Kenya Nursing Workforce Report

The Status of Nursing in Kenya, 2012

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Collaborating Institutions

Kenya Ministry of Health (MOH)

Nursing Unit

Human Resources Department

Nursing Council of Kenya (NCK)

Kenya Health Workforce Project (KHWP)

Emory University

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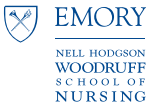

Foreword

In Kenya, nurses provide the bulk of direct patient care at all levels of health services delivery. The Kenya Nursing Workforce Report is the first of its kind, providing a comprehensive overview of the status of nursing in Kenya. The report provides county level data on trends in Kenya's nursing workforce to inform health systems strengthening, policy development, and future research, as well as the devolved management of health services at the county level.

This report provides data on the supply, regulation, deployment and distribution of nurses in Kenya. Supply and regulation data include enrollment in nurse training, examination, registration with the council, private practice, licensure renewals and intent to migrate. Deployment and distribution data include the employment of nurses in Kenya's public, parastatal and faith-based sectors. Nursing data on county of deployment, facility type and sector of employment is included, as well as data on nursing workforce attrition. This national nursing report will serve as a platform for a future integrated report on the health workforce in Kenya.

The development of this national nursing report was made possible by support from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through CDC Kenya, who has supported the development of health workforce information systems in Kenya since 2002. These information systems, which were developed through a collaboration between the Emory University Kenya Health Workforce Project, Nursing Council of Kenya (NCK) and Kenya Ministry of Health (MOH), include the Regulatory Human Resources Information System (rHRIS) in the NCK and the Kenya Health Workforce Information System (KHWIS) in the Nursing Unit, formerly the Department of Nursing, MOH. Data from the rHRIS and KHWIS informed the development of this report.

On behalf of the Kenya Ministry of Health, I would like to acknowledge the contributions of several individuals and organizations without whom this report would not have been possible. We would like to thank all stakeholders, specifically the Nursing Unit, the Nursing Council of Kenya, the Human Resources Department, the National Nurses Association of Kenya, the Kenya Progressive Nurses Association, nurse training and employing institutions from the public, private and faith-based sectors, listed in Annex III. Additionally, we want to thank the Emory University Kenya Health Workforce Project and CDC for their technical support, and PEPFAR for the financial support to develop the report.

In conclusion, it is our sincere hope that these data will be used by policy makers, program managers and researchers to improve health workforce management and health services delivery in Kenya.

Sincerely,

Prof. F. H. K. Segor
Principal Secretary
Ministry of Health

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ARV	Antiretroviral
BScN	Bachelor of Science in Nursing
CDC	Centers for Disease Control and Prevention
CH	Child Health
CHAK	Christian Health Association of Kenya
CPD	Continuing Professional Development
DGHA	Division of Global HIV/AIDS
DHIS	District Health Information System
FBO	Faith Based Organization
GDP	Gross Domestic Product
GHRIS	Government Human Resources Information System
GOK	Government of Kenya
HIV	Human Immunodeficiency Virus
HR	Human Resources
IPPD	Integrated Personnel Payroll Database
JLI	Joint Learning Initiative
KCCB	Kenya Catholic Conference of Bishops
KCSE	Kenya Certificate of Secondary Education
KHWIS	Kenya Health Workforce Information System
KHWP	Kenya Health Workforce Project
KNH	Kenyatta National Hospital
KMTC	Kenya Medical Training College
LCC	Lillian Carter Center for Global Health and Social Responsibility
MDG	Millennium Development Goal
MEDS	Mission for Essential Drugs and Supplies
MFL	Master Facility List
MOH	Ministry of Health
MoMS	Ministry of Medical Services
MoPHS	Ministry of Public Health and Sanitation
MTRH	Moi Teaching and Referral Hospital
NASCOP	National AIDS and STI Control Programme
NCK	Nursing Council of Kenya
NGO	Non-governmental Organization
NHA	National Health Accounts
NHSSP	National Health Sector Strategic Plan
NJSC	National Joint Steering Committee
NU	Nursing Unit
OECD	Organization for Economic Co-operation and Development
OGAC	Office of the Global AIDS Coordinator
PEPFAR	President's Emergency Plan for AIDS Relief
RH	Reproductive Health
rHRIS	Regulatory Human Resources Information System
SUPKEM	Supreme Council of Muslims of Kenya
SWAp	Sector Wide Approach
TB	Tuberculosis
THE	Total Health Expenditure
TOK	Trained Outside of Kenya
WDI	World Development Indicators
WHO	World Health Organization

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Executive Summary

The purpose of this report is to provide a situation assessment of the nursing workforce in Kenya. Accessible and up-to-date information on human resources for health is essential to health sector planning. This report explores trends in nurse training, examining the flow of nurses into the national supply and the regulation of nursing practice, as well as the deployment of nurses in the public, parastatal and faith-based sectors.[1]

Supply and Regulation of Nurses

In Kenya, the Nursing Council of Kenya (NCK) set standards related to the education and practice of nurses. The NCK uses the Regulatory Human Resources Information System (rHRIS) to track nurses through the process of training, examination and registration to practice nursing. The rHRIS provided data for this report on the supply and regulation of nurses in Kenya. As of mid-2013, the NCK has approved 83 nursing training institutions of which 53.0% are public, 32.5% are faith-based and 14.5% are private. Training institutions offer programs at the certificate, diploma and degree level and are located in 30 of Kenya's 47 counties.

In Kenya, nurses are trained at three levels, certificate (i.e. an enrolled nurse), diploma (i.e. a registered nurse) and degree (i.e. Bachelor of Science in Nursing (BScN)). From 2003-2012, 25,415 new students enrolled in nurse training with the annual intake tripling between 2003 (1,545 new students) and 2012 (4,294). Over half of the nursing students (57.4%) trained at one of the 28 Kenya Medical Training Colleges (KMTCs). For nurse training, the NCK recommends a tutor to student ratio of 1:10. The KMTCs have an average tutor to student ratio of 1:22, demonstrating the need for more faculty at government sponsored training colleges. The average tutor to student ratio at faith-based and private institutions is 1:14 and 1:7 respectively. Student nurse attrition, or failure to register with the NCK, for students that enrolled in training from 2003-2007 was 8.8%.

To enter the register, graduates must pass the NCK licensure exam. Starting in 2012, the NCK offered licensing exams four times per year at 96 exam centres across Kenya. In 2012, 4,273 students sat for the NCK exam with a pass rate of 82.3%. Students who fail the licensure exam are allowed to retake the exam. From 2003-2012, 17,579 nurses passed their licensure exam and registered with the NCK to practice in Kenya. The annual number of nurses registering to enter the workforce doubled between 2003 (1,423 newly registered nurses) and 2012 (2,908). For the nurses newly registered with the NCK, 74.2% are diploma nurses with certificate and degree nurses at 19.6% and 6.2% respectively.

In Kenya, the nursing workforce eligible to practice is comprised of nurses that have registered with the NCK. The public sector retirement age is 60 years of age, while nurses over 60 years are still eligible to work in the private and faith-based sectors. As of 2012, there were 50,025 nurses aged 60 years of age or younger registered to practice nursing in Kenya and 5,066 over 60 years.[2] For nurses aged 60 years and under, diploma nurses comprise 57.8% of the workforce, followed by certificate nurses (39.2%) and degree nurses (3.0%).

1 Since only 64.4% of private facilities' reported their nursing deployment data to the Kenya Health Workforce Information System, this report could not include private sector nurse deployment.

2 This number includes nurses registered with the NCK since 1960, but does not account for death, out-migration and other forms of attrition.

Kenya, like many other countries in the region, now requires nurses to obtain continuing professional development (CPD), which is linked to licensure renewal. The NCK also requires nurses to renew their licenses every three years. From 2008-2012, 39,919 nurses renewed their practice licenses, accounting for 79.8% of nurses ever registered aged 60 years or younger. This provides a more accurate picture of the active nursing workforce in Kenya with a ratio of 103.4 nurses per 100,000 population. The World Health Organization (WHO) recommends 250 health care workers (doctors, nurses and midwives) per 100,000 population [1].

In 1991, the NCK began issuing private practice licenses that enable nurses to run private clinics and nursing homes. From 1991-2012, the NCK issued 1,612 private practice licenses. Enrolled nurses account for 85% of licenses issued with 15% issued to registered nurses. The NCK requires only three years of clinical experience as eligibility to apply for a private practice license. The majority of nurses that received private practice licenses had between 21-30 years (32.5%) and 31-40 years (34.0%) years of experience. Almost half of private practice nurses (45%) were aged 51-60 years of age.

Deployment and Distribution of Nurses

Based on 2012 deployment data from the Kenya Health Workforce Information System (KHWIS), maintained by the Nursing Unit, formerly the Department of Nursing, Ministry of Health (MOH), there are 19,591 nurses deployed at 4,187 health facilities across Kenya, including public, parastatal and faith-based facilities. The public sector employs 16,671 of these nurses, followed by 2,246 employed in Kenya's two parastatal national referral hospitals — Kenyatta National Hospital and Moi Teaching and Referral Hospital and the remainder at faith-based facilities. The number of nurses working within private facilities is not known since most of these facilities are not currently reporting to the MOH.

When comparing the ages of nurses employed in the public and faith-based sectors, the faith-based sector employs a higher percentage of younger nurses aged 21-30 years (26%) compared to the public sector (6%), while the public sector employs a higher percentage of nurses aged 51-60 years (28%). The majority of the public sector nursing workforce trained at the diploma level (52.5%). While enrolled nurses comprise a smaller percentage of the Kenyan nursing workforce ever registered aged 60 years or younger (39.2%), they constitute 46.4% of nurses employed in the public sector.

In Kenya, nurse deployment differs across facility types. While hospitals only comprise 8.4% of health facilities, 67.9% of the nursing workforce is deployed in hospitals. Dispensaries comprise 72.0% of health facilities, but only account for 17.7% of deployed nurses. Health care administration is streamlined in Kenya, as government management offices only account for 3.5% of health facilities and 3.1% of the deployed nursing workforce.

Based on deployment data reported to the MOH and captured in the KHWIS, the national nurse to population ratio for deployed nurses is 51.5 nurses per 100,000 population[3]. However, the nurse to population ratios vary by county. Isiolo (122.8 nurses per 100,000 population), Embu (104.8) and Nyeri (101.7) counties have the highest nurse to population ratios, while Wajir (19.9), Turkana (12.2) and Mandera (8.6) counties have the lowest.

For the deployed nursing workforce, 13% have post-basic training in specialty areas. While 79.5% of the nursing workforce received basic midwifery training as part of their pre-

3 The ratio of 51.5 nurses per 100,000 population is based on nurses deployed at government, faith-based and parastatal facilities (i.e. private facility nurse deployment is not captured); while the ratio of 103.4 nurses per 100,000 population is based on the number of nurses registered with the NCK aged 60 years or younger that have renewed their licenses from 2008-2012.

service education, an additional 10% of deployed nurses have a post-basic specialization in midwifery (i.e. advanced training). Another 3% of the deployed nursing workforce has specialty training in other areas, including psychiatry, ophthalmology, pediatrics, peri-operative, anesthesia, critical care, nephrology and accident and emergency.

Based on data from the Integrated Personnel Payroll Database (IPPD), the leading cause of workforce attrition is retirement (37%), followed by death (28%) and dismissal (19%). Another cause of workforce exit is out-migration, as indicated by data from the rHRIS on licensure verifications, which provide data on intent to migrate, not actual migration. Nurses may submit multiple verification applications to migrate. From 2008-2012, 1,149 nurses applied to migrate, accounting for 1,278 total applications. During this period, there was an average of 256 annual applications to migrate, a 37.4% decrease compared to the previous nine years.

Introduction

Health service delivery requires strong governance, appropriate financing, a functional supply chain, sufficient commodities, accessible health facilities and an adequate health workforce. The aim is a robust health system through which the health workforce can deliver quality patient care. In Kenya's health care system, health professionals are the life giving force—the doctors, nurses, clinical officers, laboratory technicians and technologists, radiographers and radiologists, pharmacists, nutritionists and dieticians, dentists, health managers, and public health officers and technicians among others. The health workforce ensures patients can access needed preventive, diagnostic and curative services.

In Kenya, the nursing workforce plays a vital role in health service delivery, providing the bulk of direct patient care. In 2004, Kenya's doctor to nurse ratio was 1 doctor for 8.24 nurses [1]. Yet even as nurses comprise a substantial portion of the health workforce in Kenya, areas remain where there are insufficient nurses to meet patient demand.

In the past, Kenya's nursing workforce shortage coexisted with the unemployment of trained nurses [2] —a paradoxical situation resulting from the macro-economic policies of international finance institutions. These policies included economic structural adjustment programs that limited public sector spending on the health workforce [3]. These hiring ceilings meant that the Ministry of Health (MOH) could no longer directly hire and deploy new nursing graduates. Since 2006, the Government of Kenya (GOK) has been working to create the fiscal space necessary to hire and deploy more qualified licensed nurses to meet the demands for service delivery through the *Emergency Hire Program* and more recently in 2010 through the *Economic Stimulus Package*.

> *"This report explores trends in nurse training, examining the supply of nurses into the national registry and the regulation of nursing practice, as well as the deployment of nurses in the public, parastatal and faith-based sectors."*

To inform health sector planning, health managers and policy makers require a robust understanding of workforce dynamics. This includes a better understanding of the nursing workforce supply pipeline and skill-mix required at the facility level. In order to promote health, prevent the spread of disease, and offer quality care, Kenya must ensure that its nursing workforce is well regulated and comprised of licensed professionals that are strategically deployed and equitably distributed at each level of care.

Addressing these complex issues requires timely and accurate data on which to base workforce decisions. Information systems that gather health workforce data to drive and enhance the management of human resources for health are a key component of health systems strengthening. Through data systems such as the Regulatory Human Resources Information System (rHRIS), Kenya Health Workforce Information System (KHWIS), Integrated Personnel Payroll Database (IPPD), and Human Resource (HR) data systems, Kenya's health professional regulatory agencies and MOH collect health workforce information, specifically regulatory, deployment, payroll, and HR management data respectively. Together, these information systems collect nursing data, among other health workforce data on the training and licensing of nurses, as well as nursing workforce deployment at the facility level.

These data systems are workforce management tools that assist policy makers and health managers to answer key questions facing Kenya's health sector. Similar to other sub-Saharan African countries, Kenya faces numerous workforce challenges — including scaling-

up its nursing workforce, the maldistribution of nurses, global nurse migration and issues of workforce retention — as it strives to meet the Millennium Development Goals (MDGs) [4].

The purpose of this report is to provide a situation assessment of the nursing workforce in Kenya. Accessible and up-to-date information on human resources for health is essential to health sector planning. This report explores trends in nurse training, examining the supply of nurses into the national register and the regulation of nursing practice, as well as the deployment of nurses in the public, parastatal and faith-based sectors. This document seeks to provide comprehensive, county-level data on trends in Kenya's nursing workforce that will inform health systems strengthening, policy development, and future research as Kenya devolves the management of its health services to the county level.

Chapter One
Kenyan Context

This section provides a general overview of Kenya, as the context in which the nursing workforce is produced and deployed.

1.1 Geography and Demography

Kenya, located in East Africa, boarders five countries and two bodies of water with Ethiopia to the north, Somalia to the northeast, Tanzania to the south, Uganda and Lake Victoria to the west, South Sudan to the northwest, and the Indian Ocean to the southeast. With the constitutional referendum passed in August 2010 and following the general election in March 2013, Kenya transitioned from eight provinces that were sub-divided into districts into a new governance structure comprised of 47 counties and a national level. While Kenya has a total land area of 571,466 square kilometers, only 20% of this land is arable. The climate in Kenya varies by elevation, with the coastal region experiencing warmer weather year round and regions in closer proximity to bodies of water receiving more rainfall. Kenya has two wet and two dry seasons, with long rains from March to May, short rains from October to December, and dry seasons in between [5].

Table 1.1: Percent Population Distribution by Age Group, Location, and Year

Age Group	2003			2009		
	Urban	Rural	Total	Urban	Rural	Total
‹ 5 years	14.2	16.4	15.9	13.6	16.2	15.7
5-14 years	21.0	30.6	28.7	20.5	31.1	29.0
15-64 years	63.6	49.0	51.9	64.3	48.1	51.1
65+ years	1.1	4.0	3.4	1.5	4.6	4.0
Sample Population	7,344	29,784	37,128	7,416	30,602	38,019

Source: Kenya Demographic and Health Surveys 2003 [6] and 2009 [5].

Kenya's population grew by 34% in ten years, from 28.7 million people in 1999 to 38.6 million 2009, similar to the 34% growth increase from 21.4 million people in 1989 to 1999 [7]. A disproportionate percentage of Kenya's population live in rural areas (67.7%), compared to urban dwellers (32.3%) (Table 1.1) [7]. In rural areas, only 26.3% of women received any education beyond primary school compared to 57.6% of urban dwelling women. A disproportionate number of Kenyan's live in counties that comprise Kenya's former Rift Valley Province (Table 1.2).

