

Putting Adequate Financial and Human Resources in Healthcare for Effective Universal
Health Coverage in Kenya: Lessons and Experiences from China
by

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Thesis submitted in partial fulfillment of
the requirements for the degree
of Master of Science in the in the Global Health Program
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ABSTRACT

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Abstract

Background

To ensure equity and provide financial risk protection in accessing essential health services, low and middle-income countries have adopted different approaches. The approaches are largely based on learning from best practices and gradual strengthening of their health systems. This paper provides a descriptive analysis of health financing and health workforce, and key policy strategies or reforms in Kenya over the past decade. Summarizing key reform experiences in China, policy options are proposed to Kenya in its effort to achieve universal health coverage.

Methods

This is a mixed methods descriptive study, utilizing both quantitative (documents and literature review), and qualitative (in-depth interviews) data collection techniques. Health expenditure and household expenditure data were retrieved from Kenya National Health Accounts 2001/02 to 2012/13, and Kenya Household Health Expenditure and Utilization Survey, 2013 respectively. Indicators including gross domestic product (GDP), the number of registered health workers, and the number of health professionals undergoing training were extracted from Kenya Bureau of Statics reports. Thirty-five in-depth interviews were conducted with key informants in Kenya to understand key health financing and health workforce reforms over the past decade.

Based on extensive literature review and nine in-depth interviews with health financing and health workforce experts, reforms experiences in China were summarized. The summary of Chinese health financing and health workforce reforms provides a basis for recommending policy options for Kenya. The summary is not intended to give a descriptive analysis of health financing and health workforce dynamics in China. A realistic review guided the authors' summary, and it is not claimed to be extensive.

Results

A large portion of Kenya's total health expenditure is from out-of-pocket (OOP) payments, with households accounting for up to one-third. Public health expenditure trends have experienced fluctuations, remain stagnant, and low by regional standards. Most donor funds are off-budget and are a major driver of fragmentation in pooling of funds. Over the past decade, the government has taken measures to increase the share of expenditure on primary health care. Health Sector Services Fund (HSSF) was introduced to ensure timely flow of finances to facilities. However, the implementation of the policy is challenged by both allocative and technical inefficiencies. Expansion of National Hospital Insurance Fund (NHIF) among the informal sector workers remains a major challenge. The government has shown efforts to subsidize health insurance premiums for the poor and vulnerable through the health insurance subsidy program. The

program is still in the pilot phase and highly funded by donor contributions, bringing into question its sustainability.

Training of more health workers might not be Kenyans top priority. The skill mix among health workers is inadequate as evidenced by the high proportion of nurses compared to physicians and clinical officers. There is a spatial distribution of health workers in poor marginalized areas. Measures to recruit and retain health workers in the public sector have achieved minimal results at best.

Conclusion

The current pattern of health spending presents three main challenges. (I) OOP payments have increased the burden of care on households and are inequitable, inefficient and a barrier to access by the poor; (II) Most donor funds are off-budget. The donor funds undermine strategic prioritization, are disease focused, and rarely support system-wide health system strengthening; (III) Financial risk and income cross-subsidization are undermined by OOP payments. Policy reforms must aim to strengthen revenue collection, increase government health expenditure, reduce reliance on out-of-pocket payment, strengthen prepayment mechanisms, integrate donor support, and address allocative and technical efficiencies within the health system. Key lessons from China include: government leadership in social insurance coverage expansion, responsiveness to population needs in designing health insurance packages, and

provision of both supply and demand side incentives to increase health insurance population coverage. Kenya should adopt a pragmatic approach to providing free health services at the primary health care level. China experiences show that a mix of interventions in reducing out-of-pocket payment is more sustainable.

Health workforce challenges lie in the geographical distribution of health workers across Counties, recruitment and retention of health workers in the public sector, skill mix of deployed health workers, inadequate quality assurance in health workers training, and absenteeism. The current trends in health workers' dynamics increase inefficiency in the health system and widen inequities in the provision of quality health services. Lack of rigorous research to provide evidence to policy makers on the best incentives to motivate health workers makes most of the strategies unsustainable and ineffective. Key lessons from China include strengthening of health workforce at the primary health care level. The strategies of primary health care strengthening include targeted recruitment of new graduates, providing incentives for experienced health workers to practice at primary health facilities, continuous learning through collaborations with higher levels facilities, and merging of health professionals training institutions to improve the quality of training. China's regional approach to addressing health workers shortages is a good model for Kenya. Poor regions must be supported financially by the national government and development partners. Increased investment must be accompanied by measures to address inefficiencies and leakages.

Dedication

To my mother, Beatrice Opondo, your support, the source of encouragement and love, is immeasurable. To my late father, Julius Opondo, I memorialize your belief in service to equity not only with this work but also with a commitment to continue engaging in global health equity leadership. Most importantly, I dedicate this work to those Kenyans who believe everyone has a right to affordable and quality health care. I hope this work inspires you to invite more people in championing for universal health coverage in Kenya and beyond.

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1. Introduction

In 2007, using six core components or “building blocks”, the World Health Organization (WHO) proposed a framework for the basic functions of health systems (*Figure 1*). A key purpose of the framework is to promote a common understanding of what a health system is and what constitutes health systems strengthening (WHO, 2007).

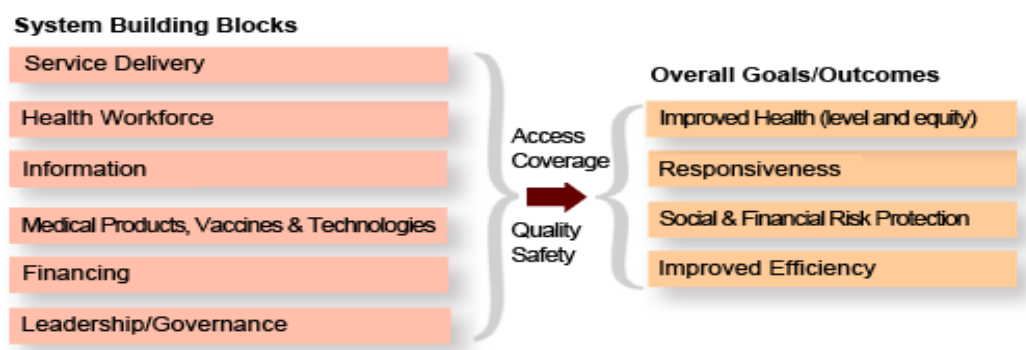


Figure 1: Strengthening Health Systems to Improve Health Outcomes. WHO Framework for Action (WHO, 2007)

Health systems strengthening activities in one building block have repercussions on the function of another. For example, health workforce and financing are core inputs that affect all the other building blocks. Information provides evidence to inform health sector policies. Medical products, vaccines, and technologies impact service delivery and reflect the availability and distribution of care, which are immediate outputs of the health system. Leadership and governance impact the performance of all the other health system blocks (WHO, 2008). However, due to resources constraints in low and middle-income countries (LMICs), two critical building blocks often emphasized in

strengthening country's health systems are health financing and health workforce, a focus of this paper.

In 2005, the 58th World Health Assembly (WHA) endorsed the concept of Universal Health Coverage (UHC). UHC emphasizes strengthening health systems in a way that ensures equity of access and financial risk protection (WHO, 2006). The concept did not immediately gain global interest, but in the past five years, it has emerged as a global health priority. In 2012 alone, four high-level international events (in Bangkok, Kigali, Mexico and Tunis), focused on the importance for national governments working towards UHC, while UHC was the core topic of a ministerial-level meeting convened by WHO and the World Bank in February 2013. This meeting brought together representatives from ministries of health and finance to share lessons learned and challenges faced (African Development Bank, 2012; The Royal Thai Government, 2012; WHO, 2012; WHO, 2013a; WHO, May 21, 2012). Under the health goal in the Sustainable Development Goals (SDGs), UHC has a specific target: "achieve UHC, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" (WHO, 2013a), further emphasizing its importance in health systems strengthening (Rodin & de Ferranti, 2012).

UHC includes three key aspects: beneficiary – who is covered (population

coverage or breadth coverage), scope – which service is covered (service coverage or depth coverage), and coverage – what is the level of financial contribution (financial coverage or height coverage) (WHO, 2010a)-*Figure 2*.

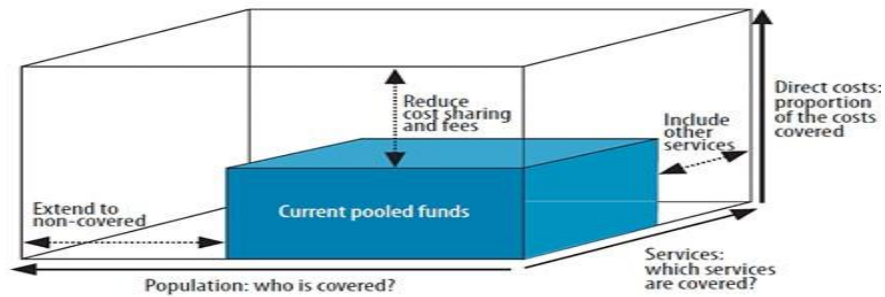


Figure 2: Three dimensions to consider when moving towards UHC (WHO, 2010a)

To achieve financial protection, health systems must be functional and efficient, offering widely essential services of good quality (Dye et al., 2013; Peter, Liz, & Prarthna, 2015). For the considerations of efficiency and equity, the global trend is towards a bigger (or ideally, single) pool of resources by a single purchaser to provide an equal level of coverage (Cotlear, Somil, Owen, Ajay, & Rafael, 2015; Peter et al., 2015).

Taiwan's single payer system is efficient, using only 6.6% of gross domestic product (GDP) to provide a comprehensive benefits package and free choice of provider to its population. Only 1.07% of health expenditure is spent on administrative overhead (Cheng, 2015).

Extending health coverage, especially among the poor, requires governments' commitment to increasing public health expenditure (Brixi, Mu, Targa, & Hipgrave,

2011; Peter et al., 2015). China, Vietnam, and Rwanda could not have achieved rapid expansion in health insurance coverage without massive public subsidies for the poor. The Chinese government pays approximately 85% and 60% of the New Cooperative Medical Insurance (NRCMI) and the Urban Resident Basic Medical Insurance (URBMI) premiums for rural and urban residents respectively (Yip & Hsiao, 2008; Yu, 2015). Vietnam health insurance expansion was accompanied by premium subsidies of 70% (Tangcharoensathien et al., 2011). Rwanda has benefited from international aid, but for sustainability, UHC requires domestically sourced funds (Xu, Huang, & ColÃ³n-Ramos, 2015). For example, African countries could raise an extra US\$29 billion per year for health if they increased general government expenditure on health (GGHE) to 15% as promised during the Abuja Declaration in 2001 (WHO, 2010a). A recent study among 89 LMICs found that each US\$100 per capita, per year of additional tax revenue corresponds to a US\$10 yearly increase in government health spending, particularly for taxes on capital gains, profits, and income, thus reflecting the importance of strengthening tax collection mechanisms (Reeves et al., 2015).

For countries to sustain UHC, it is important to expand the fiscal space (i.e., increasing health spending without jeopardizing the sustainability of a country's financial position or the stability of the economy) and continuously fine-tune the mix of health financing (Peter et al., 2015). In January 2013, Taiwan enforced a 2% premium on

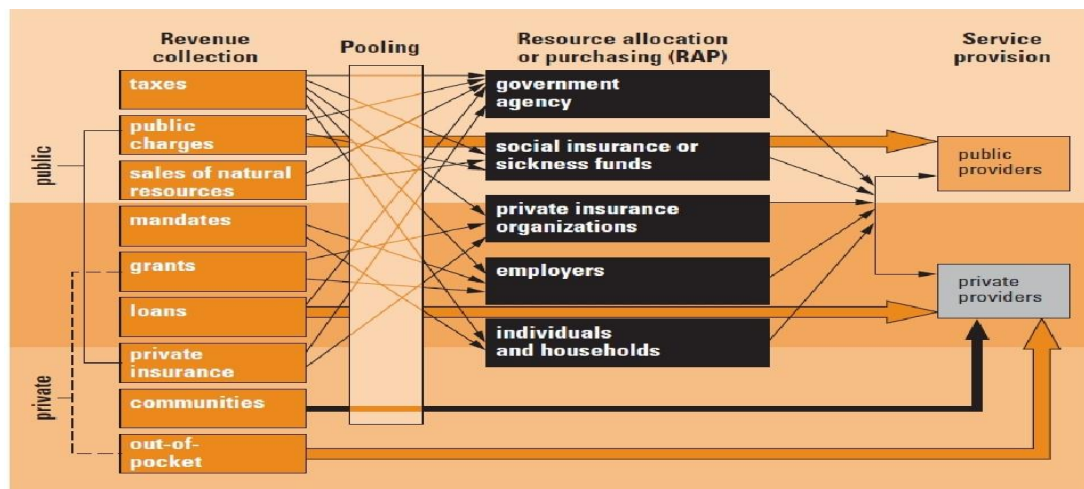
6 additional sources of non-payroll income (interest, dividend, rental income, professional fees, income from second jobs, and bonuses). With the reform, the financial health of Taiwan's National Health Insurance (NHI) fund turned from deficiency to surplus; in addition, the supplemental tax made the financing scheme more progressive (Yip et al., 2012).

It is important to note that UHC does not equal universal insurance coverage. Effective coverage means basic health services are available and accessible and delivered with high quality. This important dimension of UHC can be easily overlooked (Cotlear et al., 2015; David, Robert, Will, & Gianluca, 2015). In China and Vietnam, overcrowdedness at hospitals is an acknowledged health system cost escalation driver. Patients bypass primary health care facilities to seek care at hospitals because patients distrust the quality of care at the primary care facilities, even though they may receive more prompt and cheaper services at these facilities (Hsiao, 2015).. China has devoted a large share of new governmental health funds to strengthen primary care infrastructure. However, without adequate health workers, China risks wasted capital investment (Bloom, 2011; Blumenthal & Hsiao, 2015).

1.1 Health financing arrangements for UHC

Most countries' health systems are described by the predominant source of funding (i.e., social health insurance '*Bismarck*' or general tax funded '*Beveridge*'

systems). However, such descriptions are limiting as health services can be paid for from different sources (Kutzin, 2001). The model in *Figure 3* provides a detailed description illustrating the four key functions of health financing: revenue collection, pooling of funds, purchasing of services and provision of services (Schieber & Maeda, 1997). For this paper, the main focus is on a descriptive analysis of revenue collection and pooling of funds in Kenya.



Source: (Schieber & Maeda, 1997)

Figure 3: Health financing functions-revenue collection, pooling, purchasing, and service provision

To achieve UHC, WHO advocates for financing health systems through prepayment revenue collection mechanisms. WHO also stresses that health financing reform policies should not solely rest on removing user fees but should also examine the potentially adverse impact of all OOP payments (WHO, 2010b). The main categories of prepayment as they relate to three main population sectors – formally employed

workers, non-poor informal workers and the poor (Peter et al., 2015) are summarized in

Table 1.

Table 1: General categories of health revenue collection prepayment mechanisms (Peter et al., 2015)

Scheme	Population	Voluntary payment by the beneficiary	Mandatory payment or taxation
Contributory	<i>The poor</i>	N/A	N/A
	<i>Non-poor informal workers</i>	Opt-in SHI premium Private insurance premium CBHI premium	Salary deduction Social insurance Premium Tax funded benefits
	<i>Formal sector</i>	Private insurance premium	Salary deduction Income tax levy
	<i>The poor</i>	N/A	Citizenship right Tax-funded benefits
Noncontributory	<i>Non-poor informal workers</i>	N/A	Compulsory premium Citizenship right Tax-funded benefits
	<i>Formal sector</i>	N/A	Compulsory premium Citizenship right Tax-funded benefits

SHI=Social Health Insurance. CBHI= Community-based Health Insurance.

N/A. = not applicable, i.e., not effective due to the nature of the particular population group.

Contributory schemes may be voluntary or mandatory but are not generally appropriate for the poor, who cannot afford regular payments. Such schemes may play some role in coverage of non-poor informal workers. Noncontributory schemes require funding from general or earmarked taxation, and cannot be implemented through voluntary payments, therefore, may be considered mandatory. The advantage of

noncontributory mechanisms is the potential to achieve higher coverage rates in a shorter time, as demonstrated in Thailand (Annear, Ahmed, Ros, & Ir, 2013; Bates, 2012; Bates & Annear, 2013).

Although criticized for the limited extent of resource generation and pooling, community-based health insurance (CBHI) premiums can facilitate and improve access to health services, especially for children and pregnant women (Adebayo et al., 2015). CBHI schemes in Kenya, Uganda and the United Republic of Tanzania improved health services quality, increased essential drug availability, and shortened waiting times. In Tanzania, the Community Health Fund (CHF), a government voluntary scheme, targets the informal rural population while the urban informal sector has the Tiba Kwa Kadi (TIKA) scheme (Borghi, Mtei, & Ally, 2012). Contributions to the CHF are decided at the council level, and household contributions are mandatory, giving them access to free healthcare at public primary healthcare facilities (Borghi et al., 2012; Mills, Ally, Goudge, Gyapong, & Mtei, 2012). Over the past decade, Rwanda's national Mutuelle de Santé has achieved more than 90% population coverage, reduced OOP health expenditure from 28% to 12%, and increased service use to 1.8 contacts per year (Makaka, Breen, & Binagwaho, 2012). In Ethiopia, more than 144,000 (45.5%) eligible households had enrolled in CBHI one and half years after its roll out, improving healthcare access to an estimated 650,000 beneficiaries. Most of the health services are at the primary healthcare

level, but some beneficiaries have benefited from hospital referrals (Mebratie, Sparrow, Yilma, Alemu, & Bedi, 2015).

