, technical assistance and financing of non-salary/benefits HRH budget lines. The County would maintain current partnerships as well as develop new ones with NGO/FBO partners.

The Faith based organisations (FBOs) reported losing staff to the county government. The county has plans to mitigate the growing migration of a skilled workforce from the Private to Public Sector. One of the initial measures was a memorandum of understanding where the county government is funding facilities run by Faith Based Organisations (FBO's). The county seconds staff, supplies pharmaceuticals and gives grants for operating costs. This has enabled partners like the Catholic Diocese of Turkana to keep facilities operational.

The county has also absorbed 152 emergency support personnel who had been hired by donors and contracted to fill gaps in public health services before devolution. This served to maintain the staff establishment and curb the significant attrition that would have been caused by the departure of the partner contracted staff.

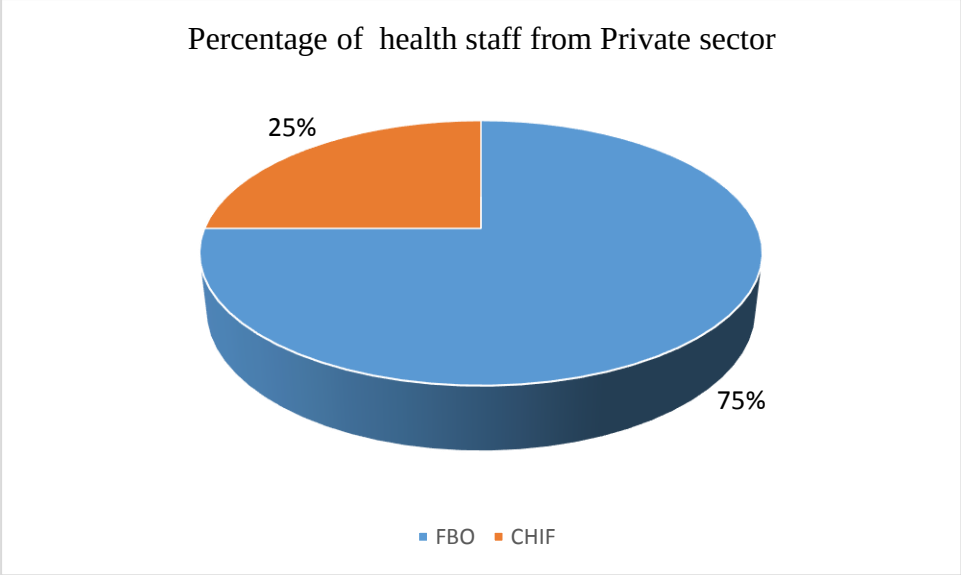


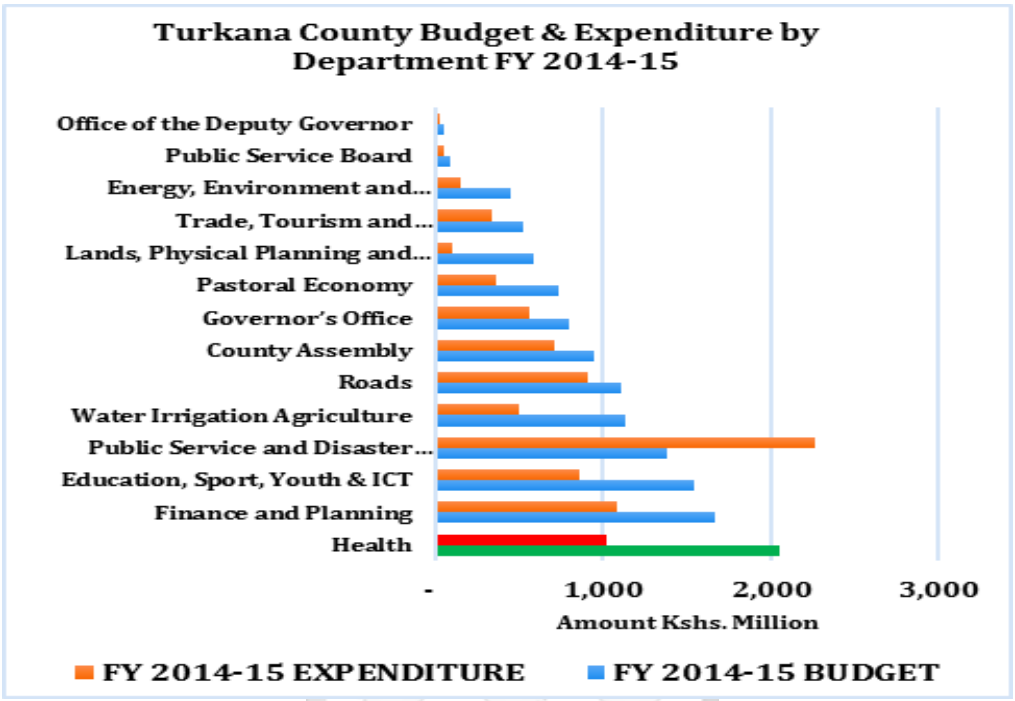
Figure 4.29: Percentage of staff from Private sector

Source: Turkana HRH Staff Database (2016)

The total number of staff in the FBO is 262 compared to 771 serving at county health facilities. FBOs were the main providers of health services in Turkana County pre-devolution. This was assessed to be between 55 - 60% at the time. Turkana County has insignificant private sector health activity, no major private health facility has been set up for delivery of health services.

4.4 Other factors Influencing Availability of Health Workers – HRH Financing

The study also sought to assess the adequacy for HRH financing on the basis of budget allocations to the health sector. First the study assessed the county budget allocation and expenditure by different departments. This was to help in determining the health allocation and expenditure compared to other departments. Figures 4.30 below show the budget allocation and expenditure for different departments in Turkana County for the financial years 2014-15 and 2015-16.



