Factors influencing retention of human resources for health in the remote Turkana County of Kenya

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A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public Health

By

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Declaration

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This Thesis "Factors influencing retention of human resource for health in the remote Turkana County of Kenya" is my own work

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List of Abbreviations

AIDs	Acquired immune deficiency symptoms
AMREF	African Medical and Research Foundation
FBO	Faith Based Organisation
CDH	County Department of Health
DCE	Discrete choice experiment
HIV	Human Immunodeficiency Virus
HMT	Health management Team
HRH	Human Resources for Health
KDHS	Kenya Demographic Health Survey
KEPH	Kenya Essential Package for Health
NGO	Non- Governmental Organisation
SDGs	Sustainable Development Goals
SSA	Sub Saharan Africa
TB	Tuberculosis
TC	Turkana County
UHC	Universal Health Coverage
WHO	World Health Organisation.

Glossary

Attraction:	Pull toward or to get attention, admiration of a job or work due to specific reason such as salary, working conditions.(1)
Remote areas:	Geographical areas where relatively poorer population resides; areas that have limited access to qualified health care providers and health services of adequate quality. It may include remote rural areas, small or remote islands, urban areas, that are in conflict or post conflict, refugee camps or areas inhabited by minorities or indigenous group.(2)
Retention:	The ability to keep employees within an organisation usually from one to five years.(1)
Rural areas:	Those areas which are not urban in nature. An agglomeration refers to de facto population contained within the contagious territory inhabited at urban density level without regard to administrative boundaries. They usually incorporate the population in a city or town plus suburban areas lying outside of – but adjacent to – city boundaries.(2)
Norms and standards:	Refer to minimum and appropriate mix of human resources and infrastructure required to serve populations at different level of health service delivery system.(3)
Pull factors:	Factors that attract health professionals for a given post/location.(1)
Push factors:	Factors that may coercively influence the health workers not to take up a post in a remote location and not to remain there.(1)

ABSTRACT

Introduction
Turkana county, like other remote regions in Kenya, is facing critical shortage of health workers. Despite mitigating interventions, inequitable distribution and poor retention of existing health workers persists. There are limited studies and therefore, this study aims at analysing the factors influencing retention of skilled health workers in Turkana county and to recommend corrective interventions to stakeholders.

Methodology
This study is a literature review of current articles, grey literature and books. The study adopted a conceptual framework developed by Lehman et al (2008) to analyse the factors impacting on retention of health workers, and used the WHO proposed intervention categories to analyse the interventions.

Results
Health worker retention in Turkana is influenced by multiple factors, similar to those found in other remote areas of SSA. Financial packages, working and living conditions gender and insecurity, were prominent factors. National and county interventions include financial and non-financial incentives, compulsory service, professional development measures and a donor funded short-term worker programme

Discussion
No single strategy is enough to address the complexity of factors affecting retention. Kenya rightly uses the bundle approach for health labour market interventions. Compulsory service, short-term contracts and specialist incentives provide temporary solutions. Incentives require greater parity and gender imbalance needs correction.

Recommendations include improved allowances for lower paid workers, better housing for all cadres, improved security and better training interventions including e-learning.

Further research is required on impact of current interventions and gender imbalance.

Key words: Human resources for health, retention, remote, Kenya, Interventions

Word count: 13013

INTRODUCTION

Health workforce is one of the important building blocks and the cornerstone of any health care system globally. Availability of qualified health workers with the right skill-mix is crucial in achieving Universal Health Coverage (UHC) for all and Sustainable Development Goals (SDGs). Globally, all countries are facing challenges and shortage of health workforce, and especially in remote and rural areas, due to either "pull" or "push" factors. For the achievement of health-related SDGs, dire shortage of healthcare workers which has considerably constrained the achievement of health-related millennium development goals (MDGs) in the past needs to be addressed.

Kenya, like many other countries, is experiencing a severe shortage of health workers, especially skilled professionals, which is likely to jeopardize her efforts towards realization of rights to health and is a threat to attainment of sustainable development goals (SDGs). Inadequate staffing levels especially in remote counties such as Turkana may jeopardize delivery of Kenya essential package for health (KEPH).

I have been working for many years as a humanitarian health worker with international organizations in both conflict and post conflict settings with the last assignment being in South Sudan. In these settings the health care system is often fragmented with insufficient human resources. The available workforce is usually demotivated and not willing to work under the difficult prevailing conditions. Nevertheless, there are health workers who are resilient and motivated to offer services despite the challenges. My repeated roles as head nurse and acting project manager in humanitarian field hospital projects and involvement in the recruitment and management of personnel in fragile states, made me develop an interest in exploring the factors influencing motivation and retention of health workers and learn from evidence-informed examples.

In Kenya, following the devolution of the health care delivery to the counties in 2013, it has been difficult to retain health care workers in already marginalised and hard-to-reach areas like Turkana County. Despite efforts put in place, Turkana County is still struggling to retain existing health workers or attract new ones due to its remoteness and difficult terrain.

This research on "Factors influencing retention of human resources for health in the remote Turkana county of Kenya" hopes to assess the factors influencing and provide suggestions to improve on staff retention. A better functioning health system will enable the Turkana County and the country at large to achieve the UHC and SDGs by 2030. The knowledge gained will also be of good use in my future work settings and further research studies.

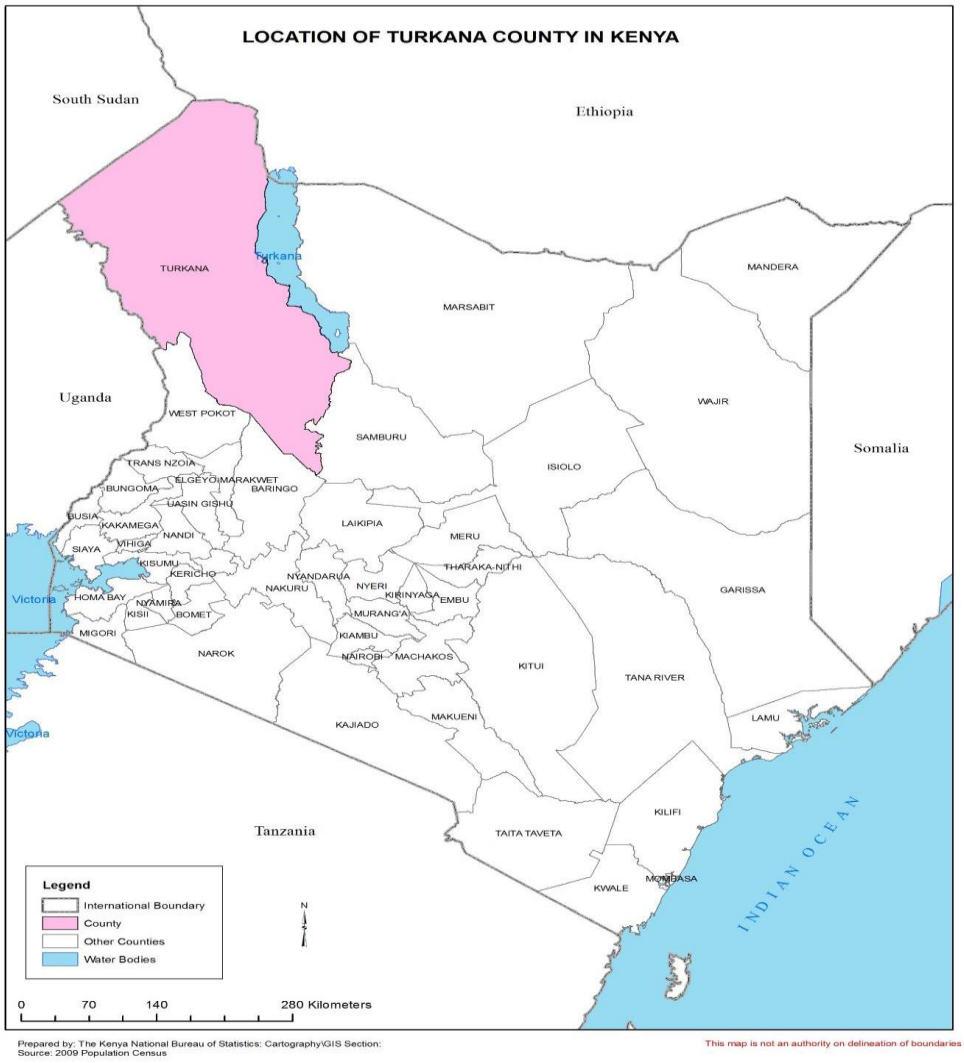
This thesis is organised in five chapters. Chapter one presents background information on Turkana County in Kenya. In Chapter two the problem statement, justification, objectives, the methodology used for the study and the conceptual framework are outlined. Chapter three details the results from the literature review on the topic while chapter four is about the interventions employed in Turkana County, Kenya and in Sub-Sharan Africa. The last chapter provides the discussion on the findings, conclusion and recommendations from the study.

CHAPTER ONE: BACKGROUND INFORMATION

1.1 TURKANA COUNTY PROFILE

Turkana County is the second largest of the forty-seven counties in Kenya. It is situated in North Western Kenya covering an area of 77,000 square kilometres that accounts for 13.5% of the total land area in the country. It borders West Pokot and Baringo counties to the South, Samburu County to the South east and Marsabit county to the East. Internationally, it borders South Sudan to the North, Uganda to the West and Ethiopia to the North East as shown in fig 1. Its administrative headquarter is in Lodwar town, the largest town in the county.(4)

Fig 1: Map of Turkana county in Kenya



Source: Kenya National Bureau of statistics 2015.