The above-mentioned examples suggest that CBHI can be effective for achieving UHC even in the poorest settings. CBHI can contribute to providing financial risk protection to the over 3 billion people using OOP payment mechanisms to access essential health services. Among 33 countries, mostly LMICs, including many of the world's most populous nations, direct OOP payments account for more than 50% of total health expenditures. An estimated 400 million people cannot access essential health services and 6% of LMICs' populations are tipped into or pushed further into extreme poverty due to health spending (WHO & The World Bank, 2015). In some countries, approximately 11% of the population suffers severe financial hardship each year as a result of catastrophic health spending and up to 5% is forced into poverty (WHO, 2010a). In 2013, countries in Sub-Saharan Africa spent an average 11.1% of their budgets on health, an improvement on the 9.0% reported in 2002, but still short of the 15% Abuja Declaration target (WHO, 2011). (*Table 2*). It appears many countries have the scope to increase government health expenditure, a vital aspect in progressing towards UHC and in subsidizing the cost of health services for poor (Daniel, Somil, Owen, Ajay, & Rafael, 2015)

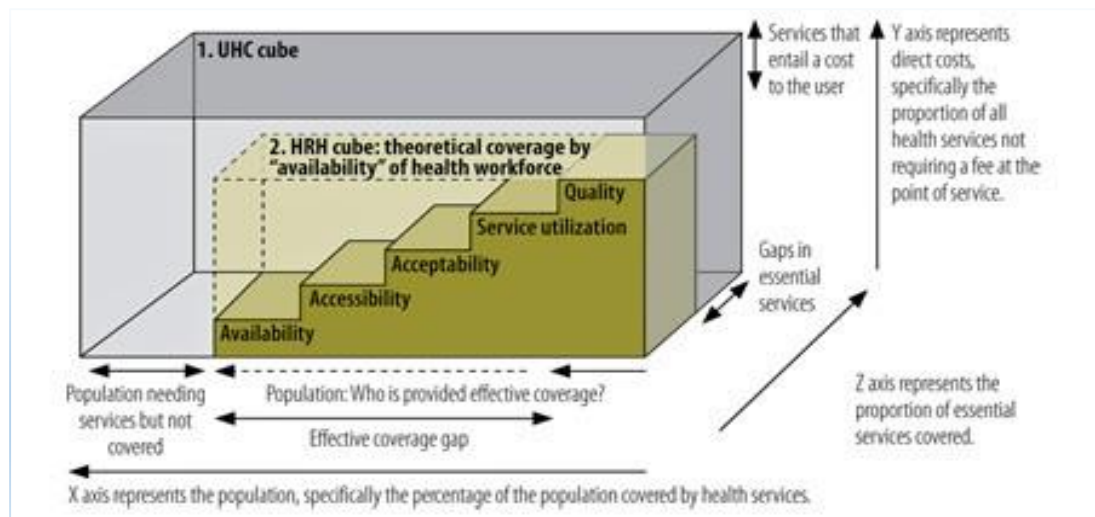
Table 2: National health financing indicators, 2002 and 2013

	Number of countries	THE per capita (US\$)		GGHE (%)		OOP/THE	
		2002	2013	2002	2013	2002	2013
World	189	752	1251	10.9	12.0	35.6	32.1
East Asia & Pacific	24	313	589	10.4	11.5	31.4	27.5
Europe & Central Asia	28	725	1309	11.0	11.4	39.2	37.1
Latin America & Caribbean	32	477	848	12.3	13.3	35.3	33.3
Middle East & North Africa	19	891	1179	8.5	8.7	38.9	33.8
South Asia	8	136	321	8.3	8.3	52.4	50.3
Sub-Saharan Africa	47	140	263	9.0	11.1	42.7	36.1
High income: OECD	31	2362	3832	14.3	15.6	18.8	17.9
Low income	32	49	102	9.3	10.8	52.7	42.3
Low middle income	48	164	310	10.0	10.2	42.2	40.4
Upper Middle Income	54	448	861	10.7	12.5	33.4	29.7
High Income	55	1949	3112	12.6	13.5	22.4	21.5

**Results from 189 countries; Source: (WHO & The World Bank, 2015)*

1.2 Health Workforce for UHC

As can be seen in *Figure 3*, all of health systems' other resources will eventually be used by health workers and will translate into improved population health. The UHC-health workers paradigm is built around the concepts of availability (stock and production); accessibility (spatial, temporal and financial dimensions); acceptability (gender and sociocultural); service utilization (disease epidemiology and skill mix) and quality (competencies and regulation) (Campbell et al., 2013b), *Figure 3*.



Source: (Campbell et al., 2013b)

Figure 4: Dimensions of universal health coverage (UHC) pertaining to human resources for health workforce: effective coverage

Health workers supply is determined by a country's capacity to offer high-quality health-related educational training programs, absorb the trained professions, and retain them in health labor market. A study by Frenk et al. in 2010, estimated that educational institutions trained about 1 million health professionals annually, including doctors, nurses, midwives, and public health workers. Severe institutional shortages are evident by maldistribution, both between and within countries. Four countries- China, India, Brazil, and the USA- have more than 150 medical schools, 26 Sub-Saharan countries have one or no medical school, and 36 countries in different continents have no medical school at all (Frenk et al., 2010). Several countries, including China, Egypt, and Morocco, have engaged in or are planning education reforms along the lines defined by the Lancet Commission on Health Professionals for a New Century (Frenk et

al., 2010). A deepening crisis is the mismatch of professional competencies to patient and population priorities because of fragmented, outdated, and static curricula producing ill-equipped graduates from underfinanced and poorly regulated institutions (Crisp, 2012; Frenk et al., 2010; Hou et al., 2014; Kilpatrick, Johns, Millar, Le, & Routley, 2007).

Insufficient deployment of health workers is an acknowledged global crisis. The African continent accounts for about 70% of countries with a density of skilled health workers less than 22.8 per 10,000 population. Thirty-one (57%) countries in Africa have a coverage of births by skilled birth attendants below 80%, whereas 7 (13%) are in South-East Asia. Three Southeast Asian countries have health workers density below 22.8 per 10,000 population and skilled birth attendant coverage below 80%. However, they are some of the most populous (estimates for 2012): Myanmar (population 52.8 million), Bangladesh (154.7 million), Indonesia (246.9 million) and India (1236.7 million) (Anyangwe & Mtonga, 2007; Campbell et al., 2013a; Naicker, Plange-Rhule, Tutt, & Eastwood, 2009). In the Republic of Guinea, only 44% of the nurses and 18% of the midwives required for maternal and neonatal health services are currently available. Without scaling up recruitment efforts, the total stock of health workforce employed by the public sector is projected to decline by 15% between 2014 and 2024 while health workforce needs will grow by 22% due to demographic trends (Jansen, Codjia, Cometto, Yansane, & Dieleman, 2014). Of the 68 countries that exceed the workforce-to-

population ratio of 59.4 per 10 000 population, 36 are in the European Region, and none in Africa, where only Algeria, Botswana, and Tunisia are above 22.8 per 10 000 (Anyangwe & Mtonga, 2007; Campbell et al., 2013a; Naicker et al., 2009). Shortages are worsened by high rates of attrition and absenteeism in most LMICs. To address the problem of absenteeism, the Rwanda government in 2005 restructured health-worker compensation by linking wages to clinic attendance, leading to dramatic reduction in ghost workers and improvements in the quantity and quality of care at public clinics (Basinga et al., 2010).

Measures vary with respect to policy tools for improving health worker retention, including financial incentives (e.g., Afghanistan, India, Mozambique, Nepal, Thailand, Senegal and South Africa), continuing professional and career development opportunities (e.g., Nepal), prolonging the residency period and introducing periods of training in rural areas (e.g., Ghana, Mexico, Philippines, China and South Africa) and nonfinancial incentives such as free housing, better diagnostic facilities, security, and free access to healthcare (e.g., Mozambique, Nepal and the Philippines) (Campbell et al., 2013a). In Bangladesh medical education has a provision for a clinical rotation in rural health facilities. Further, in the public sector, every newly recruited medical doctor must serve at least 2 years at the primary health level. To encourage serving in these hard-to-reach areas, the government provides an additional 33% to ~~of~~ the basic salary, not

exceeding US\$ 38 per month. Such policies are also being implemented in China (Hesketh, Wu, Mao, & Ma, 2012; Rawal, Joarder, Islam, Uddin, & Ahmed, 2015; Yip et al., 2012).

There have been some innovative approaches to improving the quality and performance of the health workforce in recent years. In 2003, Ethiopia deployed 34,000 government-salaried women health extension workers who spend about 75% of their time on outreach activities, conducting household visits, educating families to adopt healthy lifestyles, serving as model families in their neighborhood, and organizing communities to participate in expanding Health Extension Program services. Yemen's effective use of its limited health workforce involves teaming professionals with community-based health workers through integrated maternal, neonatal and child health outreach services. The Government of Rwanda is engaged in two e-health initiatives aimed at raising the capacity of health workers. An e-learning program in nursing is expected to be expanded to physicians in the future, and Massive Open Online Courses (MOOC), a free online educational program aimed at large-scale participation, are now available. Although using these technologies appears to incur minimal costs, there has been limited evaluation of the cost-effectiveness, warranting more research (Acharya et al., 2012; Barnighausen & Bloom, 2009; Campbell et al., 2013a; Edson & Akiko, 2013; Hongoro & McPake, 2004).

Thus, a strengthened research policy is needed in LMICs in order to advance progress towards UHC. The research will enhance the potential for evidence uptake into policy. Alignment between policy-makers' information needs and independent research agendas could assist knowledge development and uptake (Murphy et al., 2014). In summary, defining the services and policies needed in any setting, including financial risk protection, the population healthcare needs, and the cost, is essential to moving towards universal health coverage. Acting on behalf of their populations, governments with limited financial resources must learn from good practices to move closer to UHC (WHO, 2013b).

This paper provides a descriptive analysis of health financing and health workforce, and key policy strategies or reforms in Kenya over the past decade. Through the understanding of policy, options are proposed to Kenya by summarizing and generating key lessons from reform experiences in China. Two main functions of health financing (revenue collection, and pooling of funds) and three health workers dynamics (shortage, maldistribution, and retention problems) in Kenya are analyzed as specified below:

- i. Examine two health financing functions, i.e., revenue collection and pooling of funds in Kenya.
- ii. Analyse health financing policies implemented over the past decade to assist in

achieving the UHC goals of financial protection and equity.

- iii. Provide an overview of health workforce dynamics by analyzing the driving forces of supply and demand in Kenya.
- iv. Identify key policies implemented over the past decade to address shortage, maldistribution, and retention of the health workforce.
- v. Summarize and generate key lessons from reform experiences in China and provide policy options for Kenya in its effort to achieve UHC, with a special reference to health care financing and health workforce.

Combined approaches suitable for complex systems, such as systems thinking and review were utilized to learn not only what works (or not), but how, for whom, and under what contexts it works.

2. Methods

2.1 Study Setting

Kenya is located in the Eastern part of the African Continent. The country lies between Latitude 4° North to 4° South and Longitude 34° East to 41° East, with the southeastern part bordering the Indian Ocean, the north by Sudan and Ethiopia, to the north-east by Somalia, to the west by Uganda and to the south by Tanzania. The land area is about 582,650 km², 2.3% of which is covered by both inland and marine waters. Key economic activities are agriculture, tourism, and services industry (Kenya Bureau of Statistics).

According to the 2009 population census projections, Kenya's population in 2015 was 44 million with a life expectancy of 63.3 years. The population is youthful; it is estimated that 62% of the population is aged 25 years and below. The population is predominantly rural with about 60% being employed directly or indirectly in the agricultural sector (Kenya Bureau of Statistics).

2.2 Study Design

Health Systems Research (HSR) has in recent years gained attention from researchers, policy makers, and research funding agencies. HSR makes important contributions in health policy reform by providing evidence and knowledge, service performance and gaps for improvement in a country's health system (Meng, 2011).

Among the commonly used HSR study designs are descriptive studies which use data collection methods, including interviews, focus group discussions, surveys and observation and other archives (Meng, 2011). This study is a descriptive study collecting data using in-depth interviews, documents and literature reviews.

2.3 Data sources and collection

2.3.1 In-depth interviews

In-depth interviews were conducted with key informants with knowledge and experience in health financing and health workforce in Kenya and China. The 35 informants in Kenya were drawn from four institutions: Ministry of Health (MOH), National Hospital Insurance Fund (NHIF), Kenyatta National Hospital (KNH), and Kenya Medical Training College (KMTC). The nine informants in China were drawn from academia and health management institutions: Nanjing Medical University, Peking University-China Center for Health Development Studies (PKU-CCHDS), and Jiangsu Medical Insurance Fund Management Centre. During interviews, the investigator used semi-structured questions, following up as appropriate for further insight and clarification based on responses. Individual interviews with informants were conducted in private and neutral places of informants choosing, mainly an office. Interviews were kept to sixty minutes and were administered predominantly in English. However, in China, two bilingual research translators were present to assist the investigator with

translation or clarification of language and meaning. The broad topics included in the semi-structured interview guide based on their expertise (i.e., health financing, and/or health workforce) concerned the general opinion about health financing, and/or health workforce; key challenges in health financing or human resources for health (HRH) in advancing UHC in Kenya, or China; their outlook for the future of Kenyan or China's health financing and health workforce; and prospects of achieving UHC. Interviews were audio recorded and recordings were transcribed, mostly within two weeks after the dates of interview. Extensive notes were also taken by the investigator during the interview sessions.

2.3.2 Selection of key informants for interviews

The selection of key informants was based on referrals. In Kenya, heads of participating institutions' research and/or human resource departments assisted in identifying eligible informants. To assist in proper informant identification, forty-five minutes briefing sessions were led by the investigator to review the study goal and objectives and clarify the subject inclusion criteria. Prof. Shenglan Tang assisted in identifying key informants in China based on his years of work in health system research in the country. He contacted key persons in the institutions who assisted in identifying informants after being briefed on the goal and objective of the study and inclusion criteria by the investigator. The sample was restricted to those who are

currently involved in health financing or health workforce programs, had worked in the institution for a minimum of two years, and had training in the topic of interest.

Heterogeneity of study participants was intended through the inclusion of junior, middle, and senior level expert informants drawn from various institutions, including academic, governmental, and semi-autonomous institutions. In Kenya, the study was conducted in Nairobi and its environs where informants had offices or were easily accessible in their working stations. A single study site was chosen in Kenya due to financial and logistics feasibility. The thirty-five subjects had to be willing to participate in the study and identified themselves as fluent in English. In China, the study was conducted in Beijing and Nanjing where it was feasible to access informants within a short mile radius. Six of the nine informants were fluent English speakers while three informants were interviewed in the presence of two bilingual research translators. Debriefings were conducted with the research translator prior to the interviews. All research translators had good knowledge of the study related topics as they were current public health related masters' degree students at PKU-CCHDS, and Nanjing Medical University (School of Health Policy & Management).

2.3.3 Secondary data sources

Secondary data was sourced from:

- i. Policy documents and/or reports from government ministries and departments in Kenya (i.e., MOH, Kenya Bureau of Statistics (KBS), and Ministry of Finance).
- ii. Annual reports and press releases from National Hospital Insurance Fund, Kenya
- iii. Consultancy/collaborative reports on health care financing and health workforce in Kenya and China.
- iv. Peer review Journals on health policy and strategies, health financing, social health insurance, health workforce in Kenya and China.
- v. The web pages of World Bank, World Health Organization, Health Policy project in Kenya, NHIF, and different ministries websites.

Databases used included: Medline, PubMed, Web of Science (WOS), Science Direct, and Duke Libraries. The search strategy consisted of three parts used in combination with each other: 1) search terms designed to generate a list of possible systematic reviews on health financing and health workforce, 2) search terms designed to retrieve articles on health financing, health workforce, universal health coverage and 3) search terms designed to restrict the databases search to Kenya, China, and low and middle-income countries. Keywords included, but were not restricted to : universal health coverage, universal coverage, financial protection, health financing, health insurance, Kenya National Hospital Insurance Fund, community-based health

insurance, education, supply, demand, health policy reform, out-of-pocket payment, health expenditure, financial burden, catastrophic health expenditure, human resources for health, health workers, health workforce, primary health care, the poor, low and middle income, vulnerable, attrition, retention, initiatives, and incentive. Search engines including Google.com, MSN Search, Yahoo search, Social science information gateway (SOSIG) were screened for further relevant studies and reports on “health financing, HRH, and universal health coverage” and “Kenya, China, and LMICs.”

2.4 Data Analysis

2.4.2. Primary Data Analysis

Recorded interviews were transcribed and manually analyzed thematically. A common thematic guide adopted before data collection and analysis provided the initial themes for analysis. The interview questions had been developed based on several major topics of interest, including health financing strategies, challenges in health financing methods and mechanisms, policies to address highlighted challenges, perceived opinions of health financing and health workforce policy reforms, views on the supply, and demand side of health workforce, impact of health reform policies to access to care, and perspectives on the prospects of UHC. While the goal of the research was, in part, to learn about these topic areas, any emerging unanticipated themes were examined through a deeper exploration of transcribed text.

A three-step process to reduce the data to themes was employed by the investigator. First, the themes were searched by developing color-coding schemes associated with the major topics. Second, each transcript was read, and based on the color-coding scheme quotes from the interviews were assigned to the appropriate category. During this stage, corresponding notes on verbal, and nonverbal cues were also reviewed to ensure that full, and correct meanings of the participants' responses were extracted. Where a response appeared to fall into more than one category, attempts were made to redefine characteristics of each category as concretely and specifically as possible so that each quote could only be assigned to one category. Documents were created for each category, and all related quotes were grouped into a single document. Each categorical document was reviewed to ensure accuracy. From the analysis, it was certain that the analysis had reached the point of saturation, and a list of themes was readily developed. Data from document analysis and key informant interviews were integrated into the key findings as appropriate.

2.4.1 Secondary data analysis

2.4.1.1 Health care financing for UHC

Health financing functions, i.e. revenue generation, and pooling were analyzed using a descriptive framework for the country-level analysis of health care financing arrangements (Kutzin, 2001). The indicators used in this study were total

health expenditure, disaggregated into government health expenditure, donor health expenditure, and private health expenditure-including out-of-pocket payment. In the paper, government health expenditure refers to expenditure incurred by the central government, including donor funds distributed through the government. Private health expenditure refers to expenditure incurred by households, including private insurance premiums. Changes in total health expenditure, including public, private and donor health expenditures, were analyzed over time. Out-of-pocket expenditure included private health premiums and households expenditure spent on any form of health services.

2.4.1.2 Health workforce management for UHC

The framework proposed by Dal Poz et.al., Handbook on Monitoring, and Evaluation of Human Resources for Health- with special applications for low- and middle-income countries was used. Additionally used was the framework and policy lever proposed by Sousa et al., A comprehensive health labor market framework for universal health coverage (Sousa, Scheffler, Nyoni, & Boerma, 2013), to identify the key policies implemented over the past ten years to address health workforce challenges. To understand the health workforce market dynamics in Kenya, factors that determine supply and demand were analyzed. Key indicators were selected, and grouped into two categories: stock and density indicators, and shortage indicators. The first group, stock

and density indicators, includes measures of the available health workforce, their age, sex, geographical location, distribution by sector, and migration. The available health workforce was defined as anyone with the training and ability to do the job, whether they are employed in that position or not. The second group, shortage indicators, reflects the needs-based shortage of health workers. Health workers policies were analyzed using a combination of needs, demand, supply, training, and governance of health workers to determine if policies influenced the number of health workers employed, their geographic location, their employment setting, their productivity, and their performance. All relevant health financing and health workforce data were entered in Microsoft Excel spreadsheet, and bar charts and line graphs generated.

2.5 Quality Assurance

Completeness checks were carried out by ensuring all variables required to generate study graphs, curves, and tables were presented. Where some values were missing from published government or non-governmental documents, data was sought from available gray literature. To assess accuracy of data sets, cross comparisons among different sources were carried out. Both individual value comparisons (e.g., values reported in different government publications in various ministries or departments), and aggregate, and distributional comparisons (e.g., values reported by government versus non-governmental and international organizations such as WHO and World

Bank) were used. For policy review, consistency was accessed by comparing reports from the government, non-government institutions, gray literature, and published journals. Discrepancies in policies were verified using data from key informants. All qualitative interviews were tape recorded and extensive notes were taken when during interviews sessions to ensure the accuracy of captured information.

