EXTERNAL AND INTERNAL FACTORS AFFECTING MANAGEMENT OF HOSPITAL DRUG FORMULARIES BY HEALTH FACILITIES IN NAIROBI

BY:

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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To my husband Newton for his invaluable support towards my studies and my sons Benjamin and Michael for their love, a source of peace and joy; thank you so much for enduring my absence during the study period.

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ABSTRACT

The use of formularies in drugs management is a widely accepted practice and Kenya has adopted the World Health Organization (WHO) drug formulary model to develop its own formularies or essential drug lists. This study explored factors affecting management of drug formularies by both private and public health facilities in Nairobi. Specifically, the study sought to determine the type of formulary in use by various health facilities in Nairobi as well as exploring extents to which both identified external and internal factors influence the management of drug formularies in the said health facilities. A cross-sectional descriptive study was employed where the researcher used stratified random sampling as well as convenient sampling to draw a sample of 189 health facilities from the population.

Results: There is 94% awareness of drug formularies, only 41.8% have participated in development of an Standard Treatment Guidelne or a drug formulary. 71.4% of respondents considered drug formularies very important. 73.5% of registered health facilities in Nairobi have adopted the Kenya Essential Ddrug List (KEDL). Out of the 73.5% above, 49.2% of the facilities have developed facility own drug formularies while 26.5% confirmed to not have used the national essential drug list at all. All ministry of health local authority facilities used the National essential drug list. Majority, 93.6% considered their formularies open while only 6.4% considered their formularies closed.

Drug promotion poses the greatest influence to drug formulary non compliance while insurance was considered the least external factor in Nairobi health facilities. Under internal factors, lack of pharmacy and therapeutic committees or its equivalent topped the most challenging internal factor affecting the drug formulary availability and compliance.

Conclusion: Drug formulary mangement in Nairobi health facilities is not fully developed and is also facing alot of challenges.

Recommendations: There is need to base all facilities-own formularies on set standards while exploration of higher levels of formulary management will ensure more benefits to patients. Individual facilities must be more proactive in ensuring they operate within the national medicine policies which is possible through self regulation. Pharmacy and Therapeutic Committee in facilities to be enforced and also for health centres and dispensaries on need basis.

List of Abbreviations

ASHP	American Society of Health-System Pharmacists
FDA	Food and Drug Act
GOK	Government of Kenya
HMO	Health Maintenance Organizations
IMCI	Integrated Management of Childhood Illnesses
KEMSA	Kenya Medical Supplies Agency
KNPP	Kenya National Pharmaceutical Policy
MDG	Millennium Development Goals
MSH	Management Sciences for Health
NASCOP	National Aids and STI Control Programme
NEDL	National Essential Drugs List
NGO	Non-Governmental Organization
PPB	Pharmacy and Poisons Board
PTC	Pharmacy and Therapeutics Committee
R&D	Research and Development
SPSS	Statistical Package for Social Scientists
STG	Standard Treatment Guidelines
UNICEF	United Nations Childrens Fund
WBP	World Bank Programme
WDR	World Drug Report
WHO	World Health Organization
WMS	Welfare Monitoring Survey

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

According to (Martin *et al* 2003), drugs dynamics in terms of variability and cost pose challenges to the pharmaceutical service delivery. This requires health systems to adopt drug formularies and policies to restrict irrational use of medicines. This is because a well-functioning health system must ensure equitable access to essential medical products, vaccines and technologies of assured quality,safety,efficacy and cost-effectiveness (WHO 2007). A drug is any substance in a pharmaceutical product that is used to modify or explore physiological systems or pathological states for the benefit of the recipient, (MSH 1997) while a drug formulary is a comprehensive list of every drug and therapeutic agent stocked by the pharmacy of a hospital and reviewed regularly to remain relevant to changing medication needs. The formulary identifies medications and medication-use policies used within a particular health facility influencing greatly the patient outcomes in terms of both clinical and economic sense. According to the American Society of Health-System Pharmacists (ASHP 2009), hospital medicine is the fastest-growing specialty in modern healthcare. In Kenya, there is increasing need for hospital pharmacists with clinical background to tackle the challenges of drug use in health facilities.

The first WHO Model Essential Drug List was published in 1977 following the formalization of the essential drug concept. Kenya therefater, made its own essential drug list in 1981 based on the published WHO model list (KEDL 2002). The 1981 drug list was later reviewed in 2002, twenty one years later. The national formulary (national essential drug lists) and standard treatment guidelines (STG) are developed, distributed and made accessible to facilitate standard provision of healthcare throughout the country.

The millennium development goals call for the improvements in health with access to essential drugs being among the health specific MDG indicators. Essential drugs are defined and selected so that the government makes a priority to ensure their availability in health facilities. The selected drugs are presented in a formulary or and essential drug list. The formulary and the

standard service delivery protocols for healthcare delivery are key for standardization of care, an important step towards rational use of medicines.

The WHO policy perspectives on Medicines indicates that it is critical to regulate all the actors involved in use of medicines to achieve rational use (WHO 2002). The report further argues that irrational use of medicines has become a serious global public health problem with serious health and economic implications since countries have not done much to promote rational use. Rational use of medicines refers to the correct, proper and appropriate use of medicines. It requires that patients receive the appropriate medicine, in the proper dose, for an adequate period of time, and at the lowest cost to them and their community (WHO 2010). Drug formularies are management tools that can be employed effectively to promote rational use of medicines.

The Government of Kenya recognizes health as a basic right of the people and that drugs form an important and essential part of this health care. Currently, the Kenyan government has proposed a National Social Health Insurance Fund and reimbursement of pharmaceuticals will be an important factor in the proposed scheme. According to system (Zenda et al. 2002, insurance reimbursement schemes must regulate the number and types of drugs to be managed by a social security system and the drug list forms the core of most reimbursement regimes. In this case prescribing within the KEDL will need to be reinforced. Such a list regulates the institutional demand for drugs, and drug selection must be based on clearly established criteria of quality, efficacy, cost and therapeutic priority. The list includes cost-effective products and eliminates the least cost-effective drugs.

The organization and coordination of the medication process as per the laid down policies ensures that the desired treatment outcomes are achieved through management. Management therefore, is the act of getting people to achieve desired goals in an efficient and effective manner. Management seeks to achieve optimal outcomes from a system. Drug formulary and treatment guidelines management aim at achieving efficiency in the medication use process. They have been identified as a means to achieve quality improvements (David *et al* 2007) since they are management tools and have become the backbone for many emerging expenditure management policies, (Morgan 2007); their content, compilation, format, simplicity and

comprehensiveness with regular and timely updates must be the primary goal of the Pharmacy and Therapeutic Committee (PTC). The Pharmacy/Drug and Therapeutics Committee (PTC/DTC), or its equivalent, is an essential component of a health care organization's drug selection and drug use process responsible for managing the formulary system. Prudent management ensure that any formulary developed, adapted or adopted are consistent with national essential drug lists, that all prescribers have a copy of the chosen formulary, make provision for review and updating of any guidelines that are developed, educate all prescribers in their use, follow-up and give feedback on whether prescribers are adhering to the stipulated formulary. The implementation processes therefore aims to develop, publish, launch, disseminate, train and supervise updates with the recognition that the national formulary is an important component of a country's pharmaceutical policy.

1.2 Statement of the problem

The WHO has advocated for employment of the drug formulary and essential drugs concept to ensure rational use of drugs. Many developing countries have developed National Essential Drug Lists using the WHO model Formulary due to the perceived benefits. This guide clinicians in prescribing the best quality, safest and most effective drugs for the patients but literature show that the full realization of this potential has not been absolute. Currently there is increasing availability and high costs of pharmaceutical products in the Kenyan market. This is an important step towards access to medicines, however control is required to ensure patients are protected. Rigorous drug promotions and advertisings, untoward effects of modern potent drugs and biotechnology as well as high level of market liberalization have posed challenges to the drug formulary management process.

1.3 Justification

The pharmaceuticals constitute up to 20-50% of the health care budget in developing countries (WBP 2009), this underscores the need to ensure that limited funds available are not spent on ineffective, unnecessary or even dangerous drugs. Secondly, the WHO policy perspectives on Medicines, 2002 acknowledges that irrational use of medicines has become a serious global public health problem with serious health and economic implications. Drug formularies are a crucial management tool and offer a means to achieve rational drug use.

The study will benefit the hospitals by giving insight into institutional problems in managing drug formularies to maximize medication benefits and identify strategies to improve them. The research will contributes to the strategies towards ensuring access to essential medicines. The government as a regulator will benefit from the data on policy assimilation by the various sectors especially the private sector, which, though included in public policies, regulation remains a challenge in countries where regulatory systems are weak The other players such as the pharmaceutical companies, insurance companies and other stakeholders will realize their role in this important issue. The study will also increase the knowledge of use of drug formularies to the academicians and the researchers.

1.4 Research question

1. What types of formularies are in use in various health facilities in Nairobi?
2. To what extent do the identified internal factors affect the management of hospital drug formularies in Nairobi health facilities?
3. To what extent do the identified external factors affect the management of hospital drug formularies in Nairobi health facilities?

1.5 Objectives

Broad objective

To find out the extent to which identified factors affect management of drug formularies by health facilities in Nairobi

Specific objectives

1. To determine the type of formulary in use by various health facilities in Nairobi
2. To explore the extent to which identified external factors affect the management of drug formularies in Nairobi health facilities
3. To explore the extent to which identified internal factors affect the management of drug formularies in Nairobi health facilities

CHAPTER TWO: LITERATURE REVIEW

2.1 Drug formulary as a concept

The formulary system originated from the Joint Commission on Accreditation of Hospitals in 1950. It was developed to encourage hospitals to ensure quality medical care and at the same time controll the costs. A formulary system is the ongoing process through which a health care organization establishes policies regarding the use of drugs, therapies, and drug-related products and identifies those that are most medically appropriate and cost-effective to best serve the health interests of a given patient population. The concept depicts the policies, procedures, guidelines for use and criteria for evaluation of medications approved for use in a certain institution. (Favero 2008) argues that although the formulary is not a guarantee for high quality medical care, the objectives of rational prescribing, effective utilization and control of costs would be very difficult to achieve without it.

National medicine policies guide the practices in health institutions and hospitals may adapt or adopt these policies or develop their own hospital medicine policies using them. Drug formularies in use by health facilities must be within the national medicine policy. A national medicine policy is a commitment to a goal and a guide for action which expresses and prioritizes the medium to long-term goals set by government for the pharmaceutical sector, while laying down the strategies for attaining the goal (Chisale 2005). Drug supply kits are considered the extreme examples of the formulary concept (MSH 1997).

Drug formularies and Drug selection

According to World Bank, pharmaceuticals impact heavily on health, government, household spending and on the health systems (WBP 2000). It is therefore important to select and prioritise some drugs to sustain accessibility. WHO training manual 2004 stipulates that drugs are selected based on existing policies, patterns and prevalence of disease, quality and type of care provided, and finally the availability of human resources to use and manage them. The criteria for drug selection also considers safety, effectiveness and quality, issues of cost as well as availing drugs to treat common diseases and ailments. However, opportunities for bias during selection of drugs into the formulary may arise, requiring effective management.

Drug Formularies and Pharmacy and Therapeutic Committees (PTC)

The Pharmacy Therapeutic Committees (PTC) evaluates the clinical use of drugs by developing policies for managing drug use and administration through the formulary system. The committe develops and approves policies and procedures on medication use in the institution (Taylor & Taylor, 1994 p. 390). They oversee drug selection processes and manage the drug formulary. The drugs available at major health institutions are approved by the PTC.

The other functions of PTC include; to establish policies for promotional activities by drug company representatives and evaluate their promotional material, review and take action on all non-formulary drug use; prohibit use or distribution of samples of non-formulary products; establish procedures and approved product lists for therapeutic substitution; provide copies of the formulary list at the point of use, involve medical staff in all impending formulary decisions as well as to advertise and promote formulary changes. The functions of the PTC are mandated by the Joint Commission on Accreditation of Health Care Organizations.

The primary objectives include enhancing communication between medical staff and pharmacy. The committees are considered a key hospital management intervention in the WHO Global Strategy to contain Antimicrobial Resistance in hospitals, (WHO 2001). The Kenya national Drug Policy (KNDP 1994 p.10) clearly spelled out that each health institution must have a PTC that will be responsible for overseeing drug selection and formulary management and that all drugs available at the major health institutions must be approved by the PTC, however, many hospitals in resource-constrained settings lack a PTC or face challenges with regard to their efficient management.

Benefits of drug formularies

In ideal cases, the hospital pharmacy should be able to stock the whole range of drug molecules to treat any disease as well as different brands; both originals and generics with varying prices to meet each individual patient's need. It is however not feasible to stock every available drug, a lot of resources would be incurred in acquisition, supplies management and storage, while recognition, reporting and monitoring adverse drug effects would be a nightmare. (Goel & Kumar 2007) points out that drugs are important, powerful and expensive. This way decisions

are made to prioritize and select only a few drugs to be used - drug formulary list. It is important as it prevents unnecessary spending to stock medications that differ only slightly from one another. Formularies allow for a systematic prioritization of drug needs especially with limited budgets. They help greatly in identifying medication errors and adverse drug effects. Formularies promote consensus among key players in the drug management cycle, as they are generated under the multidicsiplinary environment of a PTC.

Controversies on Drug formularies

To make the prescribers to consider the formulary when making treatment decisions can be a challenge as pointed out by (Lehmann *et al.* 2007). The drug formulary as a tool is surrounded by misconceptions. (Holloway & Green 2003) describes the formulary process as the cornerstone of good pharmaceutical management and rational drug use. (Wolper 2004) acknowledges the importance of formularies and describes it as a general way to manage and limit drug use. He cautions that recent studies on costs associated with a tightly controlled formulary have demonstrated a narrow focus on drug costs and can lead to cost growth in other areas. (William & Torrens 2008), also echoed this concern that strategies to contain pharmaceutical costs have led to less access to needed medications for patients. However, (Rucker 1998) clearly eliminates this doubt first by stating that the primary goal and objective of the formulary is to sanction only those drug products with indices of efficacy and safety, the other additional benefits of controlling costs, drug management convenience and administrative benefits being secondary but significantly important as well. Greater emphasis then on cost control especially by insurance firms brings confusion on the role of a drug formulary. As argued by (Rucker 1998), the complexity lies in the varying responsibilities and often-false expectations assigned to the formulary concept. Other misconceptions and myths have prevented the realization of benefits associated with use of selected drug formularies by prescribers. Such myths include feelings that formularies interferes with clinical freedom. (Lehmann *et al* 2007) noted that an exclusive focus on cost containment and the scrutiny by non-physician personnel used in such processes can elicit resistance by physicians who feel that PTC are responsible for diminishing physician autonomy and authority.