Table 1.2: Population Distribution by Province

Nairobi	Central	Coast	Eastern	North Eastern	Nyanza	Rift Valley	Western	Kenya
3,138,369	4,383,743	3,325,307	5,668,123	2,310,757	5,442,711	10,006,805	4,334,282	38,610,097

Source: Kenya 2009 Population and Housing Census Highlights [7].

1.2 Economic Context

While Kenya experienced economic growth from 2002-2007, averaging over 5% per year, this growth halted after 2007 due to political violence, harsh droughts, the global economic downturn and limited investment. In 2009, economic growth was 2.2% with inflation at 9.3% and 40% of the population unemployed [8].

Although economic instability is still a threat (Table 1.3), Kenya launched an *Economic Recovery Strategy* in which the health sector is identified as a top priority. In 2009/10, Kenya spent 1.62 million dollars on health, a 20% increase over 2005/06, and had a total health expenditure (THE) of 5.4% of gross domestic product (GDP) [8].

While the Abuja declaration recommends that governments spend at least15% of their national budget on health, Kenya only spent 4.6% of its total budget on health in 2009/10. This is down from 8.6% in 2001/02. In Kenya, health care expenditures are tracked using the national health accounts (NHA), which tracks the funding sources, financing agents, healthcare providers, and services and products purchased [8]. Health care financing in Kenya is discussed further in Section 2.3.

Table 1.3: Economic Indicators

	Kenya	Year of Data	Average Value in Sub-Saharan Africa	Year of Data	Source of Data
Total					
GDP per capita (constant 2000 US$)	453.22	2008	1,053.27	2008	WDI-2010
GDP growth (annual %)	1.69	2008	5.16	2008	WDI-2010
Per capita total expenditure on health at international dollar rate	105.00	2006	147.78	2006	WHO
Private expenditure on health as % of total expenditure on health	39.3	2006	48.94	2006	WHO
Out-of-pocket expenditure as % of private expenditure on health	74.0	2006	78.02	2006	WHO
Gini Index	47.68	2005	42.39	2005	WDI-2010

Source: Kenya National Health Accounts 2009/10 [8].

1.3 Political Context

During the general elections on March 4, 2013, Kenyans elected their fourth President, as well as governors, senators and members of the national assembly in line with the August 2010 constitution, which was supported by 67% of Kenyans. The previous eight provinces are now organized in 47 counties to which power and oversight is being devolved, [9] with the distribution of functions between the national and county governments. The new government has a leaner central structure with 18 ministries. Each ministry is overseen by a Cabinet Secretary appointed by the President [9]. Following the general election, the former Ministry of Medical Services (MoMS) and Ministry of Public Health and Sanitation (MoPHS) merged to form the Ministry of Health (MOH), overseen by a Cabinet Secretary. The devolution of health related functions under the new constitution will shape the future of the health system, specifically the staffing of health facilities.

1.4 Health Status

Life expectancy in Kenya in 2011 was 60.0 years [10], an increase from 56.6 years in 1995 [5]. In Kenya, communicable diseases (Table 1.4), maternal and perinatal conditions and nutritional deficiencies comprise 72% of the burden of disease, while non-communicable diseases and injuries comprise 20% and 8% respectively [10]. In 2013, 59% of people had access to safe water and 31% to basic sanitation (Table 1.5). Kenya is working to meet the MDG 7 goal where 72% of Kenyans will have access to safe water and 63% to basic sanitation by 2015 [10].

MDG 6 is aimed at combating HIV/AIDS, malaria and other diseases. In 2001, the HIV/AIDS prevalence among adults aged 15-60 years was 7.7%. The goal is to decrease this prevalence by half by 2015 [10]. While HIV/AIDS remains the leading cause of mortality in Kenya (Table 1.4), the HIV/AIDS prevalence is decreasing—at 5.6% in 2012 [13]. Kenya was formerly organized by provincial boundaries, across which disease burden varies. The former Nyanza Province has a HIV prevalence of 15.1% - triple that of Nairobi and Western [13]. In 2009, 62% of people in need of ARVs had access with a goal of 100% access by 2015. In 2008, the rate of tuberculosis (TB) in Kenya (180 per 100,000 population) was almost three times the 2015 goal [10].

Table 1.4: Main Causes of Mortality

Main Causes of Mortality	Percentage
1. HIV/AIDS	38
2. Lower Respiratory Infections	10
3. Diarrheal Diseases	7
4. Tuberculosis	5
5. Malaria	5
6. Cerebrovascular Disease	4
7. Ischemic Heart Disease	4
8. Perinatal Conditions	4
9. Road Accidents	2
10. Chronic Obstructive Pulmonary Disease	2

Source: WHO (2006) Country health profile of Kenya [11].

Table 1.5: Health Indicators

Indicators	Unit
Life Expectancy (years)	60
Crude Mortality Rate (15-60 years per 1,000)	320
Under 5 Mortality Rate (per 1,000 live births)	73
Maternal Mortality Rate (per 100,000 live births)	360
HIV/AIDS Prevalence (%)	6.2
Access to Safe Water (%)	59
Access to Sanitation (%)	31

Source: WHO (2013) Kenya: health profile [12].

> *"While HIV/AIDS remains the leading cause of mortality in Kenya, the HIV/AIDS prevalence is decreasing—at 5.6% in 2012."*

Kenya is working to reduce maternal mortality to 95 women per 100,000 live births by 2015. However, maternal mortality in Kenya was 360 per 100,000 in 2013 (Table 1.5) [10]. In the former North Eastern Province, only 69.5% of childbearing women report receiving antenatal care (ANC) compared to 88.4% or more of women in other provinces. Delivery at a health facility is also lowest in the former North Eastern Province (17.3%)—followed by the former Western (25.3%) and Rift Valley (32.9%) Provinces. While women in North Eastern cite reasons for not attending ANC, such as facility closure, distance, or poor quality services, women in Western Province cite distance and cost. Major reasons cited by women in Rift Valley for not delivering at a facility include distance and that facility birth is unnecessary [4].

Chapter Two: Kenya's Health System

This section outlines Kenya's health system, including health policy and governance, service provision, and health financing.

2.1 Policy and Governance

Health policy in Kenya is outlined in the Vision 2030 and the Kenya Health Policy Framework, 2012-2030, in line with the Millennium Development Goals, 2000-2015. These policies are translated into 5-year medium-term strategic objectives, outlined in the Second Medium Term Plan for the overall government and the Kenya National Health Sector Strategic Plan (NHSSP) III, 2012-2017 for the health sector. The NHSSP II, 2005-2010, and NHSSP III, 2012-2017, promote a Sector Wide Approach (SWAp) to health care, including partnership among public and private entities, including the Government of Kenya, international donors, non-profits organizations, non-governmental organizations, civil society organizations and faith-based organizations. To guide the implementation of strategic objectives, the SWAp identifies priority investments to achieve the overall medium-term objectives, which are outlined in a Joint Program of Work and Funding to guide and prioritize health interventions [14].

Previously, the MoMS oversaw curative services delivered though government hospitals and the MoPHS was responsible for health promotion and preventive services delivered through government health centres and dispensaries at the community level. Together, the ministries of health worked closely to promote health and deliver health services in Kenya [15]. The respective Directors of Medical Services and Public Health and Sanitation served as the technical heads of health care delivery, overseeing health policy development, coordination, and implementation. Each health cadre, including nursing, clinical officers, laboratory technicians and technologists, and doctors, had a national head to which their provincial officers reported. All district officers reported to provincial officers.

The restructured health sector includes national-level and county-level governments. Following the 2013 presidential election, MoMS and MoPHS merged to form the Ministry of Health (MOH), which has a lean national government operations as governance is moved down to the county level [16]. The NHSSP III, 2012-2017, will guide service delivery at the national and county levels moving forward [16] in line with Kenya's new constitution. National-level government functions consist of policy formation and the management of national referral hospitals, while county-level functions include the management of health facilities and service provision within the county, as well as the recruitment and retention of health care workers to staff those facilities [17].

In Kenya, regulatory bodies govern the licensure and registration of health care professionals. These include the Kenya Medical Practitioners and Dentists Board, the Nursing Council of Kenya, the Kenya Medical Laboratory Technicians and Technologists Board, the Clinical Officers Council of Kenya, the Pharmacy and Poisons Board, the Kenya Nutritionists and Dieticians Institute, the Radiation Protection Board, and Public Health Officers and Technicians Council among others. Each regulatory body is responsible for upholding ethical and professional standards of practice for their health care.

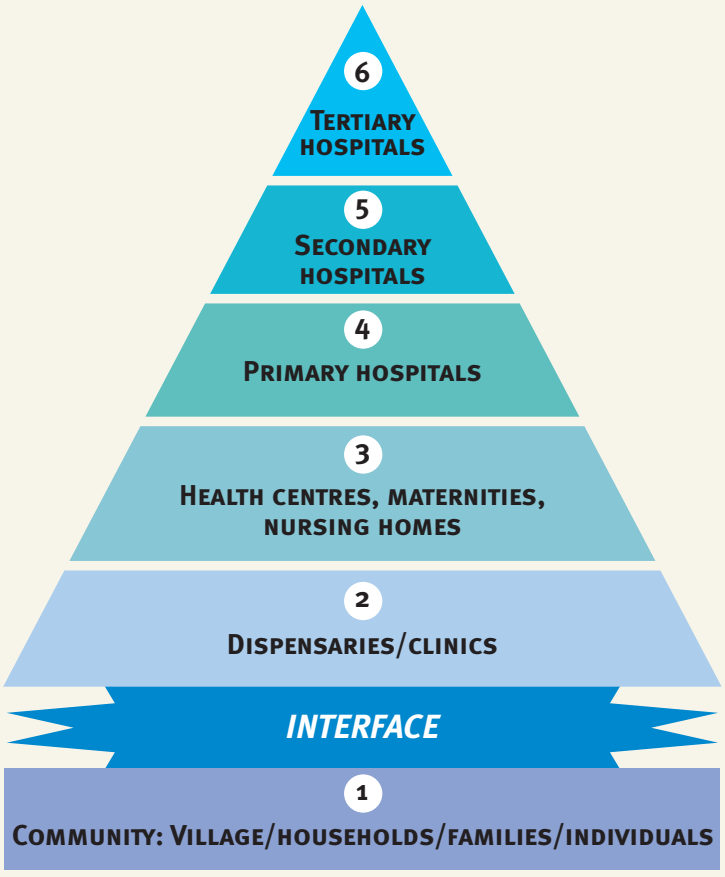
2.2 Service Provision

In Kenya, the public sector provides approximately 50-60% of the health services, while the remaining health services are provided by the private and faith-based sectors [18,19]. According to the Master Facility List (MFL) as of 2013, there were 4,031 public sector health facilities, 3,550 private and 1,057 faith-based facilities in Kenya [20]. In 2009/10, 46% of the total health expenditure (THE) went to the public sector, followed by 23% to the private and not-for-profit sectors, 14% to public health programs, 8% to health administration, 8% to community health workers and 1% to other avenues of health delivery [8]. This health care financing supports service delivery in Kenya organized under the "Kenya Essential Package for Health" (KEPH), which outlines six levels of service delivery (Figure 2.1) [15,21]. Under the NHSSP III, it is envisioned that these six levels of care will be condensed to four tiers [16].

> *"According to the Master Facility List (MFL) as of 2013, there were 4,031 public sector health facilities, 3,550 private and 1,057 faith-based facilities in Kenya."*

Level one service delivery includes 'Primary Health Care at the Community Level.' This level ensures the delivery of health promotion and preventative services. It requires approximately 15,200 community health workers to be fully realized [21], as these services are community-based.

Figure 2.1: Levels of Care under the Kenya Essential Health Package



Source: Republic of Kenya (2010) Reversing the trends [15].

Level two services are delivered through 'Dispensaries.' Dispensaries represent the lowest level of facility-based, out-patient service delivery. The MOH recommends staffing 2-5 nurses per dispensary and 48% of dispensaries met this goal in 2012. The challenge will be to ensure adequate staffing for the remaining facilities, which are understaffed or those that have closed due to lack of staff [22].

Level three service delivery occurs via 'Health Centres and Nursing Homes.' Health centres constitute the lowest level of in-patient care, in conjunction with out-patient and maternity services. In Kenya, all nursing homes are privately owned; whereas, the GoK operates 70% of health centres [23]. The MOH recommends staffing 8-12 nurses per health centre [24]. In 2012, 17% of health centres met or exceeded this goal with the remainder staffed by less than eight nurses.

Level four service delivery is provided through 'District and Sub-district Hospitals.' This is the primary level of hospital care, offering access to select specialized services. The MOH recommends one district or sub-district hospital per population catchment of 250,000. Historically, over 55% of all public

sector medical staff—doctors, nurses, and clinical officers—worked in level four facilities [22].

Previously, level five service delivery occured via 'Provincial and Regional Referral Hospitals.' Every former province, except Nairobi, has a provincial hospital, which offers access to specialized medical services and in-patient care. Level five services are now being transitioned to county referral hospitals.

Level six service delivery is provided through 'National Referral Hospitals. Kenya has two parastatal national referral hospitals—Kenyatta National Hospital (KNH) and Moi Teaching and Referral Hospital (MTRH)—and two national referral hosptials—Mathari National Teaching and Referral Hospital and the National Spinal Injuries Hospital—which provide access to highly specialized medical services. Private referral hospitals include The Mater Hospital, Aga Khan University Hospital, Nairobi Hospital, M.P. Shah, Karen Hospital and Avenue Hospitals among others.

In Kenya, faith-based organizations (FBOs) also play a large role in the delivery of health services, especially the Kenya Catholic Conference of Bishops (KCCB) and the Christian Health Association of Kenya (CHAK). The KCCB operates 446 health facilities in Kenya, including 83 hospitals. CHAK represents a national network of Protestant supported health facilities and health programs comprised of 24 hospitals, 45 health centres, 312 dispensaries, and 53 health programs [25]. Together KCCBand CHAK run the Mission for Essential Drugs and Supplies (MEDS), which provides 1,500 facilities with high quality medical supplies. The Supreme Council of Muslims of Kenya (SUPKEM) also supports the delivery of health services—comprising about 1% of facilities in Kenya [25], including 44 community health projects.

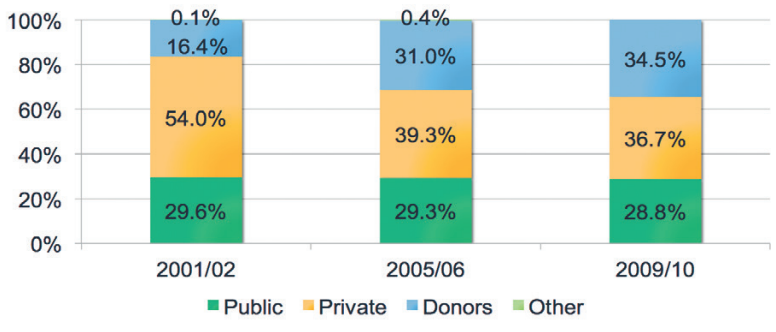
Globally, nurses provide the bulk of direct patient care. This is especially true in Africa where the number of doctors per population is quite low, leaving nurses to fill the gap. In 2004, Kenya's doctor to nurse ratio was 1 doctor for every 8.24 nurses [1], with nurses staffing dispensaries and the majority of health centres. Kenya is one of thirty-six sub-Saharan African countries facing a critical shortage of health care workers [1].

2.3 Health Care Financing

In 1998, Kenya began using the National Health Accounts (NHA) to track the flow of resources spent on health. NHA tracks total health expenditure (THE) for the country—including the funding sources, financing agents, distribution of health funds, and spending on priority health areas (e.g. HIV and reproductive health). The NHA also informs the national health sector strategic plan (NHSSP) [8].

In 2009/10, Kenya's THE was Kshs 122.9 billion. Funding sources include a mixture of private (37%), donors (34%) and government (29%) resources (Figure 2.2). The financing agents, or managers of these health funds, included non-governmental organizations (NGOs) (29%), the ministries of health (27%), out-of-pocket (25%), private insurance (7%),

Figure 2.2: Breakdown of Total Health Expenditure by Funding Source



Source: Kenya National Health Accounts 2009/10 [8].

the National Hospital Insurance Fund (5%), parastatal (2%) and private institutions among others [8].

Health financing translates into health services delivery as these funds reach hospitals, health facilities and villages to enhance public health promotion and the provision of care. While the majority of THE supports level 4-6 facilities, including national referral, provincial, district and sub-district hospitals, there has been an increase in the amount of THE that supported level 1-3 health services, including community programs, dispensaries and health centres. In 2009/10, 49% of THE was utilized on hospitals with 20% on health centres, dispensaries, clinics and pharmacies. Fourteen percent of THE was spent on public health programming. Spending on community health workers increased from 1% in 2005/06 to 8% in 2009/10, representing a significant increase in investment in public health promotion at the lowest level [8].

From 2005/06 to 2009/10, there was a marked change in the services THE purchased with significant decreases in acute care spending and increases to primary care. While 22% percent of the THE was spent on inpatient care, an 11% decrease from 2005/06, 39% was spent on outpatient care, a 19% increase in absolute values. Similarly, spending on public health prevention and promotion increased to 23% of THE, up 133% from 2005/06. Pharmaceutical spending increased to 3% of THE for 2009/10, representing a 30% increase from 2005/06 and spending on health care administration decreased to 9% of THE for 2009/10, down 25% from 2005/06 [8].