Turkana County is divided into seven sub counties and thirty administrative wards as shown in table 1 and on a map in the annex 1. The county is estimated to have a population of 1.3 million people as of 2017 and is composed of 52% male and 48% female. The population is about 2.2 % of the Kenya National population.(5) Turkana county also hosts, in the Kakuma refugee camp, about 40% (149,076) of the refugees in Kenya mainly from East and Horn of Africa.(6)

Table 1: *Administrative and demographic profile of Turkana county*

Administrative and Demographic profile	
Area (km2)	77,000
Number of sub-counties	7
Number of wards	30
Total population (2015)	1,256,152
Male	653,583
Female	602,569
Under 5 year	163,854
Primary school age (6-13)	345,184
Secondary school age (14-17)	131,257

Source: ADP (2016-17)

1.2 Socio economic situation

Turkana county is considered the poorest county among the 47 counties in Kenya with about 92% of people living below the poverty line of less than 2 dollars earning per day.(7) The economic mainstay includes; nomadic pastoralism (60%), agro - pastoralists (20%), fishing among communities along lake Turkana (12%) and about 8% engage in agriculture and formal or self-employment.(4)

Turkana County terrain is classified as arid and semi-arid. The area is prone to insecurity due to conflict arising from long standing inter-communal tensions, competition over and commercialization of resources, poor and inadequate physical infrastructure, the proliferation of small arms, and the limited presence of government agencies on the ground. As a result, conflict continues to undermine socio economic development and remains a key challenge. Education level in Turkana County is low with majority of the adults having no formal education. The literacy level is estimated to be 25% for women and 53% for men compared to the national adult literacy level of 88% for women and 92% for men.(8)

1.3 Health indicators

Health outcomes in Kenya have improved since 2006. The burden of communicable disease has decreased but continues to predominate the total disease burden whereas the non-communicable disease burden increased as of 2016. However, the health gains strikingly varied across counties in the Country. Between 1990 and 2006, all-cause mortality rate increased from 850.3 deaths per 100,000 to 902.9 deaths per 100,000. The trend was reversed between 2006 and 2016 when all-cause mortality declined from 579 deaths per 100,000. In Turkana County, all- cause age-standardized mortality rate (per 100,000) was 1670 in 1990, 1840 in 2006 and 1430 in 2016. The figures show the improvements in the mortality trend is slow in Turkana County. Life expectancy in Kenya rose from 58.5 in 2006

to 66.8 in 2016 after dropping from 61.4 in 1990 while Turkana life expectancy increased from 56.9 to 64.1 in 2016 and still lower compared to the national average.(9)

Infant and child mortality has improved over the years. However, maternal mortality has stagnated and remained high in Kenya with a ratio of 257.64 in 2016. The maternal mortality ratio in Turkana county are still high with slight improvements from 211.7 in 1990 to 125.53 in 2016.(9) Kenya did not meet the millennium development goal target on maternal mortality ratio of 150 in 2015.(10) as shown in table 2

Table 2: Recent trends in health impact in Kenya, 1990-2016

	Turkana County			**Kenya**			**MDG Target***
Indicators	**1990**	**2006**	**2016**	**1990**	**2006**	**2016**	**2015**
Life expectancy	56.9	56.3	64.1	61.4	58.5	66.8	-
Maternal mortality rate/100,000 live birth	211.71	190.89	125.53	315.72	341.71	257.64	150
Under-five mortality rate per 1000 live birth	145.42	86.61	45.23	95.42	70.1	43.44	33

*Source: Lancet Global health, Achoki et al 2019, **

1.4 Health Situation in Turkana county

The population in Turkana County is concentrated around the water sources and the distribution of health facilities is based on the population density. Communicable, maternal, neonatal and nutritional diseases combined remain the largest drivers of disability-adjusted life-years (DALYs) rates of 30,900 per 100,000 compared to DALYs rate attributable to Non-communicable disease of 16,700 per 100,000 and Injuries rate of 21,700 per 100,000 in Turkana.(9)

The county's health indicators reflect a mixed trend as shown in table 3. Between 2012 and 2015, skilled delivery increased marginally from 18% to 23% though was still lower than the national average of 61%. Thirty-four percent of children under-five years are underweight and 24% are stunted. The county adult HIV prevalence as of 2015 was estimated to be 7.6% and mother-to-child transmission was at 9% which is above the national average of 6% and 8.5% respectively. Adult HIV prevalence is currently estimated to be 3.2% compared to 4.9% as of 2017.(11) The high prevalence of HIV is due to several factors such as early sexual debut with about 55% of individuals having unprotected sexual intercourse before the age of 15 years, and low utilization of health facilities such health facility deliveries.(5)

Table 3: Selected Health coverage indicators by county

	Turkana county		Kenya
Indicators	**2012**	**2015**	**2015**
Underweight (weight for age) (%)	22.7	34	11
Stunted (Height for age) (%)	35	23.9	26
Children fully immunized (%)	54	56.7	67.5
Birth delivered at Health facility (%)	18	23.1	61.2
Contraceptive prevalence (%)	8.1	10.1	53.2
Malaria cases (per 100,00 people	19359	18089	20252
TB prevalence (per 100,000 people)	194	183	208
HIV adult prevalence		*7.6	*6
Number of people tested for HIV	103203	106299	7161215
Number of people with HIV on antiretroviral treatment	2297	2867	561225
Mother -to-child transmission of HIV (%)	13.3	9	8.5

*Source: MOH Turkana county Health profile, 2015, KDHs 2014, *Kenya County HIV profiles 2014*

1.5 Health care delivery system

Following devolution in 2013, the health care system in Kenya is governed at two levels. The county government is responsible for the delivery and management of health services at the county level, while the National government is mandated to develop policies for the health sector among other responsibilities.(10) Before devolution, health service delivery was a 4-tier system corresponding to 6 levels of care following devolution as shown in table 4.

Table 4: Tiers and levels of care

Tiers of care	**Corresponding level of care**
Tier 1: community	Level 1: Community
Tier 2: primary care	Level 2: Dispensaries and Clinics
	Level 3: Health Centers
Tier 3: Secondary referral	Level 4: Primary care hospitals
	Level 5: Secondary care hospitals
Tier 4: Tertiary referral	Level 6: Tertiary care hospitals

Source: Kenya Health Policy, 2014- 2030

County health services are organised around the three levels of care: community, primary care and referral services.(12) Level 4 hospital is the highest level of health care in Turkana County and the next referral hospital for specialized care is about 500km away from Lodwar county referral Hospital. There are 211 primary care facilities (dispensaries, Health centres and Hospitals) of which 154 (73%) are public owned and 37(18%) owned by Faith Based Organisations (FBOs) and 20 (9%) by the private sector. The County has 11 hospitals of which 9 are county primary hospitals while 1 is owned by a Non-Governmental Organisation and 1 is owned by FBO.(4)

1.6 Human Resources for health

Human resources for health (HRH) are defined as all people engaged in actions whose primary intent is to enhance health(13). Currently the total number of skilled health workers employed in the County Departments of Health as well as in public, FBOs and private-for-profit health facilities nationwide is 31412.(14) These numbers are far below the required 138266 healthcare workers as per the norms and standards Guidelines by the Ministry of Health.

As of 2013, Turkana County was found to have a total of 315 health workers employed in the County Departments of Health as well as in public, FBOs and private-for-profit health facilities which is far below 2578 number of health workers required as per the KEPH norms and standards.(15) Critical shortage of health workers considerably strained the achievement of health-related millennium development goals (MDGs) in Kenya.(16)

The distribution of the existing health workforce tends to favour regions with high socioeconomic development leaving marginalised and hard-to-reach areas disadvantaged. Poor areas have fewer health facilities and are not preferred by health workers, while other regions have surplus in staff. There is also a skewed urban-rural distribution of staff with the urban areas having the highest proportions of staff at the expense of rural and remote areas where 70% of the population lives.(10)

CHAPTER TWO: STATEMENT OF THE PROBLEM, JUSTIFICATION, OBJECTIVES, METHODOLOGY

2.1 Problem statement

A sufficient and qualified health workforce is vital to achieving the universal health coverage and attainment of the sustainable development goals. "The health sector is about people, without health workers there is no Health".(17) Stability of the workforce can be achieved through managing the labour market dynamics that address entry into and exit from the health workforce and improve the distribution and performance of the existing health workers.(18)

Shortage of health workers remains a global challenge that constrains many countries particularly in sub-Saharan Africa from achieving health equity and meet the population health needs. Kenya is among the 57 countries identified by the World Health organization (WHO) globally that are facing shortage of skilled health workforce due to migrations and other driving forces, equivalent to a global deficit of 2.4 million doctors, nurses and midwives.(13) According to a 2013 assessment report, Kenya is estimated to have an average of 19 doctors and 166 nurses per 100,000 population compared to the WHO recommended minimum staffing of 36 and 356 doctors and nurses per 100,000 population respectively.(15) In addition, there are regional disparities in the distribution of the existing health workers and hard to reach areas get disadvantaged with less staff.

The skewed urban rural distribution of health workers in Kenya, has left remote areas with critical shortage of health workers.(10) For instance, Northern Kenya (Counties of Turkana, Samburu, Marsabit, Isiolo, Mandera, Wajir, Garissa, Tana River, West Pokot, and Lamu) had 3% of medical personnel serve a population of 6% while Nairobi province with a population of 8% had 9% of skilled medical personnel.(15) This shows a pattern of health inequalities.