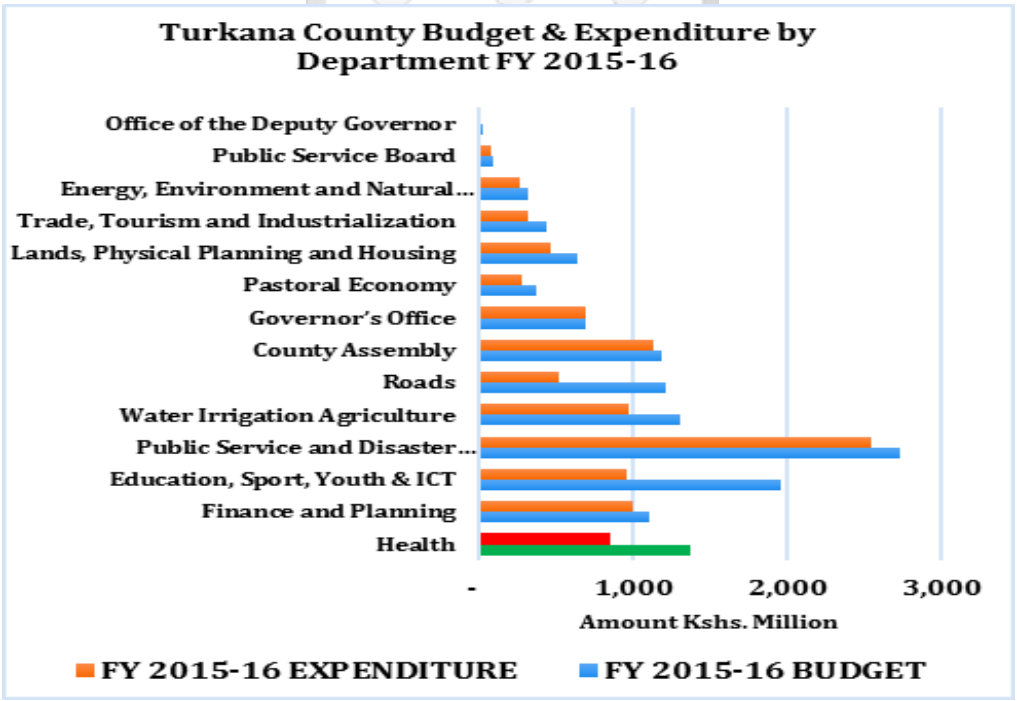


Figure 4.30: Budget and expenditure by departments FY 2014-15 and 2015-16

Source: Own computation using CoB data

The analysis reveals that the health sectors budget allocation was the highest in the financial year 2014-15 which reduced significantly in the financial year 2015-16. Even though the allocation for the financial year 2015-16 decreased the absorption level improved compared to the previous year. There was a shift in spending priorities in the financial year 2014-15 with public service and disaster management unit spending more

than what was allocated to the department. All the other departments spent below their budget, a trend that is sustained in the following year, where all the departments spent below the budgetary allocation.

A further analysis to determine the budget allocation and spending across counties was done. Figures 4.31 and 4.32 below show a comparative counties' budgetary allocation and spending for health across all the 47 counties. Overall budget allocations are higher than spending which indicate poor absorption rate for health budget across the counties. In financial year 2014-15 Turkana county ranks number 11 in terms of the amount allocated to health. However, the actual spending is lower compared to other counties.

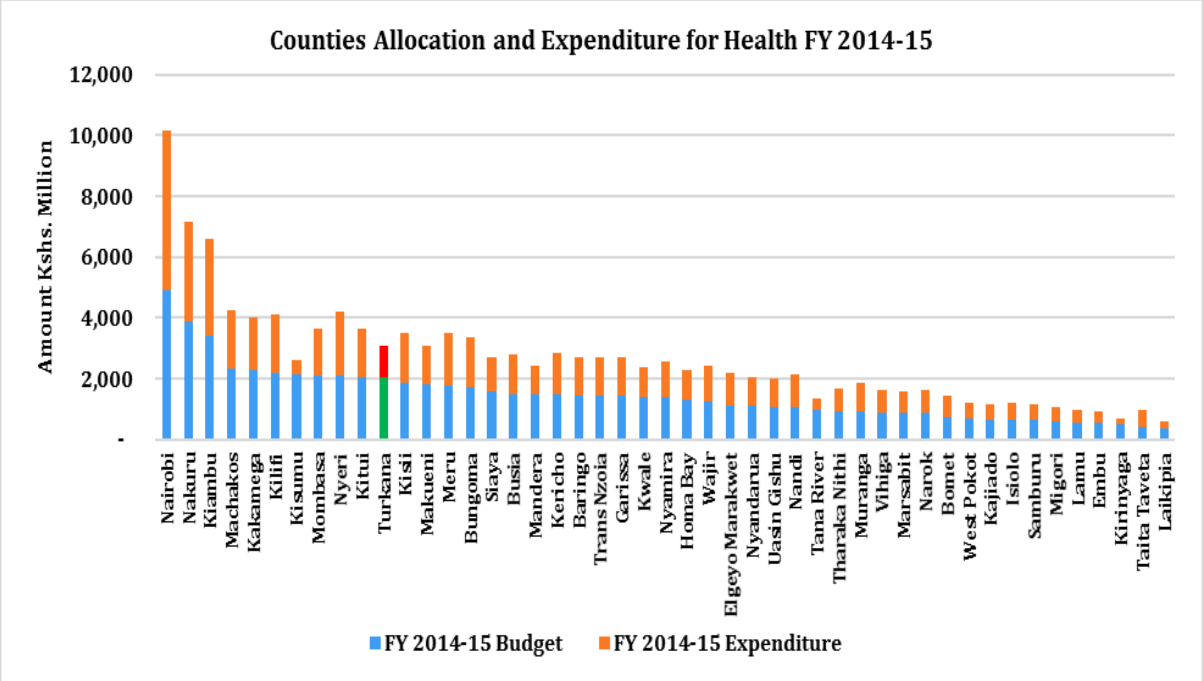


Figure 4.31: County allocation and expenditure for health in FY 2014-15
Source: Own computation using CoB data

Turkana County dropped significantly ranking number 32 in terms of allocation to the health sectors from number 11 in the previous year as shown in figure 4.32 below. The actual spending amount was even worse compared to other counties. Overall the absorption level for the health sector improved in financial year 2015-16 compared the previous year 2014-15.