Despite this, the aspect of treatment cost, or cost-effectiveness control should not be under-rated. The World Health Statistics 2009, revealed that in developing countries, medicines in the private sector cost an average 650%, and in the public sector, 250% more than the international reference prices, (WHO 2009). This shows a great need for seeking drug cost solutions. Besides, prescription of medicines is based on both scientific and economic sense, (Medawar 1984) while price is considered a major barrier between people and medicines (Chisale 2005). The Principles of a Sound Drug Formulary System clearly states that cost factors should be considered only after safety, efficacy, and therapeutic need otherwise basing drug selection solely or greatly on price is purely unethical. Nevertheless, it has been argued that a formulary is a tool, a management tool and how it is used determines the overall judgement of its value.

2.2 Drug formularies and standard treatment guidelines

The formulary process is the procedures towards developing an essential drug (formulary) list, a set of Standard Treatment Guidelines (STG) and a formulary manual, (MSH 1997). It is argued that strict adherence to a formulary list alone is not a guarantee to improved treatment practice if drug selection is not based on STG. STG are described as guidelines for disease management and they define standard therapies for health problems. They offer consistency and a standard approach to patient. Standardized care ensures the physician can concentrate on reaching the correct diagnosi. It also makes drug demands more predictable. The drugs in the standard treatment guidelines are extracted to form the formulary list. Treatment guidelines contain information on clinical features, diagnostic criteria, non-drug and drug treatments (first-, second-, third-line), and the referral criteria. The guidelines usually reflect the consensus reached by the PTC on the optimal treatment options within a health facility or health system, (Holloway & Green 2003). The KEDL and STG are harmonized to ensure that medicines in the KEDL are consistent with disease conditions in the treatment guidelines and assessment of treatment guidelines prescribing practices can send light on use of the KEDL.

Contents of the drug formulary and Drug Formulary Reviews

The drug formulary contains a list of the drugs; monographs with information on each drug, such as uses, dosages and warnings; and a general reference section with information that might be helpful in treating patients. Some formularies may have more drugs than others depending on level of expertise; some are detailed, while some may only be limited to a mere list.

A formulary should be reviewed regularly to remain relevant to the prescribers due to changing medication therapies. Additions and deletions from the formularies are indicated by accessing clinical merits, gathering relevant drug information from literature as well as own research so that additional benefits are weighed against existing molecules. A physician can request the addition of a drug to the formulary. The drug is compared with similar agents present on the formulary in terms of effectiveness, side effects and cost. New drugs of appropriate quality may be rejected if products on the formulary already cover the medical needs, qualitatively and quantitatively.

Types of drug formularies

There are several types of formularies, four of which are used predominately; open, closed, partially closed and incentivized. The open formulary provides coverage to all drugs offering few restrictions but keeping to a list of preferred medications that are less expensive. Prescribers are usually encouraged to prescribe from the preferred list, with medications out of the least attracting out of pocket expenses. In contrast, closed formularies do not offer insurance reimbursements for any medications out of the recommended list. Insurance firms have been found to greatly utilize drug formularies especially in controlling expenditures on drugs. In the government, the formulary and treatment protocols have helped to standardise health care delivery, for example the KEDL is used to supply medicines in the government health facilities and patient have to purchase any medicines prescribed outside the hospital supplies from private outlets. The other types of formularies are partially closed and incentivized formularies, the latter employing a strategy of promoting use of the preferred medications by offering an economic reward of sorts to the benefit of the patient, the doctor or the pharmacist. Formularies may also be described as managed, positive or negative formularies. A negative formulary simply presents the prescriber with a list of medications that are not covered. Drug formularies may also be categorised to be more specific to cohort needs e.g. paediatric, neonatal or geriatric formulary. The type of formulary can pose a great effect to adherence. Where national formularies are not available, regional P&T committees could come to different conclusions about the value of similar drugs, leading to different formularies and coverage (Neumann 2004) thus underscoring the importance of national standard formulary or drug list. It is however important to understand

how well a list such as the KEDL is adaptable to the whole region in both the public and the private sector.

Adoption of other drug formularies

A hospital may develop its own drug formulary or decide to adopt existing ones e.g. the national formulary or the WHO formulary. Example of formularies includes British National Formulary (BNF), the WHO formulary Model, and Kenya National Formulary or Essential Drug List.

2.3 Empirical literature on Drug formularies

Drug formularies have become widely accepted as drug management tools. (Navarro 2009 p. 324) alludes to the fact that the United States hospitals started developing drug formularies in 1920s to eliminate therapeutic duplication and by 1960s virtually all hospitals in US had established formulary system. According to (Saini 2011), the United States, UK and other countries have authentic National Formularies that reflect their national drug policy and are considered reliable guides by the practitioners of modern medicine for the purpose of prescription of medicines. The British National Formulary, a publication of the British Medical Association and the Pharmaceutical Society of Great Britain is accepted by the Government as a standard reference book and as an authority as far as the formulary is concerned. Unfortunately in India, neither the Government nor professional organisations have been able to bring out a National Formulary so far. The existing private commercial publications have included in their list many drugs that have been banned by the Government of India. They also contain many irrational combination drugs and sufficient emphasis has not been given on essential drugs. European nations are active in regulating prices and the pharmaceutical industry. The UK, like other European countries, employs a formulary list where most drugs are covered, except drugs that are available over the counter (OTC), such as vitamins and cold remedies, (Sasini 2001). Germany employs a negative list for drugs, with all products that are not on the negative list being eligible for reimbursement. The French also use the reimbursement list to control the pharmaceutical industry, (Nguyen-Kim et al. 2005). Actually drug prices have been regulated in France since 1945, and controls have traditionally been aimed at controlling both price and the reimbursement rate.

Most developing countries have adopted the WHO formulary model to develop national drug formularies or essential drug lists. In this regard, country's pharmaceutical situations with regard to the implementation of Essential Drug List (EDL) are assessed based on the WHO rational drug use indicators in the pharmaceutical sector e.g. the percentage of drugs prescribed from National Essential Medicines List or Formulary. Reviewed literature showed a wide acceptance of the essential drug concept in different developing countries where several challenges as well as good practices were noted.

A study conducted on Pattern of prescribing practices in the Madhya Pradesh, India, 2008 gave the percentage of drugs prescribed from EDL of Madhya Pradesh (India) as 66.9%, which was associated with unavailability of copies of EDL. The drugs prescribed by generic name was 48.5%, ideally it should be 100% according to WHO, (Bhartiy et al. 2008). In comparison, for Pakistan 70% of the prescribed drugs were from the EDL while in Bangladesh and Burkina Faso it was 85% & 88% respectively. In Sharjah and Nigeria all prescribed drugs were from EDL of their countries. The availability of the copy of the EDL was the main reason for the observed high numbers of drugs prescribed from the EDL in areas with high rates. This implies that dissemination of relevant documents plays a big role.

Similar study in Public health facilities in Kano, Nigeria 2010 gave percentages of drugs prescribed from NEDL as (79.6-80.8) which were lower than the values (96-98%) obtained by a previous study in Delta and Edo states in southern part of Nigeria. Prescribers argued that the low levels were because not all the drugs for various diseases were available in the NEDL and that resistance had developed to some of the drugs on the list (Chedi, Abdu-aguye & Kwanashie 2010). Formularies review and update embraces the changing medication practices increasing acceptability by prescribers.

A study to assess the drug prescribing patterns at village health clinics in rural areas of Western China gave the percentage of drugs prescribed by generic name as 64.12%, and the percentage of drugs prescribed from the National Essential Drug List as 67.70%, (Dong, Yan, & Wang 2011). The study provided some evidence of irrational use of drugs to a great extent in rural areas of Western China.

A study by Naseeb and Nasser 2005 on drug prescribing indicators in primary health care centres in Bahrain, Saudi, indicated the percentage of drugs prescribed by generic name as 14.3%, and those from the National Drug List as 99.8%. This implies that even when the EDL is followed not all aspects of the essential drugs concept are followed and generic prescribing was quite low. All prescribers should be obliged to prescribe by generic name to give the patient a choice of brand they want to use at the cost that suits them.

A study carried out in health centres of Khartoum state in 2009 to assess the antimalarial drug prescribing and dispensing practices of health care providers showed poor adherence to stipulated guidelines. Adherence to national treatment guidelines for 720 patient's prescriptions sampled was only 278 patients (38.6%), (Mannan, Malik and Ali 2009)

Benefits associated with the use of drug formularies especially cost related benefits are not always achieved despite their development. A study to evaluate impact of treatment guidelines on treatment costs using the WHO-UNICEF integrated management of childhood illness guidelines (IMCI) in Western Kenya gave an average cost of actual drugs prescribed for every sick child as US$0.44. Had the children been treated using the prescribed guidelines, the cost would have ranged from US$0.16 to US$0.39 per patient. The study further showed that 76% (223 out of 295) of the prescribed antibiotic phenoxymethylpenicillin syrup were for cold and coughs despite the fact that treatment of coughs and colds with antibiotics is not recommended in the Kenyan or in the IMCI guidelines, (Boughler., Lee and Odhacha 1999).

A local baseline study undertaken prior to nationwide distribution of Artemether-Lumefantine (AL) in Kenya in December 2007 by the Pharmacy & Poisons Board and Division of Malaria Control found out that there was a widespread availability of non-standard therapies even in the formal public sector. Only 27.5% of drugs in the study were recommended by the current malaria treatment guidelines. The study also shed light to regulatory weaknesses with availability of unregistered products in the market such that of the anti-malarial products found in the market, almost half (42.2%) were unregistered, (MOH 2007). This implies that formularies and STG

where they exist may not be respected even by the public sector who are the major stakeholders (Chisale 2005).

2.4.1 External factors affecting drug formulary management

Regulation and legislation at national level

Regulation and legislation concerns policies while pharmaceutical policies deal with important issues impacting on the pharmaceutical sector which include the development, provision and use of medicines in health systems (Brudon, Rainhorn & Reich 1994 pg 19-24). Such important directives continue to protect the consumers from both regional and international trends that affect pharmaceuticals by ensuring that consumers reap maximum benefits. The pharmaceutical policy also guides the development of the national essential drugs lists that borrows widely from the WHO essential drug list as well as the development of treatment protocols. The development of these important documents at the national level is not enough. Reinforcement of their use involving a comprehensive implementation through publishing, launching, disseminating, training and supervising their use with provision of regular and timely updates are critical. To achieve this, support of health facility PTC both in private and the public sector by the National Medicines and Therapeutic Committee is important.

The reviewed KNPP 2008 acknowledges that implementation, monitoring and evaluation of the previous policy were minimal which contributed to the failure of realizing its goals. Kenya's Essential Drug List and STG were lastly updated in 2002. According to WHO, nearly all developing countries publish an essential medicines list, despite this, availability of medicines in facilities is poor (WHO 2009). About 30 developing countries were surveyed and average medicine availability was 63% in private sector (Kenya 72.4) and 35% in public sector (Kenya 37.7), the public sector being the poorest. When drugs are not available, prescribing as per the formularies and treatment guidelines can be compromised especially in the public sector.

Drug Promotion

Drug companies provide new and sometimes better medicines but not always, however they may market these products extensively. Minor changes to drug products such as re-branding or re-formulating to increase competitiveness may see a hospital incur extra costs at no added

therapeutic benefit where adequate evaluation is not done, (Medawar 1984). Due to such considerations, requests to use non-formulary drugs should be monitored by the PTC and action taken. The WHO defines drug promotion as "all information and persuasive activities used by manufactures, the effect of which is to induce prescription, supply, purchase and/or use of medicinal drugs'. Promotion is useful as a source of drug information however; formulary committees need to conduct independent research on medications to support existing information.

(Norris *et al* 2005) have argued that drug promotion strongly influences prescribing behaviour though doctors underestimate this influence. They cited interventions that have been found to be effective in countering influences of drug promotions as government regulation, training of students (both before and after graduation), media exposure of abusive promotions, and free and abundant provision of reliable non commercial therapeutic information to professionals and the public. Provision of reliable therapeutic information to health workers is an important responsibility of the PTC. (Busse & Schelette 2007) argue that regulating public advertising of drugs can help regulate the pharmaceutical market and minimize cost increases. In Kenya, lack of regard for national STG and EDL in some private establishments continues to hinder the rational use of medicines due monetary incentives from drug manufacturers and their agents, (Tetteh, Njoroge & Wambua, 2006, p. 3).

Insurance and health maintenance organizations (HMO)

The health insurance companies have used formulary systems to help control costs while providing safe and effective medications. They have a listing of brand name and generic medications that they prefer while medications not on the list are considered non-formulary and their use may not be included in the medical cover otherwise justifications have to be made. Even highly effective drugs may be considered non-formulary if they are new or if they are too expensive. Prescribers may be allowed to deviate from listed drugs and this greatly depends on the type of formulary in use while the procedures required to prescribe "off-formulary," vary in different settings. Changes in insurance or reimbursement systems impacts on the drug formulary management.

2.4.2 Internal factors affecting drug formulary management

Institutional policy on drug use

Individual institutions use the national drug policies to guide their practices. The national guidelines are adopted or adapted as the institution may find appropriate. Each individual health facility is responsible for seeing to it that national policies are upheld in their practices. They are responsible for setting up administrative procedures relating to drug use and availability or lack of PTC in health facilities highly depends on the institutional policies. Management support, in terms of finance, information systems, and human resources ensures that the drug management process function as a cycle and this organizational infrastructure provided impacts on drug management outcomes.

Reinforcement by the management

Creation of the PTC is a step forward while empowering the committees to perform its functions and remain relevant is of ultimate importance since a health facility may have existent but dormant PTC. Hospitals with vibrant PTC are likely to experience better transparency and good governance for medicines. This also acts as a self-regulation process in the private sector where government regulation may be remote especially with market liberalization.

Appropriately formulated PTC

The individuals in the committees must have the necessary experience, competence and expertise in a range of medical specialties. In large institutions, PTC constitutes a range of members including physicians, pharmacists, clinical officers, nurses, administrators and quality-assurance coordinators. The size and composition can affect the efficiency of the committee. The lack of an effective formulary process especially in membership selection criteria may lead to a non-respected prescribers' formulary. When the process is participatory especially with a multidisciplinary PTC composition, this problem can be minimized. The terms of reference are clearly spelt with all stakeholders having clear understanding of their roles and functions. According to WHO, adherence is also best promoted by involving end users in their development, training on use, supervision and medical audits (WHO 2001).

Document updates and reviews

There are challenges towards development and management of the drug formulary; the development process can be tedious and difficult, time-consuming, and requiring human and financial resources. With financial implications, document reviews may take long than acceptable forcing prescribers to use out-dated information. They also require regular update to avoid becoming obsolete while inaccurate or incomplete guidelines may provide wrong information to prescribers.

Dissemination and awareness creation

Dissemination of these documents and training on use are critical. The process should consider available expertise (level of prescribers and their diagnostic skills), existing infrastructure, hospital facilities, monitoring capacity and the affordability and availability of the drug of choice in the market. The KEDL and STGs are harmonized to ensure that medicines in the KEDL are consistent with disease conditions in the treatment guidelines. In some cases, copies of the national treatment guidelines might not be present for different reasons, (Tetteh, Njoroge, & Wambua 2006)

Education and training

Lack of knowledge, skills and expertise contributes to inefficiency of systems. A study conducted by (Alam *et al* 2006) in Western Nepal in a tertiary care teaching hospital showed that only 40% of the prescribed drugs were from the essential drugs list of Nepal and only 15% of drugs were prescribed by generic name. The problem was attributed to lack of awareness about essential drug concept and essential drugs list emphasising the importance of training and awareness creation.