Additionally, the NHA has subaccounts to track disease specific spending on HIV, reproductive health (RH), malaria, TB, and child health (CH). In 2009/10, Kenya spent Kshs 30.1 billion ($398 million) on HIV prevention, care and treatment, an 11% increase from 2005/06. In 2009/10, spending on HIV services accounted for 24.4% of THE with 51% coming from donors such as PEPFAR, the Global Fund and the Clinton Health Access Initiative. Private and public HIV funding sources accounted for 28% and 21% of THE respectively. Thirty-seven percent of THE spent on HIV supported public sector services, followed by 21% to community health workers, 17% to providers of health programs, 15% to for-profit providers, and 7% to non-profit providers. Thirty-three percent of HIV THE financed outpatient HIV services, followed by 32% to HIV prevention and public health programming, 19% to inpatient HIV care and 1% to pharmaceuticals.

Kenya continues to struggle to improve maternal health (MDG 5). In 2010, maternal mortality was estimated to be 360 per 100,000 live births—still nearly four times the national goal [26]. In 2009/10, Kenya's THE on RH was Kshs 17 billion ($225 million) — a 23% increase in reproductive health spending over 2005/06. Funding for RH came largely from the public sector (40%), followed by private (38%) and donors (22%). The majority of these funds (63%) supported reproductive health services delivered through level 4-6 hospitals; whereas, 14% of THE on RH supported health centres, clinics and dispensaries and 11% supported reproductive health programming [8].

In Kenya, malaria accounts for 19% of all mortality. THE on malaria for 2009/10 was Kshs 30.7 billion ($405 million), accounting for 25% of THE. The majority of malaria financing came from private sources (52%), followed by public (31%) and donor (17%) funding. The public sector providers accounted for 58% of THE on malaria services, followed by 25% to private providers and 9% to community health workers. Outpatient and inpatient malaria services accounted for the largest percentage of THE on malaria (74%) with 10% going to malaria prevention and public health promotion [8].

As noted, nurses provide the majority of direct patient care. In Kenya's public sector, approximately 56% of nurses earn between Kshs 31,020 — Kshs 41,590 (USD $365-$489) per month with 30% earning slightly less and 13% earning above that range (Table 2.1). Public sector health workforce salaries are a significant factor when considering health care financing.

Table 2.1: Salary Ranges by Public Sector Nursing Job Groups, 2012

Job Group	Percent per Job Group	Salary Range (Kshs)/month
Enrolled Nurse III	8.0%	16,692 – 21,304
Enrolled Nurse II	2.6%	19,323 – 24,662
Enrolled Nurse I	6.8%	24,662 – 29,918
Senior Enrolled Nurse	44.6%	31,020 – 41,590
Nursing Officer III	9.1%	19,323 – 24,662
Nursing Officer II	3.8%	24,662 – 29,918
Nursing Officer I	11.9%	31,020 – 41,590
Senior Nursing Officer	12.7%	35,910 – 45,880
Assistant CNO, Senior Assistant, Deputy, Senior Deputy, CNO	0.4%	41,590 – 144,928

Source: IPPD data from the HR Department, MOH, 2013.

Chapter Three: Tracking Kenya's Health Workforce

This section describes some key information systems in Kenya's health sector, including systems that track health facilities, burden of disease and service delivery, public sector personnel management, and the supply and deployment of professional health workers. Health workforce information systems, which link databases from health professional regulatory bodies with databases in the Ministry of Health, provide real-time, accurate information on the supply and deployment of Kenya's health workforce.

3.1 Health Information Systems

Critical to addressing human resource needs is the creation of effective workforce information systems that are capable of providing accurate information required for human resource planning, development and management. One of the major problems that low-income countries face in assessing workforce capacity is the lack of interoperable electronic database systems that can be utilized to monitor the supply pipeline, track clinical education and development, and assess staffing needs.

"Critical to addressing human resource needs is the creation of effective workforce information systems that are capable of providing accurate information required for human resource planning, development and management."

There are several information systems in Kenya's health sector, each capturing different aspects of health service delivery, including information systems that track burden of disease and service delivery, payment for services, public sector personnel management, medical commodities and the supply and deployment of the health workforce. At this time, there is little exchange of information between various information systems in Kenya's health sector. However, Kenya is working towards a more integrated health information system. Since most information systems in the health sector house facility level data, meaning the data collected is linked to a specific health facility, the MFL was developed to map all health facilities and has been incorporated into several other information systems.

The MFL is a web-based system (www.ehealth.or.ke), which captures data including the health facility code, name, postal address, location, district, division, sub-location, plot number, ownership, type, constituency, land line, mobile, fax, e-mail, person in charge, in charge e-mail and phone, services provided, number of beds, number of cots, and status (e.g. operational, inactive, closed). Having a common facility identifier allows data from the various information systems to be periodically matched or even linked, creating a more accurate picture of health service delivery in Kenya. This process enhances data accuracy and facilitates more complex analyses. The MFL is a first step towards a more integrated health information system, which will give policy makers and health managers the resources they need to make informed decisions for Kenya's health sector [27].

The Department of Health Information Systems in the MOH houses the District Health Information System (DHIS-2). DHIS-2 is a web-based system (www.hiskenya.org) that facilitates data collection, storage, analysis and utilization. This system supports the capture of data from health facilities, including burden of disease and service delivery. Data on morbidity and mortality by cause are reported using DHIS-2 (e.g. pneumonia, HIV, diarrhea), pro-

viding a rich source of data on inpatient and outpatient services. DHIS-2 captures data and generates reports from public, private and faith-based health facilities [27] .

The Integrated Personnel Payroll Database (IPPD) and the Government Human Resources Information System (GHRIS) track payroll data on public sector employees. The newer GHRIS is web-based with personal and administrative access. Personal access enables public sector employees to update their personal data in real time as changes occur. The HR Department, Public Service Department, and Department of Personnel Management use the administrative access to manage HR functions for public sector employees. IPPD is not web-based, but housed in the HR Department in the MOH, capturing key data elements related to the public sector workforce, including pay station, pay grade, terms of service (e.g. temporary or permanent), date of last promotion, cadre (e.g. lab technician or clinical officer), date of first hire, marital status, gender, date of birth and name of employee [27].

The HR Department in the MOH is developing a web-based system to streamline the management of public sector HR functions, using the iHRIS Manage software [27]. This information system captures public sector health workers' demographic information and tracks employees through the hiring and deployment process. iHRIS Manage also collects data on employee transfer, training, and promotion. Computerizing the personnel management process will facilitate a more efficient public sector recruitment and deployment process [27].

To track the supply and deployment of Kenya's health workforce, regulatory and deployment databases have been developed for doctors, dentists, nurses, laboratory technicians and technologists, clinical officers, pharmacists and nutritionists. The health professionals deployment database, the Kenya Health Workforce Information System (KHWIS), is housed in the MOH [28]. The health professionals training and regulation databases, which form the Regulatory Human Resource Information System (rHRIS), are housed in specific professional regulatory boards and councils. Data from the KHWIS and rHRIS was used as the basis for this report.

3.2 Tracking Nursing Supply and Regulation

The Nursing Council of Kenya regulates the practice of nursing in Kenya, including the training of nurses, approval of nurse training institutions, maintenance of the national nursing registry and private practice nurses. For each of these functions, the council uses the rHRIS to capture key data. The Nursing Council of Kenya uses the rHRIS for timely data retrieval and analysis to inform the regulation of nursing in Kenya.

The NCK collects specific information related to nurse training. All nurse training institutions, whether public, private or faith-based, are required to be approved by the NCK and submit data on the enrolment of new nursing students. The NCK assigns each student an index number, which serves as a unique identifier for that individual through graduation and into their nursing career. The NCK also collects key demographic data when students begin their training, including their county of origin, secondary school, date of birth and gender. During the student's training, the council collects information on training disruptions, final examination, licensure, registration and nursing specialty. The NCK administers a national qualification exam for certificate (enrolled), diploma (registered) and degree (BScN) nurses. Upon successful completion of this exam, certificate and diploma nurses can apply to enter the national register, while BScN nurses must complete a 1-year internship prior to entering the register. Some

"The Nursing Council of Kenya uses the rHRIS for timely data retrieval and analysis to inform the regulation of nursing in Kenya."

exceptions to the internship requirement are made for nurses upgrading from diploma to BScN based on their experience. Once in the register, nurses are given a registration number. During the hiring process, employers are encouraged to confirm nurses' registration with the NCK, verifying their credentials to practice nursing in Kenya.

To maintain an updated national register, the NCK tracks information such as continuing education, retention, disciplinary action, and migration. For education, the NCK tracks both upgrades in academic education and short courses. An academic upgrade is when a nurse advances their educational status from enrolled to registered or registered to a bachelor's degree. Academic upgrades also include post-basic training in specialty areas (e.g. critical care). Masters degrees and PhDs are recognized as special qualifications. Short courses include continuing professional development to ensure up-to-date skills. Retention, or licensure renewal, is required every three years. At this point, the NCK updates each nurse's personal information and confirms that the nurse has completed the required continuing professional development. The NCK also grants permission to nurses trained outside of the country to practice in Kenya and verifies nursing credentials for Kenyan nurses applying to migrate. The latter information can be used to estimate the number of nurses that intend to leave the country.

Finally, the NCK collects data on the regulation of private practice and nursing education in Kenya. Nurses that open a private practice must register with the council and submit a facility inspection report from their local supervising authority. The council also conducts inspections of nurse training schools to ensure certain standards are maintained with respect to tutor capacity, the physical facilities, transportation, bed capacity, and bed occupancy.

The rHRIS facilitates the work for the NCK, as they monitor nurse training, update the national register, and regulate nursing practice in Kenya. The information system enables the NCK to perform its everyday duties with more ease and in a timely manner. For example, employers can easily verify a candidate's nursing credentials with the NCK during the hiring process to screen for fraudulent certificates. In this manner, the NCK utilizes the health workforce information system to enhance their regulation of the practice of nursing in Kenya.

> *"The registration number allows nurses' regulatory information from the rHRIS to be linked with their deployment information from the KHWIS."*

3.3 Tracking Nursing Deployment and Distribution

The Ministry of Health governs the deployment of nurses at the national and county level in Kenya's public sector. To ensure the appropriate skill-mix and distribution of nurses, the Nursing Unit (NU), previously known as the Department of Nursing, collects specific data on nurse deployment using the KHWIS. This includes demographic information, such as date of birth, marital status, gender, as well as key educational information, such as academic qualifications, nursing specialty, registration number, training school, and license number.

Nurses are tracked by personal identifiers, including a personnel number, which is assigned when a nurse joins public sector service with MOH, and a registration number, which is assigned to each nurse when they register with the NCK. The registration number allows nurses' regulatory information from the rHRIS to be linked with their deployment information from the KHWIS. The NU also captures human resource data, including the date of first appointment, the position, promotional status, and attrition. The information system captures deployment facility data, mapped according to each facility's MFL code, including

the facility type, location, and nurse's ward. Facility types indicate deployment in a ministry office, provincial hospital, district hospital, health centre, dispensary or other facility type.

The NU manages nursing deployment centrally in conjunction with the provincial nursing offices, although this structure is changing in conformity with the devolved structures and services to the county level. At the time this data set was obtained, reporting to the KHWIS occurred in the following manner. Each provincial nursing office generates staffing reports on a quarterly basis, which capture the nurses deployed at public facilities in each province. The provincial offices send reports to the district health offices, which deliver them to the facilities for updates. Facility managers note changes in staffing on the report and send it back to the district nursing office, which then sends it to the provincial nursing office. The provincial nursing office then enters any staffing changes into the electronic health workforce information system, updating deployment information.

Since the public sector only delivers half of the nursing services in Kenya, the NU is partnering with faith-based and private organizations to collect deployment information on nurses working in their facilities, although this information remains incomplete at present, particularly for the private sector.

Chapter Four
Methods

The data for this report were obtained from the rHRIS in the NCK and the KHWIS in the NU, which capture supply and deployment data on nurses, respectively. During the development and review of this report, key stakeholders from the Kenya's health sector, including leaders from public, private and faith-based institutions provided technical advice on areas of analysis and reporting related to the training, regulation and deployment of nurses in Kenya. These stakeholders are listed in Annex III.

4.1 Supply and Regulation of Nurses

For this report, the NCK provided data on the supply and regulation of nurses in Kenya using the rHRIS. This report examines several areas, including student nurse training and internships, newly registered nurses, the eligible nursing workforce, renewal and retention, educational upgrades, private practice and out-migration. Through stakeholder consultations, the Heads of Departments for Standards and Ethics, Education, Examination and Registration at the NCK provided information on the standards and regulation of nursing education and practice.

Trends in student nurse training were analyzed using a 10-year timeframe from 2003-2012. This data provides information on Kenya's nurse production capacity, including the types of nurses trained, nurse training institution production and students' county of origin, age and gender. The number and distribution of training schools and internship centres as of mid-2013[4] are also described, as well as the training school or internship centre sponsoring agent (e.g. GOK, private or faith-based). The percentage of nurses that enrolled in training from 2003-2007 but failed to enter the national register is also reported (i.e. student nurse attrition). This report also examines trends related to newly registered nurses over a 10-year timeframe from 2003-2012. Newly registered nurses are described by their year of entry into the register, class of nurse, age, gender, county of origin and nationality.

The eligible nursing workforce was defined as all nurses registered with the NCK to practice nursing in Kenya. The NCK began registering nurses in 1960. Since the public sector mandatory retirement age is 60, the nursing workforce was calculated using nurses registered with the NCK aged 21-60 years. Nurses over 60 years of age are reported separately, as these nurses are eligible for service in the private and faith-based sectors. The nursing workforce is described in terms of the number of nurses registered, age, gender, nationality, county of origin, as well as their county of training, class of nurse (e.g. enrolled, registered, BScN), and specialty area.

In Kenya, nurses are required to renew their practice license every three years. Licensure renewal provides a better understanding of the active nursing workforce in Kenya. Renewals are reported for a 5-year period from 2008-2012. The number of unique nurses renewing their licenses is also reported, as nurses could have renewed more than one time in the 5-year period.

Educational upgrades are reported for nurses already registered with the NCK that obtained an additional certificate, diploma or degree from 2003 – 2012. Upgrades were clas-

4 At the time of analysis in mid-2013, the NCK had approved 83 nurse training institutions. By December 2013, the NCK had approved 97 nurse training institutions, which are listed in Annex II by county, sponsoring sector and courses offered.

sified either as horizontal or vertical – horizontal meaning that the nurse obtained an additional qualification at or below the previous level of education and vertical meaning that the nurse upgraded from certificate to diploma or diploma to degree. Upgrades were analyzed according to the number of years nurses waited after initially registering with the NCK to obtain an upgrade.

The NCK began approving nurses to practice privately starting in 1991. The number of private practice nurses was analyzed from 1991 – 2012, looking at the age, gender, educational qualifications, county of practice and time since entering the registry to the commencement of private practice.

4.2 Deployment and Distribution of Nurses

For this report, the NU provided data as of December 2012 on the distribution and deployment of nurses in Kenya using the KHWIS. To determine the percent of facilities reporting their nursing staff to the NU, the number of reporting facilities in the KHWIS was compared to the total number of health facilities listed in the MFL by sector. Reporting varied by sector with parastatal hospitals reporting at 100% — i.e. Kenyatta National Hospital and Moi Teaching and Referral Hospital, public facilities at 84.9%, faith-based facilities at 71.8% and private facilities at 64.4%. Since the number of private facilities reporting was so low and data were missing from the majority of major private hospitals, nursing workforce data for the private sector was excluded from this report. However, data from the MFL was used to report on the number, type and location of private facilities in Kenya [20].

The nursing workforce for the public, parastatal and faith-based sectors is described for the facilities reporting, including the number of nurses employed and basic demographic information such as age and gender. The nursing workforce for these sectors is also described by the nurses' educational qualifications, specialty skills, average length of employment and hiring trends using the date of first employment.