Turkana county is facing critical shortage of health workers. The doctor – patient ratio is estimated at 4:100,000 and nurse to patient ratio is 25:100,000.(19) This compares low against the current Kenyan national ratio stated above. Turkana county produces less health workers due to its remoteness. There is only one Kenya Medical training college established in 2000 and it offers courses in Health promotion, Nutrition and Dietetics and Community health nursing.(20) Majority of the students are from outside the region. Affordability of the training course is one of the reasons for less indigenous students joining the institution, given the poverty level of the county. Between 80 to 90% of health personnel are from outside Turkana county.(19)

In Kenya, rural posts are often considered less desirable compared to urban posts. Urban settings have superior infrastructure and services that pull the health workers.(21) Push factors such as language barrier, high cost of living, inflated prices of foodstuff, inadequate water supply, poor housing, lack of social amenities like good schools for children, poor infrastructure (roads, electricity, communication networks) encountered in remote areas, make the posts less attractive.(22) Rural remote health facilities suffer from poor organisational structure, are often poorly equipped, have inadequate supply of drugs, have severe working conditions and sometimes poor support and supervision that make staff feel isolated.(23) Lack of consideration for promotions, transfer and redeployment procedures demotivate staff in rural remote areas.(24)

Rural remote areas are also associated with limited in-service training opportunities, lack of opportunities for career development and continuing education as well as low remuneration

and poorly aligned incentive systems(1) that can influence health worker decision. Where services are available, staff are often overloaded with work due to shortages with limited time for learning activities.(25) Social unrest and conflicts create a sense of insecurity that influences availability of health workers in remote areas. Security is a major concern especially in a country that has experienced post -election violence. Most of the hardship areas are prone to banditry attacks along the roads, inter-clan and tribal conflicts, and cross border cattle rustling that makes it challenging for the health workers to stay in their work stations.(15,21)

The social amenities that attract people to a region are non-existent in most areas and has made Turkana County disadvantaged in terms of attraction and retention of health workers. Poor infrastructure has also been cited as a source of absenteeism of health workers from their duty stations because they go to access facilities such as banking services located in major urban centres. This may take a week or more due to unreliable means of transport.(19)

Based on previous studies and recommendations,(2) Kenya developed new standards to improve working conditions in the health sector and retain staff by offering review and increase in salaries, offering hardship allowances, allowing private practice and giving opportunities for further training , facilitating the medical training centres to train locals who are willing and ready to offer services in the counties.(3,26) These interventions have been implemented in Turkana county.(19)

2.2 Justification

Several studies have identified multiple factors that influence a health worker's decision to relocate, stay or leave a post in rural or remote areas.(1) These factors can be both "pull" and "push" factors that are interconnected and linked to health professional characteristics and preferences related to health systems organisation and the wider social, political and economic environment.(2) Pull factors are those that attract health professionals for a given post/location while push factors are those that may coercively influence the health workers not to take up a post in a remote location and not to remain there.(1)

There is limited literature on factors influencing retention of health workers in Turkana county and on the interventions.(15,22) HRH polices are developed at the national level and with devolved health care system and under the County governance, understanding the contextual factors that influence retention of health workers will guide on the best strategies.(10)

Despite the interventions mentioned above, inequitable distribution and poor retention of health workers in underserved areas is still a challenge(24). This has created a vacancy rate of 88% in Turkana county much higher than the national vacancy rate of 24%.(15) Having retention mechanisms in place, increases availability of health workers and ensures that the community of Turkana receives effective and quality health care in line with the objective of Kenya Vision 2030 "Towards attaining highest standard of health for all".(27) This translates into improved health outcomes for the Turkana population. Evidence has shown a positive correlation between health workforce density and service coverage and health outcomes.(18)

This study aims at assessing the factors that influence retention of HRH and the interventions employed to motivate, attract and retain the health workers in Turkana. The resultant evidence-informed information can be used to improve management and retention of the existing health workforce especially in marginalized areas of Kenya. The information will be used to improve on health workforce norms and standards for the different tiers of service delivery(24) and equitable distribution of health workers to be able to attain the UHC and SDGs.

2.3 Study Objectives

2.3.1 General objective

To analyse the factors influencing retention of skilled health workers in Turkana county and to recommend interventions for the stakeholders to improve the availability of health workers.

2.3.2 Specific objectives

i. To analyse individual factors that influence retention of health workers in Turkana county.
ii. To analyse social factors that influence retention of health workers to work in Turkana county.
iii. To analyse work related factors that influence retention of health workers in Turkana county.
iv. To explore national and international factors that influence retention of health workers in Turkana county.
v. To identify policies and interventions to retain health workers used in Turkana county and in similar areas in Kenya and Sub Saharan Africa.
vi. To make evidence-informed recommendations to the county health management, Ministry of Health and research community, that can be used both at county and at national level to improve health workforce retention in Turkana county.

2.4 Methodology

2.4.1 Method

The method used in this study is a Literature review. This method was chosen as it is suitable for this thesis assignment given time limitation. The method enables examination of recent and current published material that can include research findings in a wide range of subjects.

2.4.2 Search strategy

The retrieval of relevant literature was conducted in two stages. The first part of the literature search focused on the factors influencing retention of health workers in remote areas. The second part search was for key interventions used as retention mechanisms.

The articles used are retrieved from several databases namely PubMed, Science Direct and other online search engines google website and google scholar. The following search terms were used during retrieval of the literature: Health workers, retention, rural/remote areas, Turkana/Kenya/Sub-Saharan Africa and Intervention (*see detailed search table attached in the annex 2*). Snow-balling approach was employed to identify further literature from the reference lists in the relevant articles.

Initial search was initiated to review studies previously done in Turkana county. Due to few studies found, the search was extended on the same in Kenya, and was further extended to Sub-Saharan African countries with similar settings. Further, a number of relevant grey literature and reports concerning HRH from Kenya and Turkana county, Kenya Ministry of Health, WHO, UNICEF and other organisations like Intra-Health International were searched for more information on strategies, policies, and interventions proposed and done in relation to retention of health workers in remote areas.

Themes were created based on different environments according to the conceptual framework namely: individual, local, work-related, national and international to be able to assess and

come up with the key findings as shown on table 6. The factors are classified into three categories (Substantial, Moderate or Weak) based on the strength of the evidence found in the literature about Turkana County.

2.4.3 Inclusion and exclusion criteria

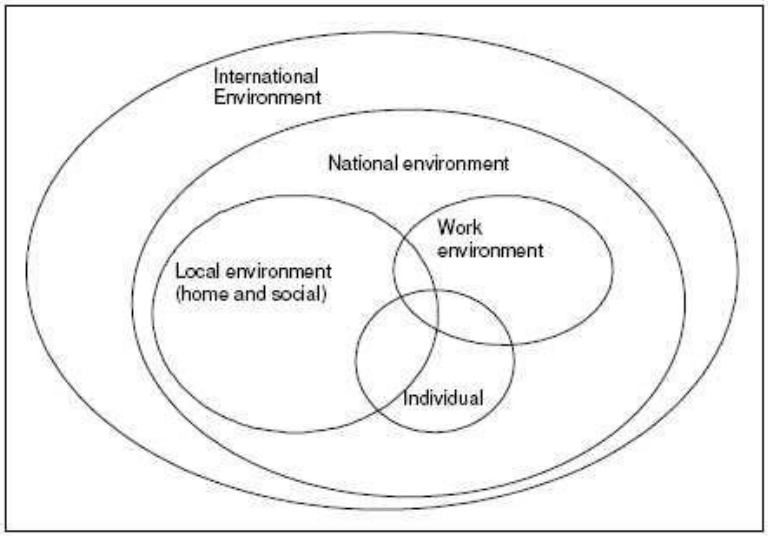
Articles written in English and published within the last 10 years were included. The review focused on English-language material published between the year 2008 to 2019 as this could give the latest information that followed *2008, the Kampala declaration* on HRH that requested governments to "assure adequate incentives and an enabling and safe working for effective retention and equitable distribution of the health workforce".(2) Literature on HRH shortage in terms of attraction, retention and recruitments were used. Articles that did not meet the criteria were excluded from the study.

2.4.4 Conceptual Framework

Various frameworks, model and theories have been used to analyse the concept of retention of HRH in rural and remote areas. The framework proposed by Henderson &Tulloch in 2008 to explore motivation and retention factors for health workers in pacific Asia, (28) that was later on adopted by WHO 2010 for increasing access to health workers in remote and rural areas through improved retention.(29) However, this study will utilize the Lehmann, Dieleman & Martineau, 2008 conceptual framework,(1) shown in the figure (fig 2) below, to analyse the factors that influence retention of human resources for health in Turkana County.

This framework was adapted because of the interaction of different environments that influence the decision of the health workers to relocate, to stay, or leave the workplace in underserved areas. It also helps to answer research objectives and organize ideas in analysing motivating factors that influence retention in a systematic way.

Fig 2: Conceptual framework: Different environments impacting attraction and retention.



Source: *(Lehmann, Dieleman, and Martineau,2008)*

Below is a description of the various environments impacting on attraction and retention proposed by Lehmann et al, (2008) framework

Individual factors
This entails the sociodemographic characteristics of an individual such as age, gender, marital status, education background and origin of the health worker.

Local environment
Local environment is described as the living conditions such as staff accommodation, schools and qualified teachers, good drinking water, electricity, roads and transport.

Work environment
Factors within this environment include pay and conditions of service, organizational arrangements, management support, high-risk work environments and availability of equipment and infrastructure.

National environment
The political situation of the country such as social unrest like war or conflict, the national policies that govern the general labour relations and career opportunities within a nation are described as factors influencing retention under this heading.

International environment
This environment consists of higher rates of remuneration, more satisfying working conditions, a safer working environment and better educational and career development opportunities.

The study also seeks to identify the strategies and relevant interventions currently used to attract and retain health workers in Kenya and other sub Saharan Africa and provide evidence-informed recommendations. This will be analysed, using the broad WHO proposed intervention categories of: education, regulatory, financial incentives and professional and personal support as described in the table in *Annex 3*.

CHAPTER THREE: STUDY RESULTS AND FINDINGS

3.0 FACTORS THAT INFLUENCE RETENTION OF HEALTH WORKERS IN TURKANA COUNTY

Retention of health workers in underserved areas is influenced by different factors or environments which interlink to determine the decision of the health worker to stay, relocate or leave the work place. This chapter uses the framework proposed by Lehman et al (2008), to present the results of the literature review under the five main headings of individual factors, Local environment, work environment, national environment and international environment. (1)

3.1 Individual factors

Individual factors refer to the sociodemographic characteristics of an individual including age, gender, marital status, education background and origin, that can have a significant impact on their employment.(1)

Age

The relationship between age and retention in rural areas is not widely studied.(30) There is no-specific study on age as a factor available on Turkana county though a study by Ojakaa et al(22) found that 72% of health workers in Turkana were aged 35 years or less as opposed to 68.1% in Machakos and 62.7% in Nairobi. Mullei et al(21) conducted a study in four Kenyan medical training colleges in Nairobi, Muranga, Meru and Kakamega among 345 registered nursing students in their final year. The study showed that older students, especially those who are married and having children, preferred to work in rural areas compared to younger students. Similarly, a cross-sectional study in four rural districts in Tanzania showed health workers of 30 years and above were less likely to leave their jobs and were retained in their rural positions longer than young ones.(31)

Gender

In a health workforce, understanding gender related differences in terms of specialty, preferences, geographical location of practice and other characteristics becomes increasingly important.(30).