2.6 Ethical Considerations

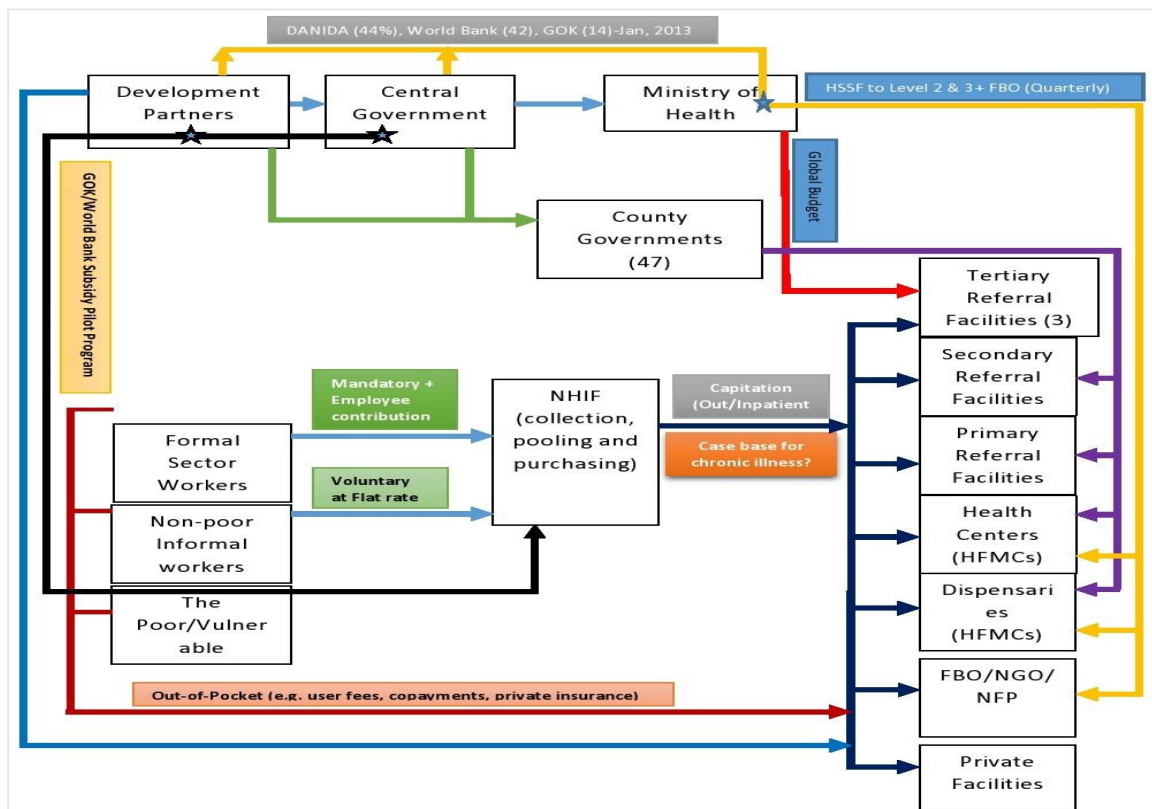
Institutional ethical approval was granted by Duke University Health System Institutional Review Board (DUHS IRB) on 22 April 2015 (CO926). Ethical clearance in Kenya was granted by Kenyatta National Hospital/University of Nairobi Ethical Review Committee (KNH/UON-ERC) on 12 May 2015 (P259/04/2015). Institutional approvals in Kenya were granted by MOH (Ref: MOH/ADM/1/2/45), NHIF (HF/PUB/13/129), KNH (HR/ADM/01/2015), and KMTC (KMTC/ADM/74/VOL.III).

Informed consent was sought after interviewees were informed about the purpose of the study and their right to voluntary participation. Given the limited number of key informants, no identifiers were assigned in order to respect the anonymity of informants.

3. Health care financing in Kenya

3.1. Functional organization of health care financing

Kenya's health financing system is fragmented based on how revenues are collected and pooled (*Figure 5*).



Source: Authors' design

Figure 5: Organization of health financing (revenue collection, pooling of funds, purchasing of services and provision of services) in Kenya

As shown above, the health financing organization is mixed, and main components include:

- i. **General taxes:** Proportions of national revenue are allocated to the ministry of health (MOH), and county governments. Healthcare funds are not earmarked for the transfer from the national level to the 47 county levels. Each county government, therefore, decides on the percentage of its budget allocation to health care.
- ii. **National Hospital Insurance Fund (NHIF):** Established in 1966 to finance healthcare in both public, and private facilities. The scheme is mandatory for formal sector workers, but voluntary for informal sector workers.
- iii. **Private health Insurance:** Voluntary prepayment mechanism managed by portfolios of insurance companies; it mostly serves above middle-income earners.
- iv. **Community-based health financing (CBHF) schemes:** Emerged over time to meet the health financing needs of low-income earners, who traditionally have been left out of private insurance and NHIF.
- v. **Out of pocket (OOP) health spending:** Like in most developing countries, OOP remains a predominant health care financing method in Kenya.
- vi. **Development partners & Non-governmental Organizations (NGOs):** Various development partners and NGO contribute significantly to

healthcare financing either by direct transfer, or distribution through the government.

Most health financing experts interviewed identified fragmentation in health financing organization as a source of inefficiencies in revenue collection and pooling of health funds. The experts felt health funds should be pooled together for purposes of equity, efficiency, and higher negotiation power in purchasing health services. However, the experts expressed concerns this would be impossible unless politicians tabled a bill in parliament to change health financing organization in the country.

3.2. Changes in health expenditures in Kenya from 2000 to 2013

This section presents estimates of Kenya’s domestic expenditure on healthcare from fiscal years (FY) 2001/02 to 2012/13, categorized by financing source, and pooling by annual basis. *Table 3* summarizes latest health-related indicators reported in the 2012/2013 National Health Accounts (NHA).

Table 3: Selected health expenditure indicators (Kenya Shillings-KSh and US\$) in Kenya in FY 2001/02, 2005/06, 2009/10, and 2012/13

Indicators	2001/02	2005/06	2009/10	2012/13
Total Population (2009 Population census)	31,190,843	35,638,694	38,610,097	41,193,418
Exchange rate, KNBS (KSh to US\$)	78.6	73.4	75.82	85.3
Total GDP at current prices (KSh, million)	2,142,989	2,910,359	3,023,090	3,440,115
Total GDP at current prices (US\$, million)	27,264	39,651	39,872	40,330

Total Gov't expenditure (KSh, million)	405,154	769,094	1,013,194	1,282,088
Total Gov't Expenditure (US\$, million)	5,154	10,478	13,363	15,030
Total Expenditure on Health (TEH) (KSh, million)	109,368	135,630	163,395	233,959
TEH (US\$)	1,391	1,847	2,155	2,742
Per Capita TEH (KSh)	3506.4	3805.7	4231.9	5679.5
Per capita TEH (US\$)	44.6	51.8	55.8	66.6
TEH, as % nominal GDP	5.1%	4.7%	5.4%	6.8%
Government health expenditure as a % of government total expenditure	8.0%	5.2%	4.6%	6.1%

Source: Kenya National Health Account 2012/2013

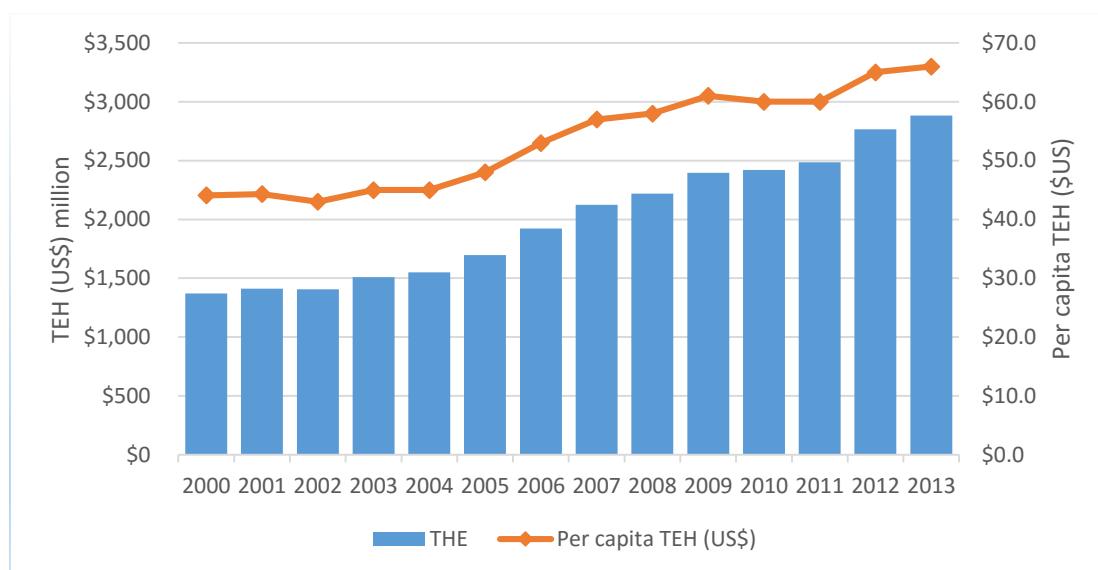
3.2.1. Kenya total expenditure on health (TEH), 2000 to 2013

TEH was KSh 233,959 million (US\$2743 million) in FY 2012/2013. TEH average annual growth rate was 4.1% from 2000 to 2004, 8.1% (2004-2009), 3.9% (2009-2011), and 6.1% (2011-2013). In real terms, TEH showed positive growth rate throughout the period, averaging 6.1% per annum from US\$1370 million in 2000 to US\$2883 million in 2013. (*Figure 6*).

3.2.2. Kenya per capita expenditure on health from 2000 to 2013

Per capita TEH was relatively the same from 2000 to 2004 and recorded an annual average growth rate of 5.3% from 2004 to 2009, 1.2% (2009-2011), and 5% between 2012 and 2013. In real terms, per capita TEH showed a positive growth in the fourteen year period, averaging 3.2%, from US\$44.1 to US\$66.6 (*Figure 6*). The current average per capita TEH of US\$ 66.6 is slightly above WHO estimate of US\$44 in 2009

and projected to increase to US\$ 65 in 2015 needed to provide basic, life-saving health services, but remains insufficient to achieve UHC in Kenya, given the high cost of living that reflects the high cost of health services, and inflation.

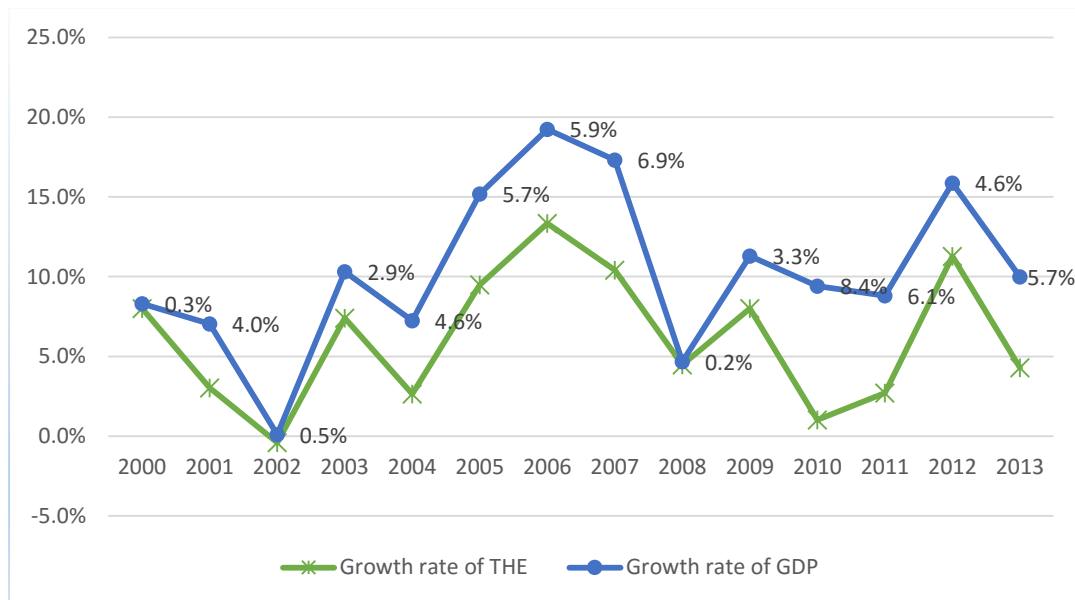


Source: Kenya National Health Accounts 2001/2002, 2005/06, 2009/10 & 2012/13; World Bank 2015

Figure 6: Total health expenditure (TEH) & Per capita total expenditure on health (US\$) in Kenya in 2000-2013

3.2.3. Kenya total expenditure on health as a share of GDP, 2000 to 2013

TEH as a share of GDP remained relatively the same over the past decade, at an annual average of 4.9% from 2000 to 2011. An average growth rate of 6.2% was observed from 2011 to 2013. The TEH as a share of GDP compares well with the average Africa region (6.2%), and lower-middle-income economies (4.3%) (Figure 7).



Data source: Kenya National Health Accounts 2001/2002, 2005/06, 2009/10 & 2012/13; World Bank 2015

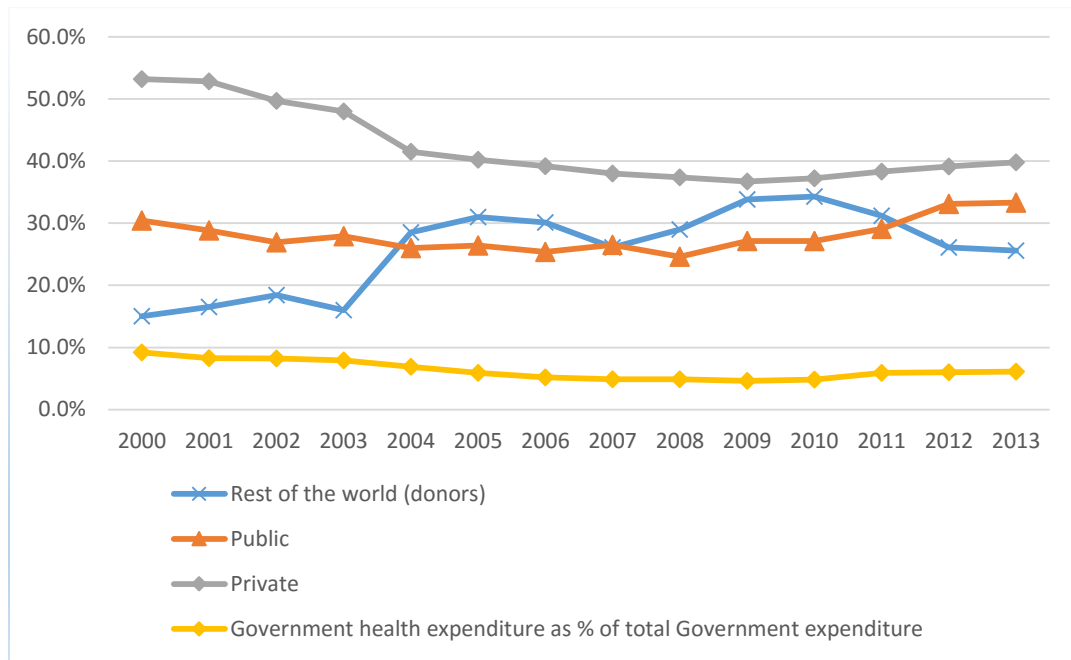
Figure 7: Growth rate of gross domestic product (GDP) and THE from 2000-2013

3.3. Composition of total expenditure on health

3.3.1. Government health expenditure as a percentage of total government expenditure

In FY 2001/02, the government allocated 8% of its total government expenditure (TGE) to health. The high percentage could be attributed to the political pressure to implement the 2001 Abuja declaration, requiring African governments to allocate at least 15% of TGE to health. Allocations declined to 5.2%, and 4.6% during FY 2005/06, and 2009/10, respectively. The low allocation can be attributed to the change of governments, with new administrations having different budget priorities. In FY 2012/13, the allocation increased to 6.1%, comparable to 6.6% among LMICs, but below the Abuja

Declaration requirement (*Figure 8*). Recent budget analysis has shown fluctuations, with the government allocating 5.4%, and 7.5% during FYs 2013/14, and 2014/15.



Data source: Kenya National Health Accounts 2001/2002, 2005/06, 2009/10 & 2012/13; World Bank 2015

Figure 8: Composition of TEH by source (public, private, and donors), and government health expenditure as % of total government expenditure in Kenya in 2000-2013

3.3.2. Composition of THE by source (public, private and donors)

The percentage of the public as a source of TEH revenue was on an average annual decline of 2.5% from 2000 to 2008. From 2008 to 2013, an annual growth rate of 4.1% was recorded. The current average of the public contribution of 33.1% compares well with that of LMICs (33.3%), but Kenya has to invest more with a decline from donor contributions being experienced (*Figure 8*). The private health source (direct

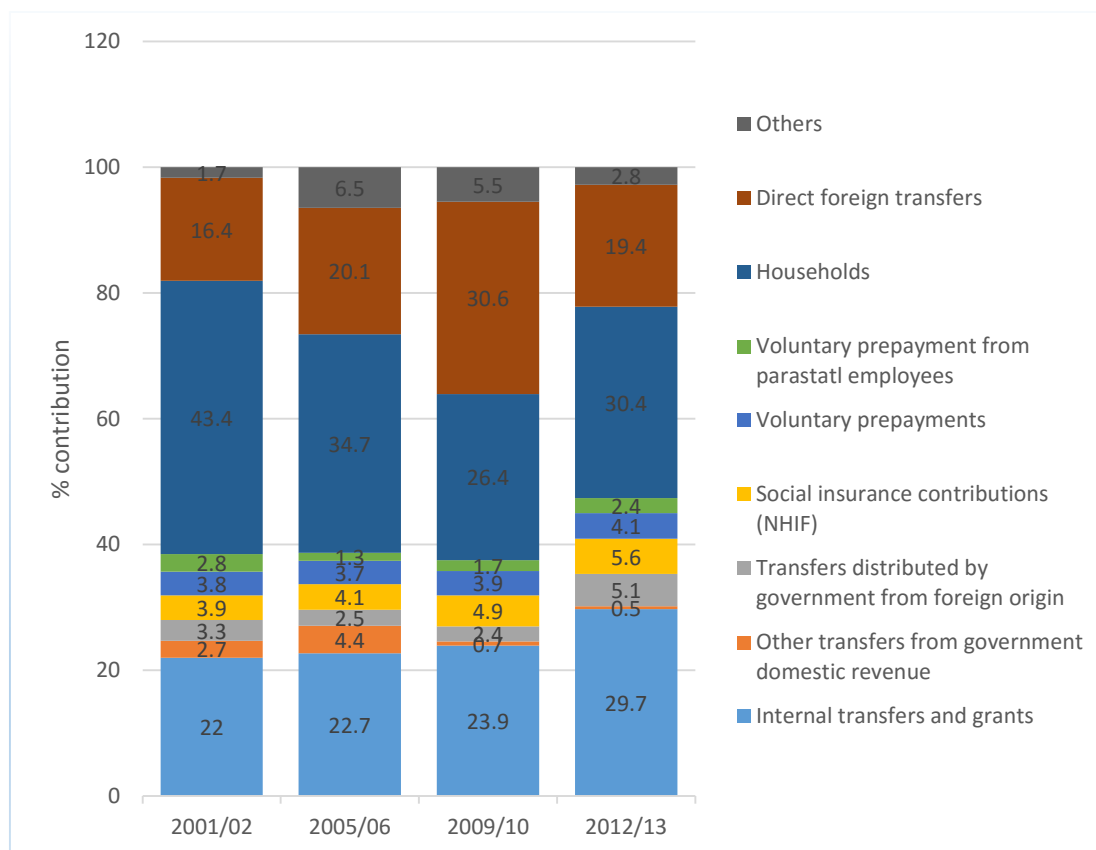
household out-of-pocket health spending, private health insurance, charitable donations, and direct service payments by private corporations) as a percentage of TEH was an average of 38% from 2004 to 2013. Donors contribute a significant amount towards health expenditure in Kenya with an average 30% contribution (*Figure 8*).

3.3.3. Health care financing schemes for revenue of current health expenditure (CHE)

Internal transfers and grants (revenue allocated to health from total TGE) are insufficient to meet UHC goal. The funds constituted 30% of current health expenditure (CHE) revenues in FY2012/13, up from 22% in 2001/02. Revenues for CHE from direct foreign transfers declined from 30.6% in 2009/10 to 19.4% in 2012/13, representing almost the same allocations in FY 2001/02 and 2005/06 (16.4 and 20.1%, respectively).