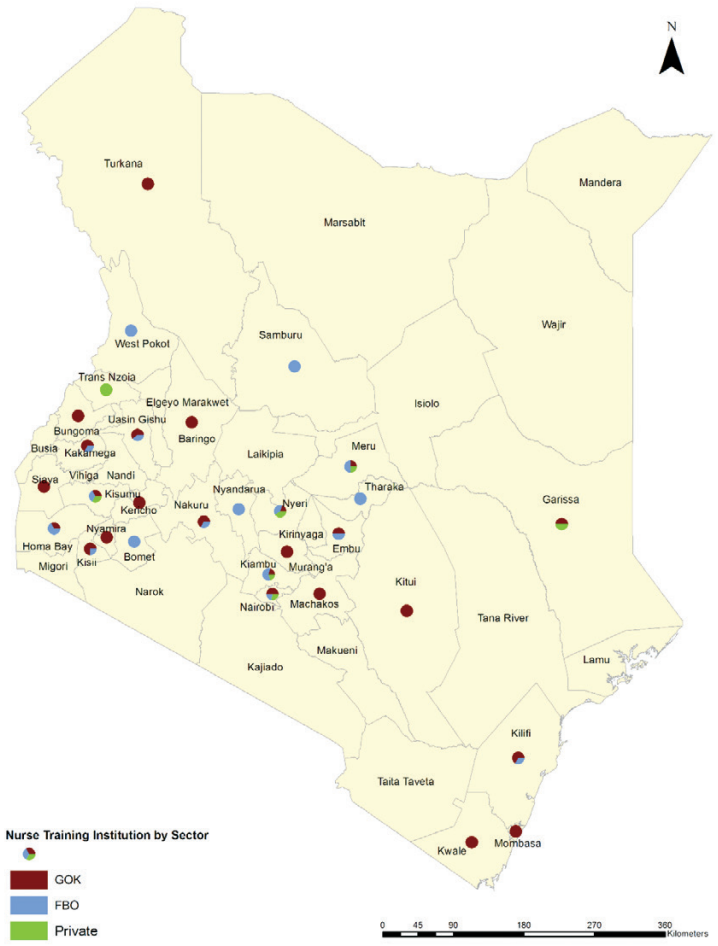
The KHWIS was used to report the number of public, parastatal and faith-based health facilities, describing the various facility types (e.g. dispensaries, health centres, etc.) and the number of nurses per facility type. Nurse to population ratios were calculated at the national and county levels for Kenya using the number of nurses deployed in public, parastatal and faith-based facilities. Nurse to population ratios at the county level were compared to the national average to identify disparities in nurse distribution across counties.

Data from IPPD was analyzed to provide information on nursing workforce attrition from 2008-2012, including the leading causes of attrition. Attrition was also reported by nursing class (e.g. enrolled or registered). The potential loss of nurses due to out-migration was reported using data from the NCK based on requests for licensure verification by year from 2008-2012. This migration data was compared to previously reported trends [29]to assess for changes in intent to migrate.

Chapter Five
Supply and Regulation of Nurses

This section provides data on the supply and regulation of nurses in Kenya. Nurse training is described in terms of pre-service education — including approved nurse training institutions, tutor to student ratios and trends in new student enrollment. Workforce entry includes newly registered nurses, as well as nurses trained outside of Kenya. The nursing workforce is described in terms of nurses that are registered with the NCK and eligible to practice nursing in Kenya, including those in private practice. Renewal and retention data provides information on the active nursing workforce in Kenya, including those that have upgraded their academic qualifications.

Figure 5.1: Map of Nurse Training Institutions by Sponsoring Agent and County



5.1 Nurse Training

Pre-Service Education

In Kenya, all nurse training institutions must be accredited and approved by the NCK. To apply for accreditation, a nurse training institution must submit a completed accreditation application form and a copy of their curriculum to the NCK, which then issues further guidelines. Once the institution has met all required guidelines, the NCK's Finance Department issues an invoice and the Standards Department identifies an inspection team. Recommendations from the inspection team's report are presented to the Discipline, Standards and Ethics Committee and to the Full Council for consideration. Pending approval by the Full Council, a certificate of accreditation is issued to the institution. In cases where institutions are denied accreditation, they are informed of the outstanding conditions to be fulfilled in order to receive a certificate of accreditation.

As of mid-2013, the NCK had approved 83 nurse training institutions in Kenya[5]. One fifth of all nurse training institutions are located in Nairobi (18), followed by Kiambu (5), Nyeri (5), Meru (5), Uasin Gishu (5), and Kisii (4) with 24 counties having between 1-3 training institutions. There are 17 counties

5 At the time of analysis in mid-2013, the NCK had approved 83 nurse training institutions. By December 2013, the NCK had approved 97 nurse training institutions, which are listed in Annex II by county, sponsoring sector and courses offered.

with no nurse training institution — namely counties in the North East and South West. Of the 83 approved institutions, 53.0% are public, 32.5% are faith-based and 14.5% are private. The distribution of nurse training institutions by sector varies across counties (Figure 5.1).

In Kenya nurse training institutions may offer programs at three levels — certificate, diploma and degree. Both BScN and diploma programs produce registered nurses; whereas, certificate programs produce enrolled nurses. The number of certificate programs has decreased over the past 10 years in favor of diploma nursing programs.

> *"While the NCK recommends 1 tutor to 10 students for classroom instruction, the actual ratios vary across nurse training institutions."*

The standards to enter nurse training vary by program. The Kenya National Exams Council administers the Kenya Certificate of Secondary Education (KCSE), a qualifying exam for all secondary school students (equivalent to high school). Students applying to degree programs must have a minimum KCSE of C+ or higher in English/Kiswahili, math or physics, chemistry, and biology [30]. Students applying to diploma programs must have a minimum KCSE aggregate of C, with at least a C in English/Kiswahili and biology, C- in physics, chemistry or maths [30]. Students applying to certificate programs must have a minimum KCSE aggregate of C-, including a C- or higher in English/Kiswahili and biology and a D+ or higher in maths, physics or chemistry. To upgrade from a certificate to diploma, the nurse must have a certificate in nursing, be registered with the NCK, and have a minimum KCSE aggregate of C-. To upgrade from a diploma to degree, the nurse must have a diploma in nursing, be registered with the NCK and have a minimum KCSE of C.

The NCK also sets standards regarding faculty for nursing programs and institutions. Faculty teaching in degree programs are required to have a master's degree with at least two years of clinical nursing experience, as well as preparation in education and curriculum development and evidence of participation in scholarly activities. Faculty teaching in diploma programs are required to have a bachelor's degree in nursing with at least two years of clinical experience, as well as preparation in education and curriculum development and be current with their continuing professional development [30].

The NCK recommends tutor to student ratios for nursing education and clinical placements. For classroom instruction, the NCK recommends a ratio of 1 tutor to 10 students [30]. For clinical instruction, the NCK recommends 1 clinical tutor for every 6 students in long-term care, health centre, and dispensary settings. In general wards, the NCK recommends 1 clinical tutor for every 4 students. In intensive care wards, high dependency units, and labor wards, the NCK recommends 1 clinical tutor for every 2 students [30].

While the NCK recommends 1 tutor to 10 students for classroom instruction, the actual ratios vary across nurse training institutions. At the Kenya Medical Training Colleges (KMTCs), the tutor to student ratios vary from a low of 1 tutor to 6 students to a high of 1 tutor to 50 students, while the average is 1 tutor to 22 students, demonstrating the need for additional nursing faculty in many of the institutions. Tutor to student ratios are slightly lower at faith-based and private training institutions, where the average is 1:14 and 1:7, respectively.

Table 5.1: Public, Private and Faith-based Training Institutions' Student to Tutor Ratios

Sector	Type of Institution	Number of Institutions	Tutor : Student Ratio			
		(N=66)	LOW	HIGH	RANGE	AVERAGE
Public	Mid-Level College	26	1:6	1:50	44	1:22
	University	5	1:1	1:29	28	1:19
Private	Mid-Level College	4	1:5	1:12	7	1:7
	University	3	1:7	1:11	4	1:7
Faith-Based	Mid-Level College	24	1:4	1:23	19	1:14
	University	4	1:5	1:24	19	1:14

Currently, there are 33 approved BScN internship centres in Kenya of which 20 are government affiliated and 13 are private or faith-based. Students in enrolled and registered nursing programs complete clinical training during their nursing education, while BScNs are required to complete a 1-year internship following their graduation. The majority of internship centres (63.6%) are located in 8 counties, including Nairobi with 5 centres, Mombasa with 4 and Meru, Kisii, Kakamega, Kiambu, Nyeri, and Kisumu with 2 each (Annex 1.1).

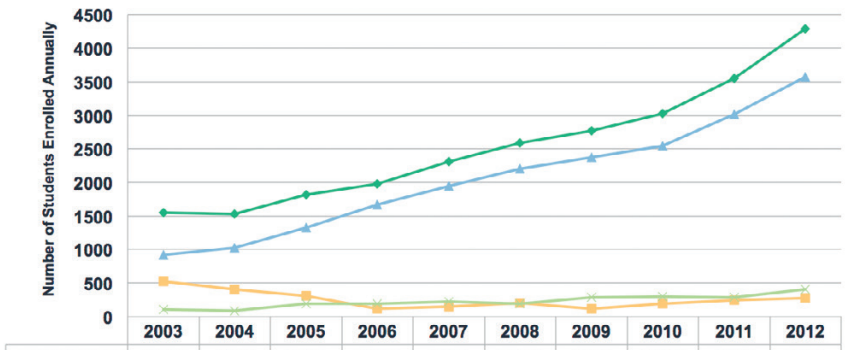
Production Capacity

From 2003-2012, 25,415 students entered training at pre-service nursing institutions. The annual intake of new students almost tripled from 1,545 in 2003 to 4,294 in 2012 (Figure 5.2). During these 10 years, 81.1% of students enrolled in diploma programs, follow by 10.0% in certificate and 8.9% in BScN programs.

These students trained in 83 nurse training institutions across Kenya. From 2003-2012, the Government of Kenya trained 65.6% of new nursing students, while the faith-based and private sectors trained 28.8% and 5.6% respectively. Over half the nursing students (14,588), or 57.4%, trained at one of the 28 Kenya Medical Training Colleges (KMTC).

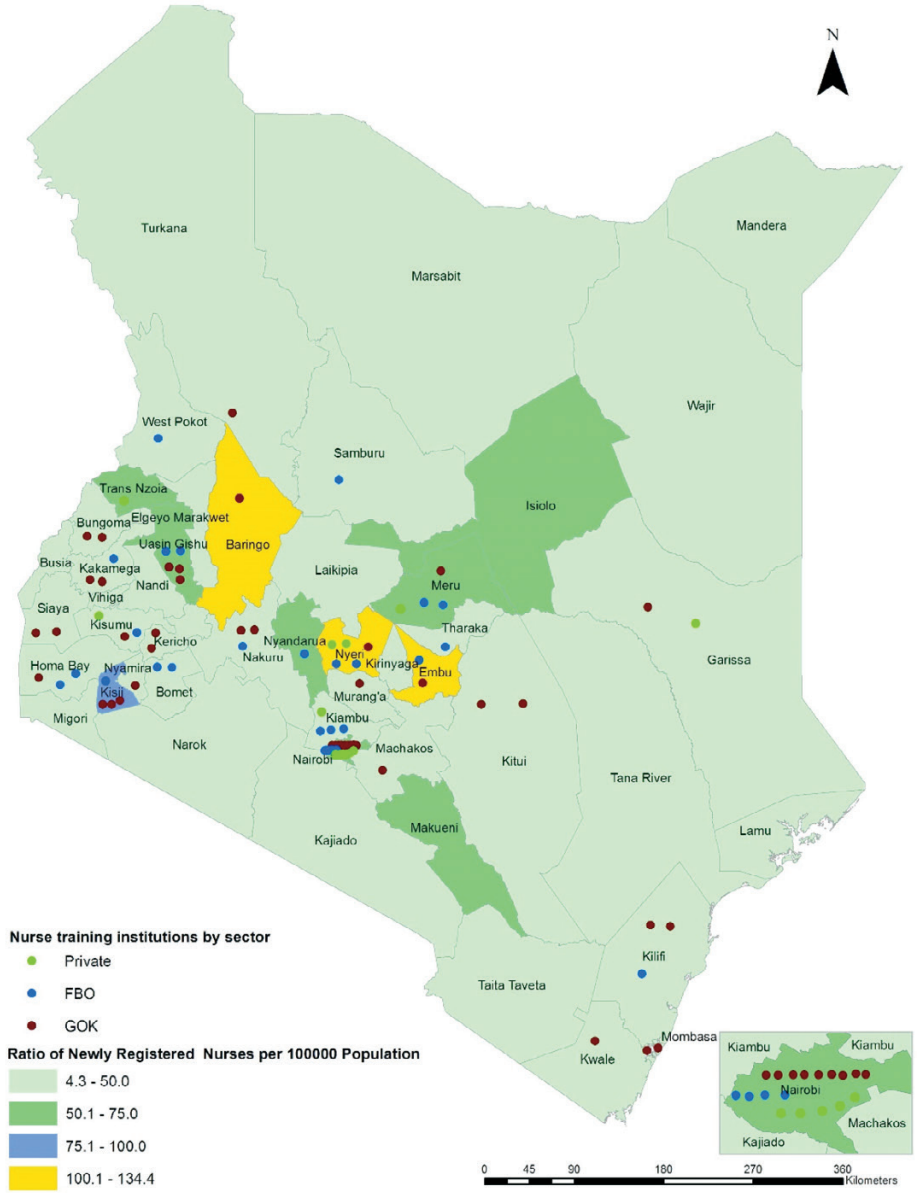
Of the new students training in nursing, 62.4% (15,383) trained in 10 of Kenya's 47 counties, including Nairobi (2,755), Meru (1,902), Nyeri (1,727), Uasin Gishu (1,551), Kakamega (1,505), Kiambu (1,347), Homa Bay (1,267), Kisii (1,197), Embu (1,129) and Mombasa (1,002). These 10 counties have a range of 2 (Embu and Mombasa) to 18 (Nairobi) training institutions. At the time this cohort (2003-2012) was trained, 30 of Kenya's 47 counties had at least one nurse training institution. Many of Kenya's 17 counties without nurse training institutions have lower ratios of newly trained nurses to the county population (e.g. Mandera, Wajir, Narok, Marsabit, Lamu, Tana River, and Kajiado) (Figure 5.3) (Annex 1.2).

Figure 5.2: Trends in Nurse Training Annual Enrollment, 2003-2012



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
All Intakes	1545	1529	1818	1974	2313	2588	2774	3030	3550	4294
Certificate	525	410	307	119	149	200	115	189	244	278
Diploma	915	1031	1322	1664	1942	2198	2370	2542	3020	3568
BScN	105	88	189	191	222	190	289	299	286	400

Figure 5.3: Ratio of Newly Trained Nurses by County of Origin[6] with Training Institutions



The demographics of newly trained nurses shifted slightly over the past 10 years. Over a quarter of student nurses trained between 2003-2012 were male (28.7%), which represents a 5% increase compared to the percentage of males in the overall nursing workforce (23.6%). However, female nurses still comprise the majority of newly trained nurses (71.3%). The majority of students were aged 17-22 years (82.2%) with 11.3% aged 23-25 years, 4.2% aged 26-29 years, and 2.0% aged 30-39 years.

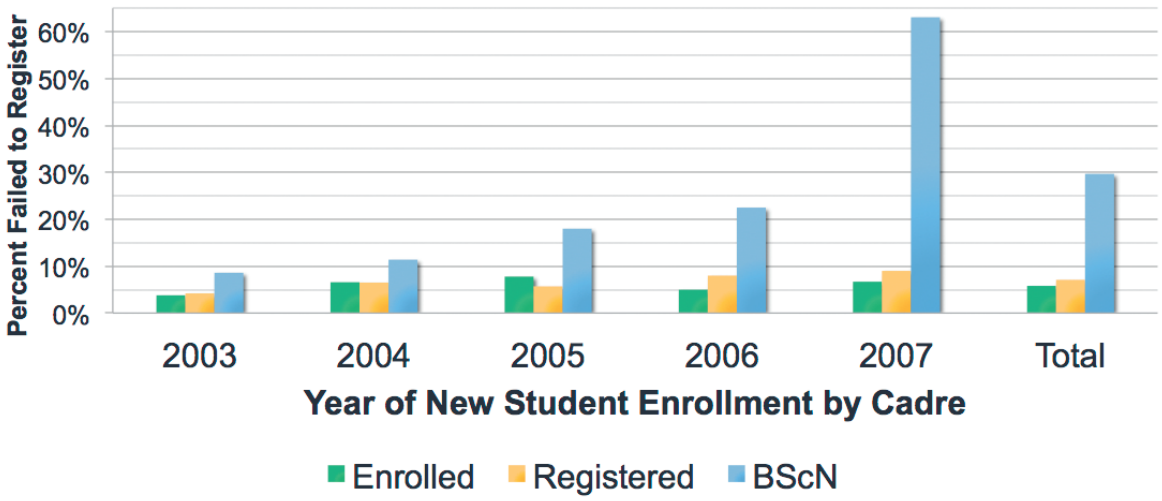
Between 2003-2007, 9,179 nurses in this cohort started training. Of these nurses, 16.4% started certificate programs, 74.9% diploma programs and 8.7% degree programs.

6 County of origin is defined as the county the nurse is from at the time they enter pre-service training.

"For student nurses that enrolled in training from 2003-2007, 92.2% of all new students successfully completed training, passed their licensure exam and registered with the NCK."

For student nurses that enrolled in training from 2003-2007, 92.2% of all new students successfully completed training, passed their licensure exam and registered with the NCK. Of the 8.8% that failed to register with the NCK, failure to register was highest among BScN students at 29.7%, followed by diploma (7.1%) and certificate (5.8%) students (Figure 5.4). While reasons for failure to register among BScN students were not captured in the NCK database, these graduates may seek other opportunities within the health sector that may not require registration with nursing council. In 2009, the GOK began hiring 200 BScN nurse interns per year to try and increase the numbers of BScN graduates that successfully complete their internship and register with the NCK. The spike in failure to register among BScNs that enrolled in training in 2007 may be due to the fact that BScNs require 4 years of training followed by a 1-year internship, which can take longer to complete. Thus, it is possible that some BScNs that started training in 2007 went on to register in 2013, after this dataset was obtained.