Ojakaa et al(22) conducted a cross-sectional study among the health care workers falling into 10 different categories (Registered nurse, Enrolled nurse, Lab technician ,Clinical officer Nutritionist, Medical officer, Counsellor, Pharmacist, Community health Extension Worker and support staff) in Turkana, Machakos and Nairobi regions of Kenya. The study found a significantly low proportion of 33 % females among the health professionals in Turkana county compared to the other two regions which had 73% and 62% females respectively. The authors attributed the low proportion of female health workers in Turkana county to harsh working conditions deemed unfavorable for female health care workers. Similarly, another study in northern Kenya found that 103 (33%) out of a total of 315 health workers in Turkana were females.(15) Nationwide, females constitute about 53% of the health workforce. A cross-sectional study done at the University of Nairobi School of Medicine in Kenya on medical students' career preferences show that female students were 4 times more likely than male students to have originated from an urban area. Among the female students (n=79) in the study, about 7.6% were from rural area while 92.4% where from urban area.(32)

Marital status

There are limited studies on marital status influencing retention of health workers in rural areas.(1) There is no specific study on marital status in Turkana county though Ojakaa et al(22) found 73.5% of health workers in Turkana were married as opposed to 65.8% average for the three regions studied. In a study by Mullei et al(21) older students had a preference for working in the rural areas especially if they were already married.(21) However, a mixed method study of health workers and students in Tilabery region in Niger with similar settings like Turkana, reveal that married female health workers are strongly reluctant to practice in rural areas due to family life and motherhood, and it also depends on their spouses' decisions.(33)

Original background

Preference of location may depend on the kind of living conditions health personnel are used to. Lehmann et al,(1) argue that rural upbringing increases chances of health workers to practice in rural communities.(1) A study covering northern Kenya including Turkana, with similar hardship conditions, had mixed findings on origin as a factor influencing retention. While resident health workers are not necessarily willing to work in hardship areas some choose to live and work with reasons such as altruism (serving their own people).(15) Hussein et al,(32) in a study among the final year medical students at the University of Nairobi, showed that rural origin of a medical student as an important factor in willingness to take rural posts. Among the students in the study, 26 out of 155 had a rural background. On the other hand, in a study among the registered Nursing students in the four medical training colleges in Kenya, rural birth did not significantly influence attitudes towards practicing in rural areas considering the hardship context.(21)

In a multicounty discrete choice experiment (DCE) study that included Kenya, Blaauw and others(34) observed that having been born in rural areas was significantly associated with choice of a rural job among the nursing graduates. The finding concurs with a cross sectional survey in Asia and Africa including Kenya that observed that medical and nursing students who spent significant time in rural settings were more likely to select rural practice. This is similar to findings by Soucat et al(30) in a study among health workers in Sub-Saharan Africa which indicated that the presence of a family in remote areas increases the probability that an individual will consider to work in rural areas.

Education background

According to Soucat et al,(30) highly trained health workers are more likely to remain in urban areas than those with low skills. This is shown in the high shortage of doctors and specialists in rural settings compared to urban settings. A study by Ojakaa et al,(22) shows that 56% of health workers in Turkana had post-secondary education compared to 90.6% in Nairobi and 90.3% in Machakos. This reflects in the lower proportion of higher educated health workers such as doctors, dentists and pharmacists in Turkana compared to Garissa County, a county with similar conditions to Turkana and to urban areas and the national average(35) as shown below in Table 5.

Table 5: Comparative distribution of health cadres in selected counties - Kenya

County	DOCTORS per 10,000 Population	DENTISTS per 10,000 Population	PHARMACISTS per 10,000 Population	CLINICAL OFFICERS per 10,000 Population	NURSES per 10,000 Population	MEDICAL LAB TECHNICIANS per 10,000 Population
Nairobi (Urban Capital)	9.5	1.1	1.9	0.8	9.7	0.2
Nakuru (Urban)	0.9	0.1	0.3	2.5	3.1	0.4
Garissa (Rural remote)	0.3	0.0	0.1	0.6	2.7	0.1
Turkana (Rural remote)	0.1	0.0	0.2	0.3	0.9	0.0
All (National Average)	**1.5**	**0.2**	**0.4**	**2.7**	**8.3**	**0.5**

Source: KHWF_2017 Report

The findings are similar to those of a study in three rural districts in Eastern region of Ghana with similar setting as Turkana that showed that about 72% of health workers had a certificate level of qualification and only 10% had higher. Eighty-two percent (82%) of the staff were midwives while the doctors constituted only 4.3%.(36)

Key Findings
The low proportion of female health workers (33% compared to a national average of 53%) is the most prominent individual factor relating to gender among health workers, although no figures were found for the attrition rate among the health workers in Turkana county. The lower level of education among health staff reflects in the lower ratio of doctors and specialists as compared to nurses. The influence of origin is inconclusive, age and marital status are weakly evidenced.

3.2 Local environment

Local environment comprises of living conditions and the social environment.(1) Good living conditions as well as community support and appreciation are essential in influencing workers' decision to move and stay in a particular area.(37)

Staff accommodation
Studies have pointed out the importance of suitable staff housing in decision of health workers to accept and stay in rural areas in Kenya.(21,22) A study among health workers in Turkana pointed out the lack of suitable housing in remote parts as one of the factors that discourage the staff from taking up positions in the county.(22) The findings are similar to a DCE study conducted in Addis Ababa, Tigray and Southern Nations Nationalities and People's Region (SNNPR) in Ethiopia among doctors and Nurses which revealed that quality housing incentives had the biggest impact on their willingness to work in rural areas.(38) SNNPR has similar settings as Turkana with which it shares an international border.

A DCE study conducted in Malawi observed that about 96 % of the health workers preferred jobs where housing is provided. (39) In Tanzania, a study among health workers in a rural district pointed out the importance of availability of housing especially for the new staff as one of the factors that allow the staff to stay on.(40)

Schools and qualified teachers

There is no specific study about Turkana on availability of schools and qualified teachers as a factor. However, an assessment in Northern Kenya found that access to education is limited in the region due to poor provision of educational services with inadequate allocation of qualified teachers. The situation is compounded by long-time marginalization of the pastoralist community on account of existing myths that they have no interest in educating their children.(15) Availability of good schools with qualified teachers for children is cited as an important factor in a national study conducted in Kenya among the nursing students in deciding to work, stay or leave the rural work place.(21) Schools in rural remote areas are considered to be of substandard quality and health workers are bound to get separated from their children studying in urban areas, when they are either sent to boarding schools or to stay with a spouse remaining in urban areas.(15)

Roads and transport

Good road network and a transportation system that facilitates easy movement is an important in deciding to accept rural postings. A study in Turkana showed health workers were demotivated by inadequate and insufficient transport system in remote areas which discouraged them from staying longer.(22) The findings are similar to a study in Ghana where health staff in a deprived area of Western region with conditions similar to Turkana were demotivated due to poor road networks and insufficient transport system.(41)

Electricity and safe drinking water/ social amenities

There no specific study on Turkana county about the role of social amenities but an assessment in northern Kenya including Turkana shows that health workers are unwilling to accept rural postings due to inadequate access to electricity, safe drinking water, poor mobile phone connectivity and lack of social amenities.(15) This is similar to a study conducted among the health workers and managers in Kongwa, a rural district in Tanzania that observed lack of decent housing and non-availability of social services such as water and electricity were reported to affect the social life as well as attraction and retention of health workers to the district.(40)

Community support

Community trust and appreciation towards health workers can play a role in influencing their stay in rural areas. A study in Turkana cited cultural issues and language barrier in remote areas as a hindering factor in service delivery(22). Mullei et al(21) revealed, among nursing students, unwillingness and fear in taking rural posts in remote areas dominated by tribes perceived to be hostile to their own tribe, a consequence of the post-election violence that took place in Kenya between 2007 and 2008.

Key Findings

The presence of good staff accommodation, good roads and transportation network as well as electricity, safe water and social amenities are predictably, all strong factors that increase the likelihood of retention among staff in Turkana. The presence of schools with qualified teachers and community support are less prominently linked to retention in Turkana.

3.3 Work environment:

The working environment comprises of all factors in the working place that influence the health worker decision to leave or stay. It includes pay, payment system, benefits and allowances, conditions of service such as training and professional development, criteria for promotion, bonding and mandatory services. It also includes working conditions such as management support, organizational arrangement, equipment and infrastructure and high-risk environment.

Pay, payment system, Benefits and Allowance

Salaries and other financial benefits such as housing and hardship allowance play a significant role in the decision to relocate to rural and remote posts.

A comparative study in 3 regions in Kenya with a sample size of 404 revealed that health workers in Turkana would retain their posts if given hardship allowance.(22) However, a study in Northern Kenya in similar regions as Turkana, observed that salary and allowances were not perceived to be enough to cover the higher cost of living in the hardship conditions.(15) Allowances make up a big proportion of the overall government workers remuneration and is provided according to the location within the country. For instance, housing allowance in Nairobi is the highest and loss of housing allowance is considered a significant disincentive to accepting a transfer elsewhere.(42)

A multi country DCE study conducted in Kenya, South Africa and Thailand with a sample size of 1,064 among nursing graduates observed that availability of 30% rural allowance made nurses in South African 12.4(95% Cl:9.6 – 15.9) and in Kenyan nurses 7.7 (95% Cl; 6.0 – 10.0) times more likely to choose the rural postings though it was not the case in Thailand.(34)

There are no studies found about the effect of the payment system on staff retention in Turkana County. However, the payment system for health workers in Kenya is through the banks which makes it difficult for the staff to access the banking services in the remote areas due to unavailability of the services and mobile banking networks. It is also observed that staff in the more remote areas of the country take long hours or days to visit the towns to access the services due to poor road network and transportation system.(15,21)

Training and professional development

Rural remote areas are associated with limited in-service training institutions that offer basic training and career development and progression. An assessment study in Northern Kenya that included Turkana county observed that, health workers were unable to pursue higher education and grow their career through continuous professional development.(15) Lack of institutions of higher learning in the region is perceived as a barrier for retention of health staff to grow their career.(21) A DCE study conducted in 9 rural district public health facilities in Nyanza province in Kenya with a sample of 57 clinical officers observed availability of education opportunities is a motivating factor for rural posts. The clinical officers are willing to take rural posts which guaranteed 1 year study leave after 3 years of service(25).