Households' contributions increased to 30.4% in 2012/13, up from 26.4% in 2009/10. This is a worrying trend as household contributions had experienced a promising decline over the years from as high as 43.4% and 34.7% in FY 2001/02 and 2005/06. Contributions to CHE by prepayments through health insurance entities (compulsory and voluntary) increased from 10.5% in 2009/10 to 12.1% in 2012/13. The social health insurance in Kenya continues to face challenges in expanding coverage among informal workers who constitute almost 80% of the working force. There has been a strong growth in

innovative micro-insurance schemes over the past five years, but data on the schemes are limited to date (*Figure 9*).



Data source: Kenya National Health Accounts 2001/2002, 2005/06, 2009/10 & 2012/13

Figure 9: Distribution of CHE, by revenues of financing schemes in Kenya for FY 2001/02, 2005/06, 2009/10 and 2012/13

In absolute values, internal transfers and grants increased by 71%, and voluntary prepayments increased by 80% in 2012/13 over the 2009/10 estimates. Revenues mobilized through social health insurance— NHIF, increased by 34% between 2009/10 and 2012/13 (*Table 4*). An increase in the transfer of foreign funds distributed by government and decline in direct foreign transfers is because most donor agencies are

now directing their health contribution through the government to support primary healthcare strengthening and subsidize the poor in enrolling to NHIF. Information on the contribution of community-based health insurance schemes is not readily available hence not accounted for in the thesis.

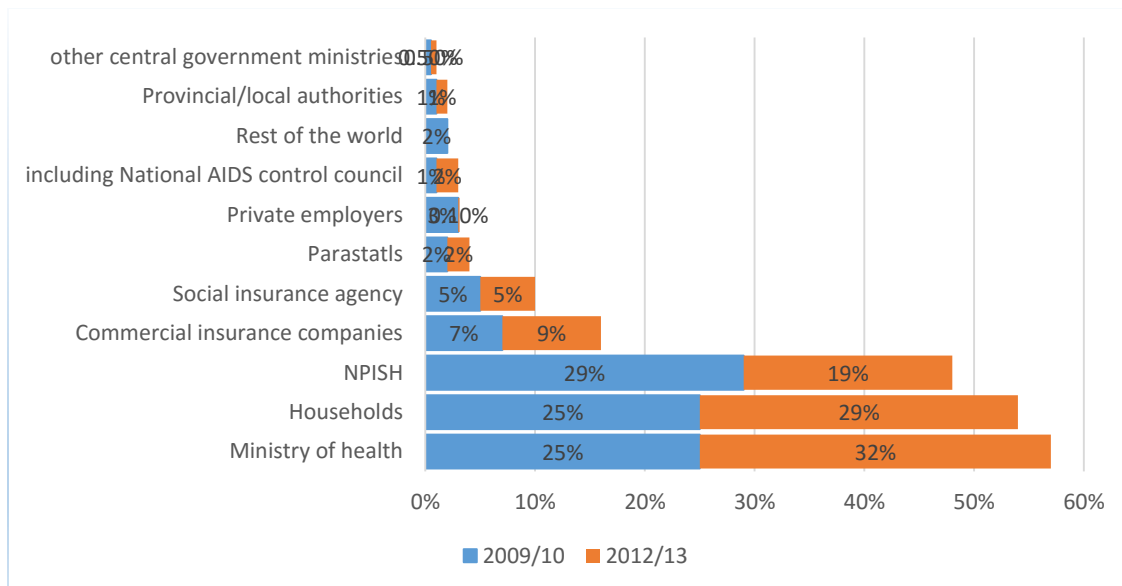
Table 4: Distribution of current health expenditure in absolute values (in KSh), by revenues of financing schemes in Kenya in FY 2009/10 and 2012/2013, and the % changes

Financing Scheme	KSh (million)		
	2009/10	2012/13	%Change
Internal transfers and grants	37,701	64,404	70.8
Other transfers from government domestic revenue	986	1,012	2.6
Transfer distributed by government from foreign origin	3768	11,040	193.0
Social insurance contributions	7719	10,332	33.9
Voluntary prepayments	11002	19,835	80.3
Other domestic revenues not elsewhere classified	48170	68,349	41.9
Direct foreign transfers	48148	42,143	-12.5
Total	157,497	217,119	38

Data source: Kenya National Health Accounts 2012/13

3.4. Health revenue Pooling

Figure 11 shows the CHE trend by financing agent. The MOH controlled the largest proportion at 32% in 2012/13, an increase of about 28% compared with 2009/10. Households managed 29% of the CHE, 80% of which was spent on OOP payments. Non-profit institutions serving households, which implement donor programs not executed by the government (off-budget support), managed 19% of CHE in 2012/13, down from 29% in 2009/10. NHIF managed almost the same amount in the two periods of estimates indicating a need to strengthen the fund (*Figure 10*).



Data source: Kenya National Health Accounts 2012/13

Figure 10: Healthcare financing agents for CHE in FY 2009/10, and 2012/13

Health financing experts and health insurance managers believed strengthening NHIF as the largest health funds agent and payer of health services would ensure equity, and efficiency. Most of NHIF key informants questioned the government commitment to make NHIF “the driver” of UHC. Concerns were expressed about health workers unions opting to contract private insurance companies to cover their members e.g. Teachers Service Commission (TSC) and Kenya Medical Practitioners, Pharmacists & Dentists Union (KMPDU). The experts emphasized an urgent need for policy reforms to restructure NHIF into the major social health insurer, the majority advocating for a compulsory design subsidized by the different levels of government for the poor and vulnerable.

3.5. Healthcare Financing Reforms in Kenya.

This section analyzes key health financing reforms in Kenya's strive toward UHC over the past decade.

3.5.1. Reduction of user fees, 2004 (10/20 Policy)

In 2004, the government reduced user fees at lower-level health facilities (i.e., health centers and dispensaries) to a maximum of KSh10 (US\$0.12) and KSh 20 (US\$0.24), respectively (10/20 policy). The policy's objective was to promote equity and reduce financial burden due to healthcare among the poor. Children under age five and patients with specific health conditions, such as malaria and tuberculosis, were to be exempted from any payment. To compensate facilities for the lost revenue, the government established the Health Sector Services Fund (HSSF) in 2007. However, low adherence to the policy was reported with facilities charging higher fees to clients seeking care (Onsomu et al., 2014; Chuma et al., 2009). Reasons given for charging user fees were insufficient compensation for the lost revenue, and cost escalations due to increase of health services utilization (Chuma et al., 2009).

Health financing experts believed poor monitoring and evaluation were key reasons for low adherence to the 10/20 policy. Insufficient health systems research on adequate financial compensation model, and how the expected increased utilization would impact the facilities capacity to manage more patients were cited as sources of

failure by most informants. A health financing expert involved in the implementation of the policy expressed his dissatisfaction with government's commitment in allocating adequate funds to the program. Most health workforce informants said the policy led to exits of most contacted health workers whose salary could not be paid regularly due to delays in the release of funds by the ministry of health.

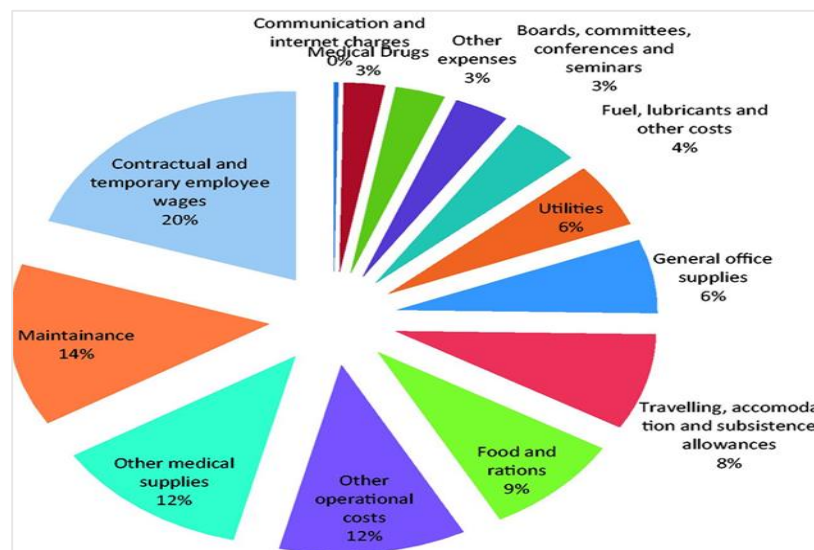
3.5.2. Health Sector Services Fund (HSSF), 2007

HSSF was established in 2007 to provide a stable mechanism for compensating primary healthcare facilities for the lost revenue in the implementation of 10/20 policy. Under HSSF, the government and development partners, Danish International Development Agency (DANIDA) and the World Bank, contribute to a central fund. Funds are then credited directly into approved facilities' bank accounts every quarter. HSSF funds cover operational expenses as per MOH financial guidelines and approval. The Ministry continues to provide facility infrastructure, trained health workers, drug kits and medical supplies directly to facilities.

Most health financing experts and HSSF managers felt the compensation to the facilities were too minimal. They reported the government was aware of the facts but failed to increase the investment. The experts said the government must increase its investment in the program and primary healthcare managers need to be trained in health financial management. Delays in funds disbursement was a major concern among

both financings experts and health workforce experts. Some health financing experts felt NHIF should manage the funds to ensure health equity and quality improvement.

Expenditure from national records of all facilities receiving HSSF indicated that almost a quarter of facility funds were spent on wages, primarily for accounts clerks, watchmen/security staff, groundsmen and cleaners (Waweru, Goodman, Kedenge, Tsofa, & Molyneux, 2015). Allocations are illustrated in *Figure 11*.



Source: HSSF secretariat, May 2013

Figure 11: Use of HSSF funds by all facilities receiving HSSF (July 2011 to December 2012).

Most health financing experts said most of the funds were not directed towards quality improvement or financial protection measures. They attributed the inefficiencies to little knowledge of health financing among primary healthcare managers. Health workforce informants said the policy had led to increased utilization of health services at

primary healthcare level. However, concerns were expressed on patient dissatisfaction as most still had to incur a sizable health expenditure, especially for inpatient services.

3.5.3. Abolition of user fee, 2013

In response to the low adherence to the 10/20 Policy, the government abolished user fees in all public dispensaries and health centers in 2013. The government allocated KSh 700 million (US\$7.8 million) in FY 2013/2014 to the program.

Table 5 shows mean monthly total outpatient visits for both first visits and re-attendances for children under age five and for the population over age five, for public and faith-based health centers and dispensaries following initial implementation period (June 2013 and December 2014).

Table 5: Primary health centers and dispensaries utilization for under 5 and over 5 years population (19 months period)

Factor	Time Period	Total	Average per month	% Change
Public Health Centers and Dispensaries				
Total outpatient visits (under 5)	Before	767,289	40,384	124.9%
	After	958,385	50,442	
Total outpatient visits (Over 5)	Before	1433433	75444	137.0%
	After	1958190	103063	
FBO Health Centers and Dispensaries				
Total outpatient visits (under 5)	Before	310,491	16,342	-125.0%
	After	233,468	12,288	
Total outpatient visits (Over 5)	Before	525,859	27,677	119.0%
	After	626,855	32,992	

Source: (Maina & Kirigia, 2015)-Health Policy Project Report

For public health centers and dispensaries, total outpatient visits for children

under age five increased by 24.9% but decreased by 25% in FBOs. The average monthly utilization of outpatient services for the entire sample of public health centers and dispensaries increased to an average of 50,442. For FBOs, the average monthly utilization rate before the policy was introduced was 16,342 but reduced to 12,288 after the policy. This may imply that patients preferred free care at public health facilities.

Utilization among the population over five in public and FBOs health facilities increased by 37% and 19%, respectively. This might imply the implementation of the policy had no major impact on patients' choice of a health care provider for the population over age five. The mean total monthly outpatient visits for public health centers and dispensaries increased from 75,444 to 103,063. Among FBOs, the mean total monthly visits for outpatient services increased from 27,677 to 32,992. The conclusion is that the user fees removal in public primary health facilities had a negative impact on FBOs, with the possibility that users migrated to public health facilities.

3.5.4. Free maternal care services

Effective June 1, 2013, maternal care services (including deliveries) in all public health facilities were also provided free of charge. *Table 6* summarizes utilization trends after the introduction of the policy.

Table 6: Utilization of antenatal care (ANC) and delivery services in public and faith-based organizations (FBO) facilities (Maina & Kirigia, 2015)

Factor	Time Period	Total	Average per month	% Change
Public Health Centers and Dispensaries				
ANC (1 ST & 4 TH) visit	Before	126878	6678	175%
	After	221826	11675	
Deliveries	Before	25248	1329	126%
	After	31822	1675	
FBO Health Centers and Dispensaries				
ANC (1 ST & 4 TH) visit	Before	37482	1973	103%
	After	38532	2028	
Deliveries	Before	10954	577	102%
	After	13282	699	

Source: (Maina & Kirigia, 2015)-Health Policy Project Report

ANC services (both first and fourth visits) utilization increased by about 75% at public health facilities, following the policy change. For FBOs, utilization of ANC services increased marginally by 3%. Utilization of delivery services in public health centers and dispensaries increased by about 26%. FBOs facilities recorded a slight increase of about 2% in the utilization of delivery services (*Table 6*).

3.6.4.1. Adherence to the Removal of User Fees Policy

Patients paid an average of KShs 91.3 (US\$0.96) at public health centers and KShs 50 (US\$0.53) at public dispensaries. At FBOs, patients paid an average of KShs 195 (US\$2.1) at health centers and KShs 104 (US\$1.1) at dispensaries. The median payment was KShs 50 (US\$0.53) for public health centers, KShs 30 (US\$0.32) for public

dispensaries, and KShs 150 (US\$1.58) and KShs 100 (US\$1.05) for faith-based health centers and dispensaries, respectively.

3.5.5. NHIF's Health Insurance Subsidy Program (HISP), 2013

With funding from the Rockefeller Foundation, NHIF developed a scheme to cover indigents. The government invested US\$1.5 million loans from the World Bank to test the concept aiming to provide subsidized insurance to 5,000 of the poorest families from across the country identified using MOG's mean-testing processes. A pilot was implemented from mid-2013 for one year. Lessons from the pre-test are to be used by NHIF to improve the program before it is gradually scaled-up to cover 9 million by 2017. In the first phase, NHIF aimed to enroll approximately 21,260 households (127,560 beneficiaries).

Informants at NHIF said identification of the poor into the program was a key challenge. Most emphasized the need of strengthening the person registration system, building capacity among relevant government ministries and departments, and establishing mechanisms for community involvement in the identification process as urgently needed efforts. One informant from the fund said some members registered into the program were rich individuals driving expensive cars, citing corruption as a major cause of such incidences. One HRH expert said most beneficiaries were unaware

of the program and believed healthcare providers should be involved in educating patients within their regions about the program.

As of December 2014, out of 6,237 households targeted, 4,663 had enrolled (26,744 beneficiaries) in 14 counties (75% enrollment rate). In the second phase, the African Health Markets for Equity (AHME) partners will support NHIF in stimulating beneficiaries to utilize the health insurance coverage. This will be done by community health workers that live in the same catchment areas as the main target audience. Evaluation of the program is currently under way but no official data was available.

Most health financing experts expressed their confidence in NHIF capacity to manage the program. The experts believed NHIF management had undergone a transformation in the last five years, winning most policy makers support. One informant from NHIF said there was a need for capacity building in health systems analysis among its staff to improve performance. The informant cited the imbalances in the fund's employee's education and professional background, indicating a need for collaborations with research institutions.

4. Health workforce

This section summarizes the key indicators of the health workforce in Kenya and identifies the main policies implemented in the country in the past decade to address production, inflow and outflows and maldistribution.

4.1. *Production*

4.1.1. University level training

Different government departments are responsible for regulation and oversight of health workers training with limited coordination among the departments. An increase in the number of private learning institutions introducing health related programs in the past decade has led to further fragmentation. *Table 7* depicts the number of registered undergraduate students in both public and private institutions from 2012/13 to 2014/15. The number of BSc. Nursing and pharmacy students increased by 108% and 85% respectively. The increase is attributed to the increase in the number of institutions, both public and private, offering the programs in the past 5 years. The number of graduating dentists and physicians is also expected to record an increase within three years when graduates from the new programs graduate as the programs take a minimum of six years before graduation.

Table 7: Number of undergraduate students by course and sex 2012/13-2014/15 (public and private institutions)

Program	2012/13			2013/14			2014/15*			% Change
	M	F	M+F	M	F	M+F	M	F	M+F	
Medicine & Surgery	1649	1521	3170	1784	1673	3457	1706	1573	3279	3%
BSc Nursing	781	1368	2149	1042	1531	2573	1197	2781	3978	85%
Dental Surgery	138	130	268	147	144	291	201	168	369	38%
Pharmacy	207	259	466	389	265	654	550	419	969	108%
TOTAL	2775	3278	6053	3362	3613	6975	3608	4941	8549	41%

Source: Kenya Economic Survey (Kenya National Bureau of Statistics), 2015

Health workforce informants expressed concerns about the quality of training in both public and private institutions. A few said they were aware of training institutions operating without required government approvals. One health workers' training expert said several new private institutions did not have the human and infrastructure capacity required to train higher level health workforce cadres. An informant hired as a consultant to establish medical and nursing training programs in two private hospitals cited the lack of highly qualified graduates in the health labor market as the main reasons the hospitals established the training programs. In general, all the informants pointed to the need for stronger regulations and monitoring of health professionals training.

4.1.2. Tertiary level training

The Kenya Medical Training College (KMTC) produces the largest number of health professionals. KMTC offers middle-level training (certificates, diplomas, and higher diploma programs). The number of students enrolled at KMTC in 2013 to 2014 is shown in *Table 8*. The number of students was relatively the same at an average of 8,100 in the two years. The enrollment patterns show some responsiveness to the country's health needs. For example, the number of medical imaging technicians increased by 98% and could be attributed to the increasing incidence of cancer. Physiotherapists increased by 166% as the country continues to experience high road accident related injuries, increasing the demand for rehabilitative services. Government's commitment to maternal and child nutrition is also reflected by an increase in the of community nutritionists.

Key informants at KMTC reported regional maldistribution in students' enrollment. It was reported that richer regions had more enrolled students compared to poor regions. The informants stated that some regions with a higher burden of disease like the western region of the country had fewer students compared to regions with better health outcomes like the central region. One key informant said most graduating students preferred private sector employment and were more open to working outside

the health sector. Of concern were nursing graduates who were being employed by NGOs to conduct research studies or facilitate health-related programs.

Table 8: Middle-level students registered at Kenya Medical Training College (KMTc) campuses in 2013 and 2014, and the percentage changes

Training cadre	2013	2014	Change
Certificate Courses (*2 years except nursing-2.5 years)			
Nursing associate	279	175	-37%
Medical imaging technicians	94	186	98%
Health Records & Information Technicians	528	571	8%
Nutritionists	318	334	5%
Sub Total	1219	1266	4%
Diploma Courses (*3 years except nursing 3.5 years)			
Paramedical practitioners	1125	1466	30%
Dental assistants	83	120	45%
Nursing associates	2801	1429	-49%
Health Records and Information Technicians	381	424	11%
Environmental and occupational health technicians	612	786	28%
Pharmaceutical technicians	434	610	41%
Medical technicians	25	28	12%
Physiotherapists	109	290	166%
Medical laboratory technicians	459	617	34%
Medical imaging technicians	261	239	-8%
Optometrists	28	37	32%
Community nutritionist	187	364	95%
Sub-Total	6,505	6,410	-1%
Higher Diploma (1 year)			
Environmental Health technicians	4	15	275%
Medical Laboratory technicians	18	34	89%
Nursing associates	163	108	-34%
Paramedical practitioners	112	127	13%
Medical imaging technicians	36	48	33%
Social work and counseling professionals	61	61	0%
Sub-Total	394	393	0%
Total	8,143	8,107	0%

Source: Kenya Economic Survey (Kenya National Bureau of Statistics), 2015

Projections of the number of graduates expected from 2015 to 2018 indicate all cadres except pharmaceutical technologists are likely to register positive growths (*Table 9*). The number of nutritionists is expected to register the highest growth at 94%. There were 2612 registered nutritionists (1284 degrees, 1126 diplomas, and 202 certificates) in the sector by April 2014. It was expected that about 900 graduated in 2014 and growing by 1,000 graduates per year for the next four years.