FIGURE 5.4: TRENDS IN PRE-SERVICE ATTRITION AND FAILURE TO REGISTER WITH NCK, 2003-2007



5.2 Workforce Entry

NEWLY REGISTERED

Following graduation from a nurse training institution and successful completion of an internship (for BScNs), all nurses are required to take the NCK licensing exam. There are 96 exam centres across 29 counties. Nairobi has 22.9% of the exam centres, followed by Kiambu, Meru and Uasin Gishu, which each accounted for 6.3% of exam centres.

"The annual number of newly qualified nurses entering the workforce doubled from 1,423 in 2003 to 2,908 in 2012. In 2012, the pass rate on the NCK licensure exam was 82.3% for new graduates."

Starting in 2012, the NCK offered licensing exams four times per year — in January, February, July and August, with a total of 4,273 students taking the NCK exam. In 2012, the pass rate on the NCK licensure exam was 82.3% for new graduates. Exam failure rates were similar across students trained at gov-

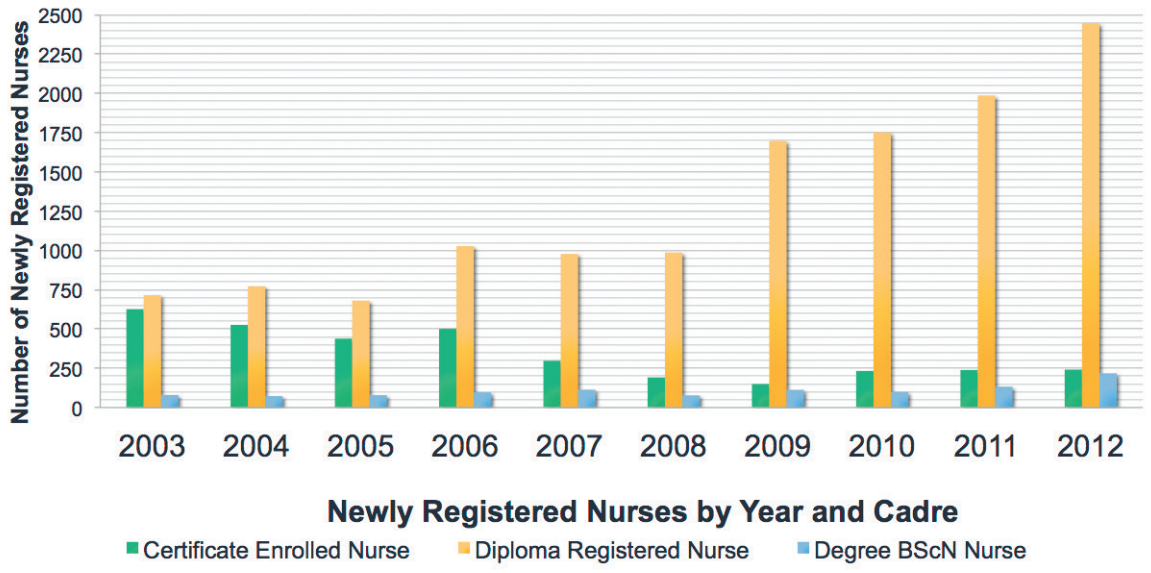
Table 5.2: NCK Registration Exam Performance, 2012

Sector	No. Training Institutions	Enrolled Candidates (% Passed)	Registered Candidates (% Passed)	BScN Candidates (% Passed)	TOTAL Candidates	No. (%) Failed	Proportion (%) Passed	Average Tutor: Student Ratio
Public (GOK)	41	142	2,486	235	2,863	526 (18.4)	81.6	1:22
Private	12	0	260	42	302	48 (15.9)	84.1	1:07
FBO	30	1	951	156	1,108	183 (16.5)	83.5	1:14
TOTAL	83	143 (74.1)	3,697 (82.9)	433 (79.5)	4,273	757 (17.7)	82.3	1:17

ernment, private and faith-based institutions, ranging from 15.9% for private to 16.5% for faith-based to 18.4% for government institutions in 2012 (Table 5.2). By cadre, exam pass rates varied from 74.1% for enrolled candidates to 79.5% for BScN candidates to 82.9% for diploma candidates. Students who fail the NCK exam are eligible to retake the exam during the next exam period.

From 2003-2012, 17,579 newly qualified nurses registered with the NCK to practice in Kenya. The annual number of newly qualified nurses entering the workforce doubled from 1,423 in 2003 to 2,908 in 2012. The number of newly registered enrolled nurses fell from 627 in 2003 to 242 in 2012 due to the phasing out of enrolled nursing programs (Figure 5.5). Conversely, the number of newly registered diploma nurses rose from 716 in 2003 to 2,448 in 2012. Newly registered BScN increased from 80 in 2003 to 218 in 2012 (Figure 5.5).

Figure 5.5: Trends in New Nurse Registration with the NCK, 2003-2012

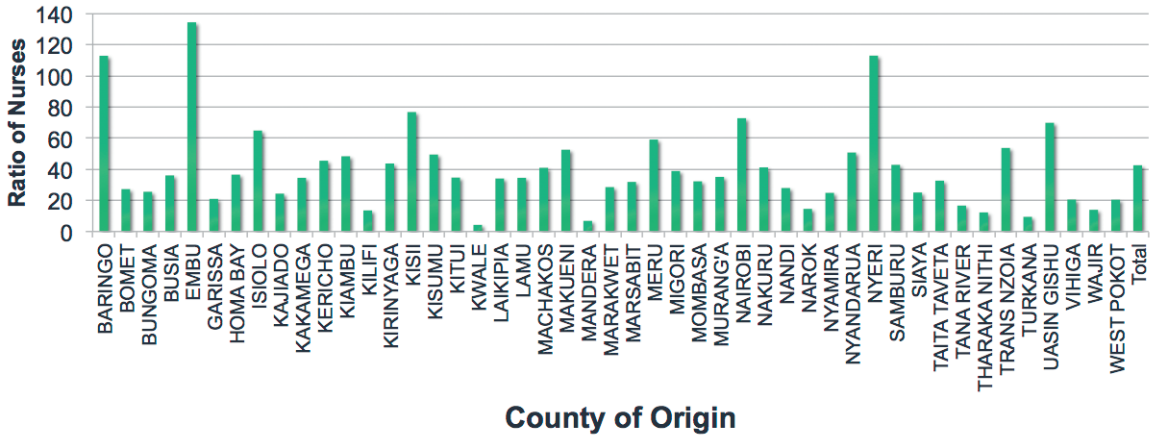


Of the newly qualified nurses that entered the register from 2003-2012, 74.2% were diploma prepared registered nurses, 19.6% were certificate prepared enrolled nurses and 6.2% were degree prepared BScN nurses. Over a quarter of these newly qualified nurses that entered the NCK national register were male (26.1%) with the majority being female (73.9%). However, 37.3% of newly registered BScN nurses were male.

The demographic details of new nurses entering the workforce were largely young Kenyans. The majority of newly qualified nurses were between 21-30 years of age (94.8%) with 4.4% between 31-40 years of age, 0.6% between 41-50 years of age and 0.2% between 51-60 years of age. Of the newly qualified nurses, 99.5% were Kenyan with an additional 17 nurses coming from India (0.1%) and 17 from Rwanda (0.1%) among other countries in the region and abroad.

While the newly qualified nurses came from all 47 counties (i.e. their county of origin), there were large disparities between the numbers of new nurses from each county. Kenya produced 42.6 nurses per 100,000 population (Figure 5.6) from 2003-2012. Compared to the national ratio, newly registered nurses were 3.2 times more likely to come from Embu county, 2.7 times more likely to come from Baringo and Nyeri counties, 1.8 times more likely to be from Kisii and 1.7 times more likely to be from Nairobi. Nurses were least likely to be from Kwale, Mandera and Turkana counties, which produced only 10%, 16% and 22% of the national ratio. Nurses from nine counties, including Nairobi, Kisii, Meru, Kiambu, Nyeri, Embu, Nakuru, Uasin Gishu, and Baringo, comprised 51.3% of all new nurses entering the national registry from 2003-2012.

Figure 5.6: Ratio of Newly Registered Nurses per 100,000 Population by County of Origin



Trained Outside of Kenya

The NCK also registers nurses that were trained outside of the country to practice nursing in Kenya. Nurses trained outside of Kenya (TOK) undergo a formal application process where they apply for registration in Kenya and their certifications and training documents are verified. Applicants are then interviewed by a panel, which either approves them to undertake a three-month internship or recommends they sit a written exam. Successful interviewees and examinees then complete an internship. Successful interns are given clearance to pay registration fees, after which they are entered into the register and receive a practice license.

The NCK faces some challenges registering nurses that trained outside of Kenya. The entry criteria for nurse training institutions vary by country. Since some students do not meet the entry criteria for nursing training in Kenya, they train in neighboring countries and return to Kenya to practice. Some countries do not have nursing councils or boards of nursing, which complicates the process of verifying applicants' credentials. This process is essential to ensure applicants are not presenting forged certificates. In some instances,

there are communication challenges related to language barriers experienced by some foreign nurses.

From 2008 – 2012, the NCK registered 883 nurses trained outside of Kenya, averaging 177 nurses per year. Of these, 58.9% (520) were registered nurses (i.e. diploma and BScN) and 41.1% (363) were enrolled nurses. Nurses trained outside of Kenya account for 6.1% of the nursing workforce entering the registry annually, which remained consistent over the five-year period.

> *"Nurses trained outside of Kenya account for 6.1% of the nursing workforce entering the register annually, which remained consistent over the five-year period."*

5.3 Nursing Workforce

Ever Registered to Practice

Since the NCK began registering nurses in 1960, over 61,500 nurses have registered in Kenya. For the 55,091 nurses that ever registered with age data, there were 50,025 (90.8%) nurses aged 60 years or younger registered to practice in Kenya as of 2012. While the mandatory public sector retirement age is 60, there were still 5,066 (9.2% of the workforce) nurses over the age of 60 registered to work and eligible for service in the private and faith based sectors. Of the 50,025 nurses eligible for public sector work, 21.4% are aged 21-30 years, 27.9% are 31-40 years, 27.2% are 41-50 years and 23.5% are 51-60 years. While the majority of the nursing workforce aged 60 years or younger is female (76.4%), males (23.6%) now comprise nearly a quarter of Kenya's nurses. Most nurses registered to work in Kenya aged 60 years or younger are Kenyan (99.8%) — with 69 nurses from other African countries, 20 from India, and 19 from high-income countries.

In Kenya, the ratio of nurses is 128.3 per 100,000 population based on the number of nurses ever registered aged 60 years or younger captured in the rHRIS. At the county level, the majority of the nursing workforce aged 60 years or younger is from Nyeri, Embu, Baringo, Meru, and Kisii counties, which contribute nurses at 3.7, 2.9, 1.9, 1.8 and 1.5 times the national level average respectively. Turkana, Mandera and Kwale counties contributed the least number of nurses.

Figure 5.7: Ratio of Nurses per 100,000 Population — Nursing Workforce by County of Origin

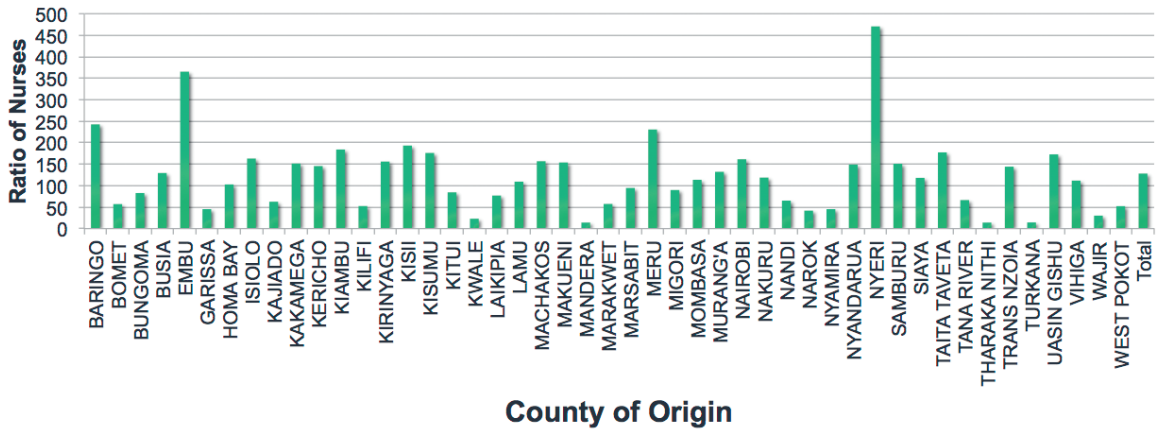
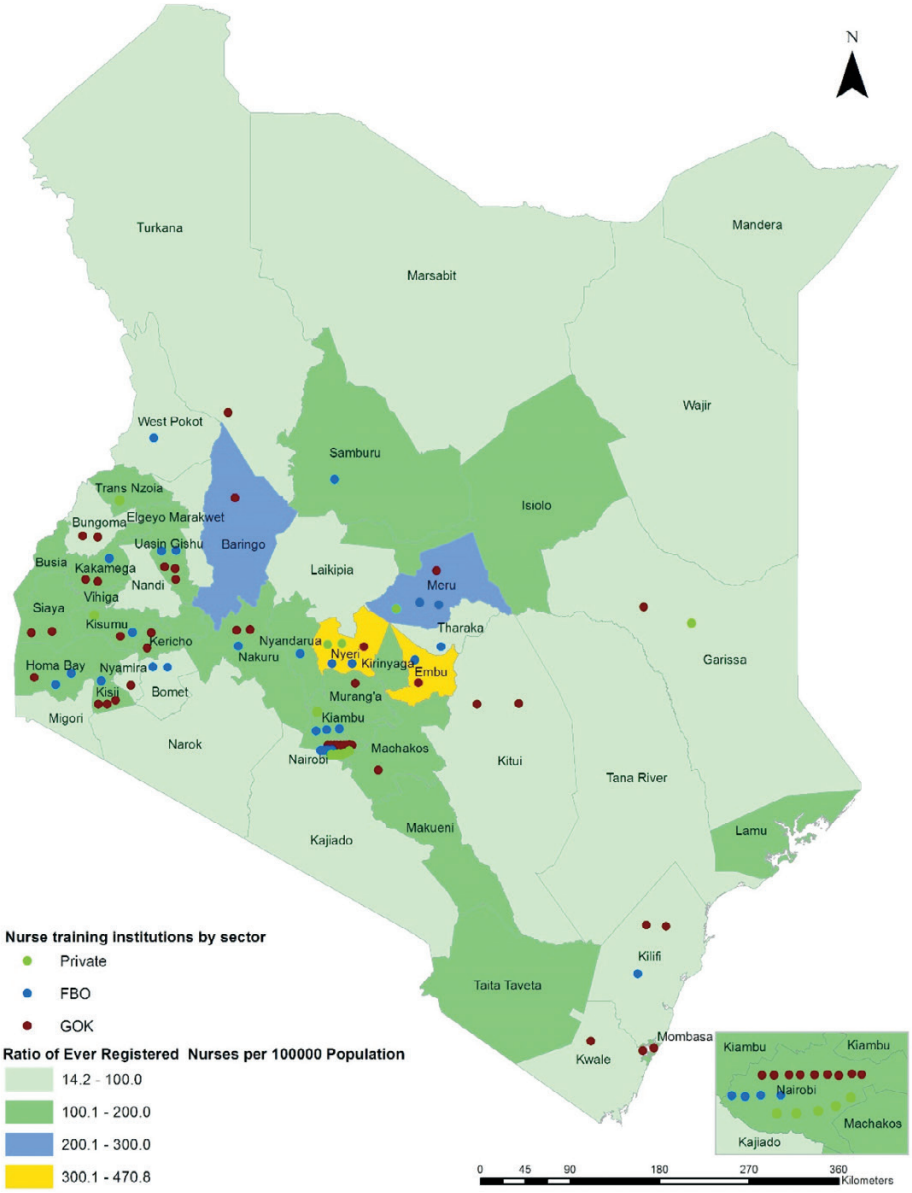


Figure 5.8: Ratio of Nurses Ever Registered by County of Origin with Training Institutions



Of the 30 counties that have nurse training institutions, the majority of Kenya's nursing workforce aged 60 years or younger trained in Nairobi (23.0%), Meru (7.8%), Nyeri (7.2%), Kisumu (6.1%) and Kiambu (6.1%), Kakamega (5.6%), Homa Bay (4.6%), Meru (4.5%) and Nakuru (4.3%). Most of Kenya's nursing workforce (59.1%) trained at government institutions followed by 33.8% at faith-based and 7.1% at private institutions (Figure 5.8).