Criteria for promotion

Possibilities for promotion can influence health workers decision to practice in rural areas. In a study in Northern Kenya that included Turkana, the health workers reported that promotions are delayed beyond the expected 3-year interval, lacked transparency and are at times marred by corrupt practices.(15) Lack of promotion affects upward progress and salary increment. (42)

Bonding and mandatory service

Compulsory schemes are among the means of increasing numbers of health workers in rural areas. Though there are no specific studies in Turkana county, a DCE study conducted in rural parts of Kenya for 57 clinical officers showed their willingness to accept and stay in rural settings if mandatory service is linked to opportunities for further education.(25) This is similar to a finding among final year nursing students in four medical training colleges in Kenya. The students found mandatory service as a reasonable retention intervention for government supported students, if combined with better housing and career advancement.(21) D.Blaauw et al(34) in a multicounty DCE study in Kenya, South Africa and Thailand observed that, in South Africa, graduating nurses put more value on specialized training opportunities than a 20% salary increase in willingness to take rural posts.

Management support and organizational arrangement

A study of three regions including Turkana county showed inadequate supportive supervision from management as a demotivating factor for health workers to stay in rural remote areas. The staff feel isolated and left alone.(22) Similarly, a qualitative study in Kongwa in rural Tanzania that showed the staff felt forgotten by the government once employed due to minimal supportive supervision.(40) Poor road network and limited transportation services affect the frequency of supportive supervision.(15)

Equipment and Infrastructure

Doctors' ability to work depends notably on the physical state of the facility and availability of medical equipment without which they are unable to put into practice what they were trained for.(2) In Turkana County, deplorable physical state of health facility, inefficient essential medical supplies and inadequate access to electricity were critical factors cited as dissatisfying to the health care workers.(22) A DCE study in Ethiopia in similar settings as Turkana, showed availability of equipment increased the chances of the doctors and Nurses to accept rural posting.(38)

High-risk working environment

Workload is mentioned as a demotivating factor that influences the decision of health workers to stay or leave remote areas of Turkana.(22) Excessive workload leads to suboptimal health service delivery.(21) A study in rural Tanzania observed that Lack of running water and unreliable source of light in the health facilities increased chances of cross infection putting health workers and clients at risk.(40)

Key findings
Most of the work-related factors influence retention of HRH in Turkana. Less mentioned though are bonding and mandatory service, the criteria for promotion and working in a high-risk environment.

3.4 National environment

National environment includes factors like social unrest and conflict, socio economic factors, political interference and presence of global health initiatives that influence retention of health workers in the country. Studies in Kenya identify insecurity as one of the reasons for not filling vacant positions in remote areas.(21) A study in Northern Kenya that included Turkana cited Inter-clan, tribal and cross border conflicts as factors that force health workers to stay away from their work stations as they fear for their lives. The insecurity also makes it difficult for the health workers to conduct outreach health service missions.(15)

Health workers move from rural to urban location as a result of socio-economic, professional and security reasons.(43) This is consistent with the findings from a mixed study among the health professionals in Niger in similar settings as Turkana which showed insecurity, low salaries and poor financial compensation as inhibiting factors to retention.(33) On the other hand, a study in Turkana revealed the willingness of health workers to accept posts as strategy for gaining government jobs with an intention to move to other regions later.(22)

A case study conducted in Kilifi county in Kenya showed political interference and discrimination in HRH management soon after devolution in 2013. Freshly qualified medical doctors deployed in some counties across Kenya were rejected on the basis of tribal line or not originating from the same region. (44) This led to fear and health workers asking for transfer to their own home counties. Same study also showed that a health facility in Kilifi was closed down following community members demands to transfer the only nurse in the dispensary on the basis of tribal differences.

3.5 International environment

The international environment consists of pull factors like higher rate of remuneration, satisfying working conditions, safe working environment, better education and career development opportunities that motivate health professional to migrate to other countries. It also includes broader factors such as higher quality of life, freedom from political persecution, freedom of speech and education opportunities for children.(2)

Between 1999 and 2007 6% of Kenya's nursing workforce applied to migrate. This number fell to 1.8% between 2008 and 2015. The main destinations were USA, Namibia, Australia, Canada and UK.(35) There is no specific literature on migration from Turkana county though Ojakaa et al,(22) cited willingness of health workers to accept positing in Turkana as a strategy to get jobs with international organization operating within the county and then eventually migrate to neighbouring countries such as South Sudan.

Key findings for national and international environment
Insecurity and socioeconomic reasons are the main factors found to influence the retention of health workers in Turkana adversely. Political interference may also play a role in workers' decision to stay or to leave rural areas. Global health initiatives were not found to be as influential in the decision of health workers to stay. There was some indirect evidence of the pull of International organizations.

Summary of key findings and different environments
There are few studies on the factors influencing retention of health workers in Turkana. Nevertheless, the available literature indicates that no single factor independently influences the decision to leave or stay. Instead there is an interplay of factors depending on the individual characteristics of the worker and their priorities. The main influencing factors for all cadres were; pay and allowances, improved living and working conditions and the presence

of good roads and transport, electricity, safe water and social amenities. Individual factors like age, gender, marital and educational status are likely to influence the premium placed on factors such as training and professional development opportunities, insecurity, the presence of schools and qualified teachers for children and the intention to migrate.

Table 6 below summarizes the factors according to the strength of evidence found in the literature about Turkana County context.

Table 6: *Overall key findings in Turkana and strength of evidence*

Environment	**Substantial evidence**	**Moderate evidence**	**Weak or No evidence**
Individual	- Gender - Education	- Origin	- Age - Marital Status
Local	- Staff Accommodation - Road and transport - Electricity, safe water and social amenities.	- Schools and qualified teachers for children - Community support	
Work	- Pay, payment systems, benefits and allowances - Training and professional development - Management support and organizational arrangement - Infrastructure and equipment	- Bonding/Mandatory service - Criteria for promotion - High risk working environment	
National	- Insecurity - Socioeconomic factors	- Political interference	- Global health Initiatives
International		- Acceptance of jobs with Int. NGOs working in Turkana with Intention to eventually migrate	
Substantial evidence = Clearly mentioned in literature / Most literature reviewed mention same about Turkana County *Moderate evidence = Mentioned in literature on Turkana County or Northern Kenya but not consistently or conclusively* *Weak or no evidence = Rarely mentioned or not mentioned at all in literature on Turkana County*			

CHAPTER FOUR: HUMAN RESOURCES FOR HEALTH INTERVENTIONS IN REMOTE AREAS IN KENYA AND EXPERIENCES FROM OTHER SUB-SAHARAN AFRICAN COUNTRIES.

This chapter will outline the HRH interventions in Kenya as a whole, Turkana county specifically, and in similar settings in SSA that are employed to retain health workers.

4.1 POLICY AND STRATEGIES

The devolved health care system in Kenya mandates the national Ministry of Health to develop and issue policies and strategies on human resources for health (HRH) that are implemented at County level. The two main national policy documents are the Human Resource Policy that deals mainly with salaries, allowances and recruitments and the Health Sector Human Resource Strategic Plan which highlights the strategies to attract and retain staff especially in hardship areas at the county level.(12,26) The strategic plan requires designing and providing competitive and attractive packages that can be achieved through request for extra funding from the Equalization Fund. It also advocates public-private partnership for HRH financing and the use of innovative communication approaches.(12)

Turkana County has a Guideline for enhancing management and retention of health workforce which was developed in 2016 (*see details in the annex 4*).(19) The available retention interventions at the county level combine elements from the various policies, plans and guidelines and are provided in a bundled approach. This is an approach where countries have used more than one individual strategy or interventions in attracting the health workers in rural and remote areas.(45)

4.2 INTERVENTIONS TO IMPROVE HEALTH WORKERS RETENTION IN TURKANA COUNTY AND OTHER REMOTE AREAS IN KENYA

The current interventions employed in Kenya, including Turkana are: The Donor supported short term contract health worker program, which falls outside the four broad categories of WHO recommended interventions, compulsory service, financial incentives, and personal and professional support mechanisms.

Donor supported short term contract health worker program

Short term contracts are 2-3 years donor funded contracts that target critical human resource gaps in remote areas.(21) The scheme was started in 2005 in Kenya through Emergency Hiring Program (EHP) to avert critical shortage of staff needed to provide health care services especially in HIV/Aids funded programs with pre- agreement of absorbing the health workers after expiry of the contracts by the government.(46) This approach has since been used as a strategy to recruit and retain health workers. The recruitment approach focused on the geographical areas with needs saw an increase of nursing staff by 12%, increase in functioning health facilities by 9% and increased health care provision in rural and remote areas in the country within a short time.(47)

At county level, Turkana has partnered with NGOs to support in employment and payment of salaries of health workers on short-term contracts and continuous training of health workers as a measure of motivation and retention.(19) For instance, the county government recently signed a two year- contract with African Medical and Research Foundation (AMREF) to engage nurses and community health promoters to ensure service continuity.(67)

Education interventions
This includes interventions such as admission policies to enroll student with rural background, locating health professional schools outside major cities, exposing undergraduate students in to rural community experience and clinical rotations, matching curricula with rural health needs, facilitating continuing education and professional development programs.(2)

Kenya has a quota system policy of enrollment of students in pre-service training. Students whose home counties are from Northern Kenya are given priority in enrollment process to train in middle level training institutions offered by Kenya Medical Training colleges and the FBOs.

Turkana county has a middle level training KMTC within the county. However, the assessment found out that students enrolled in home middle level training institutions was low compared to the students from outside the region. For instance, the data from nursing Council of Kenya showed that nursing students in the pre-service training institutions between 2007 and 2011 across the training institutions were form outside the Northern Kenya region for both male and female. This implies that the implementation of the quota system for the students from Northern Kenya who qualify for the middle level training need to be given higher priority.(15) There are no tertiary health institutions in Turkana therefore limited opportunities for upgrading at tertiary level without relocating.