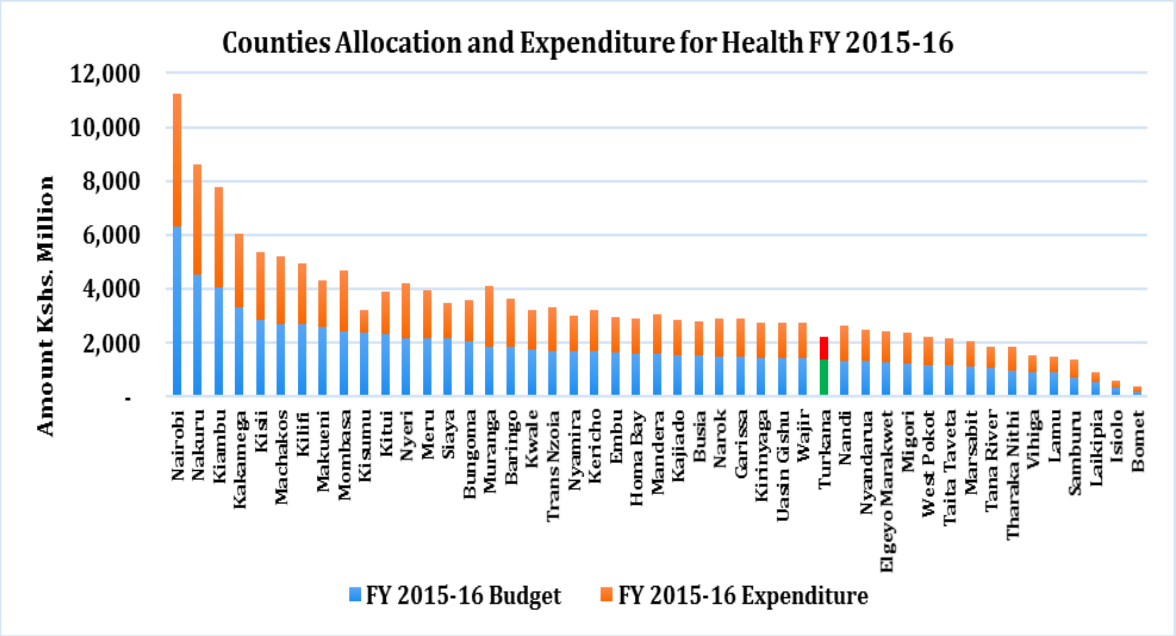


Figure 4.32: County Allocation and Expenditure for Health in FY 2015-16

Source: Republic of Kenya (2016). FY 2015/16 Budget Implementation Review Report

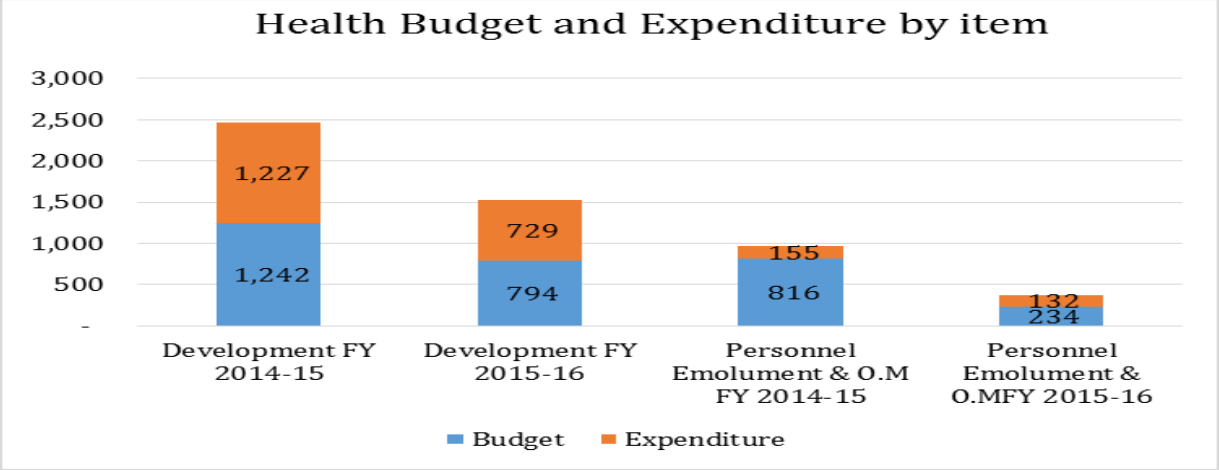


Figure 4.33: Health Budget Expenditure by Item

Source: Own computation using CoB data

Figure 4.33 above shows expenditure for development and personal emolument in Turkana County for the financial years 2014-15 and 2015-16. For the development expenditure the absorptions of the amount allocated is better in both years compared to absorption of the personal emoluments in the same period.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section presents the discussion of the study based on the objectives of the study. The chapter also presents conclusions and recommendations from the study and recommends future possible studies.

5.2 Discussion

5.2.1 Measures addressing Production and Training of health workers

The study established that there was training both pre-service training and in-service training of health workers in Turkana County. Pre-service training was provided by two (health) training institutions in the County; that is, Kenya Medical training college and Mount Kenya University. The in-service training which is also professional development training was managed through the County Public Service Board (CPSB). Most of the Training was in form of short courses. The County was offering these training so as to ensure there were more health workers available for hire. The training records show a steady increase in the number of staff trained in the period 2013 to 2016. A total of 613 health workers were trained with 2016 having a higher number of staff trained. The respondents also acknowledged that training opportunities were well distributed among the staff across the County.

There is evidence to show that training health workers builds skills that are in demand and helps address workers shortage as well as improve service delivery. The health workers training being provided in Turkana County can be an effective measure to address the health worker shortage. The above findings corroborates with those of Hazarika (2013), who conducted a study to assess the availability, production and distribution of health workforce in India. The study established that training of health workers was an important aspect of health workforce production and development. It revealed that training leads to rapid expansion of the capacity of health workers. The findings are also supported by World Health Report (2006) which also revealed that in order to create an effective workforce for the delivery of health care, there is need to focus on the entry of health workers into the workforce and on the health training

institutions (that is, universities and training colleges) which provide them with the knowledge and competencies for the jobs they will be required to do.

The study also found out that there is an MOU between MKU and the county government for financing of health workers training.For specialist training the county has an agreement with Duke University which also gives opportunity for exchange programs. There was also presence of the Afya-Elimu fund managed through the Higher education Loans board and which provided a mechanism that enabled them to apply for loans for further training. The health worker training is Turkana County was also funded by UNICEF, AMREF, and Save the Children International. This shows that partnerships and collaboration are important in order to ensure effectiveness of the training programs. These findings are in agreement with those of Adano (2008) who conducted a study on health worker recruitment and deployment process in Kenya; and revealed that it is essential to establish partnerships and foster commitment and collaboration to create needed change in human resource management. The World Health Report (2006) also revealed that, in India, there are partnerships between the Ministry of Health and key players from academia and the private sector, which helped establish schools of public health to address national public health priorities and training needs. This has helped develop relevant competencies that are needed by the health workers to deliver services. It also ensured that there is a pool of trained personnel to address the imbalances in the health workforce distribution.

Despite the reported training, the study found out that training needs had not been identified and planned for through a formal process. The respondents also revealed that they were not conversant with training policy and the process for identification and application for training needs. There are however efforts by the County HRH Unit to develop an updated education and training policy guideline to match health workforce needs. It is envisaged that the process will result in demand driven CPD and e-learning modules that are cost effective for re-licensure in line with the National health training policy. According to Hazarika (2013), in order to improve healthcare delivery through the availability of skilled and motivated health workers, it is critical to have a clear understanding of the health-workforce situation so as to develop effective policies and manage a responsive workforce. It is also essential so as to understand the varying

training needs of the health workers and thus develop training and learning materials to accommodate diverse students/health workers needs.

The study findings also revealed that there was inadequate financing for health worker training in Turkana County. This is as a result of limited allocation. Inadequate funding affects the effectiveness of the training programs in the County. According to Dada (2014) inadequate budgetary allocation affects the sustainability of training programmes. The World Health Report (2006) recommends that, in relatively poor countries or Counties (in this case Turkana County) where efforts to scale up the health workforce using workers with less formal training are widespread, ingenuity is required to ensure effective training, including providing the modest financial resources to sustain it. Funding of health training is critically needed in areas with severe health worker shortages. Higher levels of financing are required to increase training capacity (more institutions or expanded enrolment) and to improve quality with better infrastructure and highly motivated teachers.

5.2.2 Measures to Address Recruitment and Retention of Health Workers

The study found out that Turkana County had developed guidelines for management and retention of the health workforce. According to Okioga (2012) organizations that retain their high performers are bound to be successful in performance and at the same time avoid expenses that are incurred in advertisement of vacant positions, recruitment and selection, induction and training new employees that follow and employee lost.