Table 9: Projected HRH graduates by major cadres, 2015-2018

	2015	2016	2017	2018	Growth
Paramedical practitioners	1,693	1,757	1,822	1,886	11%
Dentists	123	148	164	173	41%
General Practitioners	569	594	620	646	14%
Health Record technicians	1,158	1,216	1,277	1,341	16%
Laboratory Technologists	1,610	1,691	1,775	1,864	16%
Nurses	4,645	5,084	5,338	5,605	21%
Nutritionists	3,512	4,512	5,612	6,812	94%
Pharm. Technologists	629	629	629	629	0%
Pharmacists	114	123	123	128	12%
Physiotherapists	161	186	195	205	27%

Data source: Kenya Health Sector- Human Resources for Health (HRH) Strategy 2014-2018

4.2. Available Supply of health workforce

The total number of registered HRH (both employed and unemployed) for the years 2013 and 2014 is shown in *Table 10*. The total number increased by approximately 8.0 percent from 112,576 in 2013 to 121,578 in 2014. As a result, the ratio of registered medical personnel per 1,000 people increased from 2.69 in 2013 to 2.83 in 2014. During the review period, of all the registered medical personnel, only the number per 1,000 of

all categories of nurses and clinical officers showed improvement at 6.2 percent and 15% percent respectively.

Table 10: Number of registered health personnel (employed and unemployed) by major cadres in 2013 and 2014

Registered Medical Personnel Cadre	2013 (Pln: 41.8 million)		2014 (Pln: 43 million)		% Change
	Number	No. Per 1,000	Number	No. Per 1,000	
General medical	8,682	0.21	9,149	0.21	5%
Dentists	1,045	0.03	1,090	0.03	4%
Pharmacists	2,202	0.05	2,355	0.05	7%
Pharmaceutical Technologists	6,204	0.15	7,041	0.16	13%
Nursing professional	39,780	0.48	43,789	0.51	10%
Nursing associates	26,841	0.64	27,186	0.63	1%
Paramedical Practitioners	13,216	0.32	15,960	0.37	21%
Environmental Health technicians	14,606	0.48	15,008	0.35	3%
TOTAL	112,576	2.69	121,578	2.83	8%

Source: Kenya Economic Survey (Kenya National Bureau of Statistics), 2015

4.3. Deployed health workforce in Public and Faith Based Organizations (FBO) Health Facilities

Most Kenyans seek health care services from either public or FBO facilities.

FBOs make a major contribution to health service delivery. The Christian Health Association of Kenya (CHAK) and the Kenya Conference of Catholic Bishops provide an estimated 30% of health care in the country through their more than 800 affiliated facilities. The private health sector plays an important role in health care provision, but data from the sector is not well documented and therefore, in this paper, no information

from the sector was analyzed. In 2013, there was a total of 69,421 health workers out of which, 58,089 were government and 11,332 from FBOs. Two thousand three hundred and fifty-eight (2,358) were deployed at the community level, and 11,466 at primary care, 15,148 at the county level and, 8,174 at the national level. 2,239 were medical practitioners, 215 dentists, 10,604 nursing professionals, 12,303 nursing associates, and 4723 paramedical practitioners. Total HRH is about 1.7 per 1,000 people with huge variations among different cadres (*Table 11*).

Health workforce informants said a shortage of doctors in the public sector was mainly due to low salaries and poor working conditions, leading to high rate of departure to the private sector or private practice. One doctor who transferred to the ministry of health headquarters said the fact that most of his patients could not afford the specialist treatments he offered, affected his mental state while on the job. The doctor stated that improving the poor working conditions was equally important as providing other incentives to attract and retain more health workers to the public sector.

Table 11: Number of HRH employed in public and FBO health facilities by cadre, 2013

Cadres	No. by level of health care				No. by owner		Total	No. Per 1,000 of Pln.	Percentage	
	Community	Primary Care	County Hospital	National Hospital	Public	Faith Based			Male	Female
HEALTH PROFESSIONAL										
Generalist medical		83	720	306	1109	402	1511	0.036	69.9	30.1
Specialist medical		1	149	327	477	251	728	0.017	70.1	29.9
Nursing	6	1250	2445	3468	7169	3435	10604	0.127	31.3	68.7
Paramedical		897	2479	558	3934	789	4723	0.057	64.3	35.7
Dentists		7	79	68	154	61	215	0.005	62.4	37.6
Pharmacist		64	305	101	470	82	552	0.013	60.3	39.7
Physiotherapist		55	268	189	512	111	623	0.015	66.9	33.1
Dieticians and nutritionists		106	217	130	453	110	563	0.013	27.4	72.6
HEALTH ASSOCIATE PROFESSIONALS										
Medical imaging technicians	13	88	442	271	814	155	969	0.008	79.3	20.7
Medical laboratory technicians		817	1812	576	3205	1219	4434	0.035	47.1	52.9
Pharmaceutical technician and assistants		88	694	138	920	224	1144	0.027	53.3	46.7
Medical and dental technicians		30	162	85	277	53	330	0.004	54	46

Nursing associates	18	4840	3797	1251	9906	2397	12303	0.294	25.9	74.1
Medical records and health information technicians		4870	3959	1336	10183	2450	12633	0.149	39.9	60.1
Community health workers	1883	744	343	121	3091	1497	4588	0.037	38.9	61.1
Medical assistants		18	184	118	320	68	388	0.005	54.4	45.7
Environmental and occupational health	438	2205	713	227	3583	283	3866	0.031	71.3	28.7
PERSONAL CARE WORKERS IN HEALTH SERVICES										
Healthcare, assistance					0		1902	0.046	10	90
Non-health technicians							2944	0.018	63	37
Clerical support workers							583	0.014	63.1	36.9
Elementary occupations							10523	0.063	60.375	39.625
other health workers not elsewhere classified					0		4981	0.119	49.7	50.3
TOTAL	2358	11466	15148	8174	58089	11332	69421	1.661	40	60

Data source: Kenya Health Sector- Human Resources for Health (HRH) Strategy 2014-2018

According to MOH-human resources for health (HRH) progress report, by July 31, 2015, 7,484 health workers (comprising nurses, clinical officers, physicians, laboratory technologists, health records officers, nutritionists, and radiologists) and 1,558 CHEWs had been recruited since November 2013. The figure, therefore, brings the present number of HRH to estimated 78,463, representing a 13% increase in the number of HRH from 2013 to 2015, without accounting for the slight increases expected in the FBOs. With a projected population of 44 million in 2015, the number of HRH per 1,000 has recorded a slight increase from 1.66 to 1.78, representing an increase of 7%.

One HRH informant noted the government needed more monitoring and evaluation frameworks for effective reporting of health workers joining and exiting the public sector. His concern was the recruitment of clinical officers, expected to provide services they did not train for. Most HRH experts reported a higher workload on clinical officers and nurses in most part of the country and indicated that recently employed HRH were exiting the sector and joining none health-related employment leaving the public sector with an aging workforce.

HRH staffing needs in Kenya as of 2014 calculated using standard workload, category allowance factor, and individual allowance factor is shown in *Table 12*.

Table 12: HRH staffing needs by cadres, 2014 and projections of deployed staff to fill gaps for 2017 and 2020

STAFF CATEGORY	In Post	Staff requirement (2014)	Gap (2014)	Deployed Projections	
				2017	2020
Dental staff	545	4849	4304	907	1402
Health Records	947	4071	3124	2764	3586
Laboratory staff	4424	18177	13753	6733	8314
Medical officers	2239	7551	5312	3419	4374
Paramedical officers	4723	15447	10724	8134	10781
Medical engineering technologists & technicians	495	1238	743	750	1,000
Nurses	22907	38315	15408	27834	35575
Pharmacy staff	1696	3830	2134	2909	4326
Radiology staff	474	2834	2360	674	920
Public health officers and technicians	3535	25933	5188	4748	7282
Trained Community and Social Health workers	4588	124414	118268	57588	69588
General support staff	19640	58155	38515	34640	52640
Total	66,213	304,814	219,833	151,100	199,788

Data source: Kenya Health Sector- Human Resources for Health (HRH) Strategy 2014-2018

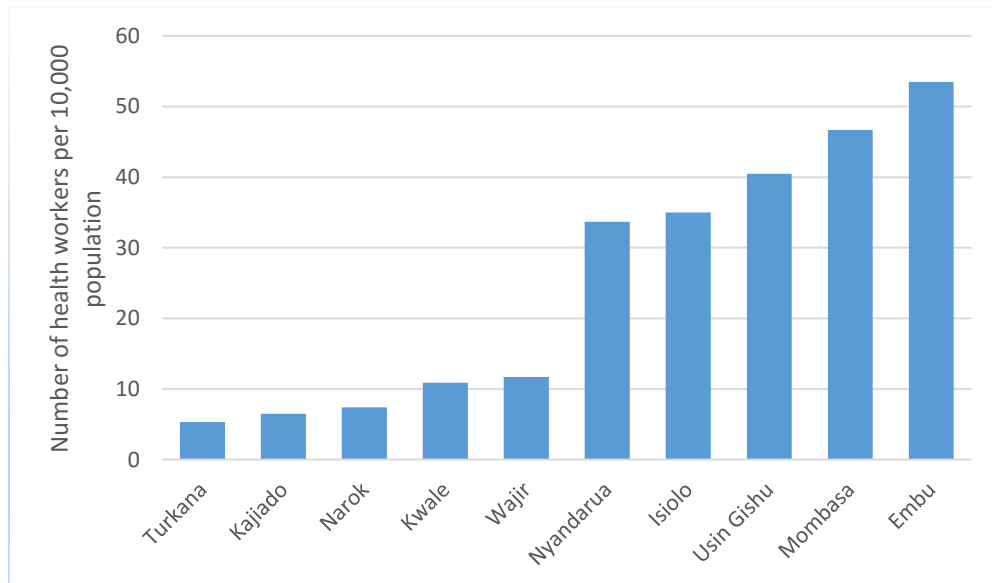
With the current estimated population growth rate of 3%, it will not be possible for the country to fill the gaps that currently exist.

4.4. Maldistribution of health workers

Health worker shortages are most severe in rural and remote areas. For example, as of 2012, Mandera County (a hardship area in northern Kenya) had 9 public sector nurses per 10,000 population and Kwale County (a rural coastal area) had 3.7 nurses per 10,000 population (Barker et al. 2014). In comparison, Kisumu County (an urban area)

had 7.3 public sector nurses per 10,000 population (Barker et al. 2014). These distribution inequities are most acutely felt in Kenya’s arid and semi-arid (ASAL) region. While health workforce issues affect the quality of service delivery countrywide, service coverage across the ASAL counties of Northern Kenya (Garissa, Isiolo, Lamu, Mandera, Marsabit, Samburu, Tana River, Turkana, Wajir, and West Pokot) is notably worse, with the lowest ratio of health workers to population in the nation (*Figure 12*).

With its unique and primarily rural geography, low population density, nomadic peoples, inadequate infrastructure, weak telecommunications, and insecurity, there are many factors in the ASAL region that constrain access to quality services and contribute to extremely poor health outcomes.



Source: Government of Kenya, 2014: Service Availability and Readiness Assessment Mapping (SARAM)

Figure 12: Regional maldistribution of health workers by region, 2012

4.5. Workforce Attrition

4.5.1. Internal attrition

The increases in the number of graduates are not sufficient to fill the health workforce gaps due to high internal turnover which includes normal attrition (death, retirement), resignation, and transfers to non-health related ministries, dismissal and abandonment of duty without resignation. *Table 13* displays reasons for health workers attrition from the public sector from 2008 to 2012. Main reasons are illness, the expiration of contracts, and deaths.

Table 13: Attrition in MOH staff 2008-2012

Reasons	2008	2009	2010	2011	2012	Total
Illness	1399	37	2	2		1440
Retire on public interest	4	3	3	1		11
Transfer of service	15	46	26	37	18	142
Expiry of contract	203	222	276	308	82	1091
Death	165	195	170	172	78	780
Resignation	2	2		12	3	19
Reassignment	6			245		251
Dismissal	34	37	36			107
Retirement	15	99	101		80	295
Abscondment	7	3	101	180	1	292
Other				3		3
Total	1850	644	715	960	262	4431

Data source: Kenya Health Sector- Human Resources for Health (HRH) Strategy 2014-2018

The figures in Table 13 should be interpreted carefully. For example, in 2008, the high number reported in illness could be due to the post-election violence that left many workers vulnerable to attacks. The violence was tribal and health workers are often

posted in areas of need with most working away from their home provinces. The data might also reflect underreporting due to lack of readily accessible and available data except from 2008 when national representative data was readily available during disaster and emergency reporting. Abscondment in 2010 and 2011 is likely attributable to the uncertainties following the passing of the new constitution that devolved health workers management to the county level. Health workers, especially higher cadre professionals feared being deployed in rural areas and left the workforce to either join the private sector or establish their own private practice. The same period also experienced increased number of health workers strikes to protest the devolution of the health workforce to the county level.

Table 14 shows the number of health workers recruited by MOH and turnover during 2005-2009(50% were physicians and 81% enrolled community nurses). The high turnover for enrolled community nurses can be attributed to many opting to join NGOs and other private health sectors where enrolled nurses were not being phased out.

Table 14: staff recruitment and exists in public sector, 2005-2009

Cadre	Recruitment	Exists	Difference	% Difference
Medical officers	1678	972	706	42.1
Clinical officers	845	356	486	57.5
Enrolled Nurses	2406	1964	442	18.4
Registered nurses	1101	461	640	58.1
Medical Lab Technologists/Technicians	381	185	196	51.4

Source: Understanding the labor market of human resources in Kenya (Kiambati, Kio & Toweett, 2013)

Most HRH informants expressed concerns about the higher numbers of experienced public health workers joining the private sector. HRH managers stated an emerging crisis of recently employed HRH opting to seek employment in non-health related fields just a few months or years later. The informants stated that health workers exiting from the public to private sectors were not motivated by higher salaries but by the better working conditions. One informant, a nurse, said the government had shown very minimal efforts in addressing health workers challenges. The lack of government commitment led to increases in dual practice as most nurses who had served for several years were not willing to resign and lose their retirement benefits.

4.5.2. External migrations

The Nursing Council of Kenya (NCK) is the only regulatory body able to effectively track the number of nurses leaving the workforce. From 2008-2012, 826 nurses left the public sector. Utilizing data on requests for licensure verification, 1,149 nurses applied to migrate between 2008 and 2012. 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. 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% (Ministry of Health, 2012). Data on the migration of other cadres of health workers was not readily available due to weak or non-existent information management systems.

One HRH key informant, a practicing doctor, and lecturer narrated that several of his former medical students had been offered scholarships abroad with a promise of job offers after one year of training. He noted that most of the students seeking opportunities abroad were some of the best students with the highest potential in specialized practice. Of interest was his former student known to the investigator and currently practicing in the USA. The informant indicated the magnitude of HRH migration was not being adequately reported as the bodies responsible were poorly managed or lacked capacity to maintain good HRH databases.

4.6. HRH policies

The government has increasingly recognized the importance of health workforce in attaining UHC. The first National Human Resources for Health Strategic Plan (HRHSP/2008–2012) was developed in 2008 and HRHSP 2014-2018 is currently being implemented. The two strategies were developed in collaboration with global partners, with an aim of delivering services more effectively and efficiently. The policies are mainly aimed at increasing HRH production, addressing inflows and outflows,

addressing maldistribution and regulating public and private sector as summarized below.

4.6.1. Policies on production

4.6.1.1. National health training policy, 2009

Informed by the increase in the number of institutions introducing new health-related programs, the policy was intended to monitor and evaluate health workers training both in public and private institutions. However, poor coordination among training agencies resulted in inefficiencies, duplication of efforts and wastage of resources. Insufficient investments in public training institutions have led to a decrease in the number of graduates in various cadres, e.g., nurses. Potential inequities due to high costs of training in private compared to public institutions might be a major implication. Inadequate regulation has led to the production of low-quality health workers resulting in increased unemployment rates among health sector graduates.

4.6.1.2. Public-Private Partnership Strategy 2014-2017

The strategy has guided rational development of the health workforce through alignment of curricula and training needs, and the creation of pre-service scholarships. A Seed capital of 10M USD was committed by International Finance Corporation (IFC) to provide a central funding mechanism for HRH training institution from 2016. The

funds will be utilized in capacity building and infrastructural development, such as internet connection and the establishment of e-learning programs.

One HRH informant from Kenya medical training college said the e-programs were not effective due to insufficient human and infrastructure capacities. For example, a good number of KMTC campuses had no internet access and most of the teaching staff were aging and had little computer skills. Another informant said most of the teaching staff were not willing to adapt new teaching methods and were in favor of static and outdated curricula. Most informants acknowledged the need for both human and infrastructure investment in order to implement modern training methods.

Private-sector companies and foundations (Ratansii Education Trust, Family Group Foundation, I&M Bank, Chase Bank) are providing financial resources toward health worker education by providing seed capital in Afya Elimu Fund with 6,000 beneficiaries. Total amount disbursed in 2014/15 was KSh. 130 million (US\$ 1.44 million) with 2988 beneficiaries that included 2378-KMTC, 486-Faith based institutions and 124-private institutions. All beneficiaries commit to working in public or faith-based facilities for 3 years, and priority is given to areas with the lowest numbers of HRH.

One HRH informant thought the design and implementation of the targeted scholarship policy needed reconsideration. The informant faulted the government's move of implementing the policy with minimal stakeholders' engagement. For example,

county leaders were not adequately involved in the policy design and there is an increasing fear that most of the graduating students might not be absorbed into the public sector in their home regions. Tracking of the students graduating from the program was also noted as a potential challenge with the informant indicating no investment was made in strong monitoring frameworks.

4.6.1. Policies to address maldistribution and inefficiencies

4.6.2.1. The human resources information system (iHRIS)

The systems have improved data collection on health worker mobility and retention to curb out-migration of health workers within and without the country since 2011. Nationwide staff rationalization was undertaken through a Capacity Assessment and Rationalization of the Public Service (CARPS) exercise for the public service workforce, including the public sector health workforce. HRH audits were conducted to establish a head count of health workers in each county to eliminate ghost workers and determine staffing gaps. There has not been enough incentives to stop exits of medical doctors (50% between 2005 and 2009) and enrolled community nurses (81%). HR records were reviewed, scanned, and digitally stored for 43,000 health workers. Personnel files devolved to 40 counties thus far; all 47 counties have access to eRecords through the integrated Human Resources Information System (iHRIS) (Muriuki et al., 2015).

One key informant involved in establishing iHRIS said during the file scanning process there were several important missing documents. He described how the files had been poorly stored with no regular updates. The informant pointed out that some health workers had not been promoted despite serving as civil servants for years. However, the informant was optimistic that with the HRH database now available it will be easier to monitor and evaluate HRH status.

4.6.2.2. Emergency hiring program (2006)

The program provides a 3-year contract for health workers to work in underserved areas by recruiting local health workers and providing hardship allowances, housing grants and paid leave. Through the program, the government committed to recruit at least 12,000 health workers (comprising, at least, nurses, clinical officers, laboratory technologists, nutritionists and health records officers) and 40,000 community health extension workers (CHEWs) from 2012-2017. In total, 7,484 health workers and 1,558 CHEWs were recruited among 44 county governments from November 2013 to July 2015. A key challenge has been meeting the pledges made in the contracts with health workers citing bridging of benefits terms leading to frequent strikes.