Regulation interventions
Regulation interventions entails government control exercised through legalized or policy tools such as compulsory service, subsidized education for service return, enhanced scope of practice and having different cadres of health workers to work in rural and remote areas.(2)

Compulsory service

Kenya has a compulsory service system where physicians and nurses trained in public institutions have to serve in public institutions (district hospitals) for three years after graduations.(43) Compulsory service is also linked to incentives such as license to practice, preferential selection for post graduate specialization, post graduate scholarships to study abroad and career advancement opportunities. Health workers practicing in remote and rural areas get prioritized for the training opportunities. Good housing is also provided to health workers and their families to encourage graduates to stay in a remote area after the end of compulsory service period.(48) There is no data on the number of health workers who have undertaken compulsory service in Turkana county and Kenya since its inception. The effectiveness of the program has also not been evaluated.

Financial Incentives
This encompasses all additional benefits paid or provided to health workers with an intention to entice them to work in remote or rural areas. It includes both financial and non-financial incentives.

Financial incentives
Following the HR policy, health workers get numerous allowances on top of their basic salaries such as housing, commuter, overtime and hardship allowances based on the job group of the cadre of staff and the location of service.(26) Hardship allowance of 30% of the basic salary is the main financial incentive that is exclusive for the designated hardship/rural areas.(43) Hardship allowance is deemed relatively low compared to the cost of living in Turkana county. For instance, a junior nurse gets about USD 8 and a senior nurse get about USD 12 per month as a hardship allowance.(43)

Non-financial incentives
This includes priority for post graduate training of doctors who serve in a rural district hospitals for 3 years after internship, housing for staff, national social security fund (NSSF) and medical cover for the nuclear family.(43) In addition, Turkana county offers four return tickets per year for specialist doctors from outside the region as a motivation and retention incentive among others.(19)

Professional and personal support
This encompasses interventions for better living conditions, safe and supportive working environment, outreach support, career development program, professional networks and public recognition, used to reduce sense of isolation.

Turkana county embarked on improvement of housing facilities for health workers, improvement of physical infrastructure in the health facilities as well as constructing new ones that reduced the distance between health facilities from approximately 50 km to 20Km. The county also improved on the provision of medical supplies to increase motivation and retention. Since devolution the county has seen an increase in the number of health facilities from 181 in 2010 to 221 by 2016. It has also continuously recruited health workers in order to improve the skilled health worker-patient ratio and reduce burn out from the workload of the existing staff.(19) The county is also collaborating with the Ministry of Interior to provide security for the health facilities in the remote and insecure areas through the allocation of Kenya police reservists in the areas.(20)

Turkana county has also provided the opportunity for professional development on various courses. A total of 536 staff (304 male and 232 female) of different cadres were trained between 2011 and 2015 on various CDP courses. The nurses had more training opportunities at 424 followed at a distance by Clinical officers at 57 and 20 administrative staff. (CHD report 2016).

Also, Kenya adopted e-health strategy in the country with more focus on rural and remote areas to improve health access. The strategy enables the health workers in remote areas to network and connect as well as get expert support from other professionals. This leads to a reduced sense of isolation and workload. The intervention also enhances professional development through e-learning.(49) For the case of Turkana, the health workers are connected to specialists based in Moi teaching and referral hospital in Eldoret advice and networking.

A feasibility study of ehealth initiatives in Kenya, showed success of an mhealth (mobile health) project on malaria. Text messages reminders were inexpensive and a cost-effective way to improve health workers adherence to malaria treatment guideline.(50) Success of ehealth was also revealed in a study conducted in a rural village in Gatitu in Kenya on the feasibility of 'Mashavu', a store-forward (SAF) telemedicine system operated by community health workers (CHWS) to connect patients to nurses in rural areas. The system enhanced availability and access to the primary care within the existing health system.(51)

Despite evidence on the success of e-health in Kenya as a professional support mechanism, various projects on e-health are not equally distributed and rolled out according to the needs as noted in a study by Njoronge and others,(48) Mobile health projects in Kenya are more skewed to the urban areas than in the remote areas where most needs area. For instance, Turkana county has one mhealth project while an urban area like Nairobi has 24 mhealth projects. This could also be because of poor infrastructure in the region.

Key Interventions
In summary, the interventions employed in Turkana are donor supported short-term contract, financial and non-financial incentive, compulsory service and professional and personal support mechanisms that are done in a bundled approach. Other than the donor supported short term contract, the success of the other interventions on retention of health workers in Turkana or remote parts of Kenya have not been documented.

4.3 EXPERIENCE IN SSA COUNTRIES ON RETENTION INTERVENTIONS OF HEALTH WORKERS IN REMOTE RURAL AREAS.

This section presents findings experiences on retentions of health workers from SSA with similar setting as Kenya.

Education
No significant educational interventions in SSA though each country incorporates a few elements such as quotas or financial assistance for rural students in a bundled approach. More information is found about Asian countries like Thailand and Vietnam which incorporate most of the WHO recommended elements.(52) The impact of the interventions had not been evaluated at the time of their publication.

Regulatory interventions
The introduction of 1-year compulsory service in South Africa in 1998 contributed positively to an increase in the number of health workers in rural areas, and an increase in service utilization with the required number of doctors. The initiative saw an increase of more than 30 000 in the number of health workers in rural areas between 1998 and 2010. In 2012 alone, 7162 health professionals were distributed across all the provinces in South Africa.(53) The success of the initiative was attributed to the relatively short duration of the compulsory service that led to low drop-out.(45) However, the strategy had its own challenges and limitations. It resulted in uneven utilization of clinics and hospitals.(48)

Financial incentives
According to Diemen et al,(45) in a realist study, Rural allowance initiative in South Africa showed a positive retention of a third of health workers in rural areas. Young nurses were happy with the annual incentives of ZAR 50 000 proposed and was effective for short-term needs. However, an evaluation study conducted in the Northern west Province reported weakness in policy formulation and implementation that led to poor interpretation. For instance, only the professional nurses received the allowances leaving out the enrolled nurses and assistant nurses, no clear definition of the remote areas, and financial incentive alone was not sufficient to retain nurses in rural areas.(54)

Professional and personal interventions
Various countries in SSA have taken different approaches to attract health workers in remote areas. In 2011 Mali implemented a Telehealth intervention, EQI-ResHuI (in French, *Les TIC pour un accès Équitable aux Resources Humaines en Santé*) with support from Canadian International Development Research Center, in Dioila, Kolokani, Djenné and Bankass, in its health sector to demonstrate how ICT can be used to address shortage of medical specialists and professional isolation The programme included task shifting of medical imaging in obstetric cardiology in remote areas and continuous medical education (CME) through distance learning.(55) Experience from Mali on EQui-ResHu project showed telehealth can improve retention and reduce isolation of health professionals. The health workers had a positive perception on the use of ICT.(56,57)

However, it is not the case in Senegal,(58) where physicians pointed out that telemedicine cannot exclusively be used to retain health workers in the remote areas without considering other factors such as context, economic, family, individual, organization as well as professional factors. This further confirms the value of bundled approach in health workers retention in remote areas.

Bundle approach/combined approach strategy

In 2003, Zambia introduced a retention scheme "Zambia health worker retention scheme" (ZHWRS) with donor support of about 99% of the needed funds. Initially the scheme targeted doctors but was later expanded to other cadres of health workers working in rural areas. The scheme includes both financial and non-financial incentives such as career development opportunities, hardship allowance, education allowance for children aged 5 to 26 years, access to car loans and housing loans. The retention intervention resulted in recruitment of about 68 Zambian doctors in a period of 18 months.(45) However, from an evaluation done 5 years after implementation, the ZHWRS scheme showed marginal success in decreasing attrition rate and increasing critical health workers in rural and remote areas of Zambia.(59)

In the 1990s, Mali started a medicalization program with financial, management and education support through a rural professional association for young graduates to settle in private practice in rural areas. According to Diemen et al, (45) an evaluation program done in 2009 by Cojia at al., revealed success. The doctors who are members of the professional association were satisfied and willing to stay longer in the rural areas than non-members of the association. The program saw an increase of more than 100 in the number of doctors working in rural community-managed health centers. The evaluation also revealed increased level of trust of the community towards the health care system with presence of doctors, that resulted in increased utilization of the health care services in the rural areas.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DICUSSION

Retention of human resources for health in remote areas is influenced by an array of factors in different environments. Understanding these factors in the context of Turkana county will enable the design of context specific interventions needed to address the shortage of skilled health workers.

Although there is limited available literature which is exclusive to the health workforce in Turkana county, it was nevertheless possible to find information from broader human resource studies in Kenya which included Turkana and in national reports with figures on Turkana county. Where this was not possible, inferences were drawn from studies in other remote areas in sub-Saharan Africa with conditions similar to those prevailing in Turkana. The Lehmann et al (2008) conceptual framework was useful in analyzing the factors in the different environments.

In this section, I will discuss the factors identified from the result sections under different environments and their implications on the retention of health workers. The interventions will be discussed separately in the same section followed by the conclusion and the recommendations.

Individual environment

The study found a low level of females among the health workers in Turkana however, no data was found on the average length of stay of these female workers at their posts. Females form 70% of the global health workforce.(60) A high number of females like nurses and midwives is known to contribute to about 87% of the essential care needed for sexual, reproductive, maternal and newborn health services.(61) The presence of females is especially vital in communities where cultural values and norms are important. As stated by Ojakaa et al,(22) women in Turkana are unwilling to allow male nurses to attend to them. The underutilization of community maternity services and resort to traditional birth attendants may contribute to the high maternal mortality rate in Turkana. This study did not find any interventions directed at retaining more females in Turkana county.

Another significant finding was the low the low level of education among health workers in Turkana. This reflects in the lower proportion of higher skilled workers such as doctors and pharmacists in Turkana. Highly qualified workers are reluctant to work in remote areas due to the absence of an enabling working environment and living conditions. They have a greater option for employment on the labour market including the option of self-employment. Higher wage is however is not the only determinant for attracting and retaining higher skilled workers. Good working conditions, safety, career advancement opportunities availability of supplies and technical support also play important roles.(62) Turkana now has 7 specialist at post as a result of its incentive package as shown in the results.

There is no substantial information on the role of age or marital status on retention of staff in Turkana county although in other similar settings in SSA, married female workers were more likely to move away to join their spouses in the urban areas. The findings may apply to Turkana county given its remoteness and lack of employment opportunities for spouses and schools for children.