The guidelines developed by the County detail an incentive framework that includes financial and non-financial incentives and measures to make work conditions more attractive to health workers. The County Public Service Board (CPSB) had also ensured an improved and competitive package for health workers by seeking approval from the Salaries and Remuneration Commission (SRC) to place Turkana health workers one grade higher than the national pay scale. The pay bands in the county have been designed to encourage retention by allowing for promotions after completion of set periods of service, as well as step increments based on additional qualifications attained by staff. This ensured staff were correctly placed, competitively paid and promoted on time. These findings are in agreement with those of Babu, Prince and Chacko (2016) who also revealed that there exists a significant relationship between compensation

package and employee retention. The more an employee is rewarded or compensated, the longer they remain in an organization since compensation package enhances job satisfaction. The findings are in agreement with those of Shubaka (2014); and Saporta and Farjoun (2013) who also found out that promotion arrangements can reward individual behavior by providing security, status, and skill development. They can also benefit institutions by helping it reach its productivity and performance goals. Particularly, promotion arrangements can contribute to retaining employees and motivating them to perform, thus reducing costs of training, recruiting, and turnover.

The study findings also showed that majority of the respondents indicated that terms and conditions of work had improved in the last 3 years. The changes included promotions, re-designations, additional allowances, improved facilities, provision of transport and housing. Despite improved work condition, the respondents felt that the living conditions in Health facilities in Turkana County were not good enough yet. There were challenges such as the lack of water, lighting, access to transport and mobile and internet communication which represented a high concern for staff in level 2 and level 3 facilities. According to Naharuddin and Sadegi (2013) workplace environment includes not only the physical elements around the work area of an employee but also all things that form part of the employee's involvement with the work itself. This means that the County should not only improve the work conditions in the health facilities, but also improve living conditions of the health workers.

The study findings shows that respondents ranked the measures most pertinent to them as; improvement of living and working conditions, and provision of adequate working facilities in the health facilities. There is empirical evidence to show that improved living and working conditions enhances workers job satisfaction and motivation which subsequently leads to high rate of retention. For instance, Msengeti and Obwogi (2015) conducted a study on the effects of pay and work environment on employee retention, and established that work environment plays a major role in employee retention. These findings are also in line with those Umamaheswari and Krishnan (2016) found out a significant relationship prevails between organization work climate and employees commitment towards organization. Thus organisation which provide employee-friendly work environment create a good sense of trust among the employees influencing their commitment to stay in the institution.

5.2.3 Measures to Address Maldistribution and Inefficiencies

The study established that health facilities serve as a basis for the deployment of health workers. The size of the population and its density determine the number and type of health facilities. It was found out that based on the population needs, Turkana North have more facilities than Turkana East considering Turkana East have a higher population than Turkana North. This is similar to Turkana south which has less facilities than Central which has a higher population. The highest number of facilities were planned for Turkana Central, Turkana West and Turkana North. Turkana North and Kibish had low prioritisation relative to its population density. This shows that the distribution of health facilities and deployment of health workers was dependent of factors such as population density of the area. These findings corroborates with those of WHO (2010) who revealed that there are multiple factors influencing a health worker's decision to relocate, stay or leave a post in rural or remote areas. They are complex and interconnected factors, linked to health professional's characteristics and preferences, related to health systems organization and wider social, political and economic environment.

The study findings reveal that there was maldistribution of health workers in the County. For instance, Turkana Central received the highest proportion of staff in the period 2013- 2016 despite serving a relatively lower population. Kibish and Turkana South and Turkana West sub counties received relatively low numbers of additional staff given their population size. According to Serneels *et al.* (2010); Chen (2010), maldistribution of the health workforce presents a serious obstacle to the achievement of important national development goals such as universal health coverage. It raises equity concerns since it affects the access of health care for those with the highest relative needs, and allocative efficiency concerns as resources are not distributed towards areas where they would have the greatest impact. Additionally, excessive concentration of health care professionals in urban areas might also be contributing to overutilization or inappropriate uses of services, such over-prescription of drugs or laboratory tests, leading to wastage of scarce resources.

Distribution of new staff was found to be skewed toward sub-counties with already high numbers of staff and better working conditions. Analysis of staffing gaps by cadre

reveals a huge shortfall in the staffing mix. These findings are in line with those of Araújo and Maeda (2013) who revealed that local environment and good living conditions are essential to influence worker decisions to move and stay in a particular area. They include factors such as the availability of facilities, safety and security, good staff accommodation, and basic infrastructure such as supply of drinking water, roads and transport. The findings are also in agreement with WHO (2010) who drew up a comprehensive set of strategies to help countries encourage health workers to live and work in remote and rural areas. These include creating better working and living conditions of the health workers.

However, the County has put measures to de-congest regions and facilities that were relatively well-staffed through transfers and redeployment to understaffed facilities and regions. The transfer and redeployment of staff to new facilities is accompanied by added responsibilities to manage a facility and its budget. For hardship areas the directors mentioned an initiative to rotate the doctors across different levels and locations of facilities to allow them to maintain reasonable practicing levels for their cadre. The respondents however expressed that these funds were hardly adequate to cover the costs incurred in most level 3 and level 2 facilities across the county. The measures to de-congest and ensure even distribution of health workers in Turkana County may not work unless a variety of factors which influence employment decisions of health workers are addressed as highlighted by Araújo and Maeda (2013). These are individual or personal factors (such as his or her place of origin (rural or urban), gender, ethnicity, age, personal values and beliefs); Community, local environment, and local living conditions - good living conditions are essential to influence worker decisions to move and stay in a particular area; work-related factors - working conditions and organizational environment. Rural and remote health facilities are often poorly equipped, the physical working conditions are severe, and staff are poorly supported or supervised and often feel isolated and neglected. Therefore there is need to improve such conditions so as to attract the healthy workers to relocate to remote areas. Another determinant is career related and financial incentives- rural and remote posts are associated with lack of opportunities for professional development and continuing education as well as low remuneration. Therefore, salaries and other financial benefits such as scholarships play an important role in the decision to relocate to rural and remote posts.

The above findings are also in agreement with those of Wurie *et al.* (2016) who examined the shortage and maldistribution of staff in Sierra Leone in its post-conflict period; and found out that rural posting is often considered less desirable by health workers due to a number of factors. These postings are usually associated with increased workload and poor financial and non-financial incentives that put rural health workers at a disadvantage. The study however revealed that better financial and non-financial incentive packages can attract the health workers to work in such areas, hence enhancing even distribution of the workforce.

On measures to increase efficiency, the study findings show that majority of staff reported that they received adequate supportive supervision. Staff had an established process of reviewing performance within the facility and with the sub-county health management team. The CHMT leveraged the opportunity presented by devolution to further devolve management and responsibility for health service delivery by creating sub-county and ward level teams and positions. This resulted in opportunities to recognise and motivate staff through promotions, job enrichment and re-designations. This shows that developing supportive supervision enhances workers job satisfaction and motivation. These findings are in line with Nkomazana *et al.* (2016) who conducted a study on how to create more supportive supervision for primary healthcare, and found out that supportive supervision is associated with higher levels of health workers' motivation, performance, retention, and patient outcome. Moreover, Wurie *et al.* (2016) revealed that a well-managed and efficient system will create motivated human resource which is fully empowered to provide the services. Supportive supervision is a way to foster performance, productivity, motivation, and retention of health workforce.