While the training of certificate-level enrolled nurses decreased greatly as Kenya upgraded the majority of their nurses to diploma-level registered nurses, enrolled nurses still comprise 39.2% of Kenya's nursing workforce. Registered nurses comprise 57.8% of the nursing workforce while degree-level nurses with a BScN comprise 3.0%.

Kenya also trains nurses in a number of specialty areas with 15.1% of the nursing workforce having some type of specialty training. While 76.2% (38,163) of Kenya's nursing work-

force has basic training in midwifery[7], there are an additional 6,302 (12.6% of the nursing workforce) nurses that have advanced, post-basic specialty training in midwifery. Another 1,280 nurses have additional specialty skills, including 559 trained in psychiatry, 244 nurses in critical care, 155 in peri-operative nursing, 134 in pediatrics, 97 in ophthalmic nursing, 40 in anesthesiology, 37 in nephrology, and 14 in accident and emergency. There are 14 Masters level nurses in areas including public health, nursing, epidemiology, medical statistics and health services management and 3 PhD prepared nurses who have registered their qualifications with the NCK.

> *"While 76.2% (38,163) of Kenya's nursing workforce has basic training in midwifery, there are an additional 6,302 (12.6% of the nursing workforce) nurses that have advanced, post-basic specialty training in midwifery."*

Private Practice

In Kenya, nurses are permitted to practice privately by Section 17 of The Nurses (Amendment) Act, 2011. The NCK sets private practice standards, which requires the nurse be a Kenyan citizen with at least three years of experience under a senior nurse. To be granted a private practice license, the nurse must have a valid practice license with the NCK and have their premises inspected and approved by the District Health Management Team annually. The NCK also requires private practice nurses to obtain liability insurance and submit reports regarding other nurses working within the practice [30].

The NCK began issuing private practice licenses in 1991. From 1991-2012, the NCK issued 1,612 private practice licenses to nurses. Eighty-five percent were issued to certificate nurses and 15% to diploma nurses. Male nurses comprised 33.5% of private practice nurses with 66.5% being female. Private practice nurses operate in all counties except Isiolo with the majority practicing in Meru (12.4%), Kiambu (12.0%), Nyeri (10.2%), Nairobi (7.1%), Kakamega (6.0%), Kisii (5.8%), Makueni (4.1%), Machakos (3.7%), Embu (3.7%) and Murang'a (3.4%).

> *"While the NCK only requires three years of clinical experience to apply for a private practice license, only 2.9% of private practice licenses issued were to nurses with 10 years or less of practice experience."*

While the NCK only requires three years of clinical experience to apply for a private practice license, only 2.9% of private practice licenses issued were to nurses with 10 years or less of practice experience. The majority had 21-30 years (32.5%) or 31-40 (34.0%) years of practice experience with 25.1% having 11-20 years and 5.5% having 41 or more years. Almost half (45%) of the private practice nurses were aged 51-60 years with 22% aged 41-50 years and 28% aged over 60 years.

5.4 Renewal and Retention

Continuing Professional Development

Licensure renewal is a new process in many African countries. Several countries in the region, including Kenya, are transitioning from lifelong licensure to a licensure renewal process that is linked to continuing professional development (CPD). Starting in 2008, the NCK issued a policy requiring all nurses in Kenya to renew their licenses every three years and demonstrate earning 40 CPD hours per year [30]. This policy was made mandatory by

7 Kenya Enrolled Community Health Nurses, Kenya Registered Community Health Nurses and Kenya Registered Nurses all receive a semester of training in midwifery. Specialty training in midwifery includes those trained as Kenya Enrolled Midwives or Kenya Registered Nurse Midwives.

the NCK in 2010. In 2011, the NCK issued two circulars, informing all nurses that licensure renewal would now be a prerequisite for practicing in Kenya [31].

From 2008-2012, the NCK issued a total of 39,939 licensure renewals. Renewals increased from 1,258 in 2008 to 10,289 in 2012. In 2011, when the NCK circulars regarding mandatory renewal linked to CPD were issued, the council renewed 17,571 licenses, accounting for 44.0% of all renewals during this five-year period.

Of these renewals, 39,899 renewed their licenses one time and 20 renewed their licenses two times. From 2008-2012, 39,919 nurses renewed their practice licenses, which accounts for 79.8% of nurses ever registered that are 60 years of age or younger, providing a more accurate reflection of the active nursing workforce in Kenya. Based on the active nursing workforce of 39,919, Kenya has a nurse to population ratio of 103.4 nurses per 100,000 population compared to the WHO recommendation of 250 health workers per 100,000 [1].

"Based on the active nursing workforce of 39,919, Kenya has a nurse to population ratio of 103.4 nurses per 100,000 population compared to the WHO recommendation of 250 health workers per 100,000 . From 2003-2012, 23% of the active nursing workforce upgraded from certificate level to diploma (7,225), or from diploma to degree."

Educational Upgrades

From 2003-2012, 9,184 nurses obtained educational . upgrades. These upgrades can be horizontal, meaning that a nurses with a certificate or diploma obtain a second certificate or diploma in another specialty area (e.g. midwifery) or vertical, meaning that a nurse goes on to obtain the next level of educational training (e.g. from certificate to diploma or diploma to degree).

Vertical upgrades accounted for 81.9% of the 9,184 educational upgrades. From 2003-2012, 23% of the active nursing workforce upgraded from certificate level to diploma (7,225), or from diploma to degree (172). The remaining 18.1% of upgrades were horizontal with 349 certificate level nurses earning a second post-basic certificate (e.g. psychiatry), 299 diploma prepared nurses earning a post-basic certificate (e.g. midwifery) and 1,013 earning a second post-basic diploma (e.g. ophthalmology, nephrology), and 5 degree level nurses earning a post-basic diploma (e.g. critical care, paediatric). The majority (78.6%) of nurses upgraded within 15 years of initially registering with the NCK with an additional 15.9% that upgraded 16-20 after entering the registry.

Chapter Six
Deployment and Distribution of Nurses

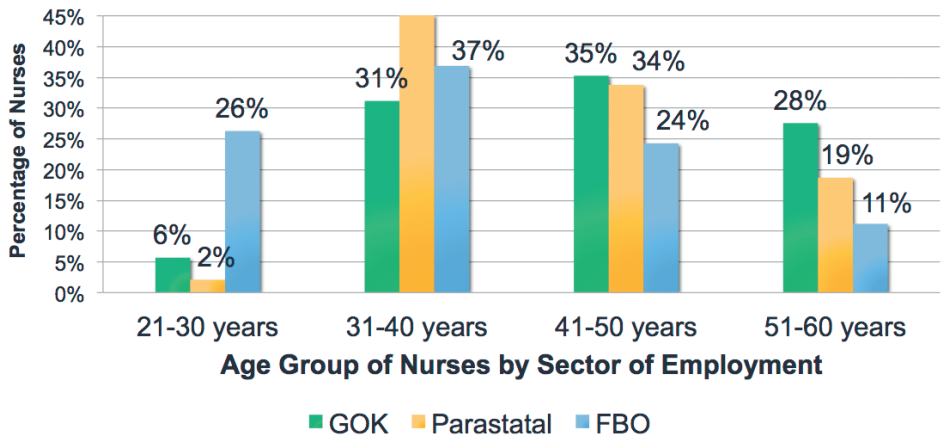
This section provides data on the deployment and distribution of nurses in Kenya. Demographic data on the employed workforce is provided for the public, parastatal and faith-based sectors, based on reporting to the KHWIS. Additional employment data include length of employment and specialty areas for the nursing workforce. Data on the distribution of nurses include deployment by sector, county and facility type, as well as data on workforce attrition by cause.

6.1 Employed Workforce

Based on 2012 deployment data from the KHWIS, there are 16,671 nurses employed in the public sector by the Government of Kenya (GOK). An additional 2,246 nurses are employed by parastatals, representing Kenya's two national referral hospitals — Kenyatta National Hospital and Moi Teaching and Referral Hospital. An additional 759 (71.8%) of the 1,057 faith-based health facilities in Kenya reported their nursing workforce employment numbers. These faith-based facilities employ 966 nurses. The GOK seconds 87 nurses to faith-based organizations and 7 to parastatals.

> *"The public sector employs significantly more male nurses (23.3%) than the faith-based (16.8%) and parastatal (18.0%) sectors."*

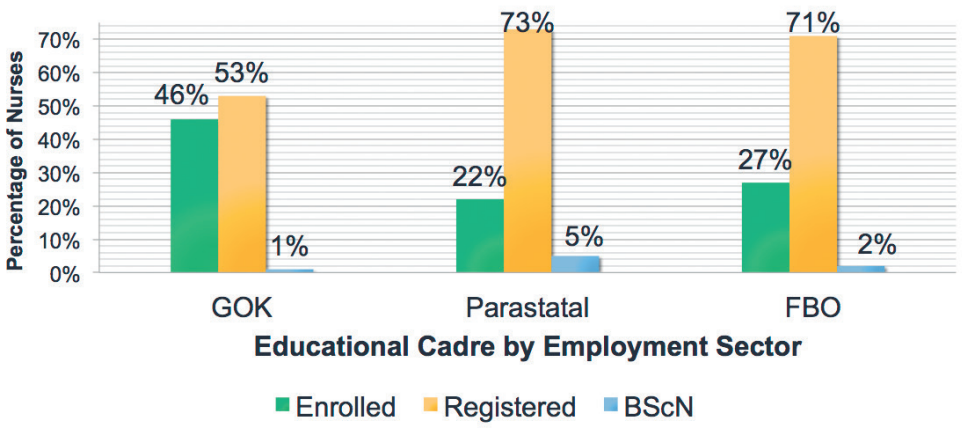
Figure 6.1: Age of Nursing Workforce by Sector of Employment



For the 19,451 deployed nurses captured in the KHWIS with gender data, 77.7% are female and 22.3% are male. The public sector employs significantly more male nurses (23.3%) than the faith-based (16.8%) and parastatal (18.0%) sectors ($p<0.001$). The faith-based sector employs a higher percentage of nurses aged 21-30 years (26%) compared to

the public sector (6%). However, the public sector employs a higher percentage of nurses aged 51-60 (28%) compared to the faith-based sector (11%) (Figure 6.1). This could reflect the difficulty for newer graduates in obtaining public sector employment, as well as the longevity of a public sector nursing career.

Figure 6.2: Nursing Educational Cadre by Sector of Employment



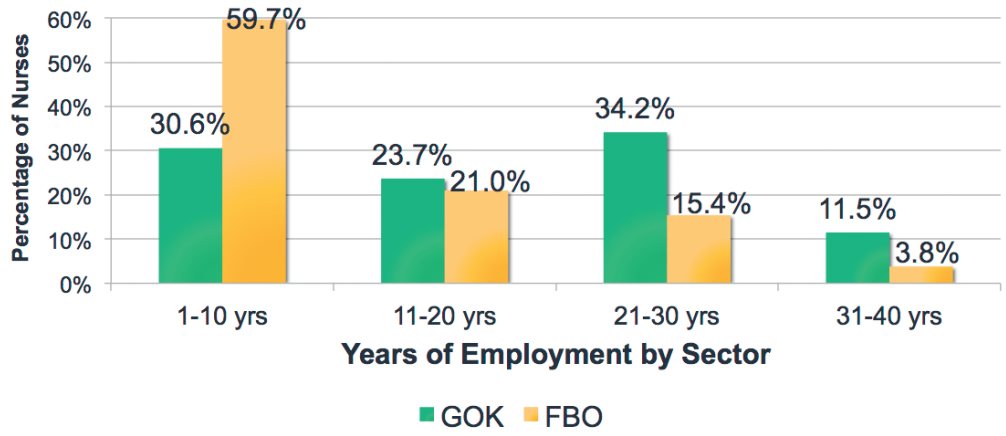
The majority of the public sector nursing workforce trained at the diploma level (52.5%) and 1.1% at the degree level (Figure 6.2). While only 39.2% of the nursing workforce ever registered aged 60 years or younger is comprised of enrolled nurses, 46.4% of nurses employed by the public sector are enrolled nurses. Parastatal hospitals employ the highest percentage of BScN nurses at 4.6% of their nursing workforce. The nursing workforce in parastatal and faith-based facilities is largely comprised of registered nurses, including 72.8.1% and 71.6% of their workforce respectively.

Nurses deployed in the public, parastatal and faith-based sectors have a variety of specialty skills. As part of their nursing education, 79.5% have received basic training in midwifery. An additional 10% of the nursing workforce has received post-basic specialty qualifications in midwifery with an additional 3% having specialty qualifications in other areas, such as pediatrics and critical care among others. Table 6.1 describes the specialty nurses deployed across Kenya's public, parastatal and faith-based sectors. The two parastatal hospitals, Kenyatta and Moi, employ 12 psychiatric nurses, 9 ophthalmic nurses, 4 pediatric nurses, 26 peri-operative nurses, 31 critical care nurses, 21 nephrology nurses and 13 accident and emergency nurses.

Table 6.1: Nursing Specialty Areas for Deployed Nurses

Specialty Area	Number of Deployed Nurses
Midwifery	1,938
Psychiatric	323
Ophthalmic	74
Pediatric	56
Peri-operative	66
Anesthesia	10
Critical Care	77
Nephrology	31
Accident and Emergency	13
TOTAL	2,588

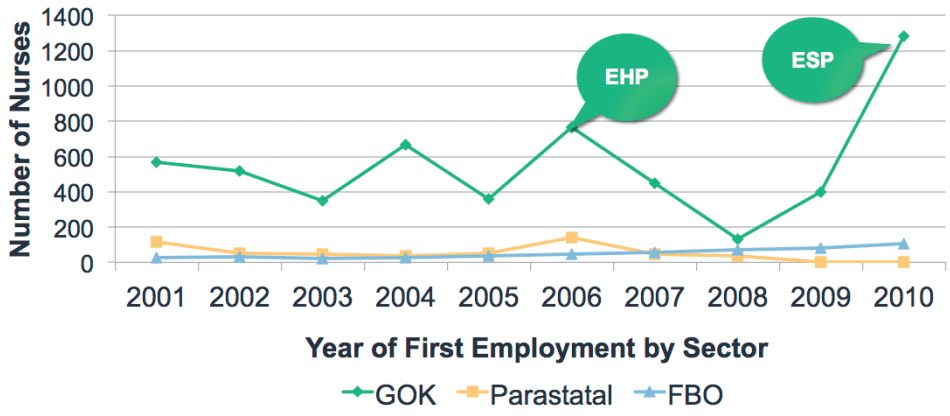
Figure 6.3: Length of Employment by Sector



On average, nurses working in the public sector have been employed for 18 years compared to 11 years for faith-based facilities reporting. For the public sector workforce, one third (30.6%) have been employed between 1-10 years and another one third (34.3%) have been employed for 21-30 years (Figure 6.3). Nurses in the faith-based sector are more likely to be employed between 1-10 years (59.7%) compared to the public sector. Length of employment was missing for approximately 50% of nurses deployed in the parastatal sector.

Of the current public sector nursing workforce, 666, 769 and 1,282 nurses joined the public sector in 2004, 2006 and 2010 respectively, based on their date of first employment (Figure 6.4). According to the MOH, an increased number of diploma and BScN nurses joined the public sector in 2004 due to a hiring backlog. Nurses entering the workforce in 2006, which alone represents 4.8% of the public sector nursing workforce, is likely due to the Emergency Hire Plan [32]. Similarly in 2010, the GOK enacted its Economic Stimulus Plan, which allowed the public sector to employ more nurses. The number of nurses that started working in the public sector in 2010 account for 7.9% of Kenya's public sector nursing workforce.

Figure 6.4: Year of First Employment for Deployed Workforce by Sector, 2001-2010



EHP: Emergency Hire Program ESP: Economic Stimulus Package

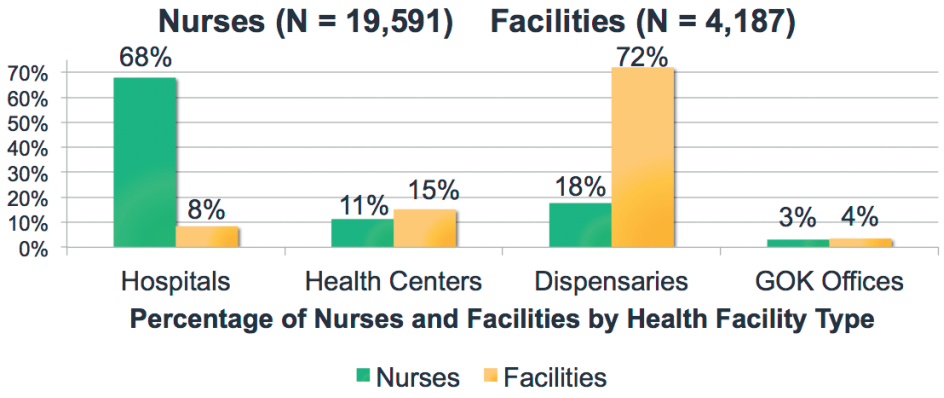
6.2 Deployment Distribution

"In Kenya, 67.9% of the nursing workforce is deployed in hospitals, which comprise 8.4% of total health facilities. Dispensaries comprise 72.0% of the health facilities, but only account for 17.7% of the total deployed nursing workforce."