Another study on promoting appropriate drug use in missionary health facilities in Cameroon showed that STG have little influence on prescribing practices and only 11.3% of the treatments prescribed were in accordance with the STG (Groom et al. 1998). The study acknowledged that though standard treatment guidelines and essential drugs lists are an important step, these measures by themselves are insufficient to reduce inappropriate prescription practices. They suggested training and supervision as the most effective means of encouraging clearly defined

and simple prescribing objectives. The study agrees that the proliferation of greater quantities and varieties of pharmaceuticals in developing countries requires promotion of appropriate use.

Medical audits and supervision

Management of the formulary processes must incorporate the monitoring and evaluation aspects to achieve meaningful results. The Pharmacy and Therapeutics Committees are therefore responsible for supervising audits of the prescribing and dispensing habits of all stakeholders to encourage a continued and sustainable rational use of drugs (Groom et al 1998). They plan and monitor the success of suitable interventions to improve the performance and cost effectiveness of health care delivery.

2.5 Conceptual Framework

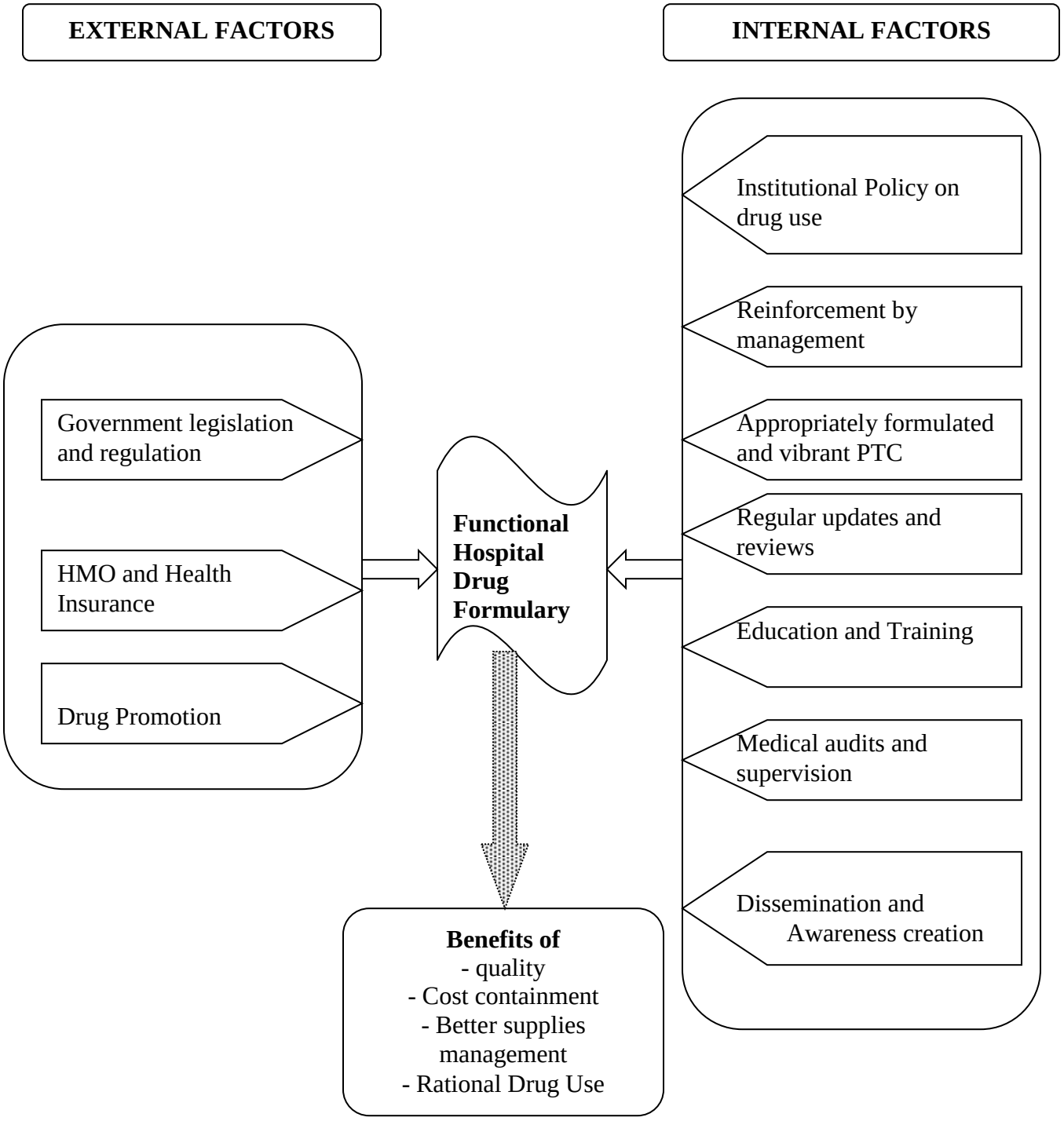


Figure 2.1 Conceptual Framework

The conceptual framework mainly reflects the required interventions necessary to ensure drug formularies are effectively managed in health facilities. They are derived from WHO supported interventions and are supported by the reviewed literatures. The factors recognise the importance of government regulation and legislation that guides national health priorities through policies. Accordingly, health facilities have a big role to play, with a lot of activity at the facility level since the implementation process takes place at this level.

2.5.1 Study variables

Dependent variable – Management of drug formularies at health facilities;

Independent variables - External factors; insurance, drug promotion, legislation

-Internal factors; Institutional policies, Reinforcement by management, appropriately formulated PTC, Formulary update and reviews, dissemination and awareness creation, Education and training, Supervision and medical audits

2.5.2 Operational definitions of study variables –

Table 2.1

Operational definitions of study variables

Variable	Operational Definition	Scale of Measure
Sex of respondent	Male/Female	Binary
Age of respondent	No. of years	Continuous
No. of years in practice	No. of years	Continuous
Occupation	Nurse, Pharmacist etc	Nominal
Awareness of drug formularies	Yes/No	Binary
Accessibility to documents	Yes/No	Binary
Practices	Experiences / challenges at facility level	Categorical

CHAPTER THREE: METHODOLOGY

3.1 Study setting

Nairobi Province was founded in 1899 and lies on the Nairobi River with an elevation of 1661 m (5450 ft) above sea level. It is the smallest of the eight provinces in Kenya and is entirely urban. Nairobi is the most populous city in East Africa and had a population of 3,138,369 according to the 2009 population and housing census highlights and a poverty preference of 50% according to the Welfare Monitoring Survey (WMS) 1997. Administratively, Nairobi County has 9 districts. The city has numerous healthcare institutions (414 registered health facilities as at Feb 2010, mapped under the 3 administrative districts used previously) varying in size, ownership, complexity of services offered as well as degree of specialization. Most of the manufacturing industries, importers and distributors are based here offering good access for hospitals to pharmaceutical products. Nairobi was purposefully selected for convenience, familiarity with the area, perceived problem and most importantly the accessibility that would reduce the entire costs of the study.

3.2 Study design

A cross-sectional descriptive study design was used to find out the extent to which identified factors affect the management of drug formularies in selected health facilities in Nairobi.

3.3 Study population

According to the Kenya Health facilities 2010, Nairobi has approximately 414 registered health facilities including private medical enterprises, community based, faith based, non-governmental organizations, ministry of health, parastatals as well as local authority healthcare institutions. A health facility refers to a place for the definition and treatment of human illness involving patient contact for diagnosis and treatment provided by health professionals; encompassing a wide range of types, from small and relatively simple medical clinics to large, complex, and costly, teaching and research hospitals. For purposes of the study, the population were all the registered health facilities in Nairobi using drugs to treat and offer health services.

Table 3.1

Study population

	OP			MOMS			PA			PME			FBO			NGO			LA			COM			T
	E	W	N	E	W	N	E	W	N	E	W	N	E	W	N	E	W	N	E	W	N	E	W	N	
HO	5	13	9	-	2	1	-	1	-	1	-	-	2	2	1	-	-	-	1	-	1	-	-	-	39
MC	32	9	16	-	-	-	-	-	-	13	-	-	20	1	4	1	4	1	5	-	7	-	-	-	113
H/C-	-	20	8	1	1	3	-	-	-	-	-	-	-	2	2	-	5	-	9	4	8	-	2	-	65
DP	2	13	27	2	6	2	2	4	1	-	-	-	3	14	6	-	11	6	2	9	8	1	1	1	121
NH	-	-	16	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	18
DC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
T	39	55	76	3	9	6	2	5	1	15	-	-	25	20	13	1	21	7	17	13	24	1	3	1	357

KEY: OP- Other private Health facilities, MOMS- Ministry of Medical Services, -PA-Parastatal, PME-Private Medical Enterprise, FBO-Faith Based Organization, NGO- Non-governmental Organization, LA-Local Authority, COM- Community H/facility, HO-Hospital, MC-Medical Clinic, H/C-Health Centre, DP-Dispensary, NH-Nursing Home, DC-Dental Clinic, E- Nairobi East., W- Nairobi West, N- Nairobi North, T- Totals.

3.4 Inclusion/Exclusion Criteria

All non-operational facilities (4), disciplined forces facilities (17), and registered stand alone VCT centres (30), were excluded from the study; out of 414 registered facilities, 357 qualified for sampling (Figure 3.1).

3.5 Sample size Determination

The sample size was determined using the formula for (Israel 2009).

$$n = \frac{N}{1+N(e)^2}$$

n = is the minimum desired sample proportion

N = total target no. of the population = 357

e = Level of precision **(**sampling error*)* at 0.05

$n = 357 / 1+357(0.05)^2 =$ 188.63 i.e. 189

3.6 Sampling procedures/Techniques

The sampling frame was the list of registered healthcare institutions in Nairobi. Samples were stratified in a two stage with first stage stratified by public and private, the second stratification by various categories within the two main strata. The list was also divided into distinct groups of the three districts for geographical distribution and proportionate sampling was done to ensure fair representation using probability proportional to size within the strata. The weighting for health centres and dispensaries was lower as they may not have the characteristics of interest. Categories with less than 3 items were conveniently sampled without weighting and all units were picked. For each institution, one respondent was be sampled, preferably the secretary to the PTC. In institutions without a PTC, the pharmacist/pharmacist assistant was the respondent.

3.7 Data collection instruments

Self administered questionnaires were be used. The questionnaire was in a likert scale, which gave a benefit of weighting different responses as opposed to discrete questions. The WHO 2007 Operational package for assessing, monitoring and evaluating country pharmaceutical situations was used as a guide for questionnaire development.

3.8 Quality control

A pre-test study was carried out on 5 respondents who were not included in the study and the tool was reviewed and corrected to increase validity and reliability of responses. During and after data entry, control checks were performed to ensure that data entry was correct and complete. Data was edited at the end of each day.

3.9 Ethical considerations

The research proposal was submitted for approval to the KEMU and the Kenya Council for Sciences and Technology. Further permission was sought from the provincial administration and respective hospital administrations and thereafter consent from each respondent to gain co-operation. Information obtained was treated with confidence. Respondent's names were not included on the interview schedules for privacy and confidentiality during and after data collection.

3.10 Data analysis

Quantitative data analysis procedures were used where the data obtained in the field was coded and entered into a statistical package (SPSS) for analysis. Measures of central tendency like mean, mode and median were obtained. Measures of variability like range, standard deviation and variance, frequency distribution tables and percentages were also used to present the data. Quanlitative data analysis was also used.

3.11 Study Constraints and limitations

Some of the respondents did not return the questionnaire even after several follow ups necessitating re-sampling with data collection taking longer than anticipated. This brought the need for research assistants and three pharmaceutical technologists were recruited for data collection. The research assistants worked for 13 days and this increased the cost of the study. Authorizations from the management also took long with some health facilities requiring submission of proposal documents for the facility ethical committees to review. Research fees were required in some facilities.

CHAPTER FOUR: RESULTS

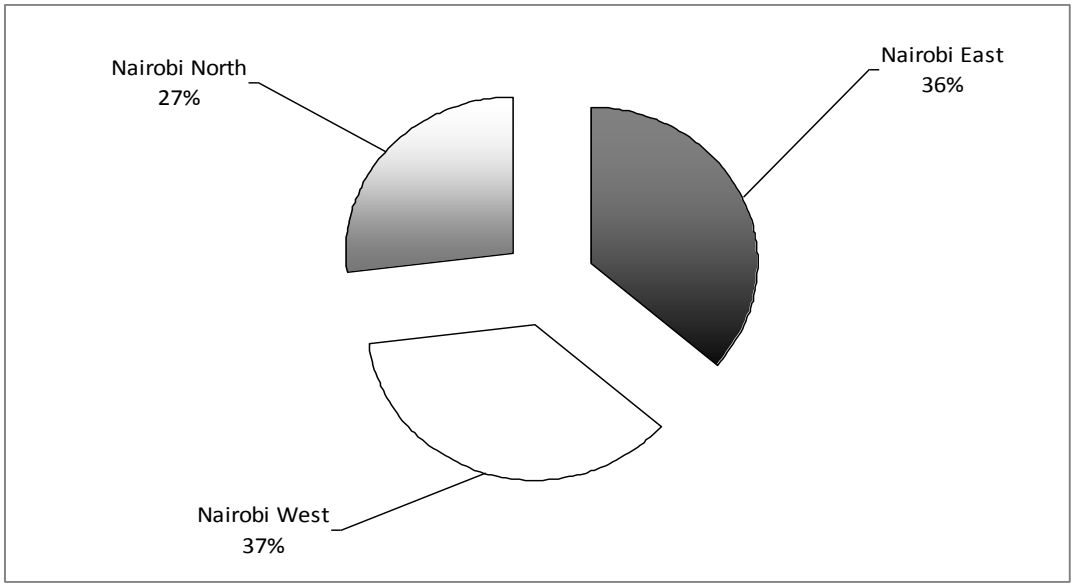
4.1 Questionnaire return rate

A sample size of 189 health facilities was targeted and all facilities were sampled giving a response rate of 100%. A satisfactory questionnaire return rate is imperative to minimize assumptions in the study as well as diminish any bias which could probably be brought out by a lower questionnaire return rate.