Local environment

The study findings show better living conditions and community support are important factors that influence retention of health workers in the remote areas. Inadequate access to good housing, lack of transportation and poor road networks as well as inadequate water supply, electricity and social amenities are found to influence retention in Turkana county as expected. Water has remained a big challenge in the whole of Turkana county due to the semi-arid nature of the land. Lack of water has an impact on infection control measures in a working environment which concurs with the findings observed in a study in rural remote areas of Tanzania. While these services are concentrated within Lodwar town (headquarter), the rest of the county is underserved. All these are factors that push away the health workers from practicing in remote areas and leads to rural urban migration of health workers within the county

Turkana county embarked in provision of good housing for the health workers as a retention strategy. However, the intervention is mainly focusing on doctors and specialist coming from outside the region. The doctors represent a small proportion compared to the other cadre of staff such as nurses working in rural and remote areas in lower level of primary care service delivery. This implies that, the intervention is not reaching the majority. The housing allowance given to lower level staff is largely inadequate.

Work environment

Incentives (financial and non-financial), training and career advancement opportunities, availability of medical supplies and equipment coupled by improved infrastructure play a positive role in retention of health staff in Turkana county. Financial incentives are important in motivating health workers to choose rural postings but can only lead to retention if they are higher and greater than the opportunities of private practice in urban areas. However, the impact of financial incentives in the retention of health workers is greater if they are combined with other non-financial incentives.(63) Hardship allowance which is the main financial intervention in remote areas is discussed later.

Access to training and career development are important factors influencing retention. National regulations require continuous professional development (CPD) for health workers in order to update their competencies. Other than the country's regulations, training opportunities are attractive to health workers because they also provide future economic returns. There is however only one medical training college in Turkana county which does not offer upgrading courses or a higher learning curriculum.

Availability of medical supplies and equipment create an enabling environment for the staff to work in. According to WHO (2010), improved physical health infrastructure and resource availability can improve retention as it gives health workers confidence and ability to practice what they learned to do in order to save lives. Improved infrastructure enhances good storage and use of medical equipment and supplies. Good physical facility structures with a source of lighting (power) and availability of safe drinking water also brings comfort to health workers to practice in Turkana county. The mass construction of new health facilities since the devolution is discussed later.

National environment

Insecurity in remote rural areas is a significant limitation to retention in the study findings. Safety of the health workers and the health facilities influence preference for rural jobs in Turkana sub-counties along the internal and international borders. Insecurity reduces the

ability of the staff to offer health care services as needed as they fear for their lives. There is also fear of political interference and victimization coupled by uncertainty over job security especially for the staff coming from other counties or regions in Kenya. Victimization of non-ethnic health workers is surprising given the dire need for health workers to provide services in the county. This could be related to the historical post - election violence in Kenya. However, the study findings show that other staff transferred to Turkana consider it friendly especially when they get employed by international NGOs that offer better remuneration than the public sector. More study is needed to understand the level of political interference in retention of health workers in the country.

There is a policy gap in protecting the "health care in danger".(64) Little is being done to protect the health care workers and make them feel safe as they execute their duties. Low salaries and poor financial compensation demotivate health workers to take risks in accepting or continuing to practice for longer periods in risky remote areas.

International environment

There is a global shortage of 4.3 million health workers with low- and middle-income countries (LMICs) being more severely affected. Global demand for health workers and the ability of the high income countries (HICs) in North America and Western Europe to offer higher salaries and incentives such as training and security acts as a pull on health workers from LMICs.(65) Low levels of remuneration in Kenya as well as the high numbers of qualified unemployed health workers in the labour market act as push factors for the brain drain. Locally the result includes loss of the health workforce and expert knowledge. The Kenyan economy benefits from remittances and transfer of knowledge through returnees. Improvement in remuneration and working conditions are some of the measures Turkana county can use to mitigate against the brain drain.

Intervention programs

As outlined earlier, the main interventions in Turkana County are donor supported short-term contract, educational interventions, compulsory service, and professional and personal support mechanisms. These interventions are discussed in terms of appropriateness, sustainability, financial implications and impact and simultaneously compared with other interventions in SSA.

Short-term contracts

Normal hiring processes for government workers in Kenya are long and complicated and can take up to one year to complete. The short-term contracts present a quick way of hiring health staff and remains attractive because of the high rate of unemployed nurses and clinical officers in Kenya. However, the short-term contract is not so favourable as it does not guarantee job security and does not have benefits like pension. This implies that health worker uncertainty about their jobs may lead to attrition of the workforce. Although the county government has an obligation to absorb health workers on short-term contracts after expiry of their contracts, some workers opt to leave for personal reasons such as further education or for more secure jobs thereby creating gaps.

Donors invest a huge amount of money in the health workforce to provide improved incentives, educational courses, uniform stipend and enhanced housing in order to sustain the programmes employing short-term contract workers.(66) For example, Clinton Foundation estimate that US$4292.50 is required annually for each nurse to cover the total retention cost.(47) When donors withdraw, Turkana county has a financial obligation to

continue the projects in order to ensure sustainability. Failure to fund the programmes may lead to withdrawal of some services.

Educational intervention

Most of the literature addressing educational interventions applies to countries outside of SSA specifically targeting the recruitment and training of rural personnel and their re-integration into their communities. Turkana county has a middle level medical training college that offers nursing course at the certificate level. Due to high illiteracy level, most of the indigenous students do not meet the required entrance grades. The absence of a higher learning curriculum in the training school implies that staff have to travel outside of the county for upgrade courses. This leads to staff absenteeism from work and increased workload for the remaining staff which negatively impacts the service delivery.

Compulsory services

Compulsory service offers a temporary solution for the retention of skilled health workers especially for medical doctors. The scheme leads to a high turnover especially in rural areas as a result of challenges such as lack of clinical support and insufficient personal and family amenities. Though the turnover is predictable, the strategy is used as an adaptation for the provision of services in the challenging circumstances where there would otherwise be no service. The impact of compulsory service as a retention strategy has not been evaluated in Kenya. However, Seble Frehywot et al (2010) mentioned that the Government of Mozambique announced the success of the program by having at least a physician in each of the 148 districts in the Country. Seble Frehywot et al argue that, if compulsory service is planned well with incentives including transparency, it can contribute to retention of health workers in rural and underserved areas.

Financial incentives

Appropriate renumeration and non-financial incentives are highly valued as a retention package of health workers. Turkana county offers hardship allowance based on the salary scale. This implies that the newly qualified health workers often sent to the remote areas get less compared to experience under the same difficult working and living conditions. Unequal incentive system leads to demotivation especially at the primary care level where health workers are often working alone and with minimal support and supervision. Disparity in the incentive system may lead to high turn-over of health workers that has an implication on the continuity of health service delivery in the remote areas. As argued by Ditlop et al (2011) following rural allowance program evaluation in Zambia, financial incentives may result in retention of health workers if incorporated with non-financial incentives such as, training opportunities, living and working conditions and if incentive allowance policy for remote is applied fairly according to the needs.

Provision of return air tickets has succeeded in retaining a few medical specialists to the district. However, sustainability of the payment of the return tickets in Turkana county is also questionable, especially in a context where the county is struggling with limited resources to finance the health care service delivery.

Personal and professional support

Increase in the number of health facilities in Turkana county resulted in reduced distance to the health facilities. However, this does not translate into increased service provision as the county lacks adequate personnel to man the new facilities. The result is that some of the

health facilities are non-functional due to lack of the right mix of health workers to provide the needed health services. This initiative ought to be done strategically and with caution though at times they can be politically motivated following devolution. Lack of good situation analysis and feasibility may result in duplication of services, wastage of limited resources and poor provision of services at the primary level to meet the health needs of the population in Turkana county.

Use of E-health scheme is a noble innovative idea that supports health workers in remote areas. From the study findings, mhealth project on malaria being successful, Turkana county can roll out more projects in the county. The evidence in Turkana and in Mali suggest that E-health schemes if provided in a bundled approach with sufficient training and having the needed resources with technical support and supervision result in health workers retention in the remote areas.

The lesson learned from the five approaches is that there is no single strategy that can be used to improve retention of health workers in Turkana County. There are gaps and limitations on the current interventions. Short term contract and compulsory service offers short term solution, education is not well addressed, ehealth strategy is not well rolled out, and financial incentives are not equitably implemented. An evaluation on the effectiveness of these strategies is required to determine the true impact on retention to better inform future policy. Shortage and maldistribution of health workers is influenced by multiple factors and therefore, the Interventions have to be appropriately tailored to meet various needs. A bundled approach is may be the best approach on retention.

5.2 Limitation of the Study

There are limited studies done in Turkana county in regards to HRH. The Literature reviewed in Turkana and in other similar settings in Kenya identified health workers shortage and retention as a critical concern in rural and remote areas but do not have concrete data on health worker numbers or turnover in relation to the interventions. Retrieval of information from the MOH health information system was not possible because I did not have access. Some of the data obtained online provided conflicting figures that was difficult to analyze.

Several findings are from discrete choice experiment (DCE) studies conducted in Medical and Nursing training schools that did not include Turkana county and few involved health workers currently practicing. Most of the literature used studied combination of either, motivation and retention, recruitment and retention. Only 5 articles found studies specifically on retention. This implies that the findings on this study cannot be generalized specifically for retention due to the variety of literature used to come to a conclusion on factors influencing retention of HRH in the remote Turkana county. A more comprehensive information about retention of health workers in Turkana county would have increased the depth of the thesis discussion. However, this would have required field study which could not be done due to resource constraints.

5.3 Conclusion

Multiple factors interact to influence retention of health workers in Turkana county. Though comparable factors are encountered in areas with similar settings in SSA, Turkana has its own peculiarities. There is a huge gap in the health workforce due to the remoteness and harshness of the living conditions. The gap is complicated by gender imbalance and a lack of highly skilled workforce. The main factors influencing a decision to stay or leave are pay and allowances as well as improved living and working conditions and the presence of good roads and transport, electricity, safe water and social amenities. Opportunities for professional development and insecurity also play a significant role.