Most HRH informants said overreliance on donor funding to implement the policy made it unsustainable in some regions of the country. The informants noted that

available funds from the government could not match the salary offered by the NGOs, making it hard to absorb the contracted HRH into the public sector. However, some HRH reported the positive impact the policy had in increasing the number of HRH in regions with acute shortages. The informants said the success of the regions was as a result of private-public partnerships with strong local government commitments.

5. Universal coverage of health care in China: Key lessons and opportunities

China's health system evolution can be summarized in five phases. The first phase, between 1949 and the late 1970s was characterized by a planned economy. In 1951, the government introduced the Labor Insurance Scheme (for state-owned enterprise workers), and in 1952 the Government Employee Insurance Scheme (for civil servants, public services unit employees and retirees, university students, and disabled veterans). In rural areas, the Cooperative Medical Scheme (CMS) emerged in a small town in Shanxi province in 1955 (with support from local farmers and agriculture cooperatives) and proliferated under Chairman Mao's support. At its peak in the 1970s, the CMS covered 90 percent of China's rural population, ensuring access to basic health care at low cost. In addition to the CMS, barefoot doctors (community health workers who provided basic preventive services), and the three-tiered health care network (county-town-village) constituted China's rural health system (Zhang et al., 2010). Between 1952 and 1982, China's infant mortality rate fell from 200 to 34 per 1000 live births (Blumenthal & Hsiao, 2005).

In the late 1970s, a second phase began: China opened its health system to a free-market economy, dramatically reducing the role of the government in all economic and social sectors, including health care. Government funding to hospitals dropped, and

many health care professionals, including barefoot doctors, lost their public subsidy (Blumenthal & Hsiao, 2015). By the late 1980s, the rural insurance scheme collapsed. Urban health insurance schemes were also crippled by escalating medical costs and inefficiencies of state-owned enterprises being their main financiers; had either gone bankrupt or undergone privatization (Liu, 2002). As of 1999, a total of 49% of urban Chinese had health insurance, mostly through government and state enterprises, but only 7% of the 900 million rural Chinese had any coverage (Blumenthal & Hsiao, 2005).

Public anger and distrust toward health care institutions and professionals, including widespread physical attacks on physicians by late 1990s (Blumenthal & Hsiao, 2015) along with emerging public health problems, notably SARS in 2003, became the driving force for reforms (Meng & Tang, 2010). In 2003, a third phase began, when the Chinese government started introducing a modest health insurance scheme covering some hospital expenses for rural residents. The focus on hospital care reflected the fact that hospital services were expensive and drove many patients into poverty (Blumenthal & Hsiao, 2015). Policy formulation was largely supported by international health projects such as the World Bank Health VIII Project, and Department for International Development (DFID) Urban Health and Poverty Project (Meng & Tang, 2010). The establishment of the State Council Medical Reform team in 2006 defined the object of China's health reform to provide its population with basic medical and health care while

ensuring equal access to, and affordability of, health services (Liang & Langenbrunner, 2013).

A national Three-Year Reform Plan was announced in 2009, marking phase four, after which the country has made remarkable progress toward achieving nearly universal health coverage. China's Reform Plan is complex, coordinated across 15 national ministries that interact—in one way or another—with the health sector. The government allocated Y850 billion (US\$125 billion), targeting five areas: health insurance, essential medicines, public hospital reform, primary care delivery, and public health services. The recent health reform initiatives (State Council, 2012) under the 12th Five-Year Plan (2011–2015) continued to center on five areas (phase five). Building on recent experience, more effort was directed toward a structural change of the health system and aimed at creating an environment that facilitates policy implementation. The five areas included: optimizing resource distribution, encouraging hospital competition, strengthening regulation and accountability, and enhancing human resources and information technology (Liang & Langenbrunner, 2013). Even though the current financing and delivery system struggles to transform financial input into effective, efficient, and quality care, many lessons can be learned.

5.1. Current China's Health Insurance Programs

China's social medical insurance system, seen as a driver in achieving universal coverage, consists of three major schemes: Urban Employment Basic Medical Insurance (UEBMI), New Rural Cooperative Medical Scheme (NRCMS), and Urban Resident Basic Medical Insurance (URBMI). Each program has a government backstop fund or insurer. UEBMI is a mandatory scheme, covering formal sector workers in urban areas. Employers contribute 6% to 8% of local worker's average salary and employees contribute 2% to 3% of their salary to the scheme. The scheme has two components, an integrated social pooling fund and individual Medical Savings Accounts (MSAs). Employee contributions plus 30% of employer contributions go to MSAs for outpatient services, deductibles, and any copayment paid by enrollees. The rest of employer contributions go to the social pooling fund, which is used for inpatient care. NRCMS is voluntary, covering rural residents, and was piloted during 2003–05 and rolled out during the 11th Five-year Plan (2006–2010). URBMI is also voluntary, covering urban residents who are not covered by the UEBMI. The main target groups of UEBMI are students, children, elderly people without previous employment, and the unemployed, essentially the urban informal sector (State Council 2007). The major difference is that the URBMI by design has no Medical Savings Account and consists of only a social pooling account. Furthermore, the benefits package of URBMI focuses largely on

inpatient and catastrophic outpatient expenses, which is shallower than the UEBMI. The scheme is financed minimally from household contributions. Governments at different levels provide significant subsidies to central and western provinces at about the same level they provide subsidies to NRCMS enrollees to ensure equity. Employers are also encouraged to contribute for the family members of their employees (Liang & Langenbrunner, 2013).

5.2. Government Commitment on health care expenditure

Total health expenditure per capita in China rose from CN¥319 in 2000 to CN¥1888 in 2011, with an average annual increase of 17.4%. Between 2000 and 2011, government and social health expenditure grew rapidly, which on average increased 22.9% annually from CN¥56 to CN¥554, and 18.8% from CN¥92 to CN¥625, respectively. Out-of-pocket payment increased less substantial annually, from CN¥171 in 2000 to CN¥710 in 2011. The share of out-of-pocket payment in total health expenditure decreased over time, from 53% in 2005 to 38% of total health expenditure in 2011 (Long, Xu, Bekedam, & Tang, 2013). Between 2009 and the end of 2011, it is projected China spent more than ¥1.4 trillion on health (up from ¥3594 million in 2008), a third from central government and two-thirds from local governments, compared with 91% and 9%, respectively, in 2003 (CNHDRC, 2011; Ministry of Health, 2011a; Ministry of Health, 2011b). About 50% of government funding is for subsidization of enrollment in

insurance schemes, 30% is for the building of supply-side infrastructure and training targeted at rural institutions and primary health care facilities, and another 10–16% is for the provision of public health services (Ministry of Finance, 2010).

All the health financing experts attributed the rapid health insurance coverage to sustained political leadership and commitment to universal coverage by increasing government health expenditure over the past decade. Experts in academia acknowledged increased investment in health system research that provided evidence to inform policy direction and decision making. Even though most health financing experts felt more funds from the government were needed, they advised on improving efficiency before more funds are invested in avoiding wastage of public resources.

5.3. Prioritizing health insurance expansion

By 2012, the insurance coverage had increased from 29.7% to 95.7% (2003-2011). China's policy was to achieve universal coverage by increasing population coverage but with limited benefits. The first wave of NCMS and URBMI, initiated in 2003 and 2007, respectively, covered only inpatient services (NCMS household-based savings accounts paid for outpatient visits but barely covered one annual outpatient visit per person). Since the end of 2010, coverage was gradually expanded for outpatient services. As of 2010, taking into account deductibles, co-payments, and reimbursement ceilings, the beneficiaries of both programs still had to bear more than 50% of their inpatient

expenditure and 60–70% of their outpatient expenditure. The government aims to reduce copayment for inpatient services to 30% (Yip et al., 2012).

Health financing experts supported the government's strategy of initially providing shallow benefits package and aiming for rapid population coverage for sustainability purposes. The experts' advice to LMICs aiming to expand health insurance coverage was to carry out extensive research in designing benefits packages. Two of the experts proposed to cover essential health care services of high quality before gradually enhancing the packages, taking into account country's healthcare needs and population expectations. Cost control measures was a constant theme among the health financing and HRH experts. The experts pointed out that expansion of health insurance coverage must be accompanied by strong monitoring, evaluation and rigorously designed research studies to ensure sustainability of insurance scheme. Experts were in agreement that equity in financial protection and access to high-quality health care were major aspects that had to be strongly considered in designing any social insurance scheme. For example, one experts' opinion was that the fragmentation of health insurance schemes in China has led to inequities among the poor who pay high OOP and are rarely covered for catastrophic conditions.

5.4. Catastrophic coverage responding to demographic transition and population needs

Since 2011, policies have identified funds for major diseases (termed Major Disease Protection), including children's acute leukemia, congenital heart disease and terminal kidney diseases, cervical cancer, breast cancer, mental illness, and drug-resistant pulmonary tuberculosis, among others. For those diseases, there is no deductible or reimbursement cap. The reserved funds are expected to pay at least 70 percent of the total medical bills. On top of this, the MA program pays another 20 to 30 percent of the expenditure (via a pilot scheme called Catastrophic Medical Assistance, CMA). Some regions have designated funds for catastrophic expenses exceeding the reimbursement ceiling from the Major Disease Insurance, regardless of the kinds of diseases. For example, in Qishan County in Shaanxi province, the fees exceeding the ordinary cap of Y30, 000 are covered by the designated funds, and those exceeding the second cap of Y300, 000 are paid by the CMA programs (Liang & Langenbrunner, 2013; Long et al., 2013).

During in-depth interviews, experts acknowledged policy makers responsiveness to demographic transition and the government's continued efforts to ensure households are protected from catastrophic health expenditure. Most experts from academia shared their recent studies that pointed out t inequities among regions and indicated the government had taken into account their recommendations and efforts

were in place to ensure poor regions benefited fully from catastrophic expenditure protection.

5.5. Subsidization of poor and vulnerable populations

By 2012, the government was subsidizing each rural and urban resident not covered by UEBMI around ¥240 of the total fund of ¥300 (US\$4.8) (more than a ten-fold increase since 2003) to enroll in NCMS or URBMI, respectively, with the individual contributing another ¥30–50. The central government pays half the enrollment subsidies for the western and central regions but none for eastern provinces. For example, the division between central, provincial, and municipal or county funding is ¥124, ¥68, ¥8, respectively, in Ningxia, and ¥55, ¥75, and ¥70, respectively, in Shandong. A complementary Medical Assistance program managed by the Civil Affairs Ministry pays the individual contribution for poor families (Liang & Langenbrunner, 2013; Long et al., 2013; Yip et al., 2012).

Experts said the strong demand and supply incentives were major contributors to the rapid expansion of health insurance in China. For example, enrollments rates are constantly used in evaluation performance of county officials and the government only match subsidies after county officials have ensured households have paid their premiums. The households' main attraction was the low premiums and the high subsidies from the government. In advising LMICs, experts recommended exploring

other incentives like improving the quality of health services and strengthening primary health care to attract the poor to join social insurance schemes.

5.6. Primary health care strengthening; a critical driver to UHC

In 2011, the government provided ¥25 per head (raised from ¥15 in 2009, with future increases promised, ¥6.5 is about US\$1) for primary health-care providers to deliver a defined package of basic public health services for the population in their catchment areas. The package was designed to combat the increasing burden imposed by NCDs, which account for more than 80% of China's annual deaths (Wang, Marquez, & Langenbrunne, 2011), and improve prevention and care for vulnerable populations while not neglecting the ongoing challenges of infectious disease (He et al., 2009; L. Wang, Kong, Wu, Bai, & Burton, 2005; L. Wang et al., 2008). The central government directs its share of subsidy towards the western and central regions. For example, the division between central, provincial, and municipal or county funding is ¥20.0, ¥4.0, and ¥1.0, respectively, for Ningxia, a northwestern province and ¥7.5, ¥7.5, and ¥10.0, respectively, in Shandong, a richer eastern province (Yip et al., 2012). The government further identified eight priority public health interventions targeted at vulnerable populations in rural areas, financed by specially allocated transfers from central government (Brixi et al., 2011).

The long-term strategy is to improve the efficiency of resource allocation by building a strong delivery system based on primary health care, anchored in community health centers in cities and township health centers in rural areas. Providers of primary health care are eventually to serve as so-called health gate-keepers, managing referrals to specialist care and hospitals. As a result of early success in reducing infant and maternal mortality by improving access to hospital-based delivery (Feng et al., 2010; Feng et al., 2011; Feng, Xu, Guo, & Ronsmans, 2011), direct government subsidies and NCMS together make hospital delivery almost free to patients (Guo, Feng, & Ronsmans, 2011; Ministry of Health, 2011c).

A Jiangsu government primary health care manager emphasized the importance of strengthening primary health care as a way of controlling costs and attracting more HRH to work in lower level health facilities. He said that the priority was to strengthen primary healthcare by improving management capacity, employing highly qualified health workers and increasing the health insurance reimbursement rates for patients who follow the right referral system.

5.7. Primary health workforce strengthening

Positive achievements in HRH include an increase in the number of graduates to address human resources shortages, acceleration of production of diploma nurses to correct skill mix imbalance, and priority for general practitioner training, especially of

rural primary care workers (Hou et al., 2014). Most of the reforms have focused on addressing the imbalances in rural and poor areas. Between 1998 and 2012, the number of health sciences institutions has doubled. Traditional Chinese medicine institutions have had similar expansion. To enhance academic quality and bring the efficiency of scale, all health professional schools were encouraged to be integrated with universities. The early model that China adopted had medical training institutions providing technical training under the MOH. The developed country model that was introduced brought health professional education into comprehensive universities as one of the major faculties while remaining under the Ministry of Education (MOE). The reforms were implemented mostly by administrative action with a powerful effect on institutional design and numerical expansion of graduates. Starting from 1990, 98 health professional training institutions have been organizationally merged into 76 institutions (Hou et al., 2014). The university base for health professional school mergers has consisted of general universities, institutes or faculties of science and technology, and other independent institutions. The number of mergers peaked at 20 in the year 2000. One of the aims for mergers was to consolidate academic universities to become strong academic institutions. For example, several secondary schools might have been merged to form a medical college or colleges were merged to form a university. After the merger to create a higher education institution, the schools can admit undergraduate and

diploma students that they were not allowed to before. In 2012, China had half a million health professional graduates from 590 institutions, with large cohorts of graduates as a result of the mergers. Increases include nursing (36%), clinical medicine (32%), and pharmacy (18%), public health (2%), and allied professions (12%). A big difficulty is that faculty numbers (and also quality) might not have kept pace with the numeric expansion of students (Hou et al., 2014). The number of nurses per 1000 population has increased from 1.10 in 2006 to 2.05 in 2013, and the nurse to doctor ratio has increased from 0.68:1 in 2006 to 1:1 in 2013 (You, Ke, Zheng, & Wan, 2015).

Curricular reform has been a slow and steady continuing process, not sudden or dramatic like the administrative reform. The reforms have included standardization and quality improvement of curriculum, the establishment of general practitioners for primary care and scholarship and bonding for rural health services. Although there are some efforts to reform pedagogic methods, they are still rigid, static, and lag behind the innovations in many institutions. The curriculum is teacher-controlled and consists usually of didactic lectures requiring note-memorization (Hou et al., 2014).

HRH experts supported the government's policy of standardizing the residency among medical students to three years. An innovation highlighted in the policy was the awarding of the students with a master's degree upon completion of the residency period.

In 2010, China launched a rural doctor's program to staff township health centers. Upon admission into medical school, a student signs a contract to serve 6 years at the local township health centers. In return, the student obtains a scholarship for free tuition, room, and board, plus living expenses (Hesketh et al., 2012; W. C. Yip et al., 2012). The student pledge is signed with three parties in agreement: student, medical school, and township to be served. Schools that have accepted these scholarships have begun to bring more rural clinical and community practice into their curricular offerings (Hou et al., 2014).

HRH experts were optimistic about the target recruitment of medical students that began in 2010 in central and eastern provinces. The experts were especially pleased to report that among the students who had been awarded the conditional scholarships and had graduated in 2015, no case had been reported of students declining to report back to their hometowns. HRH experts believed that with strong monitoring and evaluations the policy would address maldistribution of health workers. Challenges reported included the inability of some county governments to offer jobs to newly graduated students with promised contracts and a logistical dilemma due to the requirement that the medical student attends a mandatory three years residency at a higher level hospital facility.

Concerned with public dissatisfaction on the qualification of primary health workers and ability to deliver high quality care, some provinces have been selecting physicians from primary health centers to receive on-the-job training in tertiary hospitals, and encouraging experienced physicians from tertiary hospitals to rotate to primary health centers hospitals to train staff and practice (Q. Liu, Wang, Kong, & Cheng, 2011; NDRC, 2011).

HRH experts mentioned some key challenges that needed urgent measures. For example, the experts expressed concerns that most new medical graduates were unwilling to work in rural areas. There is also a trend of graduates preferring higher level health facilities as their first on the job posting. The experts pointed out that over the past decade there has been a massive expansion of medical education, with an excess in the production of health workers over absorption into the health workforce. The experts acknowledged there is significant inequality in the distribution of doctors and nurses between China's provinces, as well as urban-rural disparities that urgently needed to be addressed. The experts opinion was that most village doctors in rural China are facing critical challenges, including aging, gender imbalance, low education, and a lack of social protection.

To align the incentives for primary health care to provide public health care and basic health care and to discourage profit-making activities, markups on drugs

dispensed by these facilities have been eliminated (zero-profit drug policy). To further encourage providers of primary health care to improve services, the public health budget decided by capitation is tied to an annual performance assessment.

While China has successfully extended the breadth of health coverage to the poor, its scope (the comprehensiveness of services covered) and depth (the degree of financial protection appears insufficient. Hospital admissions have increased significantly, suggesting improved access - up to 50% of current admissions may be amenable to more cost-effective outpatient care. Patients continue to bypass lower levels of care, creating crowding at high-level hospitals. Financial protection of households has not been improving as fast as leaders and researchers would have expected (Liang & Langenbrunner, 2013). The mentioned challenges should be analyzed together with the successes of the learning process. The policy options, discussed later in this paper will draw major lessons for Kenya based on the summary provided in the current chapter.

6. Discussion

This chapter summarizes key findings from the study. The findings are discussed with major focus on inequities, financial hardship, and accessibility of health services. The mentioned issues are looked at in relation to health financing and health workforce dynamics in Kenya. The chapter does not include discussions about China. The authors believe that the summary of China's experiences in chapter five provides enough information to generate policy options for Kenya.

6.1. Health financing

Key findings for discussion on health financing in Kenya include high OOP, especially among the poor and vulnerable, low level of government expenditure on health care, fragmentation of the health financing organization, and slow progress in the social health insurance coverage expansion. Together, these issues if not addressed will cause inequities in health care access and utilization and impact negatively on some of the gains Kenya has made in trying to achieve UHC.