4.2 Demographic information

Figure 4.1

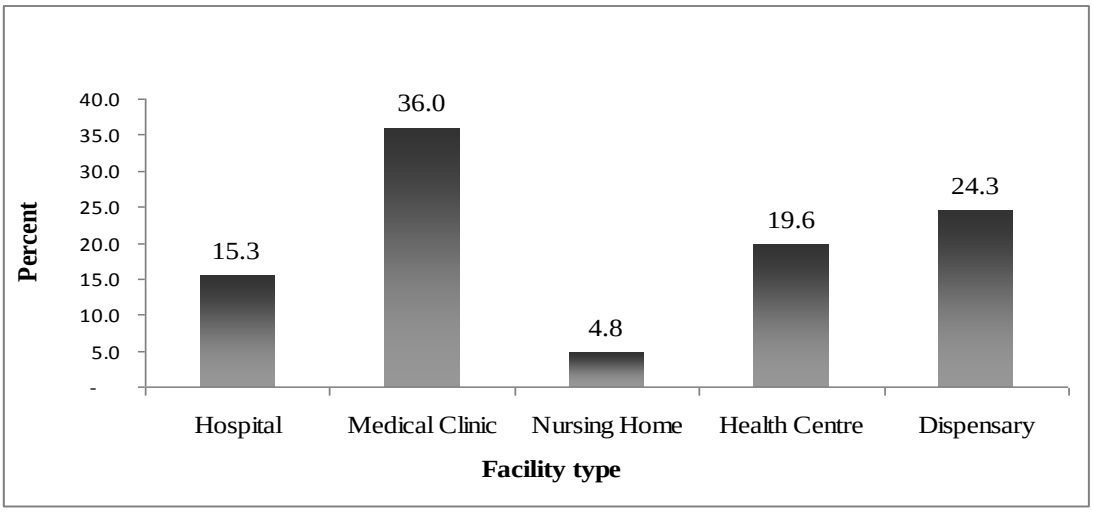
Pie chart showing the location of sampled health facilities by district



Findings indicated that, 37% of the selected health facilities were located in Nairobi West District while 36% were in Nairobi East District. The remaining 27% were selected from Nairobi North District.

Figure 4.2

Bar chart showing different types of health facilities sampled in the study area



In regard to the health facility type, 36.0% were medical clinics and 24.3% were dispensaries whereas a mere 4.8% were nursing homes. Hospitals represented 15.3% of the sampled health facilities, (Figure 4.2). No stand alone dental clinics were sampled during the study.

Table 4.1

Table showing the ownership of sampled health facilities in the study area

Ownership	Frequency	Percent
Ministry of health	8	4.2
Local authority	27	14.3
Private	104	55.0
Parastatal	5	2.6
NGO	9	4.8
Community based	13	6.9
Faith based	23	12.2
Total	**189**	**100.0**

The table above indicates that privately owned facilities presented the highest number of health facilities sampled at 55.0%, local authority facilities followed second at 14.3% while ministry of health and parastatal health facilities were the lowest at 4.8% and 2.6% respectively. .

Figure 4.3

Pie chart showing respondents' age brackets

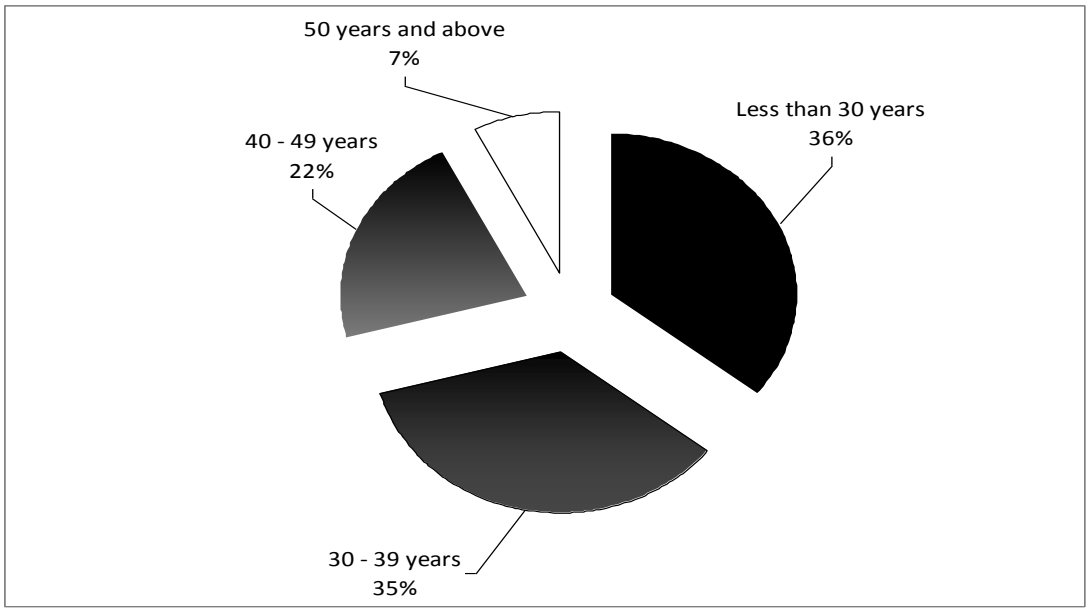
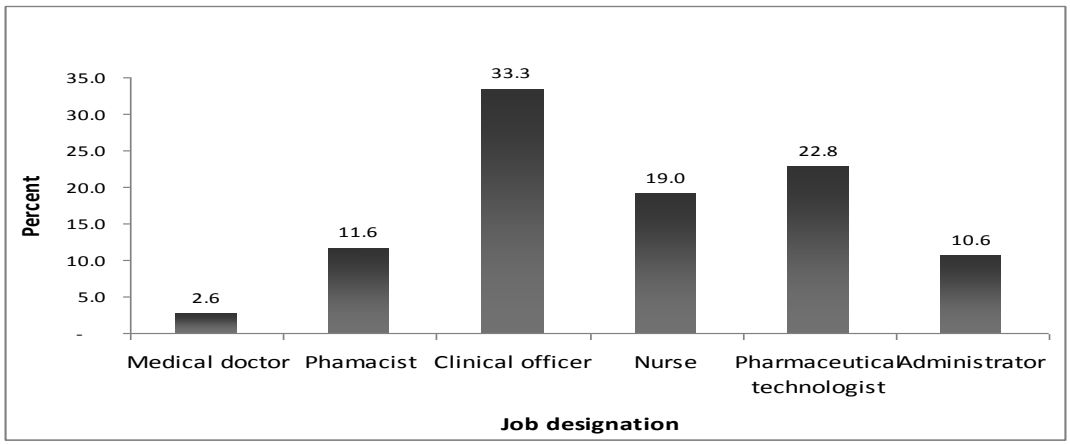


Figure 4.3 shows that respondents in age bracket less than 30 years were 36%, age bracket 30-39 years were 35%, age bracket 40-49years while the 50 years and above bracket was lowest at 7%. In regard to the respondents' gender, 50.3% were male while 49.7% were female.

Figure 4.4

Bar chart showing the job designation/profession of the respondents



As shown in figure 4.4, the clinical officers comprised the highest percentage at 33.3%, while medical doctors were lowest at 2.6%. Pharmacists represented 11.6%, and pharmaceutical technologists 22.8%, while nurses and administrators represented 19.0% and at 10.6% respectively.

Table 4.2

Duration in years in which the respondents were in practice.

Years in practice	**Frequency**	**Percent**
Less than 5 years	57	30.2
5 - 9 years	55	29.1
10 - 14 years	30	15.9
15 - 19 years	20	10.6
20 years and above	27	14.3
Total	**189**	**100.0**

In regard to the duration in which the respondent had been in practice, 30.2% had been in practice for less than 5 years, 29.1% for 5 – 9 years while 15.9% had been in practice for 10–14 years. A further 10.6% of respondents were in 15-19 years bracket while the 20 years and above bracket comprised 14.3% of the respondents.

Table 4.3

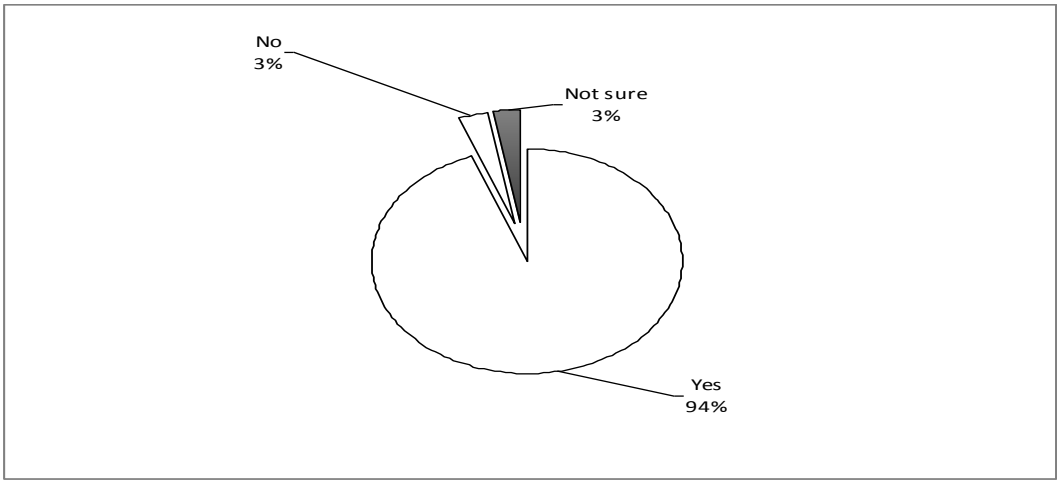
Table showing the respondents' years of experience in the Pharmacy and Therapeutic Committee.

Years of experience in Pharmacy and Therapeutic Committee.	**Frequency**	**Percent**
Less than 5 years	43	22.8
5 - 9 years	23	12.2
10 years and above	5	2.6
No response	3	1.6
None	115	60.8
Total	**189**	**100.0**

Concerning the years of experience in PTC, 22.8% had been in the PTC for less than 5 years, 12.2% for 5 – 9 years while only 2.6% had been in practice for at least 10 years. Majority (60.8%), however, had no experience in PTC while 1.6% did not respond.

Figure 4.5

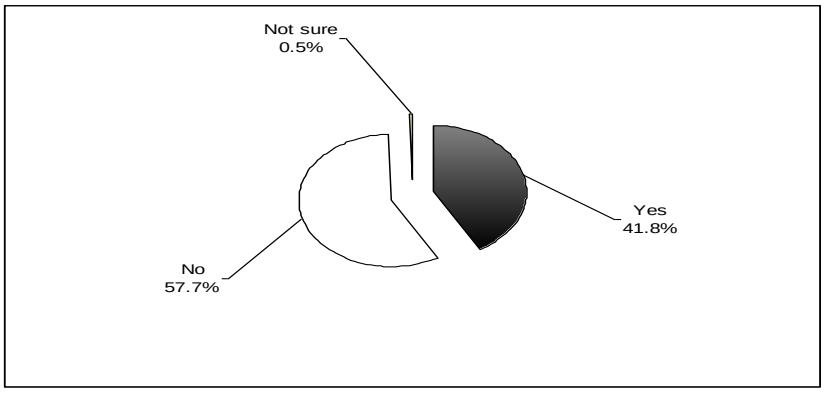
Pie chart showing the respondents' awareness of drug formularies and the Kenya Essential Drug List



Awareness of drug formularies and the Kenya Essential drug List was at 94% with only 3% of the respondents being not aware of the drug formularies. However, another 3% were not sure of the document in question.

Figure 4.6

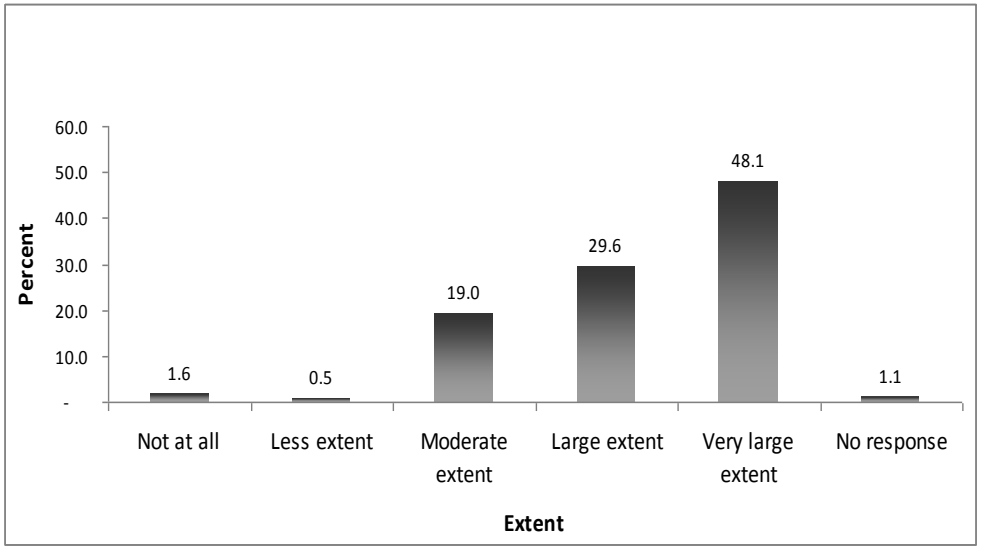
Pie chart showing respondents' participation in development of Standard Treatment Guidelines or drug formulary



Respondents who had ever participated in development of an STG or a drug formulary were 41.8% with the majority of 57.7% having never participated while a 0.5% of the sampled respondent was not sure.

Figure 4.7

Bar chart indicating the extent to which respondents considered drug formulary important as management tools in the drug management process



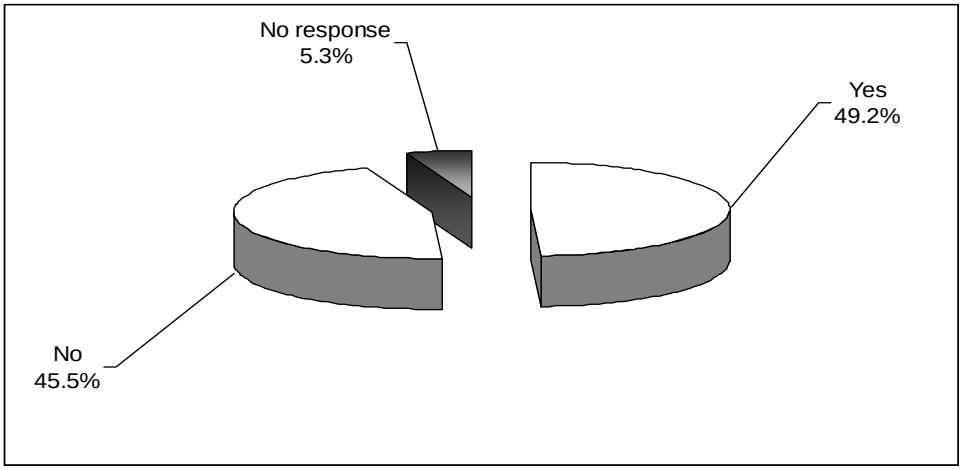
The researcher also analyzed the extent to which respondents considered drug formulary important as management tools in the drug management process. According to the findings, 48.1% of respondents felt the extent was very large while 29.6% said the extent was large. Respondents considering drug formularies importance to a moderate extent were 19%. It was important to note that 0.5% and 1.6% considered drug formularies important to a less extent and to no extent at all respectively.

4.3 Types of formularies in use in various health facilities

This study established that most of registered health facilities in Nairobi had adopted the KEDL as indicated by 73.5% of the respondents. Out of the 73.5%, some facilities went ahead to develop facility own drug formularies using the concept while others used it as is. The rest 26.5% confirmed to not have used the national essential drug list at all.