Facility Distribution

For the public, parastatal and faith-based institutions reporting, there are a total of 19,591 nurses deployed at 4,187 health facilities across Kenya. In Kenya, 67.9% of the nursing workforce is deployed in hospitals, which comprise 8.4% of total health facilities (Figure 6.5). Of the nurses deployed in hospitals, 16.9% are deployed in Kenya's two parastatal hospitals, Kenyatta National Hospital and Moi Teaching and Referral Hospital. Dispensaries comprise 72.0% of the health facilities, but only account for 17.7% of the total deployed nursing workforce. Kenya has streamlined health care administration whereby government management offices comprise only 3.5% of health facilities and account for 3.1% of the deployed nursing workforce (Figure 6.5). Annex 1.3 provides data on the number of health facilities by type, sector and county.

Figure 6.5: Public, Parastatal and Faith-based Nurse Deployment by Facility Type



The KHWIS had cadre data (e.g. enrolled, registered, BScN) on 19,292 of the deployed nurses. Hospitals employ a higher percentage of registered nurses (58.7%) compared to health centres, which employ an equal percentage of enrolled (49.8%) and registered (49.6%) nurses (Table 6.2). Dispensaries employ a higher percentage of enrolled nurses (62.3%) compared to other facility types. Health administration offices and parastatals employed the highest percentages of registered (75.5% and 72.8% respectively) and BScN nurses (3.8% and 4.5% respectively).

According to the MFL, there are 3,550 private facilities spread across Kenya's 47 counties. The majority of private health facilities are clinics (77.3%), another 6.5% are dispensaries, 4.8% are nursing homes, 3.6% are hospitals, 2.5% are health/medical centres, 1.1% are dental/eye clinics, 0.8% are voluntary counseling and testing centres and 3.1% are other types of facilities. Since only 64.4% of private facilities' data was captured in the KHWIS and

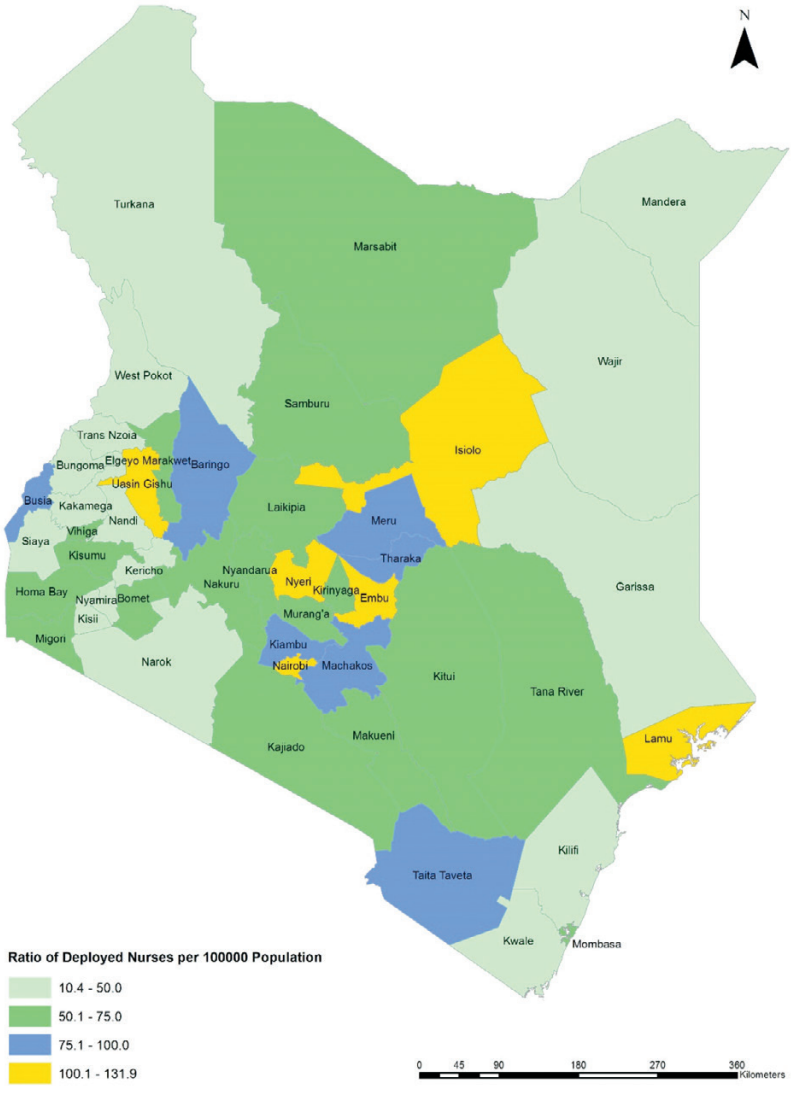
Table 6.2: Deployment by Facility Type and Nursing Cadre				
FACILITY TYPE	Certificate Enrolled	Diploma Registered	Degree BScN	TOTAL
Hospitals	4,334 (40.0%)	6,349 (58.7%)	145 (1.3%)	10,828 (100%)
Health Centers	1,089 (49.8%)	1,084 (49.6%)	12 (0.6%)	2,185 (100%)
Dispensaries	2,137 (62.3%)	1,283 (37.4%)	8 (0.2%)	3,428 (100%)
Health Administration	125 (20.7%)	457 (75.5%)	23 (3.8%)	605 (100%)
Parastatal National Referral Hospitals	490 (22.7%)	1,570 (72.8%)	98 (4.5%)	2,158 (100%)

data from the large private hospitals was not reported, the number of nurses deployed in the private sector is unknown.

Geographic Distribution

The nurse to population ratios varied by county with a national ratio of 51.5 nurses (based on nurses deployed in the GOK, parastatal and faith-based facilities) per 100,000

Figure 6.6: Ratio of Nurses per 100,000 Population by County of Deployment



population. Several counties have nurse to population ratios that are higher than the national average (Figure 5.6), including Isiolo (2.4 times higher), Embu (2.0), Nyeri (2.0), Uasin Gishu (1.9), Nairobi (1.7) and Lamu (1.6). Three counties have extremely low nurse to population ratios when compared to the national average. Mandera, Turkana and Wajir are 83%, 76%, 61% below the national rate respectively. Annex 1.4 lists the nurse to population ratios by county of deployment.

6.3 Workforce Attrition

Based on available data from IPPD from 2008-2012, 826 nurses left the public sector. The causes of public sector nursing attrition include retirement (37%), death (28%), dismissal (19%), resignation (10%) and transfer (6%). For nurses leaving the public sector, 69% were enrolled nurses and 31% were registered nurses.

Another form of workforce attrition, not directly captured in IPPD, is due to migration. Based on available data from the rHRIS on requests for licensure verification, 1,149 nurses applied to migrate between 2008-2012, accounting for 1,278 applications since nurses can apply more than one time. From 2008-2012, the average number of annual applications to migrate decreased to approximately 256 per year, representing a 37.4% decrease in annual applications compared to the previous nine years [29]. The majority of applications to migrate were to the United States (62%). Applications to the United Kingdom fell to 3% compared to 33% over the previous nine years. Applications to Canada (13%) and Australia (10%) accounted for a larger percentage of total applications compared to the previous nine years (Canada 2% and Australia 5%). Applications to other African countries remained steady at 6% [29].

"From 2008-2012, the average number of annual applications to migrate decreased to approximately 256 per year, representing a 37.4% decrease in annual applications compared to the previous nine years."

Conclusion

In order to address the shortage of human resources for health, Kenya has invested heavily in nurse training. The NCK has approved several nurse training institutions — totalling 97 by the end of 2013. Nearly 75% of Kenya's counties now have at least one nurse training institution. From 2003 – 2012, the annual intake of new nursing students tripled — from 1,545 to 4,294. Nearly all students (92%) go on to register with the NCK and are available to practice in Kenya. To enter the register, new graduates take a national licensure exam. In 2012, the pass rate was over 82%. The annual number of newly qualified nurses entering the register doubled from 1,423 in 2003 to 2,908 in 2012 — totalling 17,579 new nurses over ten years. An average of 177 nurses trained outside Kenya also entered the registry annually from 2008 – 2012.

Kenya has not only scaled up the training and registration of new nurses, but also facilitated career progression for nurses, by upgrading 23% of the active nursing workforce from certificate level to diploma or degree. From 2008 – 2012, 39,919 nurses renewed their practice licenses, giving a more accurate reflection of the active nursing workforce. Based on the active nursing workforce, Kenya has a nurse to population ratio of 103.4 nurses per 100,000 compared to the WHO recommendation of 250 health workers per 100,000.

For the nurses deployed in Kenya's public, parastatal and faith-based sectors, the distribution of nurses varies across facility types. Approximately 68% of the nursing workforce is deployed in hospitals, which comprise only 8% of facilities, while only 20% of the nursing workforce is deployed at dispensaries, which comprise 72% of health facilities.

The distribution of the nursing workforce varies across Kenya's 47 counties. The national average for nurses working in Kenya's public, parastatal and faith-based sectors (data on nurses working in private facilities is not available) is 51.5 deployed nurses per 100,000 population. Isiolo, Embu, Nyeri and Uasin Gishu counties all have nurse to population ratios that exceed the national average by nearly two times. Mandera, Turkana and Wajir counties are 83%, 76%, 61% below the national rate respectively.

The demographics of the nursing workforce also differs by sector of employment. The public sector has employed significantly more male nurses at 23%, compared to 17% in faith-based and 18% in parastatal facilities. Additionally, the public sector has employed more nurses aged 51-60 years (28%), compared to 19% in parastatal and 11% in faith-based facilities. Parastatal facilities have employed the highest percentage of BScN nurses at 5%, compared to 2% in faith-based and 1% public facilities.

Kenya is also retaining more of its nurses. Nursing workforce attrition due to migration has decreased. Intent to migrate among the nursing workforce decreased 37% from 2008-2012, compared to the previous nine years.

The collection and analysis of this nursing data was made possible through the development and maintenance of robust health workforce information systems, including the rHRIS and KHWIS, which support Kenya's health system. Health managers and policy makers should utilize these findings to influence national level policy development, public health programming and health services delivery at the county level.

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Annex I: County Level Data

Annex 1.1: Approved Nurse Training Institutions, NCK Licensing Exam Centres and BScN Internship Centres by County

County Name	# Approved GOK Nurse Training Institutions	# Approved FBO Nurse Training Institutions	# Approved Private Nurse Training Institutions	Total # of Approved Nurse Training Institutions	# Approved NCK Licensing Exam Centres	# Approved Internship Centres
BARINGO	1	0	0	1	1	0
BOMET	0	2	0	2	2	0
BUNGOMA	2	0	0	2	1	1
BUSIA	0	0	0	0	0	0
EMBU	1	1	0	2	3	1
GARISSA	1	0	1	2	3	0
HOMA BAY	1	2	0	3	4	1
ISIOLO	0	0	0	0	0	0
KAJIADO	0	0	0	0	0	0
KAKAMEGA	2	1	0	3	3	2
KERICHO	2	0	0	2	2	1
KIAMBU	1	3	1	5	6	3
KILIFI	2	1	0	3	2	0
KIRINYAGA	0	0	0	0	0	1
KISII	3	1	0	4	4	2
KISUMU	1	1	1	3	4	2
KITUI	2	0	0	2	2	1
KWALE	1	0	0	1	0	0
LAIKIPIA	0	0	0	0	0	0
LAMU	0	0	0	0	0	0
MACHAKOS	1	0	0	1	3	1
MAKUENI	0	0	0	0	0	0
MANDERA	0	0	0	0	0	0
MARAKWET ELGEYO	0	0	0	0	0	0
MARSABIT	0	0	0	0	0	0
MERU	1	2	1	4	6	2
MIGORI	0	0	0	0	0	0
MOMBASA	2	0	0	2	3	4
MURANG'A	1	0	0	1	1	0
NAIROBI	9	4	5	18	22	5
NAKURU	2	1	0	3	5	1
NANDI	0	0	0	0	0	0
NAROK	0	0	0	0	1	0
NYAMIRA	1	0	0	1	0	0
NYANDARUA	0	1	0	1	1	0
NYERI	1	2	2	5	4	2
SAMBURU	0	1	0	1	1	0

Annex 1.1: Approved Nurse Training Institutions, NCK Licensing Exam Centres and BScN Internship Centres by County

County Name	# Approved GOK Nurse Training Institutions	# Approved FBO Nurse Training Institutions	# Approved Private Nurse Training Institutions	Total # of Approved Nurse Training Institutions	# Approved NCK Licensing Exam Centres	# Approved Internship Centres
SIAYA	2	0	0	2	1	0
TAITA TAVETA	0	0	0	0	0	0
TANA RIVER	0	0	0	0	0	0
THARAKA NITHI	0	1	0	1	0	1
TRANS NZOIA	0	0	1	1	1	1
TURKANA	1	0	0	1	1	0
UASIN GISHU	3	2	0	5	6	1
VIHIGA	0	0	0	0	2	0
WAJIR	0	0	0	0	0	0
WEST POKOT	0	1	0	1	1	0
Total	44	27	12	83	96	33

Annex 1.2 Nursing Workforce by County of Origin with Nurse to Population Ratios

County Name	# Nurses Newly Registered by County of Origin (2003-2012)	Ratio of Newly Registered Nurses per 100,000 Population (2003-2012)	County Population	# Nurses Ever Registered (≦ 60 years) by County of Origin	Ratio of Nurses Ever Registered (≦ 60 years) per 100,000 Population
BARINGO	627	112.9	555,561	1,349	242.8
BOMET	198	27.3	724,186	414	57.2
BUNGOMA	418	25.6	1,630,934	1351	82.8
BUSIA	176	36.1	488,075	632	129.5
EMBU	694	134.4	516,212	1,887	365.5
GARISSA	131	21.0	623,060	282	45.3
HOMA BAY	351	36.6	958,791	986	102.8
ISIOLO	93	64.9	143,294	234	163.3
KAJIADO	168	24.4	687,312	431	62.7
KAKAMEGA	573	34.5	1,660,651	2,517	151.6
KERICHO	345	45.5	758,339	1,106	145.8
KIAMBU	785	48.4	1,623,282	2,988	184.1
KILIFI	151	13.6	1,109,735	584	52.6
KIRINYAGA	231	43.7	528,054	825	156.2
KISII	1,161	76.8	1,511,422	2,923	193.4
KISUMU	480	49.5	968,909	1,708	176.3
KITUI	351	34.7	1,012,709	857	84.6
KWALE	28	4.3	649,931	150	23.1
LAIKIPIA	136	34.1	399,227	308	77.1
LAMU	35	34.5	101,539	111	109.3
MACHAKOS	450	41.0	1,098,584	1,725	157.0
MAKUENI	465	52.6	884,527	1,363	154.1
MANDERA	71	6.9	1,025,756	146	14.2
MARAKWET ELGEYO	106	28.6	369,998	213	57.6
MARSABIT	93	31.9	291,166	276	94.8
MERU	802	59.1	1,356,301	3,130	230.8
MIGORI	219	38.9	563,033	506	89.9
MOMBASA	303	32.3	939,370	1,067	113.6
MURANG'A	331	35.1	942,581	1,248	132.4
NAIROBI	2,284	72.8	3,138,369	5,071	161.6
NAKURU	661	41.2	1,603,325	1,906	118.9
NANDI	211	28.0	752,965	490	65.1
NAROK	124	14.6	850,920	357	42.0
NYAMIRA	149	24.9	598,252	271	45.3
NYANDARUA	303	50.8	596,268	889	149.1
NYERI	784	113.0	693,558	3,265	470.8
SAMBURU	96	42.9	223,947	338	150.9
SIAYA	211	25.1	842,304	995	118.1
TAITA TAVETA	93	32.7	284,657	505	177.4
TANA RIVER	40	16.7	240,075	160	66.6
THARAKA NITHI	45	12.3	365,330	52	14.2
TRANS NZOIA	440	53.7	818,757	1,181	144.2

Annex 1.2 Nursing Workforce by County of Origin with Nurse to Population Ratios					
County Name	# Nurses Newly Registered by County of Origin (2003-2012)	Ratio of Newly Registered Nurses per 100,000 Population (2003-2012)	County Population	# Nurses Ever Registered (≦ 60 years) by County of Origin	Ratio of Nurses Ever Registered (≦ 60 years) per 100,000 Population
TURKANA	81	9.5	855,399	123	14.4
UASIN GISHU	625	69.9	894,179	1,545	172.8
VIHIGA	114	20.6	554,622	620	111.8
WAJIR	93	14.0	661,941	200	30.2
WEST POKOT	105	20.5	512,690	268	52.3
Total	16,431	42.6	38,610,097	49,553	128.3