5.2.4 Measures to Regulate the Private Sector

The study established that majority of the health facilities are government. FBOs were the main providers of health services in Turkana County pre-devolution, but currently there is increased presence of health facilities owned by the County government. However, FBOs and NGOs are still key providers of health care in some of the most remote areas of Turkana County. Sousa *et al.* (2014) found that despite increased availability of health workers in Kenya, major shortages and maldistribution persist. These shortages and inadequate health facilities is what have motivated FBOs and

NGOs to remote areas of Turkana County, the fill the gap and offer the much needed health services to the community.

In addition to the increased presence of health facilities owned by the County government, there are partnerships and collaborations between FBOs and NGOs (who were previously the main providers of health services) and the County government through joint training, funding arrangements, sharing of data etc. For instance, the County Government has an MOU with the Lodwar Catholic Diocese on support for HRH financing, secondment of health workers to the diocese facilities and outreach support. The health department had assigned critical importance to the HRH partnerships that involve staff contracting, training, technical assistance and financing of non-salary/benefits HRH budget lines. The County would maintain current partnerships as well as develop new ones with NGO/FBO partners. These findings are in agreement with those of Harding (2009); Basu *et al.* (2012) who established that effective collaboration with the private and not-for profit sectors includes ensuring that private teaching institutes serve the public health needs of the population.

The study established that FBOs were losing staff to the county government. The county has also absorbed 152 emergency support personnel who had been hired by donors and contracted to fill gaps in public health services before devolution. The county has plans to mitigate the growing migration of a skilled workforce from the Private to Public Sector. One of the initial measures was a memorandum of understanding where the county government is funding facilities run by FBO's. The county seconds staff, supplies pharmaceuticals and gives grants for operating costs. This has enabled partners like the Catholic Diocese of Turkana to keep facilities operational. According to the World Bank's (*2004*) *World Development Report* , governments may not necessarily play the role of direct provider of health care services; however, they can play a role in financing, regulation, and information dissemination. This is the case for Turkana County, whereby the County is supporting facilities owned by FBOs by funding and proving health worker as well as providing training.

5.3 Conclusion

5.3.1 Measures on production and Training of Health Workers

The study concludes that there was both pre-service training and in-service training of health workers in Turkana County. However, the measures employed on production and training of health workers do not sufficiently cover the issue of future production of the health workforce and any plans for growing the required cadres from the local labour market. The staff training had not been well structured and rationalised to address skill demand and job performance needs. For in-service training, the training investments though many and reaching across cadres and facilities of staff do not appear to have been informed by a capacity and training needs assessment of the health workforce at facility, and sub-county level. The training is however relevant for up skilling. Most of the training has been funded through partner agencies revealing a gap in ownership and investment in training by the county government.

Even though majority of the health workers were not conversant with training policy and the process for identification and application for training needs; training opportunities were however well distributed among the staff across the county, facility levels and cadres with majority having attended short-term work-based training. The County HRH Unit was also developing an updating education and training policy guideline to match health workforce needs. The county ministry of health plans to collaborate with the ministry of education and training institutions to develop a framework that will support health workers' admission to education and training courses and bond them to work in the county for a specified period of time in line with prevailing labour laws.

5.3.2 Measures to address recruitment and retention of health workers

The study concludes that Turkana County has employed various measures to address the health worker shortage by identifying the mechanisms that will ensure attraction, recruitment and retention of health workers in the county. The plan includes; building new health facilities, equipping facilities and expanding the range of services. The county has also focussed on creating better working environment for health workers and improving the living conditions by building housing units and providing means of transport to health facilities. Measures employed by the county cover HRH issues in the public, private and NGO/FBO sectors. The County Public Service Board (CPSB)

had ensured an improved and competitive package for health workers by seeking approval from the Salaries and Remuneration Commission (SRC) to place Turkana health workers one grade higher than the national pay scale.

The county has been timely in paying salaries and ensuring supplies to the facilities. The doctors were provided with housing with all basic utilities like water, security and electricity. As a result, the county has not experienced intense employee activism despite the prolonged doctor's strike of 2017. This was attributed to the county putting in place mechanisms to cater for the welfare of staff. Improving living conditions of health worker is the number one priority followed by health workers working conditions and adequate supplies and equipment to health facilities. Terms and conditions of employment had improved for majority of the staff. The changes included promotions, re-designations, additional allowances, improved facilities, provision of transport and housing. The pay bands in the county have also been designed to encourage retention by allowing for promotions after completion of set periods of service, as well as step increments based on additional qualifications attained by staff. This ensures staff are correctly placed, competitively paid and promoted on time.

5.3.3 Measures to address Maldistribution and Inefficiencies

The county is addressing an inadequate and inequitably distributed workforce, weak institutional frameworks that are unable to support or control workforce performance, poor working conditions, weak human resource development systems and practices, weak human resources planning and management and inadequate financial resources to support investments in HRH through an elaborate plan to increase the number of facilities across the county and increase attendant staffing to the level prescribed by national norms and standards.

Attrition across the far-flung facilities was attributed to poor working and living conditions found in these facilities. Satisfaction levels of staff in these facilities were low with many considering a move in the near future. The main issues raised by staff in these areas were limited means of transport, the lack of means of communication, poor state of facilities, poor living conditions, inadequate supply of water and food, limited to no sources of power for clinics and homes, high insecurity, unresponsive management and poor supportive supervision. However, through the CHMT the county

is putting up measures to recognise and motivate staff through promotions, job enrichment and re-designations. For distribution policies, there were measures to de-congest regions and facilities that were relatively well-staffed through transfers and redeployment to understaffed facilities and regions. The transfer and redeployment of staff to new facilities was accompanied by additional responsibilities to manage a facility and its budget, staff had opportunity to realise career growth. The budget allocations have also been improved to ensure operation of existing and new health facilities. The county has significantly increased the number of facilities and health staff across the facilities and sub-counties. The completion of these facilities will imply that the staff to man the facilities will have to be availed by the County Government.

5.3.4 Measures to Regulate the Private Sector

It can be concluded that Turkana County has put up measures to regulate and partner with the private sector. Given the heavy presence of the non-profit private sector and donors, there are now clear strategies and measures proposed to harness the capacity of the private health sector in funding and collaborating in HRH financing and implementation. The county plans to enter into agreements and joint programmes to address health needs of the population. The County government has also been supporting the management of FBO facilities through grants, staff secondments and medical supplies. There was strong evidence of coordination with NGOs and FBOs at Sub-County and Ward level through joint training, existing funding arrangements, sharing of data etc. The HRH development plan mentioned that the County Government has an MOU with the Lodwar Catholic Diocese on support for HRH financing, secondment of health workers to the diocese facilities and outreach support. The health department had assigned critical importance to the HRH partnerships that involve staff contracting, training, technical assistance and financing of non-salary/benefits HRH budget lines. The county also planned to manage the growing migration of a skilled workforce from the Private to Public Sector.

5.4 Recommendations

5.4.1 Measures to address production and training of Health workers

To enhance the production of health workers, the county should expand the production and training policies to ensure support to pre-service training of students from the region in order to encourage a local supply of health workers. The county should

analyse future staffing needs and focus their pre-service training on health cadres with highest demand, while allocating training funds to develop existing staff and encouraging increase in number of college entrants through scholarships to students from the local population.

For in-service training, the county now has an opportunity to leverage partnerships with donor partners to advance professional training. Collaboration with partners in developing health training schools would facilitate production and training initiatives.