The interventions applied in a bundle approach are not evidence-informed, rather they follow the generic recommendations of the Ministry of health or are sometimes politically driven. While some of the interventions such as the donor supported short-term contract, specialist incentives and compulsory service provide short term solutions, the hardship allowance is considered inadequate to meet the high cost of living. The mass construction of new health facilities without the presence of adequate health workers to provide service may be a misplaced priority. There is also disparity in the allocation of financial and non-financial incentives, with more attention being paid to the higher skilled staff to the detriment of the lower level cadres. There are no interventions in place to correct the gender imbalance and insufficient attention is focussed on educational interventions for existing workers and attracting future indigenous health cadres. While there are efforts to involve the police in improving on security, a parallel approach of implementing a policy on 'Health Care in danger' will be useful in promoting a safe working environment for health workers.

The appropriateness, effectiveness, impact and sustainability of the interventions currently employed in Turkana County have not been studied. Future research should be aimed at a better understanding of the factors peculiar to the county that influence retention so that evidence-informed interventions can be designed to retain the health workforce of the county

5.4 Recommendations

Retaining skilled health workers especially in remote areas with appropriate skill mix for health care remains a major challenge and there is no singular intervention that can be used to retain health workers in remote areas. These recommendations are based on the findings in Turkana county and experience from other countries with similar settings.

Short term

Turkana County Department of Health

- Adopt new technologies such as telemedicine to improve access to highly skilled advice from senior medical personnel.
- Develop incentive schemes to ensure that compulsory service is supported by other benefits like pay, housing, continuing education and clinical backup and supervision for its success.

Long term

Ministry of Health as policy makers

- To review policy on financial and non-financial incentives in order to offer a realistic incentive package and reduce inequality where health workers working in remote areas feel disadvantaged.

- Launch a national 'Health Care in Danger' campaign and enhance security through intersectoral collaboration with ministry of interior for security personnel in insecure areas to make it suitable for staff.

Turkana County Department of Health

- Partner with the medical training college board to improve on the quota system for local trainees and to upgrade the medical training college in Lodwar to provide a higher learning curriculum. Availability of an institution of higher learning that is close to the people gives staff opportunities for professional development within the region and increased presence at work.

- Extend provision of better staff accommodation in rural areas to all cadres of staff. The current practice mainly focusses on Doctors and specialists who represent a small fraction of cadres of health care workers working in Level 1, 2 and 3 health facilities at the primary care level in remote areas

- Encourage a multisectoral approach between county ministries and other private stakeholders responsible for different services such as roads and transport, water and telecommunication to improve on the infrastructure and social amenities available in the county.

Research unit to Turkana County department of health

- Future qualitative studies can be conducted to assess the impact of current interventions applied to attract HRH in Turkana county. The studies will provide good understanding on the retention package. WHO evidence -based recommendations on retention strategies for attraction and retention of health workers in remote areas can be used to develop a combined approach based on the research study.

- Collaborate with Moi University medical research Unit to study gender dynamics in access to health care and recommend interventions to reverse the low proportion of females in the health workforce of Turkana county. The study will guide policy makers in developing policies that address Gender imbalance.

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Annexes:

Annex 1. Map of Turkana county with administrative boundaries

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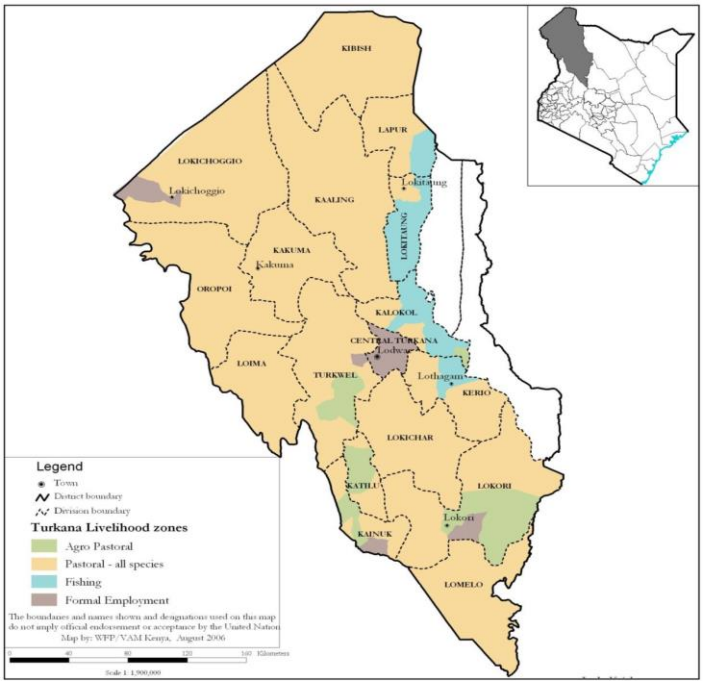

Annex 2. Search table

Literature review	Web search	Key words: Retention AND Health workers AND Remote Rural or/with single terminologies
Published Articles in Journals (peer reviewed)	Goggle scholar, PubMed, Science direct, Scopus	Turkana, Kenya, Sub-Saharan Africa, Interventions, Strategies, Evaluation, E-health, Underserved areas
Reports Local and International/ grey literature	Google website, WHO, UNSAID, Intrahealth, ICRC	Turkana County, Kenya, Demographic health surveys, Human Resources for Health policy, Retention Guideline, Ehealth

Annex 3. Categories of interventions used to improve Attraction, Recruitment & Retention of Health workers in Rural areas (WHO 2010)

Categories of interventions	Examples
A. Education	A1 - Students from rural backgrounds
	A2 - Health professional schools outside major cities
	A3 - Clinical rotations in rural areas during studies
	A4 - Curriculum that reflects rural issues
	A5 - Continuous professional development for rural health workers
B. Regulation	B1 - Enhanced scope of practice
	B2 - Different types of health workers
	B3 - Compulsory services
	B4 - Subsidized education for return of services
C. Financial incentives	C1 - Appropriate financial incentives
D. professional & personal support	D1. - Better living conditions
	D2. - Safe and supportive work environment
	D3. - Outreach support
	D4. Career development programs
	D5. - Professional networks
	D6. Public recognition measures.

Source: WHO ;2010 p;17

Annex 4. Incentive framework for attraction and retention of health workforce

Incentive framework for attraction and retention of health workforce	
Make work conditions more attractive • Develop an incentive policy for attraction and retention of health workers. • Strengthen and review Human Resources Management supportive supervision tools & guidelines. • Establish resource centers and recreation facilities. • Develop and review schemes of service for Health Workers. • Improve personnel records and filing systems at all levels. • Provision of necessary tools to undertake their responsibilities. • Improved working conditions through renovations, upgrading the facilities (re-equipping the medical facilities with new technology especially to facilitate telemedicine) and making medical supplies accessible to the communities.	**Make undeveloped and hard to reach stations more attractive** • Provide competitive and attractive retention package. • Use innovative communication approaches in hard to reach areas. • Subsidized utilities including water and electricity. • Provision of adequate air-conditioned housing or fully furnished boarding houses within vicinity of the health facility. • Improving working environments including infrastructure (security, roads and communication) • Life insurance due to higher risk of clashes and bandits' attacks. • Provision of transport for family visits every 3 months for staff living far from family. • Provision of paid online courses and internet allowance or free internet provision to enable access to continuous professional development training.

Financial incentives	Non-Financial incentives
• A mid-range entry level basic pay in hardship areas than the normal areas for new entrants to the service with bonding to ensure it serves the attraction and retention expectation. • A higher house allowance than the normal working areas if housing is not provided. • A commensurate hardship allowance paid to members of staff who are stationed in the designated hardship areas. • A higher non-practicing allowance paid to doctor and dentists who are not practicing than normal areas. • An additional responsibility/duty allowance paid to officers who are required to handle tasks beyond their job descriptions, such as acting as head of a department, nurses who act as professional counselors in facilities and members of sub County HMTs.	• Provision of comprehensive health care services for health workforce and immediate family. • Opportunities for continuous professional development, such as a prioritized post-graduate training after serving a certain number of years. • Improved human resources management (HRM) which could encompass any of the following: reduced workloads, supportive supervision, decentralization of human resources activities, deployment on areas of choice or having fixed term in hardship areas, clear roles and responsibilities within their job description and performance appraisals. • Access to house, education or car loans at lower negotiated market rates (for highly skilled public sector workers). • Establishment of social amenities within vicinity of the facility such as staff canteen, gym facility, and recreation centers.

Source: Devolved Human resources management (HRM) policy guidelines on HRH, 2015

Annex 5 Turkana HRH Staff Employment since the onset of devolution 2013.

CADRE	2013	2014	2015	2016	2017	2018
Medical Officers (General)	7	6	13	9	-	-
Medical Specialists	2	-	1	2	3	1
Clinical Officer (General)	24	34	-	123	2	-
Clinical Officer (Specialist)	2	-	-	3	-	-
Nurse (General)	149	183	1	53	90	-
B.Sc. Nurse	2	1	-	3	1	-
Dental Nurse	-	-	-	-	-	-
Nurse Specialist	1	-	-	-	8	-
Pharmacist	3	2	6	9	-	-
Pharmacy Specialists	-	-	-	-	-	-
Pharm Technologists	4	5	-	12	1	-
Dental Officers	-	2	2	2	-	-
Dental Specialists	-	-	-	-	-	-
Dental Technologists	2	5	-	2	-	-
Rehabilitative & Plater staff	7	1	-	13	-	-
Clinical psychologists	-	-	-	-	-	-
Diagnostics & Imaging Staff	2	-	-	3	1	-
Public Health staff	44	20	-	24	2	-
Health Administrative Officers	4	-	-	3	-	-
Health Information (ICT)	3	5	-	12	-	-
Medical Engineering Staff (Hospital Maintenance)	1	3	-	-	-	-
Medical Laboratory Staff	8	23	15	18	1	-
Nutrition staff	9	24	-	38	3	-
Support staff	40	-	-	5	-	-
Community Health Service Personnel (CHEWs 24, CHA1, CHO1)	9	92	-	4	8	-
Clerical Officers	9	**-**	**-**	**-**	**-**	**1**
Drivers	6	**11**	**16**	**-**	**-**	**-**
Procurement Officers		**2**	**-**	**4**	**-**	**6**
Human Resource Officers	-	**-**	**1**	**4**	**-**	**1**
Total	338	419	55	346	120	7

Source: Turkana county health his 2019