Figure 4.8

Pie chart showing whether the respondent's organization have own (facility specific) formulary



The study also sought to establish whether the respondent's organization have own (facility specific) formulary. Findings indicated that, 49.2% of the registered health facilities in Nairobi have their own formulary while others, (45.5%) do not have, (Figure 4.7)

Type of formulary

Regarding the type of formulary the respondents' facility had, majority (93.6%) consider their formularies open while only 6.4% consider their formularies closed. There were no negative or incentivised formularies noted while most respondents did not respond on whether the formulary are positive or not.

Table 4.4

Table indicating when the last update on drug formulary was carried out

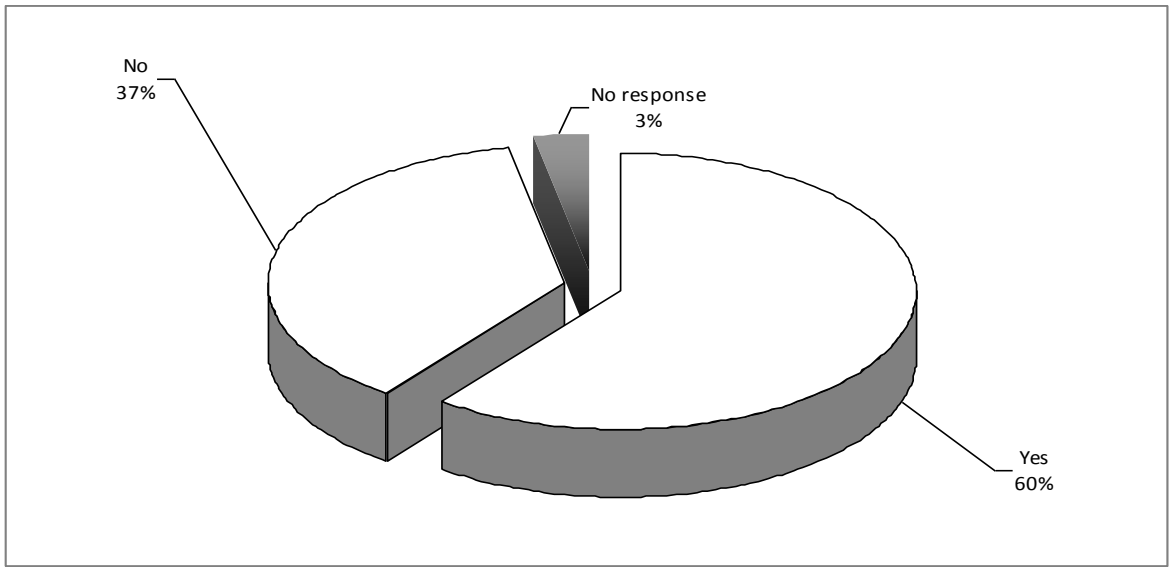
Year	Frequency	Percent
2006	1	1.0
2008	2	1.9
2009	9	8.7
2010	46	44.2
2011	46	44.2
Total	**104**	**100.0**

In regard to when the last update was done, only 104 respondents responded out of which 44.2% were updated in 2011, another 44.2% in 2010. The remaining 8.7%, 1.9% and 1.0% of the respondents' facility formularies were updated in 2009, 2008 and 2006 respectively. Others could not remember when the document was last updated.

On whether the respondent's organization uses categorized formularies, the study revealed that, most of the health facilities do not use categorized formularies as indicated by 66.1% of all the respondents. Only 33.9% of the respondents organization used categorised formularies. The various categories noted included disease specific formularies, age specific formularies (Paediatric) and the general one.

Figure 4.9

Pie chart showing whether the respondent's organization supports use of multiple formularies



Majority (60%) of the selected respondents disclosed that, their respective organizations had no objection to use of multiple formularies or other formularies other than facility own.

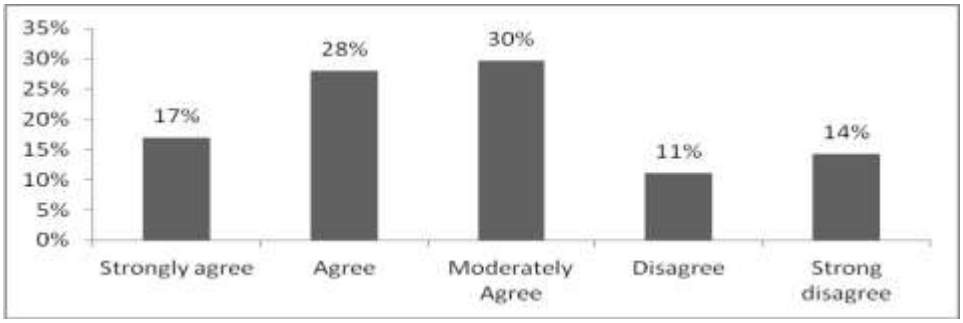
External and internal factors affecting the management of hospital drug formularies

4.4 External factors affecting the management of hospital drug formularies

4.4.1 Regulation and legislation at national level

Figure 4.10

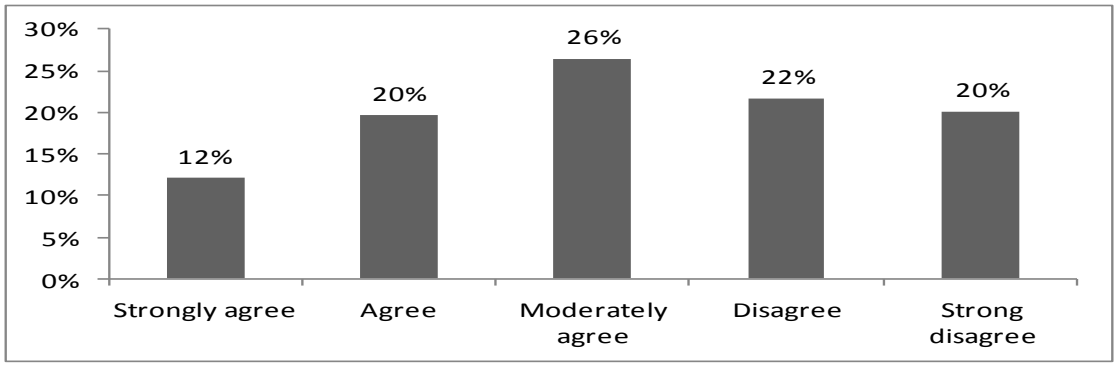
Bar chart showing level agreement on whether the government has established adequate reinforcement for the adoption of national medicines policies and especially the KEDL in Kenya



The figure above indicate that 45% of the respondents feel that the government has established adequate reinforcement for the adoption of the national medicines policies while 25% do not. The remaining 30% of the respondent indicate that this has been done only to a moderate extent.

Figure 4.11

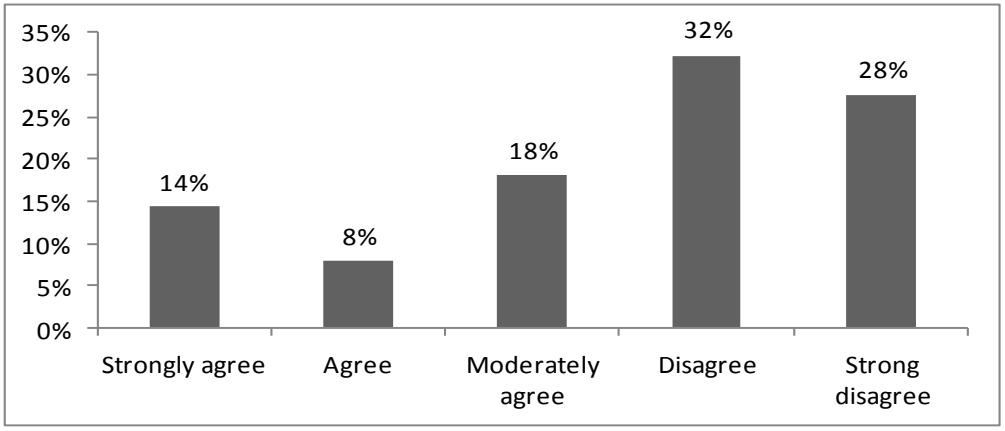
Bar chart showing whether the essential drug list and the updated list of registered products are readily available to the PTC



According to figure 4.11, the essential drug and updated list of registered products are not readily available to the PTC as indicated by over 68% of the respondents.

Figure 4.12

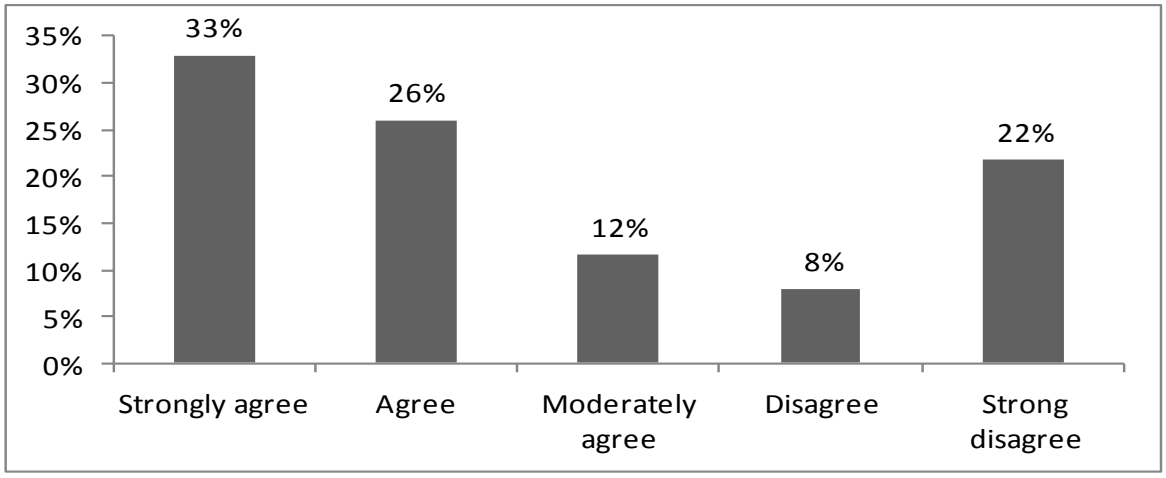
Bar chart showing level of agreement whether the National Medicine and Therapeutic Committee supports health facility PTCs (in both public and private sector)



On whether the National Medicine and Therapeutic Committee supports health facility PTCs (in both public and private sector), over 78% of the respondents disagree, while 22% agree.

Figure 4.13

Bar chart showing whether the development of PTCs is mandatory for health facilities



Agreement that development of Pharmacy and therapeutic committees is mandatory for health facilities was indicated by 59% of the respondents.

Table 4.5

Table showing regulation and legislation at national level cross tabulated against the facility type.

Regulation and legislation at national level * Facility type Crosstabulation					
Regulation and legislation at national level	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	0%	50%	8%	25%	17%
Agree	14%	39%	8%	14%	25%
Moderately agree	20%	29%	1%	27%	23%
Disagree	12%	43%	2%	17%	26%
Strong disagree	15%	35%	15%	5%	30%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.5 shows that level of agreement on government legislation and regulation varied greatly among the different facilities sampled.

Table 4.6

Table showing regulation and legislation at national level cross tabulated against ownership of the facility.

Regulation and legislation at national level * Ownership of facility Crosstabulation							
Regulation and legislation at national level	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	0%	17%	42%	0%	8%	17%	17%
Agree	3%	11%	53%	6%	8%	8%	11%
Moderately agree	8%	10%	58%	1%	4%	5%	14%
Disagree	2%	26%	50%	2%	2%	7%	10%
Strong disagree	0%	10%	65%	5%	5%	5%	10%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

Table 4.6 shows that level of agreement on government legislation and regulation varied greatly among the different facilities sampled.

Table 4.7

Table showing regulation and legislation at national level cross tabulated against job designation

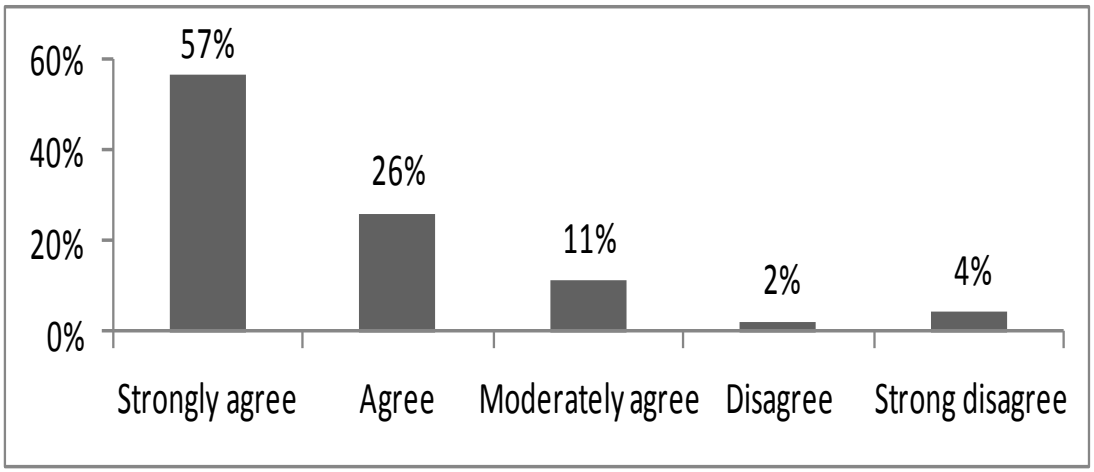
Regulation and legislation at national level * Job designation Crosstabulation						
Regulation and legislation at national level	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	0%	17%	17%	58%	0%	8%
Agree	0%	19%	39%	17%	22%	3%
Moderately agree	3%	10%	44%	9%	25%	9%
Disagree	0%	7%	21%	29%	21%	21%
Strong disagree	15%	10%	15%	20%	30%	10%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

The nurses and clinical officers considered the government regulation and legislation of medicine policies at national level best with 75% and 56% "agree" respectively. Other professional were as follows; Medical doctors 0% "agree' , pharmacists 36% 'agree', Pharmaceutical technologists 22% 'agree' and administrators 11% 'agree'.