Inequities exist in health care utilization: the richest households are more likely to report both outpatient and inpatient illnesses (Ministry of Health, 2014), indicating health care is expensive and inaccessible to the poor and vulnerable (Buigut, Ettarh, & Amendah, 2015; Chuma & Maina, 2012). In absolute terms, the richest households spend significantly higher amounts of money on treatment compared to the poorest

households. However, when OOP payments are expressed as a percentage of consumption expenditure, a regressive pattern for both outpatient and inpatient illnesses is revealed (Buigut et al., 2015; Chuma & Maina, 2012). Poor-rich differences are larger for inpatient compared to outpatient care, indicating that inpatient care is unaffordable to most poor households. High levels of spending among the poor highlight the lack of exemption mechanisms to protect the poor, and limited prepayment, risk pooling and cross-subsidization. The budget share of OOP payments is significantly higher in the urban than in the rural areas, reflecting both differences in socio-economic status and treatment seeking patterns. Urban areas have more private providers and larger public health facilities, whose fees for service are significantly higher than those located in rural areas (Buigut et al., 2015; Chuma & Maina, 2012; Munge & Briggs, 2014). The evidence shows OOP payments are very regressive, as in most African countries (Buigut et al., 2015; Leive & Xu, 2008; Macha et al., 2012; Meessen, Van Damme, Tashobya, & Tibouti, 2006), and highlight the urgent need to protect the poor from high costs of illness.

In 2007, an estimated 5% of households incurred health expenditures that exceeded 40% of their total household budget. About 11% of households spent over 10% of their budget on outpatient treatment, compared to 4.2% for inpatient care. The incidence of catastrophic expenditures at corresponding thresholds is much higher

when OOP payments are expressed as a proportion of the non-food budget. This increase reflects the greater share of resources spent on food items in Kenya, which is typical of spending patterns in low-income countries (Leive & Xu, 2008). For total OOP payments, 5.6% of households reported payments greater than 40% of total expenditures; this proportion doubled when the threshold was set relative to share of non-food expenditures. Results suggest that the burden of OOP payments for inpatient care might be decreasing while that of outpatient care is increasing. This downward trend in the proportion of households facing catastrophic costs due to inpatient care should be interpreted with caution. It is known that inpatient care is much more expensive than outpatient and it is possible that households might have failed to seek admission due to affordability barriers (particularly the poor) (Chuma & Maina, 2012; Ministry of Health, 2014).

Health insurance coverage is low and inequitable in Kenya. Factors associated with enrollment in a health insurance program include employment in the formal sector, being married, exposure to mass media, attainment of secondary education or higher, and residing in middle or rich wealth index categories-female headed households (Kimani, Ettarh, Warren, & Bellows, 2014). The proportion of urban slum residents without any type of insurance remains high (Kimani, Ettarh, Kyobutungi, Mberu, & Muindi, 2012). Key barriers to the expansion of NHIF among informal workers include

lack of knowledge about NHIF and its enrollment options and procedures for informal sector workers, inability to make regular contributions, and dissatisfaction with insurance design (benefits package, premiums, and choice of health care provider). Some notable barriers also include the promise of better design by private insurance companies, fear of penalty for defaulters, and mistrust of fund management (Kimani et al., 2012). Increasing equity and access to health care services among the poor and vulnerable groups is, therefore, the key to achieving UHC (Kimani et al., 2014). It is essential for NHIF to harness the unique opportunities offered by both the formal and informal microfinance institutions to improve health care capacity by considering them as viable financing options within a comprehensive national health financing policy framework (Kimani et al., 2014).

Over the past five years, NHIF has worked to improve its benefits package and some impact has been reported. A study showed that, among adult patients hospitalized in a public referral hospital in Kenya, insurance coverage was associated with decreased in-hospital mortality. This association was comparable to the relationship between HIV and mortality (Stone et al., 2014). Children with NHIF at diagnosis had a significantly lower chance of abandoning treatment and a higher chance of survival (Mostert et al., 2014). This indicates that extending social insurance coverage will improve population health and more importantly, strengthen primary health care (Mostert et al., 2014).

Pro-poor distribution of public PHC benefits has been reported as well as an increase in utilization of health services in PHC. This is attributed to a user fee reduction policy introduced in 2004 and abolition of user fees in 2013 (Waweru et al., 2015). The Kenyan government has identified primary health care facilities as an important part of the health system and various reforms have been implemented to ensure that primary health care facilities offer quality services (including transferring funds directly from the treasury to facilities' bank accounts to minimize delays experienced when they are channeled through the health ministry (Opwora, Kabare, Molyneux, & Goodman, 2010). While these funds have generally promoted access to PHC services, there is limited evidence to show that the poorest populations, who bear the greatest burden of ill-health, benefit from these services. The introduction of Health Sector Service Funds (HSSF) to compensate primary health facilities for lost revenue due to the abolition of user fees has shown impressive achievements: funds were being overseen and used in a way that strengthened transparency and community involvement, and health workers' motivation and patient satisfaction improved. Challenges or unintended outcomes included: complex and centralized accounting requirements undermining efficiency; interactions between HSSF and user fees leading to difficulties in accessing crucial user fee funds; and relationship problems between key players (Goodman, Opwora, Kabare, & Molyneux, 2011; Waweru et al., 2013; Waweru et al., 2015). There is a strong indication

that the funds for the provision of free health care services are insufficient to be meet its objective. The situation is made worse by inefficiencies in fund management at the facilities level with most of the funds going to the remuneration of casual health workers rather than providing health care.

6.2 Human resources for health

Even though the Kenyan government has shown commitment to addressing HRH challenges, key issues are worth discussing. The issues include quality concerns in HRH production, the impact caused by rapid private sector development, HRH motivation concerns, and frequent interruptions on service delivery.

The private sector is seen as a major contributor to training HRH in Kenya, evident by the increase in a number of institutions. In its effort to scale-up HRH production in Kenya, concurrent investments in expanding the number of student clinical placement sites, utilizing alternate forms of skills training, hiring more faculty and clinical instructors, and expanding the dormitory and classroom space to accommodate new students are needed to ensure that increases in student enrollment are not at the cost of quality nursing education (Appiagyei et al., 2014).

The human resources information system (iHRIS) has produced data leading to a range of improvements in health worker regulations, human resources management, and workforce policy and planning at the national and county levels of government

(Waters et al., 2013). The Kenyan government has taken steps to address the challenges in HRH identified through analysis of the iHRIS database. The Emergency Hiring Plan has shown some positive results in addressing maldistribution and shortages. For example, the increase in numbers of nurses significantly increased health services in Kenya's rural and underserved areas. Most of the nurses initially hired on contracts were eventually permanently employed (Adano, 2008; Gross et al., 2010; Kirigia, Gbary, Muthuri, Nyoni, & Seddoh, 2006; Vindigni et al., 2014). However, these gains are likely to be curtailed by both internal and external migrations of nurses, which deplete the public sector of its most highly educated nurses and reduce the percentage of younger nurses in an aging nursing stock. This will negatively impact Kenya's ability to increase its nursing workforce through training, and represents a substantial economic loss to the country (Gross et al., 2011; Kirigia et al., 2006).

Widespread disruptions such as frequent health workers strikes have an adverse impact on health care provision. A study in Mombasa County showed an August 2014 strike adversely affected health services including a decline of outpatient attendance by 64.4%, special clinics attendance by 74.2%, and deliveries by 53.5%. Inpatient admissions and deaths declined by 57.8 % and 26.3%, respectively (Njuguna, 2015). In addressing motivational issues in order to improve retention, there is a need to harmonize the terms of service, improve the incentives and amenities available to health workers in remote

Kenyan counties (Njuguna, Mwangi, & Kamau, 2014). There have been widespread complaints among HRH of unfair regional imbalances in salary benefits and incentives.

Results indicate the government's priority in strengthening primary health care, indicated by hiring more community health workers (CHWs). However, it is important to consider issues including gender mainstreaming, development of appropriate retention schemes, competitive compensation packages, strategies for career growth, and the establishment of a model HRH community (Ojaka, Olango, & Jarvis, 2014). Another notable measure in strengthening CHWs is the high quality of routine supervisions to improve performance to match population needs (Oliver, Geniets, Winters, Rega, & Mbae, 2015).

7. Conclusion

This analysis of health expenditure and policy review in Kenya illustrates inequity, inefficiency, and ineffectiveness of health care provisioning. While total health expenditure has increased over the past decade, about a third of the spending is from out-of-pocket payments by individuals and households. Kenya's total health expenditure per capita increased from US\$ 44.1 in 2000 to US\$ 66 in 2013. The level of spending surpasses the WHO benchmark of US\$ 44 per capita spending and exceeds the levels of spending in East African Countries (EACs) except Rwanda. However, about 74 percent of these funds are from households through OOP payments and donor funding. OOP payments make health care utilization inequitable, creating a major barrier to access and contributing towards household poverty and impoverishment. Public health expenditure has lagged and is low compared to other EACs. Public expenditure per capita has stagnated in the range of US\$ 12 and accounts for about a quarter of total spending on health, which averages to 1.2 percent of GDP. The sector spending accounts for 6.1 percent of total government expenditure and is one of the lowest shares among the EACs region. The government has taken measures to increase the share of expenditure on primary health care. The government introduced the Health Sector Services Fund (HSSF) to increase the share of funding for primary health care and to ensure timely flow of resources to the facilities. The abolition of user fees at primary

health care facilities was expected to ease the burden of care for households and increase total public spending on primary health care services. It was also expected to improve efficiency and equitable access to health care. However, the policy has not met its goals due to lack of adherence to the policy and inefficiencies in spending. Delays in the disbursement of funds from the national government are a major challenge for health facilities. Facilities received lower funding than originally promised from the treasury. For example, dispensaries received only 70.7 percent of the expected HSSF funds. The policy is not fully implemented and it is estimated that only 75.7 percent of dispensaries and 93.7 percent of health centers received HSSF funds in 2013. Generally, the analysis finds the implications for service delivery, financial risk protection, and access to health care services due to the abolition of the user fee policy to be unclear because of insufficient monitoring and evaluation of the program.

Kenya health spending is not cost effective, and cannot be considered 'good practice' in health care delivery. The lack of cost effectiveness can be attributed to lack of political will and leadership to prioritize and sequence investments in health, starting with primary health; health services inaccessibility in underserved areas and inadequate and unmonitored free provision to the poor; and insufficient research to inform investment in the best mix of interventions to increase technical efficiency. Kenya's tax revenue collection mechanisms remain poor and undermine the government's ability to

offer financial risk protection to the poor and vulnerable. The health insurance subsidy program has not been informed of rigorous research and its effectiveness has not been evaluated, making it impossible to analyze the financial risk protection it has offered to the beneficiaries over the past two years of its implementation. Leakages of the health system, mainly due to fraud and corruption also undermine the poor from benefiting from intended interventions. In summary, the current pattern of spending presents three main challenges, which need urgent attention: (I) OOP payments have increased the burden of care on households and are inequitable, inefficient and a barrier to access by the poor; (II) Most donor funds are off-budget. The donor funds undermine strategic prioritization, are disease focused, and rarely support system-wide health system strengthening; (III) Financial risk and income cross-subsidization are undermined by OOP payments. Key lessons from China include government leadership in expanding social insurance coverage, responsiveness to population needs in designing health insurance packages, and provision of both supply and demand side incentives to increase health insurance population coverage. Kenya can adopt a pragmatic approach to providing free health services at the primary health care level. China's experience shows that a mix of interventions in reducing out-of-pocket payment might be more sustainable. Kenya investment in the provision of free services at the primary health care

level is insufficient, and the government lacks fiscal space for the program, evident by over-reliance on donor funds in implementing the policy.

Availability of health workers might not be the main challenge in Kenya. The challenge lies in the geographical distribution of health workers across Counties, recruitment and retention of health workers in the public sector, the skill mix of deployed health workers, inadequate quality assurance in health workers training, and absenteeism. Although the ratios of deployed health workers are below WHO recommendations, they are comparable to staffing levels in other African countries. Absenteeism by health workers and knowledge practice gaps require urgent measures. Based on a 2012 Public Expenditure Tracking Survey (PETS), doctors recorded the highest level of absenteeism at 38 percent, followed by clinical officers at 36 percent and nurses at 30 percent. Even though about 88 percent of the cases were sanctioned, 50 percent had given no reason for absenteeism. Diagnostic accuracy was estimated at 72 percent, which is high even by global standards, but the full treatment after diagnosis was under 50 percent. The Emergency Hiring Program was effective during the first stages of implementation but has faced challenges due to the devolved system of government. The national government has no control of health workers at the county level and there are spatial disparities in implementation of the program. Incentives to attract health workers to rural areas have only attracted nursing professionals at best

with higher cadre professionals preferring to work in urban areas while experienced professionals prefer to go into private practice. Most of the challenges faced by policy strategies can be attributed to lack of rigorous research to provide evidence to policy makers on the best incentives to motivate health workers and leadership. Even though policymakers' decisions are based on practices from other countries, there is limited consultation with appropriate stakeholders. In summary, the current trends in health worker dynamics increase inefficiency in the health system, widen inequities in the provision of quality health services, and remain a major barrier to achieving UHC. In a market that has a high proportion of private players, urgent measures are needed in improving and refining the current policy strategies adopted to increase recruitment into the public sector, train more health professionals, and retain health workers in the public sector. Key lessons from China include strengthening of the health workforce at the primary health care level. The strategies include targeted recruitment of new graduates, providing incentives for experienced health workers to practice at primary health facilities, continuous learning through collaboration with higher level facilities, and merging of health professional training institutions to improve the quality of training. China's regional approach to addressing health worker shortages is a good model for Kenya. Poor regions need both national and local government incentives and

research are needed on the pull and push factors that have led to increased attrition rates in recent years.

8. Policy options

8.1. Political leadership and commitment urgently needed

Political leadership and commitment are urgently needed for national reforms and Kenyans should take advantage of the window of opportunity brought by the upcoming 2017 election to elect leaders committed to UHC. Kenya should adopt appropriate legislation. For example, the establishment of an independent institution (or a think tank) to guide UHC-focused reforms will help restructure necessary administrative and organizational structures. Local governments, particularly in the poor areas, must commit to the goal of financial protection and provision of quality essential health care by investing in the strengthening of primary healthcare. Local government should invest in improving efficiency in health care financing and contribute to funding free health care services at the primary health care level. The government should create incentives to encourage county governments' in participating in any policy reforms. The strategies and approaches should be based on the assessment of political, financial (fiscal space and capacity), cultural and administrative feasibility.

8.2. Insurance coverage can be increased

NHIF and all stakeholders must include incentives that will attract the non-poor informal workers, poor, and vulnerable populations into the social insurance program. A mix of contributory and non-contributory payment mechanisms should be adopted.

The national government should move towards ear-marking specific taxes to enable effective subsidization of premiums for the poor. The approach should utilize the free primary health care delivery model already adopted and consider offering some direct subsidies at the hospital level.

Increased investment on health efficiency research is needed from both local stakeholders and donors. There is urgent need to evaluate the effectiveness of the current voluntary NHIF premiums for non-poor informal workers set at a minimum of KSh 500. The research must take into account the cost of collection and net revenue generated. Channels for communicating content and level of the benefits package provided to non-poor informal workers must be improved. Options include mass media communication and utilization of social media platforms.

8.3. Health services supply and quality to be improved

Improving the supply of services and the quality of health care is essential to support the increased demand created by coverage of non-poor informal workers and other scheme beneficiaries. Studies have found that beneficiaries' perception of the low quality of services is responsible for a reluctance to enroll in prepayment schemes. We propose a primary health care-centered integrated delivery model, focused on population-based prevention, health promotion, and disease management, with functioning coordination between primary, county, and tertiary health providers. The

model could be implemented with a benchmark for competition (a combination of norms and market forces) between public and private hospitals, with rigorous policies to reform the governance of public hospitals. The approach might require recreation of exemplary models of public hospitals to serve as a benchmark. The objective of the model will be to ensure the efficient use of available public resources to maximize the benefits for people providing equally accessible and quality health services for everyone. NHIF could adopt accountable care approach; defined as “holding a group of providers responsible for achieving a set of outcomes for a defined population, over a specific time period and for an agreed-on cost”. As insurance benefits design is aligned with value, consumers should have more incentives to choose innovative approaches, compared to traditional care approaches.

8.4. Regional approach to HRH

Both levels of governments should invest more in regional target recruitment of training health workers based on need assessments. In-service training should be structured to be related to duties performed to avoid wasting resources. It is now acknowledged that short-term training is rarely beneficial and it is proposed that exchange training programs be implemented. Health workers would be placed in a facility different from their normal working locations to gain some critical experience. Incentives like promotion linked to these training programs should be provided.

Standardized resident training among all health cadres might be important in improving health services quality. Graduates from public and private training institutions should undergo the training probably in the most underserved regions to fill the gaps and acquire essential technical skills.

Health workers should be paid reasonable salary with ability to earn bonuses based on the quality of care provided. A standardized cost accounting system needs to be rigorously piloted and established. The changes will be challenging and it is proposed that pilot studies to be conducted to inform policy changes. In conducting the studies nominated primary and tertiary health facilities can be selected as standard-bearers and centers of excellence. Capacity should also be built to provide models of improving governance, management, and ultimately performance.

Appendix A: Interview Guide-Health Financing in China

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

Number of years in Health Care Financing (Specify number of years in Health Insurance):

Questions

Note: (Researcher will often probe depending on informant's response.)

1. Briefly share three main challenges that the Healthcare reforms have faced after the attainment of universal health insurance coverage in 2011?

What are the major reform(s)/strategies to meet these challenges?

2. Briefly, share major reform that is being undertaken to protect the most vulnerable (those from poor regions, the elderly, and migrant workers)
3. Chinese public hospitals have been described as a quasi-private hospital. Briefly, mention key hospital management reforms that could ensure healthcare costs are controlled.

4. Briefly, share your view about how you think the private health insurance will impact the health insurance reforms.
5. Mention key lessons that countries with very low health insurance population coverage can learn from China.

Appendix B: Interview Guide-Human Resources for Health (HRH) in China

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

Questions

Note: (Researcher will often probe depending on informant's response.)

1. Mention key HRH successes, experiences and/or challenges, especially at primary health care level in China.
2. Briefly, share key HRH reforms, if any that are in place to address the mentioned challenges above.
3. Briefly share the main reforms in HRH training aimed at ensuring better performance at the primary healthcare facilities. Kindly give examples of regions, if possible.

4. Briefly, share HRH management reforms needed to reduce inter-regional inequalities in HRH income, retain health workers in rural and/or poor areas and attract new graduates.
5. Mention key lessons that countries aiming to achieve universal health coverage can learn from China in relation to HRH.

Appendix C: Interview Guide-Health Financing in Kenya

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

Questions

Note: (Researcher will often probe depending on informant's response.)

1. Briefly mention Kenyan's strategy in achieving universal health coverage in relation to health financing.
2. Government's commitment to financing health has been questioned, what is your opinion on the issue?
3. The reduction of user fees (in 2004) and the eventual removal of all user fees at primary healthcare level has been received with mixed opinions; kindly share your views on the policy.
4. Out-of-pocket health expenditure remains a barrier in access to health care in Kenya; please mention strategies or reforms to address the challenge.

5. The government has mentioned NHIF as the “driver” (Ministry of Health, 2009) of UHC in Kenya; kindly share your views.
6. The Health Sector Services Fund has faced numerous challenges; kindly share your perspectives on the policy.
7. The classification of Kenya as a lower middle-income country is expected to have an impact on donors contribution in health financing; kindly share your opinion on the issues (are there any measures in place to address potential impact?).
8. Health workers salaries have been a major issue in health service delivery in Kenya, as finance experts, what strategies or reforms have you proposed to address the problem?

Appendix D: Interview Guide-Health Financing (National Hospital Insurance Fund-NHIF) in Kenya

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

Number of years in Health Care Financing (Specify number of years in Health Insurance):

Questions

Note: (Researcher will often probe depending on informant's response.)

1. What barriers do you believe are behind NHIF inability to effectively expand population coverage among the informal sector workers?
2. What strategies, if any, are being implemented to address mentioned challenges?
3. The public opinion is that NHIF lacks transparency in funds management; kindly share your views and any reforms that might have taken place.
4. Poor quality of healthcare services among some of NHIF accredited facilities (mainly public) has been a major complaint. What is your opinion on the matter?