5.4.2 Measures to address recruitment and retention of Health workers

The county should engage in a prioritization exercise to sequence the measures proposed to address health worker shortage. This process should be well aligned with evidence of the ability of the measures to sustain and increase production, attraction, retention and appropriate distribution. The measures with long term benefits and that ensure sustainability should receive due attention amidst the quick wins of attracting and retaining the existing staff establishment.

The County should evaluate the measures proposed to determine their sustainability and manage the unintended consequences. For instance hiring at higher pay grades resulted in attraction of new staff but created inequity within the workforce that has necessitated harmonization of terms across new and existing workforce. With the increase in pay structure to enable attraction of health workforce, a projection of actual payroll expense at current pay rates after the realization of required staffing levels may require a sustainability check.

5.4.3 Measures to address distribution and efficiency of Health workers

The county should also consider the prioritisation and sequencing of improvements to the health infrastructure. The plans should be sensitive to health worker priorities in order to ensure retention, sustainability and improvement of existing facilities as the county opens new units and deploys new staff. For instance the county needs to consider a balance between creating demand by building additional health facilities without readiness for the attendant capacity to ensure supply by equipping and staffing facilities. Some existing facilities have inadequate capacity and remain unable to offer quality services while new facilities that are not operational are being built. It is important to

strike a balance between quality and quantity even as the county strives to improve access to unreached populations.

The county needs tailored strategies for operation in far flung locations with the added challenges of insecurity, mobile populations, lack of reliable transport and communication, inadequate supply of water, food and energy. High insecurity areas have high incidence of life-threatening injuries, referral to higher facility is further complicated by poor roads and vast distances and staffing is low due to the prevailing conditions. The county needs to consider a model that mitigates these risks whilst considering the security of their staff and the health needs of their populations. Collaboration with national government on security is required to guarantee service delivery. Staff working in far flung insecure environment should not be posted alone but should be deployed in teams, their facilities should have more capacity to deliver most services because the distance to referral centres is a hindrance. These teams need not be permanently deployed, the county can develop a rota that ensures different staff serve in these locations. A mobile clinics mechanism should also be rolled out to address the health needs of this population.

5.4.4 Measures to Regulate the Private Sector

The county relies heavily on the capacity of existing NGO, Donor partners and Faith Based Organizations (FBOs) to deliver health services. In addition to ensuring improved coordination, the county should take charge of core elements of health service delivery and invite partnerships after rationalisation of capacity and resources. The county budget should therefore ensure allocation to essential services currently run by the private sector in order to ensure sustainability and ownership of essential health services.

5.5 Suggestions for Further Research

The researcher recommends that further studies be conducted to determine the factors influencing the implementation of HRH policies, other studies should focus on a sub-county in hard to reach regions to provide more empirical evidence on the measures that have effect on increasing access to health services

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APPENDICES

Appendix A: Staff distribution by Cadre before and after devolution

Distribution By Cadre Before Devolution	
Before Devolution/Year 1978-2012	
CADRE CATEGORY	**Stock (Overal County)**
Community Health Staff	4
General Radiographer	2
Public Health Officer	42
General Clinical Officers & Specialists	15
Health Administrative Staff	12
Health Records Information Management & ICT Staff	4
Medical Engineering Technologist	3
Medical Laboratory Technologist	9
Medical Officers & Specialits	5
General Surgeon	2
Epidemiologist	1
Nurses and specialist nurses	141
Nutrition & Dietetics Staff	7
Pharmaceutical Technologist	9
Occupational Therapist	2
Physiotherapist	2
Specialist Clinical Officer(Anaesthetist)	3
Other Support Staff	32
Driver	4
Total	**299**

Distribution By Cadre After Devolution	
After Devolution/Year 2013-2016	
CADRE CATEGORY	**Stock (Overal County)**
Community Health Assistant[2]	**4**
Dental Staff	4
General Clinical Officers & Specialists	12
Health Administrative Staff	7
Health Records Information Management & ICT Staff	12
Human Resource Management Officer[1]	1
Medical Laboratory Scientists	22
Medical Officers & Specialits	14
Mortuary Attendant[2a]	4
Nurses and specialist nurses	231
Nutrition & Dietetics Officer	57
Occupational Health & Safety Services Officer	1
Pharmacy Staff	36
PHYSIOTHRAPIST	10
Public Health Officer	27
Radiographer[2]	3
Registered Clinical Officer[2]	27
Rehabilitative Saff	5
Support Staff-Driver	13
Other FC Level not asigned	278
Total	**768**

Appendix B: Health Indicators in Turkana 2012 Compared to 2015

INDICATOR	Turkana County 2012	Turkana (2015)	Kenya (2015)	source Note
MNCH				
Underweight (weight for age) (%)	22.73	34.04	11.07	4
Children (12–23 months) immunized (%)	54.05 (fully immunized)	56.74	67.55	4
Fully Immunized population < 2 year (% 2015)	50.4	56.7	67.5	4
Under five Mortality Rate. (per 1000 births)	n/a	n/a	60	4
Infant Mortality Rate (IMR). (per 1000 births)	n/a	n/a	45	4
Maternal Mortality Rate (MMR) (per 100,000 pop)	n/a	n/a	362	4
Contraceptive prevalence (%) 2015	8.1	10.1	53	4
Births delivered at health facilities (%) in 2015	18	23.1	61.2	4
HIV/AIDS, TB, AND MALARIA				
Number of people tested for HIV	103,203	106,299	7,161,215	8
Number of people living with HIV on antiretroviral treatment	2,297	2,867	561,225	8
Mother-to-child transmission of HIV (%)	13.3	9	8.5	8
Malaria test positivity rate (%)	50.6	50	41	8
Malaria cases 8 (per 100,000 people)	19,359	18,089	20,252	8
Malaria admission	1,601	1,498	179,966	8
Tuberculosis (TB) prevalence (per 100,000 people)	194	183	208	12
Tuberculosis incidence (per 100,000 people)	64	60	79	12
HEALTH PERSONNEL—PUBLIC				
Nurses (per 100,000 people)	15	19	55	14
Doctors (per 100,000 people)	2	2	10	14
Clinical officers (per 100,000 people)	7	10	21	14
HEALTH FINANCING				
Total government health spending (per capita, KES)	517	2217	1585	17
National Health Insurance Fund (NHIF) coverage county18 (% of county population)	8	10.1	26.7	18