Annex 1.3 Health Facilities by County and Sector

Sector	Government of Kenya				Parastatal	Faith-based organizations			Total Number of Health Facilities[8] (Private Excluded)
Facility Type	Hospitals	Health Centres	Dispensaries	Program Offices	Hospitals	Hospitals	Health Centres	Dispensaries	
Number of Health Facilities	268	509	2,458	148	2	83	126	550	4,144
BARINGO	6	21	90	3	0	0	7	6	133
BOMET	5	5	23	1	0	2	2	1	39
BUNGOMA	7	3	75	2	0	1	1	22	111
BUSIA	6	4	41	1	0	2	2	3	59
EMBU	4	5	57	3	0	1	3	18	91
GARISSA	4	0	18	6	0	0	0	0	28
HOMA BAY	11	13	64	3	0	5	8	12	116
ISIOLO	3	4	23	2	0	0	0	2	34
KAJIADO	2	16	60	1	0	1	1	0	81
KAKAMEGA	13	18	73	3	0	3	5	14	129
KERICHO	8	21	74	2	0	1	6	11	123
KIAMBU	9	18	56	3	0	7	5	25	123
KILIFI	5	6	49	3	0	1	0	5	69
KIRINYAGA	3	3	44	1	0	2	1	26	80
KISII	9	3	71	6	0	2	7	5	103
KISUMU	5	15	45	2	0	2	7	18	94
KITUI	10	10	130	3	0	2	2	14	171
KWALE	3	5	46	2	0	0	0	3	59
LAIKIPIA	5	5	71	1	0	1	1	5	89
LAMU	3	3	16	1	0	0	1	1	25
MACHAKOS	5	24	85	4	0	2	3	15	138
MAKUENI	9	9	81	3	0	1	1	11	115
MANDERA	1	0	1	1	0	0	0	0	3
MARAKWET/ ELGEYO	6	25	119	3	0	1	1	6	161
MARSABIT	2	2	30	2	0	2	3	10	51
MERU	15	12	69	6	0	9	3	47	161
MIGORI	10	13	65	3	0	3	2	8	104
MOMBASA	7	2	37	4	0	0	0	0	50
MURANG'A	6	4	73	2	0	3	1	15	104
NAIROBI	15	110	107	40	1	15	9	67	364
NAKURU	3	6	33	1	0	0	0	9	52
NANDI	3	2	29	0	0	1	4	3	42
NAROK	11	29	128	8	0	0	3	39	218
NYAMIRA	3	5	22	1	0	0	5	2	38
NYANDARUA	3	8	33	2	0	1	0	12	59
NYERI	5	11	66	3	0	3	0	27	115

Annex 1.3 Health Facilities by County and Sector

Sector	Government of Kenya				Parastatal	Faith-based organizations			Total Number of Health Facilities[8] (Private Excluded)
Facility Type	Hospitals	Health Centres	Dispensaries	Program Offices	Hospitals	Hospitals	Health Centres	Dispensaries	
Number of Health Facilities	268	509	2,458	148	2	83	126	550	4,144
SAMBURU	2	5	37	1	0	1	3	3	52
SIAYA	6	28	77	2	0	1	17	6	137
TAITA TAVETA	6	6	31	1	0	0	0	6	50
TANA RIVER	2	4	30	1	0	0	0	13	50
THARAKA NITHI	2	1	12	1	0	1	1	2	20
TRANS NZOIA	3	2	27	1	0	1	2	12	48
TURKANA	2	5	29	2	0	1	1	2	42
UASIN GISHU	4	5	24	1	1	1	0	3	39
VIHIGA	5	10	31	2	0	1	2	11	62
WAJIR	4	3	23	3	0	0	0	0	33
WEST POKOT	7	0	33	1	0	1	6	30	78

8 County level data were missing for 43 health facilities.

Annex 1.4 Nurses by County and Sector with Nurse to Population Ratios[9]

Sector	GOVERNMENT OF KENYA				PARASTATAL	FAITH-BASED ORGANIZATIONS			Total Number of Nurses[10] (Excluding Private)	Population	Ratio of Nurses per 100,000 Population
Facility Type	Hospitals	Health Centres	Dispensaries	Program Offices	Hospitals	Hospitals	Health Centres	Dispensaries			
Number of Nurses	10,072	2,159	3,339	608	2,238	942	42	96	19,496	38,610,097	50.49
BARINGO	127	99	111	0	0	0	1	0	338	555,561	60.84
BOMET	113	54	111	2	0	60	0	0	340	724,186	46.95
BUNGOMA	373	61	62	30	0	25	1	0	552	1,630,934	33.85
BUSIA	173	38	50	8	0	11	0	2	282	488,075	57.78
EMBU	323	49	115	15	0	1	0	3	506	516,212	98.02
GARISSA	125	28	33	11	0	0	0	0	197	623,060	31.62
HOMA BAY	214	91	78	22	0	27	1	13	446	958,791	46.52
ISIOLO	114	12	40	7	0	0	0	1	174	143,294	121.43
KAJIADO	152	99	55	8	0	0	3	6	323	687,312	46.99
KAKAMEGA	349	70	79	44	0	33	0	4	579	1,660,651	34.87
KERICHO	171	22	60	4	0	0	0	0	257	758,339	33.89
KIAMBU	600	137	92	27	0	270	1	3	1,130	1,623,282	69.61
KILIFI	211	28	64	36	0	17	0	0	356	1,109,735	32.08
KIRINYAGA	171	21	85	4	0	32	0	0	313	528,054	59.27
KISII	294	78	145	13	0	0	5	2	537	1,511,422	35.53
KISUMU	400	67	87	26	0	3	0	0	583	968,909	60.17
KITUI	229	30	164	18	0	32	1	2	476	1,012,709	47.00
KWALE	125	32	63	5	0	0	0	0	225	649,931	34.62
LAIKIPIA	146	16	67	5	0	0	0	4	238	399,227	59.62
LAMU	58	6	11	7	0	0	0	0	82	101,539	80.76
MACHAKOS	348	70	124	14	0	35	0	1	592	1,098,584	53.89
MAKUENI	180	24	127	16	0	1	0	0	348	884,527	39.34
MANDERA	54	0	16	8	0	0	0	0	78	1,025,756	7.60
MARAKWET /ELGEYO	143	18	44	1	0	7	0	0	213	369,998	57.57
MARSABIT	108	0	31	9	0	9	0	2	159	291,166	54.61
MERU	338	70	166	9	0	70	0	7	660	1,356,301	48.66
MIGORI	134	32	72	10	0	0	6	0	254	563,033	45.11
MOMBASA	454	9	45	10	0	0	0	0	518	939,370	55.14
MURANG'A	230	34	137	11	0	7	0	4	423	942,581	44.88
NAIROBI	553	246	46	92	1,611	237	0	0	2,785	3,138,369	88.74
NAKURU	736	111	144	26	0	0	1	2	1,020	1,603,325	63.62
NANDI	158	49	77	4	0	1	2	1	292	752,965	38.78
NAROK	165	31	68	3	0	0	1	4	272	850,920	31.97
NYAMIRA	98	33	53	17	0	0	3	1	205	598,252	34.27
NYANDARUA	213	34	65	9	0	0	0	0	321	596,268	53.83

Annex 1.4 Nurses by County and Sector with Nurse to Population Ratios[9]

Sector	GOVERNMENT OF KENYA				PARASTATAL	FAITH-BASED ORGANIZATIONS			Total Number of Nurses[10] (Excluding Private)	Population	Ratio of Nurses per 100,000 Population
Facility Type	Hospitals	Health Centres	Dispensaries	Program Offices	Hospitals	Hospitals	Health Centres	Dispensaries			
Number of Nurses	10,072	2,159	3,339	608	2,238	942	42	96	19,496	38,610,097	50.49
NYERI	409	83	129	18	0	47	0	4	690	693,558	99.49
SAMBURU	105	3	17	0	0	0	0	8	133	223,947	59.39
SIAYA	142	73	76	11	0	2	3	0	307	842,304	36.45
TAITA TAVETA	161	12	35	9	0	0	0	1	218	284,657	76.58
TANA RIVER	64	14	21	4	0	0	0	0	103	240,075	42.90
THARAKA NITHI	140	23	66	5	0	3	0	11	248	365,330	67.88
TRANS NZOIA	204	20	46	0	0	1	0	0	271	818,757	33.10
TURKANA	73	0	14	1	0	0	7	7	102	855,399	11.92
UASIN GISHU	81	46	89	11	627	2	6	0	862	894,179	96.40
VIHIGA	86	82	23	4	0	5	0	0	200	554,622	36.06
WAJIR	90	0	26	10	0	0	0	0	120	661,941	18.13
WEST POKOT	138	4	16	4	0	7	0	3	172	512,690	33.55

9 Private sector excluded. Nurses deployed at faith-based training institutions were not captured by the KHWIS.

10 Data on county of deployment was missing for 95 nurses.

Annex II:
Nurse Training Institutions Approved by the NCK, December 2013

Nurse Training Institutions Approved by the NCK, December 2013				
	Institution	County	Sector	Course Offered
1	AGA KHAN UNIVERSITY	NAIROBI	PRIVATE	KRCHN, BSCN
2	AIC LITEIN SCHOOL OF NURSING	BOMET	FBO	KRCHN
3	AMREF SCHOOL OF NURSING	NAIROBI	PRIVATE	KRCHN
4	ARMED FORCES M. SCHOOL	NAIROBI	GOK	KRCHN
5	BARATON UNIVERSITY	UASIN GICHU	FBO	BSCN
6	BOMET KMTC	BOMET	GOK	KRCHN
7	BONDO KMTC	SIAYA	GOK	KRCHN
8	BUNGOMA KMTC	BUNGOMA	GOK	KRCHN
9	CHUKA UNIVERSITY	THARAKA NITHI	GOK	BSCN
10	CONSOLATA WAMBA	SAMBURU	FBO	KRCHN
11	CONSOLATA H. ORTUM	NAIROBI	FBO	KRCHN
12	CONSOLATA NKUBU	MERU	FBO	KRCHN
13	CONSOLATA NYERI	NYERI	FBO	KRCHN
14	DAYSTAR UNIVERSITY	NAIROBI	FBO	BSCN
15	EGERTON UNIVERSITY	NAKURU	GOK	BSCN
16	ELDORET KMTC	ELDORET	GOK	KRCHN
17	EMBU KMTC	EMBU	GOK	KRCHN
18	FIDENZA ,KYENI	EMBU	FBO	KRCHN
19	GETRUDES SCHOOL OF NURSING	NAIROBI	PRIVATE	KRPaedN
20	GREAT LAKES UNIVERSITY	KISUMU	PRIVATE	BSCN
21	HOMA BAY KMTC	HOMA BAY	GOK	KRCHN
22	JOAN SCHOOL OF NURSING	KISUMU	PRIVATE	KRN
23	JOMO KENYATTA UNIVERSITY OF AGRIC & TECH.	KIAMBU	GOK	BSCN
24	KABARAK UNIVERSITY	BARINGO	PRVATE	BSCN
25	KABIANGA UNIVERSITY COLLEGE	KERICHO	GOK	BSCN
26	KAKAMEGA KMTC	KAKAMEGA	GOK	KRCHN
27	KAPKATET KMTC	KERICHO	GOK	KRCHN
28	KAPSOWAR KMTC	MARAKWET/ELGEYO	GOK	KRCHN
29	KENDU BAY KMTC	HOMA BAY	GOK	KRCHN
30	KENYA METHODIST UNIVERSITY	MERU	FBO	BSCN
31	KENYATTA UNIVERSITY	NAIROBI	GOK	BSCN
32	KIJABE M. SCHOOL	KIAMBU	FBO	KRCHN
33	KILIFI KMTC	KILIFI	GOK	KRCHN
34	KIMATHI UNIVERSITY	NYERI	GOK	BSCN
35	KISII KMTC	KISII	GOK	KRCHN
36	KISII UNIVERSITY	KISII	GOK	BSCN
37	KISUMU KMTC	KISUMU	GOK	KRCHN
38	KITALE KMTC	TRANS NZOIA	GOK	KRCHN

Nurse Training Institutions Approved by the NCK, December 2013				
	Institution	County	Sector	Course Offered
39	KITUI KMTC	KITUI	GOK	KRCHN
40	KMTC BUNGOMA	BUNGOMA	GOK	KRCHN
41	KMTC GARISSA	GARISSA	GOK	KECHN, KRCHN UPGRADING
42	KMTC KABARNET	BARINGO	GOK	KECHN
43	KMTC LODWAR	TURKANA	GOK	KECHN
44	KMTC MATHARE	NAIROBI	GOK	KRPN/KEPN
45	KMTC MSAMBWENI	KWALE	GOK	KRCHN
46	KNH CENTRE	NAIROBI	PARASTATAL	PERI OPERATIVE
47	MACHAKOS KMTC	MACHAKOS	GOK	KRCHN
48	MASENO UNIVERISTY	KISUMU	GOK	BSCN
49	MASENO SCH OF NURSING	KISUMU	FBO	KRCHN
50	MASINDE MULIRO UNIVERSITY	KAKAMEGA	GOK	BSCN
51	MATER M. HOSPITAL	NAIROBI	PRIVATE	RM/RN
52	MAUA METHODIST HOSPITAL	MERU	FBO	KRCHN
53	MBALE KMTC	VIHIGA	GOK	KRCHN
54	MERU KMTC	MERU	GOK	KRCHN
55	MIGORI KMTC	MIGORI	GOK	KRCHN
56	MOI REFERRAL HOSPITAL	UASIN GICHU	PARASTATAL	KRN/KRCCN, Nephrology
57	MOI UNIVERITY ELDORET	UASIN GICHU	GOK	BSCN
58	MOMBASA KMTC	MOMBASA	GOK	KRCHN
59	MT. KENYA UNIVERSITY	KIAMBU	PRIVATE	BSCN
60	MURANG'A KMTC	MURANGA	GOK	KRCHN
61	NAIROBI HOSPITAL	NAIROBI	PRIVATE	KRN/ CCN
62	NAIROBI KMTC	NAIROBI	GOK	KRCHN,
63	NAIROBI WOMENS HOSPITAL	NAIROBI	PRIVATE	KRCHN
64	NAKURU KMTC	NAKURU	GOK	KRCHN
65	NAZARETH SCHOOL OF NURSING	KIAMBU	FBO	KRCHN
66	NEP COLLEGE	GARISSA	PRIVATE	KRCHN/KECHN UPGRADING
67	NORTH COAST KMTC	KILIFI	GOK	KRCHN
68	NYAMIRA KMTC	NYAMIRA	GOK	KRCHN
69	NYERI KMTC	NYERI	GOK	KRCHN
70	NZOIA COLLEGE NURSING	TRANS NZOIA	PRIVATE	KRN
71	OUR LADY LOURDES MISSION HOSPITAL SCHOOL OF NURSING	KIRINYAGA	FBO	KRCHN
72	OUTSPAN MEDICAL COLLEGE	NYERI	PRIVATE	KRN (KRCHN in March 2014)
73	P.C.E.A CHOGORIA	THARAKA NITHI	FBO	KRCHN
74	PARKLANDS TRAINING SCHOOL	NAIROBI	GOK	ECHN POST BASIC
75	PCEA KIKUYU	KIAMBU	FBO	KRN
76	PCEA SURBURB COLLEGE NAKURU	NAKURU	FBO	KRN
77	PCEA TUMUTUMU	NYERI	FBO	KRCHN
78	PORT- REITZ KMTC	MOMBASA	GOK	KRCHN

Nurse Training Institutions Approved by the NCK, December 2013				
	Institution	County	Sector	Course Offered
79	PRESBYTERIAN UNIVERSITY OF EAST AFRICA	KIAMBU	FBO	BSCN
80	PUMWANI SCHOOL OF MIDWIFERY	NAIROBI	GOK	MIDWIFERY (RM/EM)
81	PWANI UNIVERSITY COLLEGE	KILIFI	GOK	BSCN
82	RAM SCHOOL OF NURSING	KISII	PRIVATE	KRN
83	REGINA PACIS UNIVERSITY COLLEGE	NAIROBI	FBO	BSCN
84	SIAYA KMTC	SIAYA	GOK	KRCHN
85	ST. CAMILLUS, TABAKA	KISII	FBO	KRCHN
86	ST. CLARES H. KAPLONG	BOMET	FBO	KRCHN
87	ST. JOSEPH'S H. KILGORIS	KAJIADO	FBO	KRCHN
88	ST. JOSEPH'S NYABONDO	HOMA BAY	FBO	KRCHN
89	ST. LUKES H. KALOLENI	KILIFI	FBO	KRCHN
90	ST. LUKES N. KINANGOP	KIAMBU	FBO	KRCHN
91	ST. MARY LANGATA	NAIROBI	FBO	KRCHN
92	ST.ELIZABETH,MUKUMU	KAKAMEGA	FBO	KRCHN
93	TENWEK HOSPITAL	BOMET	FBO	KRCHN
94	THIKA KMTC	THIKA	GOK	KRCHN
95	UNIVERSITY OF NAIROBI	NAIROBI	GOK	BSCN
96	UZIMA UNIVERSITY COLLEGE	KISUMU	FBO	BSCN
97	WEBUYE KMTC	BUNGOMA	GOK	KRCHN

Annex III: List of Key Stakeholders

During the development and review of this report, key stakeholders from the Kenyan health sector, including leaders from public, private and faith-based institutions provided technical advice on areas of analysis and reporting related to the training, regulation and deployment of nurses in Kenya. These stakeholders are listed below.

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