5. Kindly share your views about NHIF in terms of equity and financial protection.
6. Kindly share any reforms that are in place to ensure the poor and the vulnerable.
7. In your opinion are the policies effective? (Probe: how is effectiveness or impact measured?)
8. NHIF reforms have been towards enhancing benefits packages for both inpatient and outpatient services. Kindly share your opinions on acceptability and accessibility of the enhanced packages as well as sustainability (Probe: any cost control measures).
9. Briefly, mention NHIF short term and long term strategic plan.

Appendix E: Interview Guide-Human Resources for Health (HRH) Management Reforms in Kenya

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes, and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

Questions

Note: (Researcher will often probe depending on informant's response.)

1. HRH shortage is an acknowledged challenge in Kenya; please share your views on key drivers of the challenges.
2. Kindly share any strategies or reforms to address the challenges.
3. An increasing trend of HRH migrating from public to private sector is on the rise, what views do you have on this and how can the challenge be addressed?
4. Poor HRH management capacity has been cited as a key problem in HRH; please give your opinion on the issue.

5. Poor working conditions, low salaries, and inadequate training are key issues in HRH; kindly give your perspective on the issues and any efforts to address the same.
6. Inadequate management of HRH databases has led to poor quality data in monitoring and evaluating HRH trends. Kindly give your perspective on the issues.
7. New graduate students are reluctant to work in the public sector and some seek employment outside the health sector. Are there are reforms or strategies to address this?

Appendix F: Interview Guide-Human Resources for Health (HRH) Training in Kenya

Title: Putting Adequate Financial and Human Resources in Health Care for Effective Universal Health Coverage in Kenya: Lessons, and Experiences from China.

Procedure: Interview will last for about 60 minutes and be recorded if consent is provided. Confidentiality will be maintained unless the informant wishes his/her name to be mentioned in published reports resulting from the study. Participation is completely voluntary and informant has a right to withdraw participation during or after the interview. Where needed a translator will be present to assist the researcher.

Introduction:

Name:

Title:

Organization:

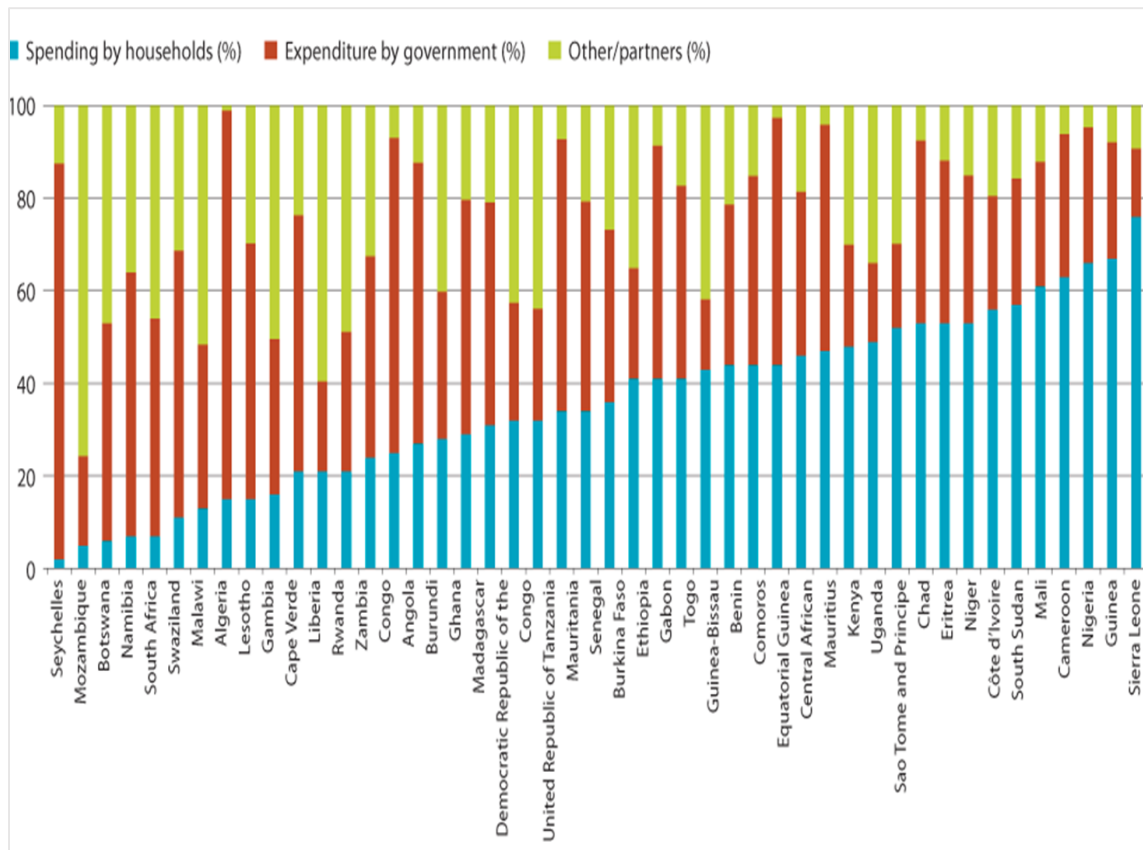
Questions

Note: (Researcher will often probe depending on informant's response.)

1. The last five years have seen an increase in a number of HRH training institutions. What impact do you think this has in the health labor market?
2. HRH training quality has been cited as a key challenge in HRH production. Kindly share your opinion, strategies or reforms on the matter.
3. Conditional scholarships are being provided to tertiary level students to address shortages and maldistribution of HRH. What are your views on the policy?
4. Inadequate human and infrastructural resources have curtailed innovations in HRH training; kindly share your views.

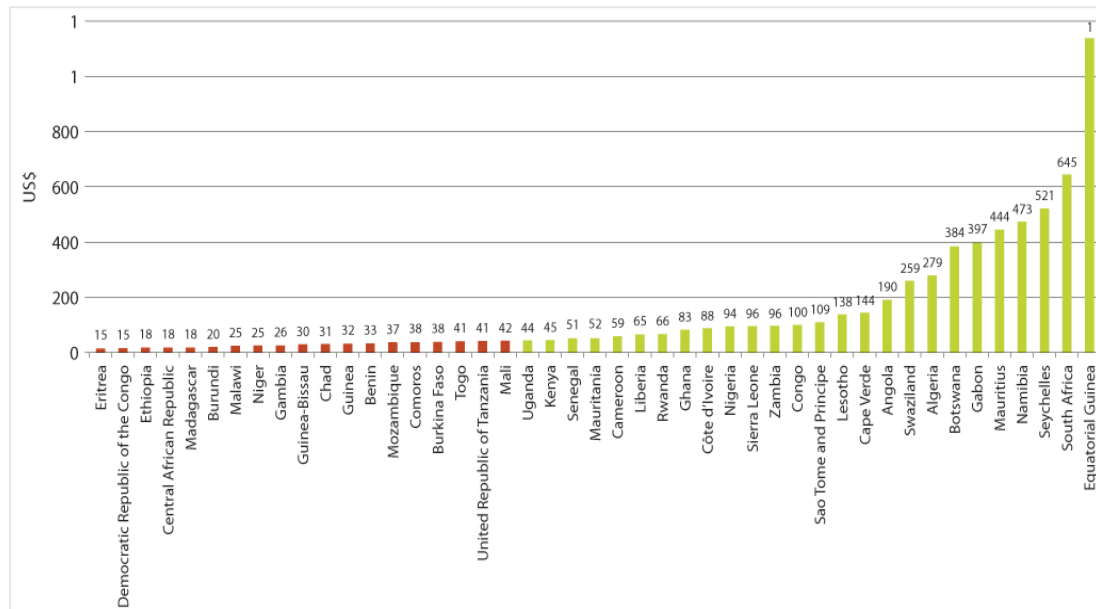
5. Static and outdated curricula have been cited as a major challenge mostly in tertiary training institutions; kindly share your perspective on the issue.

Annex A: Comparative Health Financing and HRH Data



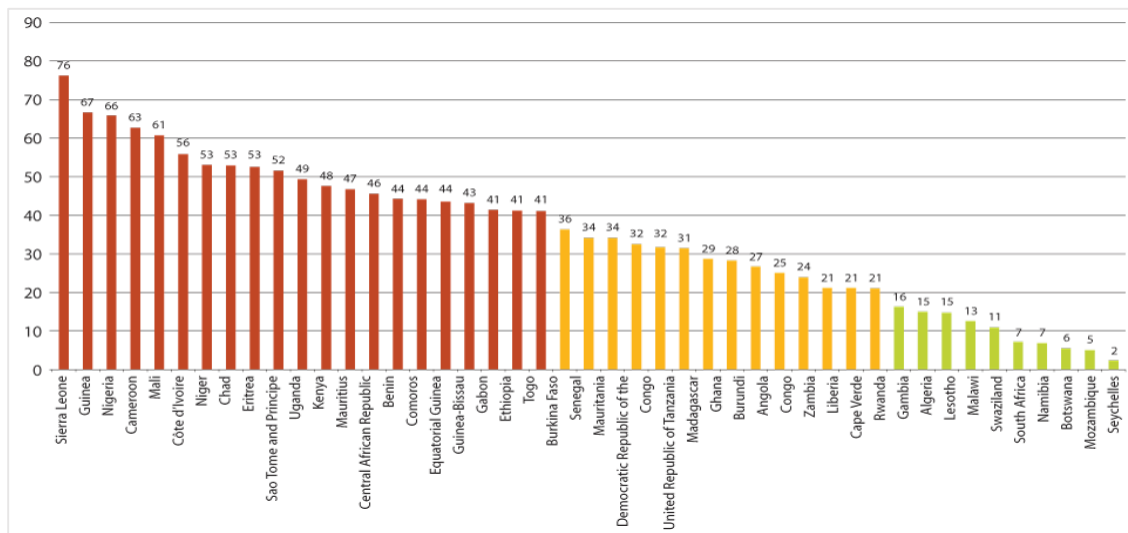
Source: (Musango & Otaii, 2015)- WHO Regional Office for Africa Report

Figure 13: Sources of funding allocated to health in African Region, 2012



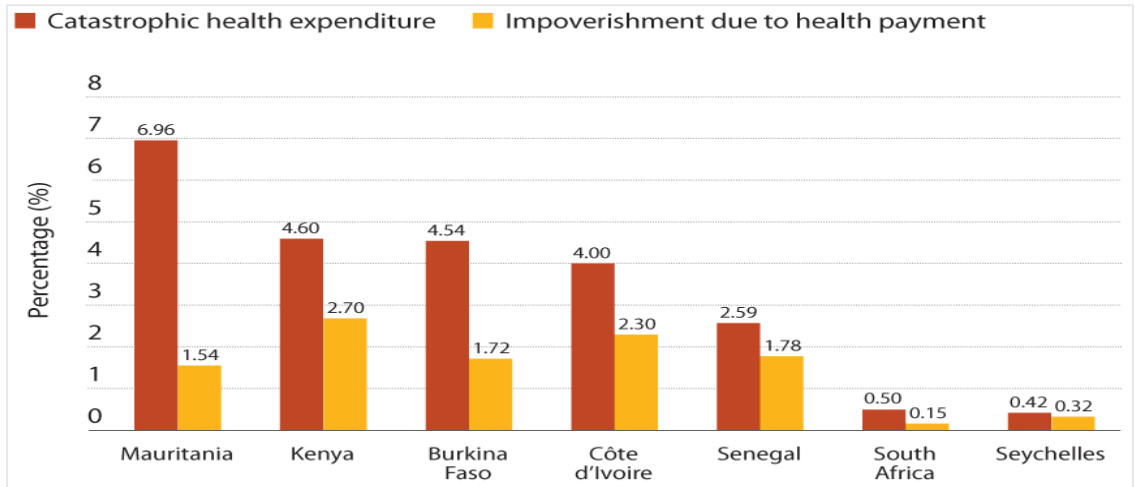
Source: (Musango & Otaii, 2015)- WHO Regional Office for Africa Report

Figure 14: Total Health Expenditure (THE) per capita in African Region, 2012



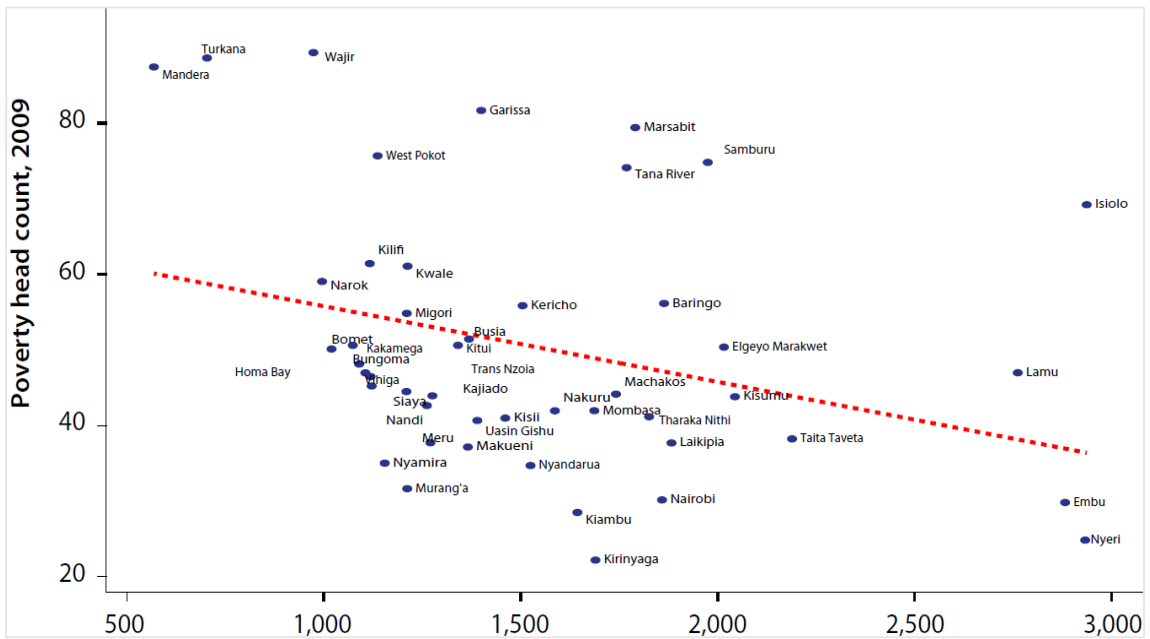
Source: (Musango & Otaii, 2015)- WHO Regional Office for Africa Report

Figure 15: Out-of-Pocket Expenditure as percentage of THE in African Region, 2012



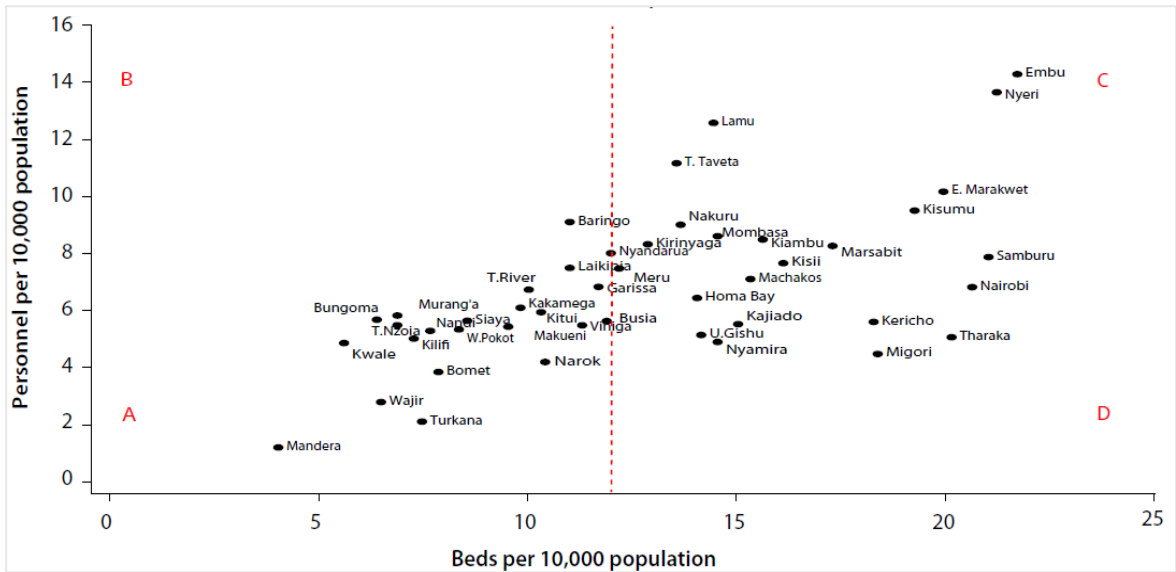
Source: (Musango & Otaii, 2015)- WHO Regional Office for Africa Report

Figure 16: Distribution of households facing catastrophic health expenditure payment due to capacity to pay in seven of African countries, 2012 (Musango & Otaii, 2015)



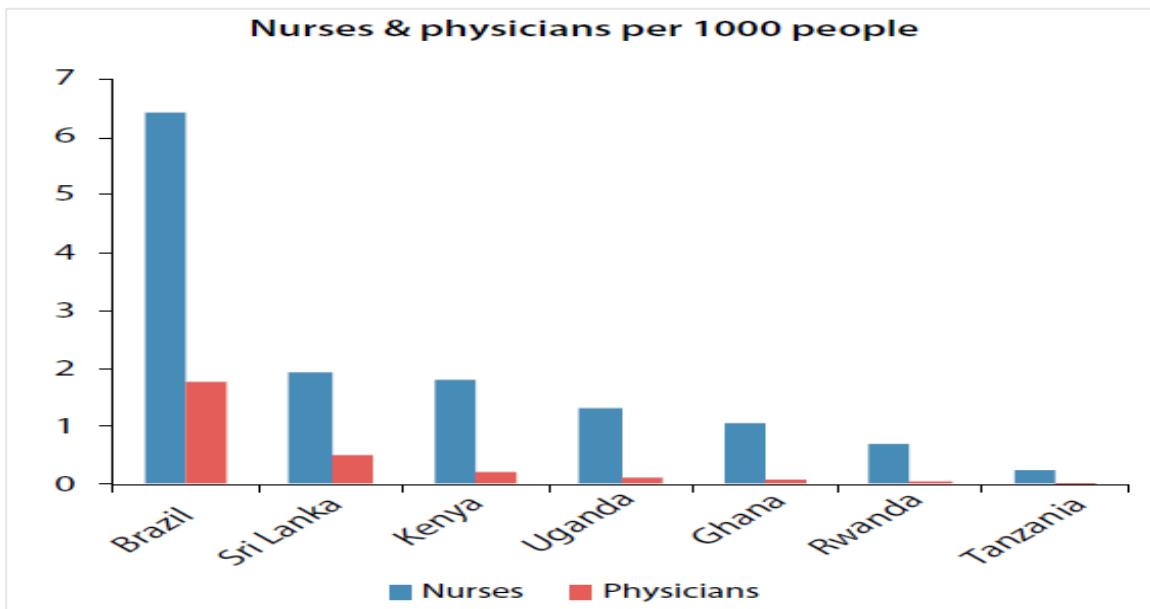
Source; Chuma et al, 2014 (A World Bank Report)

Figure 17: Correlation between poverty and health expenditure per capita in Kenya, 2011



Source; Chuma et al, 2014 (A World Bank Report)

Figure: Distribution of health personnel and total beds in Kenya by County, 2012



Source; Chuma et al, 2014 (A World Bank Report)

Figure 18: Total health personnel comparison among selected African countries, 2013

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