Appendix C: Health Facilities Infrastructure 2015 per Sub County

Sub County	Owner Type	Hospital	Health Centre	Dispensary	Total	Community Units
Turkana Central	County Public	1	1	37	**39**	26
	FBOs	0	1	6	**7**	
	NGOs	0	0	0	**0**	
	Private	0	9	0	**9**	
	Sub Total	**1**	**11**	**43**	**55**	**26**
Turkana East	County Public	2	1	14	**17**	14
	FBOs	0	1	1	**2**	
	NGOs	0	0	0	**0**	
	Private	0	1	0	**1**	
	Sub Total	**2**	**3**	**15**	**20**	**14**
Turkana South	County Public	2	1	22	**25**	18
	FBOs	0	2	4	**6**	
	NGOs	0	0	0	**0**	
	Private	0	0	0	**0**	
	Sub Total	**2**	**3**	**26**	**31**	**18**
Loima	County Public	1	1	21	**23**	31
	FBOs	0	3	5	**8**	
	NGOs	0	0	0	**0**	
	Private	0	0	0	**0**	
	Sub Total	**1**	**4**	**26**	**31**	**31**
Turkana West	County Public	2	2	28	**32**	37
	FBOs	1	1	7	**9**	
	NGOs	1	0	0	**1**	
	Private	0	10	0	**10**	
	Sub Total	**4**	**13**	**35**	**52**	**37**
Turkana North	County Public	1	2	13	**16**	19
	FBOs	0	0	5	**5**	
	NGOs	0	0	0	**0**	
	Private	0	0	0	**0**	
	Sub Total	**1**	**2**	**18**	**21**	**19**
Kibish	County Public	0	2	9	**11**	20
	FBOs	0	0	1	**1**	
	NGOs	0	0	0	**0**	
	Private	0	0	0	**0**	
	Sub Total	**0**	**2**	**10**	**12**	**20**
TOTAL		**11**	**38**	**173**	**222**	**165**

Source: Turkana MTEF Feb 2016/ Turkana Community Health Services Database Sept 2016

Appendix D: Distribution of staffing norms by level 5 facility

CADRE CATEGORY	Stock Level 5(Before devolution)	CADRE CATEGORY	Stock Level 5(After devolution)	Total	Norm	Staffing Gap	(%)Variance
Health Administrative Staff	7	Health Administrative Staff	12	19	49	30	61%
Support Staff	16	Support Staff	21	25	60	35	58%
General Clinical Officer	13	General Clinical Officers & Specialists	14	27	44	17	39%
Public Health Officer	14	Public Health Officer	5	19	4	-15	-375%
Dental Officer	0	Dental Officer	8	8	10	2	20%
General Radiographer	1	General Radiographer	0	1	4	3	75%
Health Records & Information Management Assistant	2	Health Records Information Management & ICT Staff	4	6	12	6	50%
Medical Engineering Technologist	3	Medical Engineering Staff	2	5	8	3	38%
Medical Laboratory Technician	5	Medical Laboratory Scientists	8	13	50	37	74%
Medical Officer (Deputy Director LCRH)	5	Medical Officers & Specialits	19	24	50	26	52%
Mortuary Attendant	0	Mortuary Attendant[2a]	1	1	10	9	90%
Nurses and specialist nurses	68	Nurses and specialist nurses	31	99	250	151	60%
Orthopaedic Technologist	0	Orthopaedic Technologist	2	2	2	0	0%
RCO Anaesthetist	0	RCO Anaesthetist	3	3	6	3	50%
Nutrition & Dietetics Officer	4	Nutrition & Dietetics Staff	5	9	24	15	63%
Occupational Therapist	2	Occupational Therapist	0	2	12	10	83%
Pharmaceutical Technologist	4	Pharmacy Staff	10	14	16	2	13%
Physiotherapist	2	Physiotherapist[3]	1	3	3	0	0%
Total	**146**	**Total**	**146**	**293**	**614**	**334**	**54%**

Appendix E: Staff distribution by Cadre and Sub-county before and after devolution

Distribution By Sub-county Before Devolution	
Before Devolution/Year 1978-2012	
CADRE CATEGORY	**Stock (KIBISH)**
Nurses and specialist nurses	1
Total	**1**
CADRE CATEGORY	**Stock (LOIMA)**
Community Health Staff	1
Environmental Health Staff	4
Medical Officers & Specialits	1
Nurses and specialist nurses	9
Pharmacy Staff	1
Total	**16**
CADRE CATEGORY	**Stock (T. CENTRAL)**
County Health Leadership	1
General Radiographer	2
Public Health Officer	20
General Clinical Officers & Specialists	10
Health Administrative Staff	10
Health Records Information Management & ICT Staff	3
Medical Engineering Technologist	3
Medical Laboratory Technician	5
Medical Officers & Specialits	6
General Surgeon (CHD - Public Health Services)	1
Epidemiologist-County Health Director/CEO LCRH	1
Nurses and specialist nurses	83
Nutrition & Dietetics Staff	4
Pharmacy Staff	5
Occupational Therapist	2
Physiotherapist	2
Specialists Clinical Officers	3
Support Staff	17
Total	**178**

Distribution By Facility level After Devolution	
After Devolution/Year 2013-2016	
CADRE CATEGORY	**Stock (KIBISH)**
Enviromental health staff	2
General Clinical Officers & Specialists	2
Health Administrative Staff	1
Health Records Information Management & ICT Staff	1
Medical Laboratory Scientists	1
Nurse	13
Nutrition & Dietetics Staff	4
Pharmacy Staff	1
PHYSIOTHRAPIST	1
Support Staff	2
Total	**28**
CADRE CATEGORY	**Stock (LOIMA)**
Administrative Officer[3]	1
Assistant Health Records & Information Mgt. Officer[2]	1
Community Health Staff	17
Public Health Officer	4
General Clinical Officers & Specialists	5
Health Records Information Management & ICT Staff	1
Human Resource Management Officer[1]	1
Medical Lab Technician[1]	2
Medical Laboratory Scientists	5
Medical Officers & Specialits	1
Nurses and specialist nurses	22
Nutrition & Dietetics Staff	7
Pharmaceutical Technologist[2]	4
Registered Clinical Officer[2]	2
Support Staff	4
Total	**77**
CADRE CATEGORY	**Stock (T. CENTRAL)**
Assistant Health Records & Information Mgt. Officer[2]	4
Community Health Staff	39
Dental Officer	2
Dental Staff	9
Environmental Health Staff	7
General Clinical Officers & Specialists	15
Health Administrative Staff	10
Health Records Information Management & ICT Staff	3
Medical Engineering Staff	2
Medical Lab Technician[1]	11
Medical Officers & Specialits	19
Mortuary Attendant[2a]	5
Nurses and specialist nurses	97
Nutrition & Dietetics Officer	18
Orthopaedic Technologist[2]	2
Pharmaceutical Technologist[2]	15
Physiotherapist[2]	3
Public Health Officer	3
Radiographer[2]	2
RCO Anaesthetist	3
Registered Clinical Officer[2]	14
Rehabilitative Saff	3
Support Staff	23
Total	**309**

Appendix F: Staff distribution by Cadre and Sub-county before and after devolution

Distribution By Sub-county Before Devolution	
Before Devolution/Year 1978-2012	
CADRE CATEGORY	**Stock (T. EAST)**
Public Health Officer	3
General Clinical Officers & Specialists	2
Medical Laboratory Scientists	1
Nurses and specialist nurses	7
Pharmacy Staff	1
Other Support Staff	12
Total	**26**
CADRE CATEGORY	**Stock (T. NORTH)**
Public Health Officer	2
Medical Laboratory Scientists	1
Nurses and specialist nurses	8
Nutrition & Dietetics Staff	1
Support Staff	2
Total	**14**
CADRE CATEGORY	**Stock (T. SOUTH)**
Community Health Staff	2
Public Health Officer	5
Medical Laboratory Scientists	1
Nurses and specialist nurses	12
Pharmacy Staff	1
Support Staff	2
Total	**23**
CADRE CATEGORY	**Stock (T. WEST)**
Public Health Officer	7
General Clinical Officers & Specialists	3
Health Records Information Management & ICT Staff	1
Medical Laboratory Scientists	1
Nurses and specialist nurses	16
Nutrition & Dietetics Staff	2
Pharmacy Staff	1
Support Staff	6
Total	**37**