4.4.2 Drug Promotion

Figure 4.14

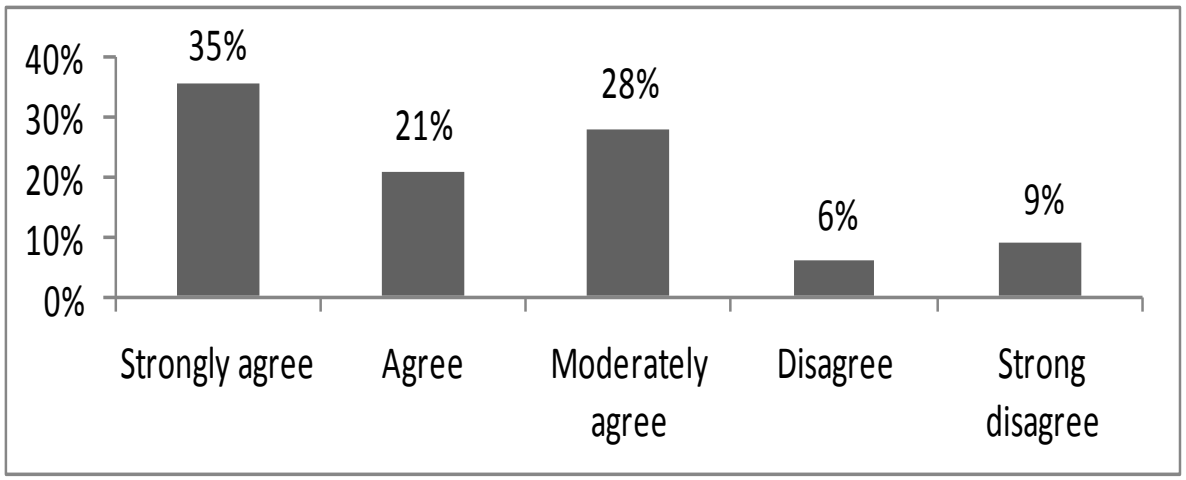
Bar chart showing whether promotion induces prescription and purchase of non-formulary drugs



Over 94% of the respondents were in agreement that drug promotion induces prescription and purchase of non-formulary drugs. Only 6% of respondents disagreed.

Figure 4.15

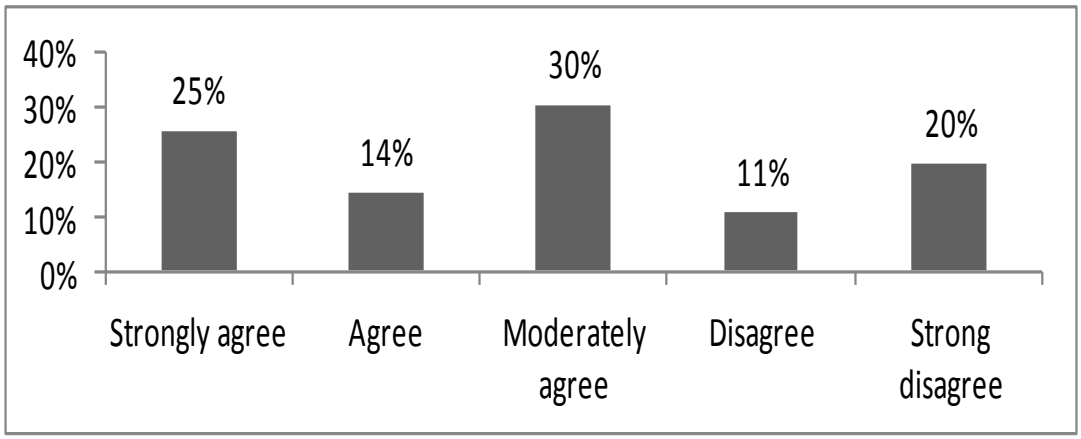
Bar chart showing whether facilities have appropriate mechanisms to regulate persuasive activities by manufacturers regarding medicine promotion and advertising within the hospital



Majority of facilities attested to having appropriate mechanisms to regulate persuasive activities by manufactures regarding medicine promotion and advertising.

Figure 4.16

Bar chart showing whether facilities conduct independent research on medication to support information provided during medicines promotions and advertising



At least 39% of the respondents conduct further research to verify information provided during medicine promotion 30% do so only to a moderate extent. The remaining 31% of the respondents do not.

Table 4.8

Table showing drug promotion cross tabulated against the facility type

Drug Promotion * Facility type Crosstabulation					
Drug Promotion	Hospital	Medical Clinic	Nursing Home	Health Centre	Dispensary
Strongly agree	20%	42%	2%	17%	20%
Agree	16%	40%	6%	18%	21%
Moderately agree	9%	32%	5%	25%	29%
Disagree	33%	25%	8%	8%	25%
Strong disagree	0%	0%	0%	33%	67%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.8 above shows that level of agreement on drug promotion varied among the different facilities sampled with dispensaries having a 92% level of disagreement.

Table 4.9

Table showing drug promotion cross tabulated against ownership of the facility

Drug Promotion * Ownership of facility Crosstabulation							
Drug Promotion	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	0%	17%	46%	2%	10%	10%	15%
Agree	2%	9%	63%	3%	4%	7%	12%
Moderately agree	9%	15%	55%	2%	3%	5%	11%
Disagree	8%	17%	50%	0%	0%	8%	17%
Strong disagree	0%	67%	0%	33%	0%	0%	0%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

The table show that local authority facilities and parastatals level of disagreement regarding drug promotion is 84 and 33% respectively.

Table 4.10

Table showing drug promotion cross tabulated against job designation

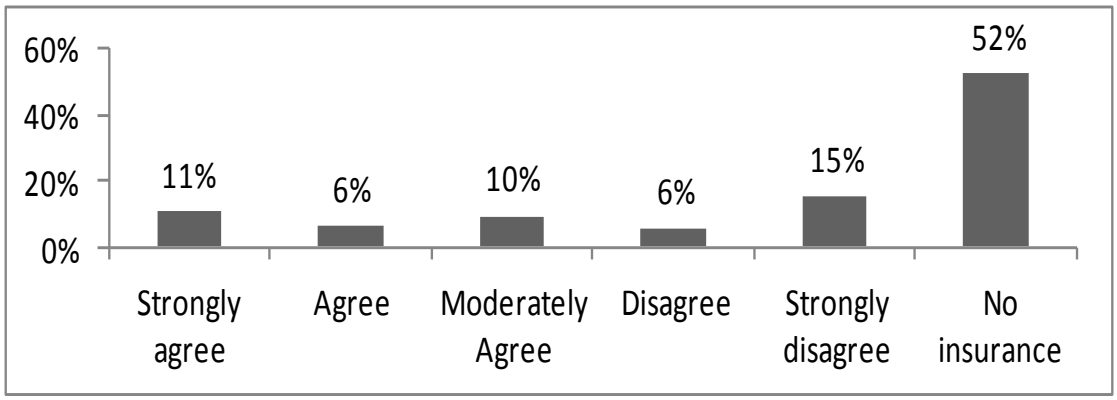
Drug Promotion * Job designation Crosstabulation						
Drug Promotion	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	2%	27%	15%	15%	22%	20%
Agree	3%	12%	24%	21%	28%	13%
Moderately agree	2%	5%	57%	20%	12%	5%
Disagree	8%	0%	33%	8%	50%	0%
Strong disagree	0%	0%	0%	67%	33%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Table 4.10 above shows a high level of agreement on drug promotion as a factor among the proffessional sampled with administrators and pharmacistshighest.

4.4.3 Insurance and health maintenance organizations

Figure 4.17

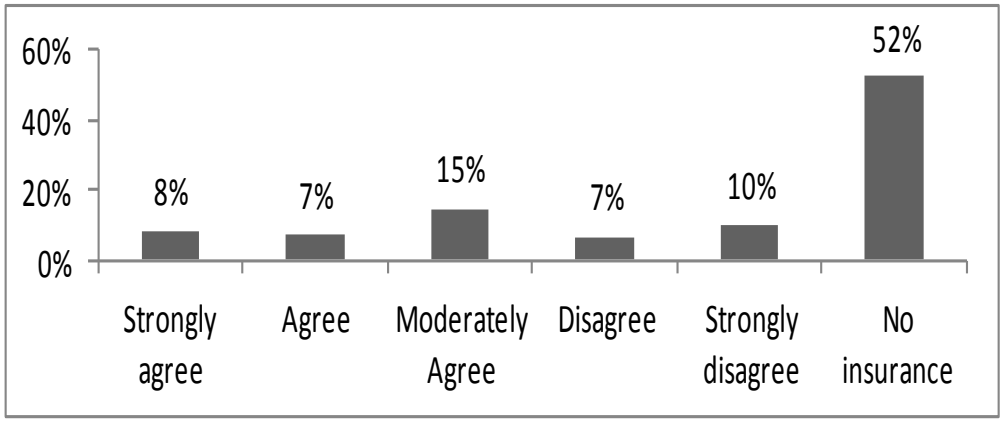
Bar chart showing whether facilities have encountered different drug formulary requirements/restrictions from insurance companies and HMOs



Only 48% of the health facilities sampled were recognized by insurance companies and therefore only this percentage responded to the questions there in. The other 52% did not have insurance facility as indicated in Figure 4.17 above. Findings also indicate that 17% of facilities have encountered different drug formulary requirements/restrictions from the insurance companies and Health maintenance organizations.

Figure 4.18

Bar chart showing whether restrictions imposed by insurance companies on drugs are both quality and cost oriented



The figure above indicates that 15% of the respondents agree that restrictions imposed by insurance companies are both quality and cost oriented.

Figure 4.19

Bar chart showing whether facility PTC has provisions for dealing with external drug formulary requirements/restrictions that differ from their medicines policies

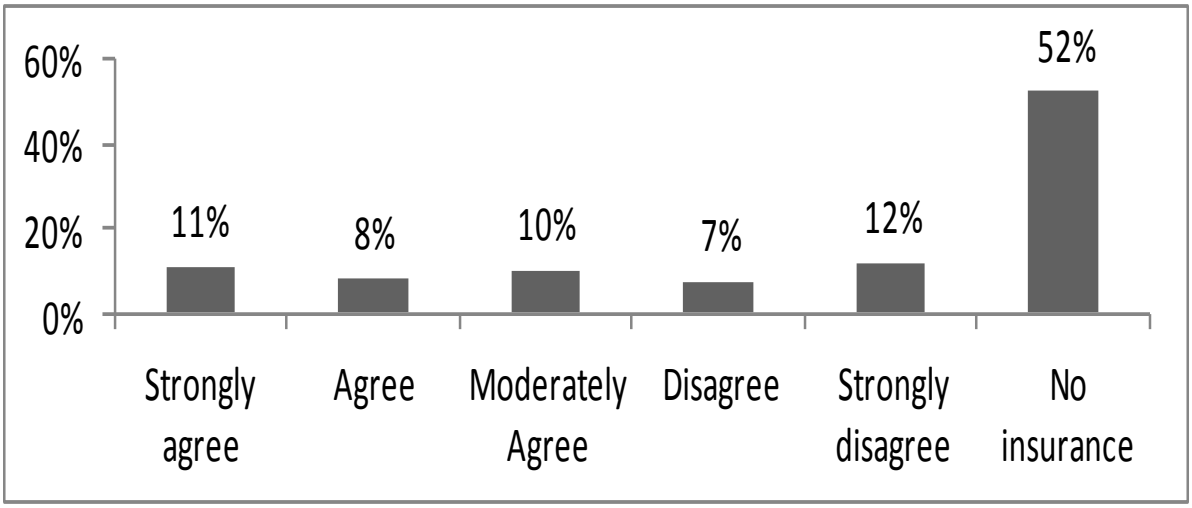


Figure 4.19 above shows that 19% of the facilities have provisions for dealing with external drug formulary requirements that differ from the institutions medicine policies.

Table 4.11

Table showing insurance and HMO cross tabulated against the facility type

Insurance and health maintenance organizations * Facility type Crosstabulation					
Insurance and health maintenance organizations	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	50%	17%	8%	0%	25%
Agree	44%	31%	6%	13%	6%
Moderately Agree	17%	31%	0%	28%	24%
Disagree	22%	33%	11%	22%	11%
Strongly disagree	13%	20%	7%	13%	47%
No insurance	5%	43%	4%	21%	26%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

According to Table 4.11, only 5% and 4% of the hospitals and nursing homes sampled do not have insurance respectively. In other categories, 43% of medical clinics, 21% of health centres and 26% of dispensaries do not offer insurance facility. The findings also show that hospitals are mainly the health facilities that have encountered different drug restrictions from insurance companies. They are also likely have provisions for dealing with external drug formulary requirements/restrictions that differ from their medicines policies.

Table 4.12

Table showing insurance and HMO cross tabulated against facility ownership

Insurance and health maintenance organizations * Ownership of facility Crosstabulation							
Insurance and health maintenance organizations	**Ministry of health**	**Local authority**	**Private medical enterprise**	**Parastatal**	**NGO**	**Community based**	**Faith based**
Strongly agree	0%	0%	67%	0%	0%	25%	8%
Agree	0%	0%	69%	0%	0%	13%	19%
Moderately Agree	7%	7%	55%	7%	7%	3%	14%
Disagree	6%	22%	61%	0%	0%	6%	6%
Strongly disagree	0%	13%	67%	13%	0%	7%	0%
No insurance	5%	19%	49%	1%	7%	5%	14%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

Table 4.12 above indicate that private medical enterprises have a greater interaction with insurance companies and level of agreement varies across that responses.

Table 4.13

Table showing insurance and HMO cross tabulated against job designation

Insurance and health maintenance organizations * Job designation Crosstabulation						
Insurance and health maintenance organizations	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	0%	17%	33%	0%	25%	25%
Agree	6%	19%	25%	13%	25%	13%
Moderately Agree	3%	28%	28%	10%	28%	3%
Disagree	6%	11%	17%	22%	44%	0%
Strongly disagree	0%	7%	27%	20%	47%	0%
No insurance	2%	6%	40%	24%	13%	14%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Table 4.13 above shows that level of agreement on insurance varied greatly among the different professionals sampled.

4.5 Internal factors affecting the management of hospital drug formularies

4.5.1 Institutional policy on drug use

Figure 4.20

Bar chart showing whether facilities have in existence an institutional medicines policy

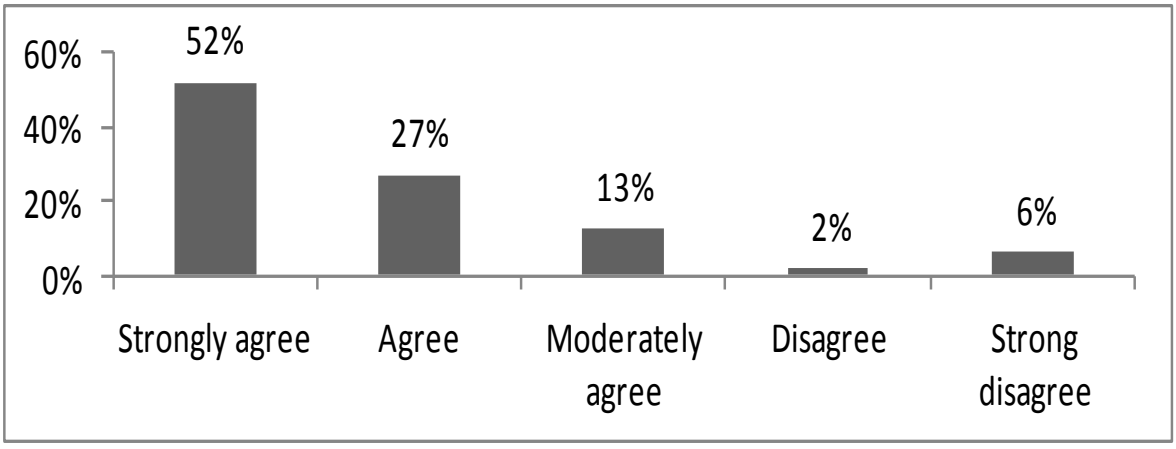
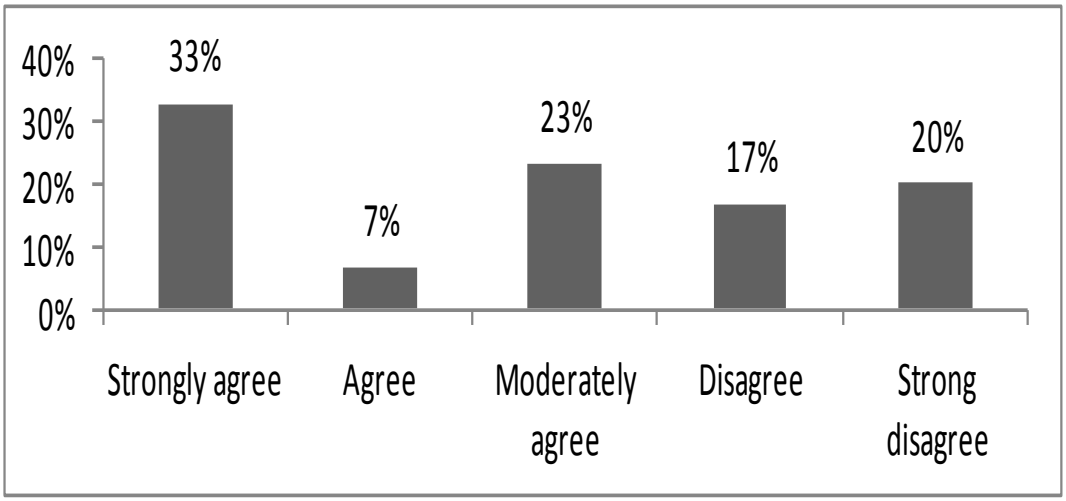


Figure 4.20 above show that majority, at least over 79% of the institutions attested to having institutional medicine policies on drug use in place.

Figure 4.21

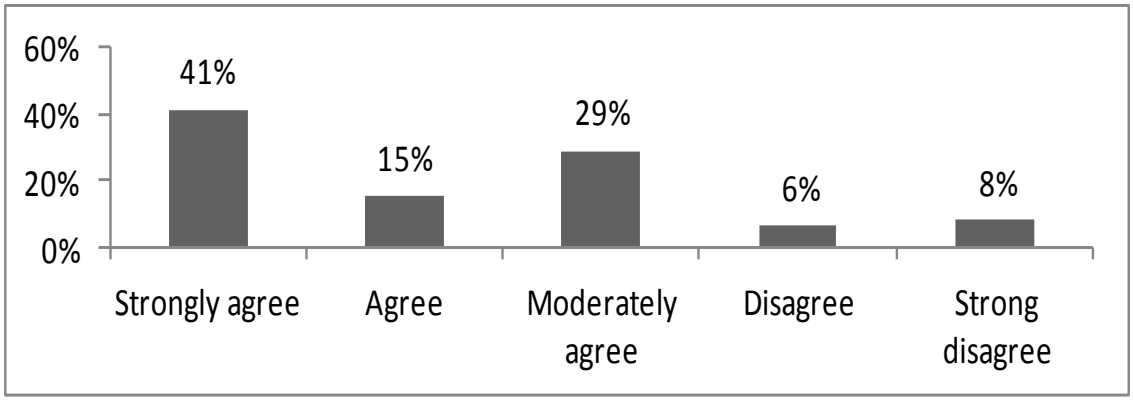
Bar chart showing whether prescription by generic name is a requirement in the institution



At least 40% of the facilities sampled practised generic prescribing or considered it appropriate while 37% do not. The remaining 23% practice generic prescribing only to a moderate extent.

Figure 4.22

Bar chart showing whether internally generated policies on drug use are more strict and comprehensively address drug use



Over 50% of the facilities sampled felt that their internally generated policies on drug use comprehensively addressed drug.

Table 4.14

Table showing institutional policy on drug use cross tabulated against the facility type

Institutional Policy on drug use * Facility type Crosstabulation					
Institutional Policy on drug use	Hospital	Medical Clinic	Nursing Home	Health Centre	Dispensary
Strongly agree	21%	35%	4%	19%	21%
Agree	21%	38%	6%	19%	17%
Moderately agree	8%	41%	4%	20%	27%
Disagree	29%	0%	14%	14%	43%
Strong disagree	0%	17%	0%	33%	50%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

The majority of facilities have institutional policies on drug use, however most health centers and dispensaries do not.

Table 4.15

Table showing institutional policy on drug use cross tabulated against facility ownership

Institutional Policy on drug use * Ownership of facility Crosstabulation							
Institutional Policy on drug use	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	2%	25%	38%	2%	6%	10%	17%
Agree	8%	8%	60%	2%	4%	8%	11%
Moderately agree	4%	7%	68%	1%	5%	4%	11%
Disagree	0%	29%	43%	14%	0%	0%	14%
Strong disagree	0%	67%	17%	17%	0%	0%	0%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

The table above indicate that most local authority facilities do not have institutional policies on drug use.

Table 4.16

Table showing institutional policy on drug use cross tabulated against job designation

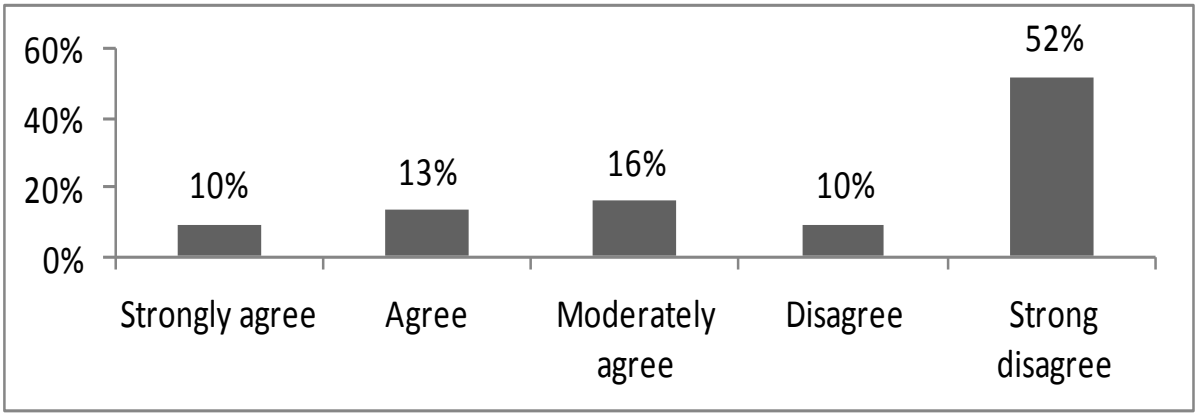
Institutional Policy on drug use * Job designation Crosstabulation						
Institutional Policy on drug use	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	2%	13%	4%	27%	21%	33%
Agree	2%	25%	30%	15%	25%	4%
Moderately agree	3%	4%	55%	12%	23%	3%
Disagree	0%	0%	29%	43%	29%	0%
Strong disagree	17%	0%	17%	50%	17%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Administarator agreed on having institutional policies on drug use at their facilities. Pharmacists also considered their health facilities to have institutional medicine policies in place too, however the nurses do not consider their facilities to having institutional medicine policies in place.

4.5.2 Reinforcement by the management

Figure 4.23

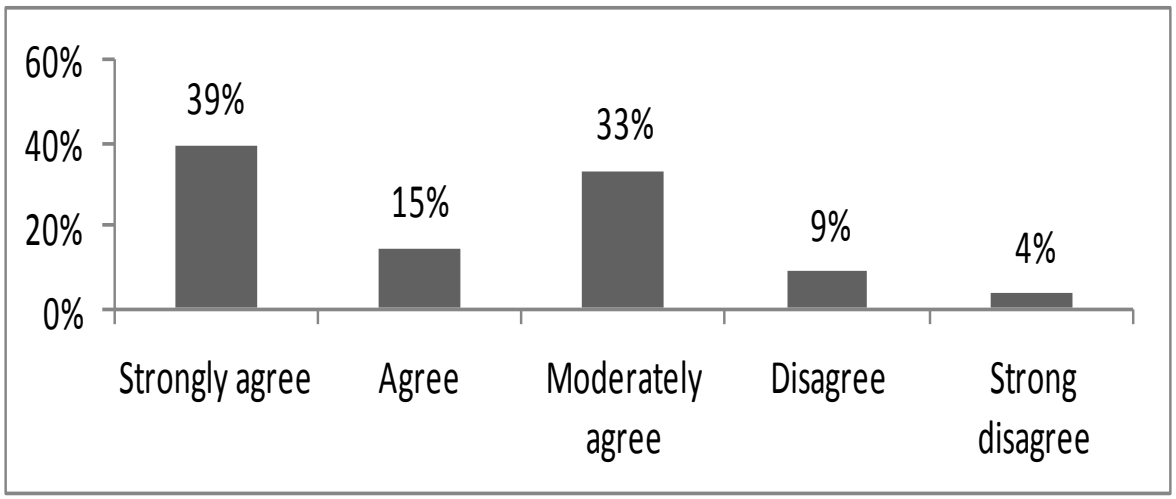
Bar chart showing whether the institution has a vibrant therapeutic committee



The findings indicate that very few health facilities in Nairobi have vibrant or active pharmaceutical committees with 52% strongly disagreeing.

Figure 4.24

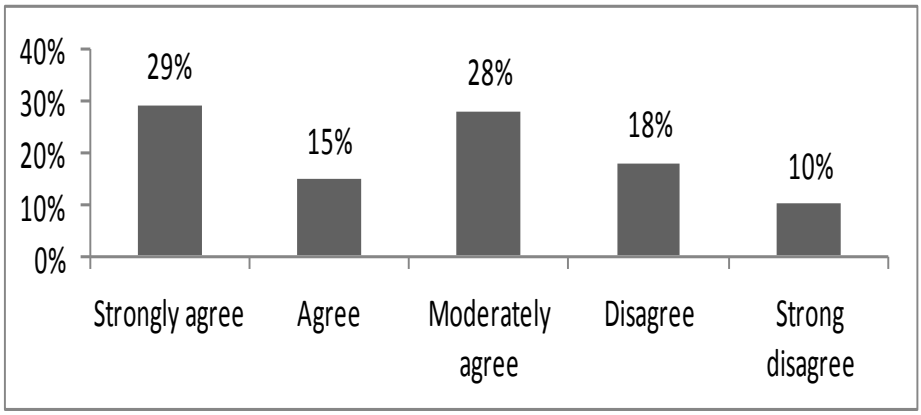
Bar chart showing whether the management is keen on compliance the drug formulary/EDL



Majority of facilities (over 82%) agreed that their institution management was keen on compliance to the formulary or the drug list.

Figure 4.25

Bar chart showing whether equests for non-formulary prescribing are formalized and evaluated



The figure above indicates that requests for non-formulary prescribing are formalized and evaluated to a moderate extent.

Table 4.17

Table showing reinforcement by management cross tabulated against the facility type

Reinforcement by management * Facility type Crosstabulation					
Reinforcement by management	Hospital	Medical Clinic	Nursing Home	Health Centre	Dispensary
Strongly agree	17%	50%	6%	6%	22%
Agree	29%	31%	7%	15%	19%
Moderately agree	13%	37%	2%	20%	28%
Disagree	3%	36%	5%	29%	27%
Strong disagree	14%	43%	0%	14%	29%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.17 above shows that level of agreement on reinforcement of drug policies by the institutional management varied greatly among the different facilities sampled.

Table 4.18

Table showing reinforcement by management cross tabulated against facility ownership

Reinforcement by management * Ownership of facility Crosstabulation							
Reinforcement by management	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	0%	0%	61%	6%	6%	11%	17%
Agree	3%	20%	49%	2%	3%	7%	15%
Moderately agree	9%	11%	61%	2%	2%	7%	9%
Disagree	3%	14%	54%	2%	9%	7%	12%
Strong disagree	0%	29%	57%	14%	0%	0%	0%
Total	**4.20%**	**14.30%**	**55.00%**	**2.60%**	**4.80%**	**6.90%**	**12.20%**

Table 4.18 above shows that level of agreement on reinforcement of drug policies by the institutional management varied greatly among the different facilities sampled.

Table 4.19

Table showing reinforcement by management cross tabulated against job designation

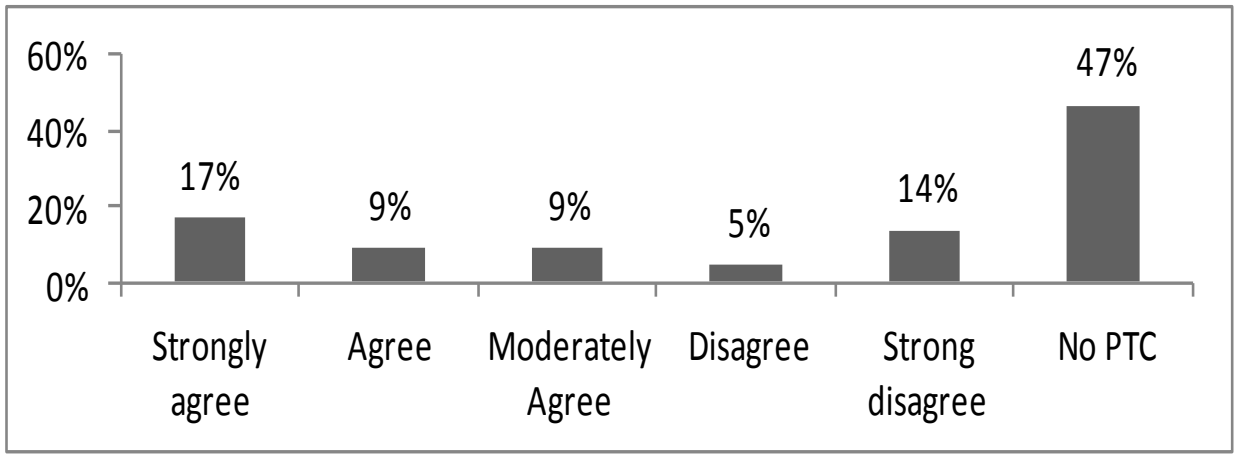
Reinforcement by management * Job designation Crosstabulation						
Reinforcement by management	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	0%	11%	17%	22%	28%	22%
Agree	2%	24%	10%	22%	24%	19%
Moderately agree	4%	7%	46%	13%	22%	9%
Disagree	2%	5%	53%	19%	20%	2%
Strong disagree	14%	0%	29%	29%	29%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

According to the findings, the administrators and pharmacists considered reinforcement of medicine policies by the management to be in place to a great extent.

4.5.3 Appropriately formulated PTC

Figure 4.26

Bar chart showing whether the (PTC) membership is multidisciplinary in composition pooled from all relevant fields



According to the findings, only 53% of health facilities had PTC whether active or not, while 47% did not.