Distribution By Facility level After Devolution	
After Devolution/Year 2013-2016	
CADRE CATEGORY	**Stock (T.EAST)**
Administrative Officer[3]	1
Health Records & Information Mgt. Officer[2]	1
Community Health Staff	12
Environmental Health Staff	4
General Clinical Officers & Specialists	6
Health Records & Information Mgt. Assistant[2]	2
Medical Lab Technician[1]	5
Nurses and specialist nurses	34
Nutrition & Dietetics Officer	6
Pharmaceutical Technologist[2]	3
Physiotherapist[2]	1
Public Health Assistant[1]	3
Registered Clinical Officer[2]	1
Support Staff	8
Total	**87**
CADRE CATEGORY	**Stock (T.NORTH)**
Community Health Staff	7
General Clinical Officers & Specialists	7
Health Administrative Staff	1
Health Records Information Management & ICT Staff	3
Medical Laboratory Scientists	6
Nurses and specialist nurses	13
Nutrition & Dietetics Staff	8
Pharmacy Staff	4
PHYSIOTHRAPIST	2
Public Health Officer	7
Senior Medical Lab Technologist	1
Support Staff	3
Total	**62**
CADRE CATEGORY	**Stock (T.SOUTH)**
Community Health Staff	17
Dental Staff	1
General Clinical Officers & Specialists	5
Health Records & Information Mgt. Officer[2]	1
Medical Lab Technician[1]	10
Nurse	35
Nutrition & Dietetics Staff	10
Orthopaedic Technologist	1
Pharmaceutical Technologist[2]	3
Physiotherapist[2]	1
Public Health Officer	10
Support Staff	3
Total	**97**
CADRE CATEGORY	**Stock (T.WEST)**
Dental Staff	1
Environmental Health Staff	2
General Clinical Officers & Specialists	5
Health Administrative Staff	1
Health officer	14
Health Records & Information Mgt. Assistant[2]	1
Human Resource Management Officer[1]	1
Medical Officers & Specialits	1
Nurses and specialist nurses	50
Nutrition & Dietetics Staff	11
Occupational Health & Safety Services Officer	1
Orthopaedic Technologist[2]	1
Pharmaceutical Technologist[2]	5
Public Health Officer	4
Radiographer	2
Registered clinical officer	8
Total	**108**

Appendix G: Current HRH Stock versus Requirements by the Norms

Cadre Category	Requirement per Kenya HRH Norms and Standards	HRH Stock Baseline 2017	current % of required Establishment
Medical Officers (General)	**112**	**31**	22.30%
Medical Specialists	**115**	**4**	3.50%
Clinical Officer (General)	**540**	**100**	16.30%
Graduate Clinical Officer	**86**	**0**	0.00%
Clinical Officer (Specialist)	**724**	**3**	0.40%
Nurse (General)	**2,472**	**450**	13.30%
B.Sc. Nurse	**20**	**9**	0.00%
Dental Nurse	**40**	**0**	0.00%
Nurse Specialist	**427**	**1**	0.20%
Pharmacist	**36**	**20**	27.80%
Pharmacy Specialists	**10**	**0**	0.00%
Pharm Technologists	**251**	**11**	2.40%
Dental Officers	**36**	**4**	11.10%
Dental Specialists	**20**	**0**	0.00%
Dental Technologists	**62**	**5**	1.60%
Community Oral Health Officer	**368**	**3**	0.00%
Rehabilitative staff	**1,104**	**18**	0.50%
Plaster Staff	**52**	**4**	0.00%
Clinical psychologists	**5**	**0**	0.00%
Diagnostics & Imaging Staff	**40**	**9**	5.00%
Health Promotion Officers	**378**	**0**	0.00%
Environmental Health Staff	**525**	**89**	20.40%
Health Administrative Officers	**510**	**29**	5.10%
Health Information (ICT)	**277**	**24**	1.10%
Medical Engineering Staff (Hospital Maintenance)	**67**	**8**	3.00%
Medical Laboratory Staff	**654**	**48**	1.70%
Medical Social Worker	**209**	**4**	0.00%
Nutrition staff	**679**	**67**	1.90%
Support staff	**1624**	**96**	5.00%
Community Health Service Personnel (CHEWs 24, CHA1, CHO1)	**735**	**104**	3.50%
Subtotal minus CHVs	**12,178**	**1138**	6.10%
Community Health Volunteers (trained)	**2280**	**1495**	65.60%
Total	**14458**	**2633**	**7%**

Appendix H: 2017-2018 Staff Gaps for filling

CADRE	J/G	POSTS
Medical Officers (General)	M	3
Medical Specialists	Q	5
Clinical Officer (General)	J	20
Graduate Clinical Officer	K	4
Clinical Officer (Specialist)	L	31
Nurse (General)	H	75
B.Sc. Nurse	K	0
Dental Nurse	K	2
Nurse Specialist	K	18
Pharmacist	M	0
Pharmacy Specialists	L	1
Pharm Technologists	J	10
Dental Officers	M	2
Dental Specialists	L	1
Dental Technologists	J	2
Community Oral Health Officer	H	15
Rehabilitative staff	H	44
Plaster Staff	J	1
Clinical psychologists	K	1
Diagnostics & Imaging Staff	K	0
Health Promotion Officers	J	16
Environmental Health Staff	H	27
Health Administrative Officers	J	21
Health Information (ICT)	K	7
Medical Engineering Staff (Hospital Maintenance)	K	1
Medical Laboratory Staff	J	19
Medical Social Worker	H	8
Nutrition staff	H	15
Support staff	G	66
Community Health Service Personnel (CHEWs 24, CHA1, CHO1)	H	12
Human Resource Officers	K	**2**
SUBTOTAL minus CHVs		**429**
Community Health Volunteers (trained)	VOLUNTEERS	196
Total		625

Appendix I: Budget

Items	**Specifications**	**Quantity**	**Unit cost (Kshs)**	**Amount (Kshs)**
Printing & Binding		1		5,000
Field assistants for data collection	To carry out data mining using the software selected for purpose of testing	2	10,000	20,000
Analysts – secondary data	Mine and record data from DHIS, County documents and Budgets	2	20,000	40,000
Internet access and airtime	Modem and bundles		20,000	20,000
Travelling cost & boarding	Travelling to Lodwar and select health centers	2	20,000	40,000
Stationary	Photocopy paper, writing pads, biros and clip boards			5,000
Miscellaneous				1,000
Total (Kshs.)				**131,000**

Appendix J: Works and schedule

Items of Work/Activities		**Months**							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Proposal writing and submission									
Data mining tool development and testing									
Analysis									
Research report writing									
Conferences /seminars									
Preparing journal papers for publication									
Submission of draft report for review									
Submission of final report to the SPS									
Defense of the research findings									
Correction and final submission									

Table 1: work schedule