Figure 4.27

Bar chart showing whether experience, competence and expertise in a range of medical specialties have been considered in our PTC composition

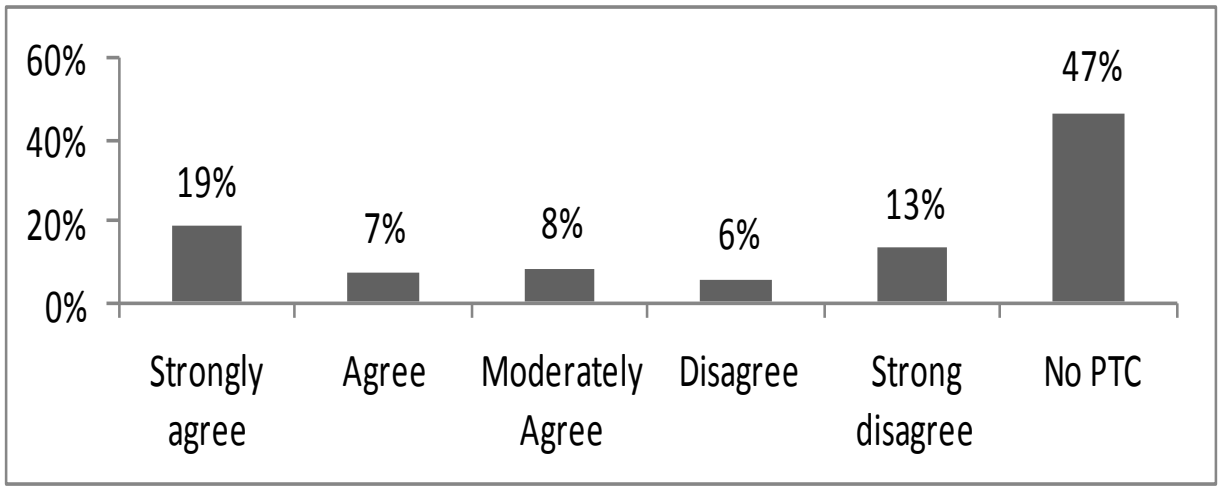
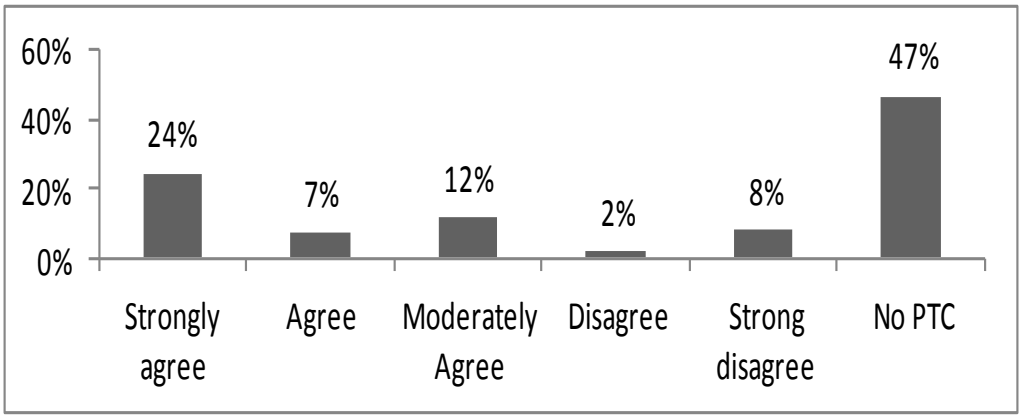


Figure 4.27 above indicate that experience, competence and expertise has been considered in the PTC composition in 26% of the facilities.

Figure 4.28

Bar chart showing whether prescribers and other health staff have confidence in the facility PTC



In all the facilities sampled, 24% had confidence in their PTC drug decisions while 10% did not, however 47% did not have PTCs at all.

Table 4.20

Table showing appropriately formulated cross tabulated against the facility type

Appropriately formulated PTC * Facility type Crosstabulation					
Appropriately formulated PTC	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	35%	41%	6%	3%	15%
Agree	44%	25%	6%	13%	13%
Moderately Agree	26%	21%	11%	21%	21%
Disagree	6%	56%	6%	17%	17%
Strong disagree	14%	29%	7%	21%	29%
No PTC	2%	36%	2%	27%	32%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.20 shows that most hospitals have appropriately formulated PTC and only 2% of the hospitals sampled did not have PTCs.

Table 4.21

Table showing appropriately formulated cross tabulated against facility ownership

Appropriately formulated PTC * Ownership of facility Crosstabulation							
Appropriately formulated PTC	**Ministry of health**	**Local authority**	**Private medical enterprise**	**Parastatal**	**NGO**	**Community based**	**Faith based**
Strongly agree	6%	0%	56%	9%	3%	15%	12%
Agree	0%	6%	69%	0%	6%	0%	19%
Moderately Agree	16%	16%	37%	0%	0%	16%	16%
Disagree	0%	6%	72%	0%	6%	0%	17%
Strong disagree	0%	43%	43%	0%	0%	14%	0%
No PTC	3%	18%	55%	2%	7%	3%	11%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

Table 4.21 above indicate that 3% of the sampled Ministry of health facilities do not have PTC. The private medical enterprise facilities vary greatly in response.

Table 4.22

Table showing appropriately formulated PTC cross tabulated against job designation

Appropriately formulated PTC * Job designation Crosstabulation						
Appropriately formulated PTC	**Medical doctor**	**Phamacist**	**Clinical officer**	**Nurse**	**Pharmaceutical technologist**	**Administrator**
Strongly agree	3%	29%	12%	15%	32%	9%
Agree	13%	31%	25%	13%	13%	6%
Moderately Agree	0%	11%	26%	5%	42%	16%
Disagree	0%	17%	39%	17%	22%	6%
Strong disagree	0%	0%	29%	43%	29%	0%
No PTC	2%	2%	44%	22%	16%	14%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Table 4.22 shows that pharmacist and medical doctor consider PTC appropriately formulated while the level of agreement varies widely among other proffessionals. The findings show that 2% of the pharmacist sampled did not have PTCs at their facility.

4.5.4 Document updates and reviews

Figure 4.29

Bar chart showing whether the formulary and related documents are reviewed within acceptable time frame

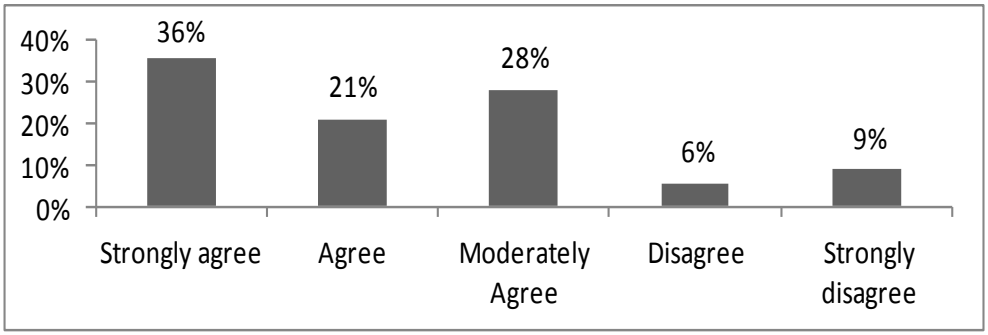
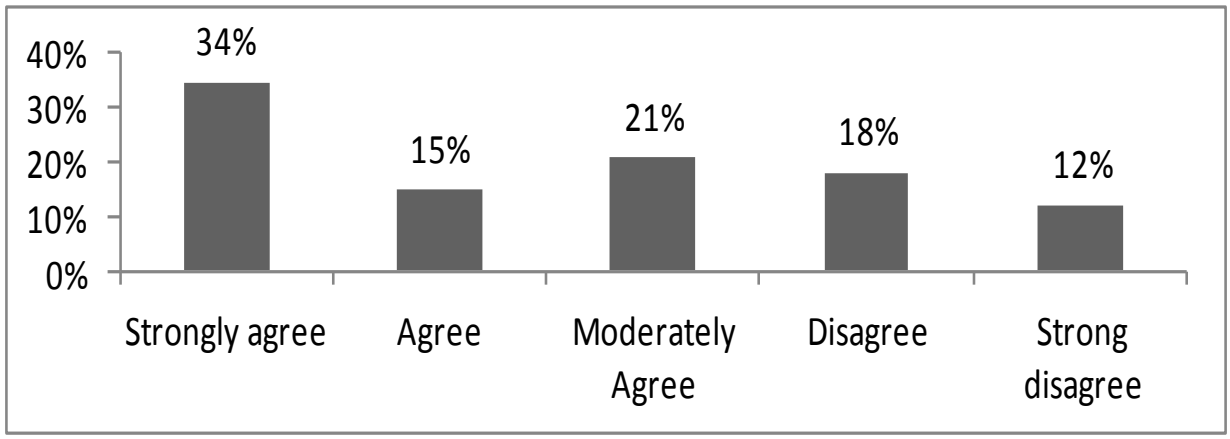


Figure 4.29 above shows that over 85% of the respondent's formulary related documents are reviewed within acceptable time frame and only 15% are not.

Figure 4.30

Bar chart showing whether the current formulary document is available to all stakeholders



According to figure 4.30 above, 49% of the facilities agreed to having the current copies of the formulary documents availabe to stakeholders.

Figure 4.31

Bar chart showing whether the latest updates involved major changes on the formulary

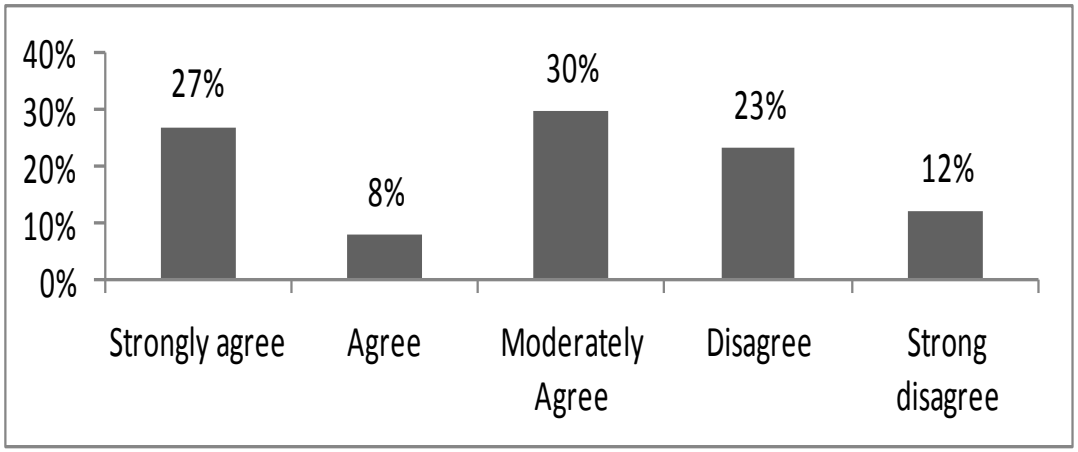


Figure 4.31 shows that 35% of respondents latest formulary updates involved major changes on the formulary while a similar 35% do not. Another 30% of the respondents agree to this concern only to a moderate extent.

Table 4.23

Table showing updates and reviews of the formulary and related document cross tabulated against facility type.

Document updates and reviews * Facility type Crosstabulation					
Document updates and reviews	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	8%	48%	3%	23%	20%
Agree	32%	23%	11%	11%	23%
Moderately agree	5%	45%	2%	19%	29%
Disagree	11%	31%	3%	26%	29%
Strong disagree	44%	11%	11%	33%	0%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

The table above shows that most formulary document at the facilities are reviewd and updated but with great variation across the facility types.

Table 4.24

Table showing updates and reviews of the formulary and related document cross tabulated against facility ownership.

Document updates and reviews * Ownership of facility Crosstabulation							
Document updates and reviews	**Ministry of health**	**Local authority**	**Private medical enterprise**	**Parastatal**	**NGO**	**Community based**	**Faith based**
Strongly agree	0%	33%	35%	3%	8%	15%	8%
Agree	2%	6%	66%	0%	6%	2%	17%
Moderately agree	3%	9%	62%	3%	2%	2%	19%
Disagree	11%	9%	51%	6%	6%	14%	3%
Strong disagree	11%	33%	56%	0%	0%	0%	0%
Total	**4.20%**	**14.30%**	**55.00%**	**2.60%**	**4.80%**	**6.90%**	**12.20%**

The table above shows that agreement on document updates and reviews varied greatly among the facility ownership however, the Ministry of health facilities disagreed on timely document updates and reviews.

Table 4.25

Table showing updates and reviews of the formulary and related document cross tabulated against job designation

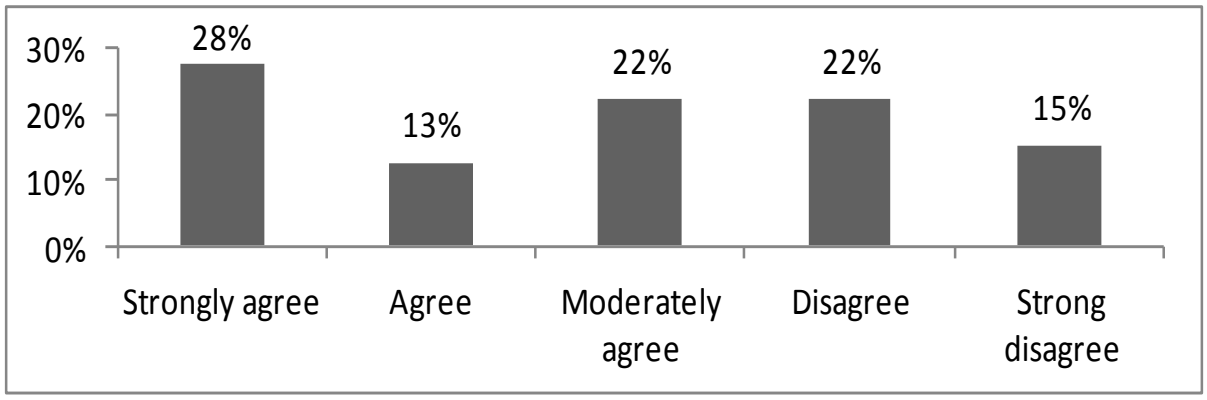
Document updates and reviews * Job designation Crosstabulation						
Document updates and reviews	**Medical doctor**	**Phamacist**	**Clinical officer**	**Nurse**	**Pharmaceutical technologist**	**Administrator**
Strongly agree	0%	10%	15%	33%	10%	33%
Agree	2%	26%	26%	19%	23%	4%
Moderately agree	7%	10%	41%	12%	28%	2%
Disagree	0%	0%	54%	14%	23%	9%
Strong disagree	0%	0%	22%	22%	44%	11%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Document update and review was considered moderate by majority of the responses with administrators, medical doctors and pharmacists considering it highest as shown in Table 4.25 above.

4.5.5 Dissemination and awareness creation

Figure 4.32

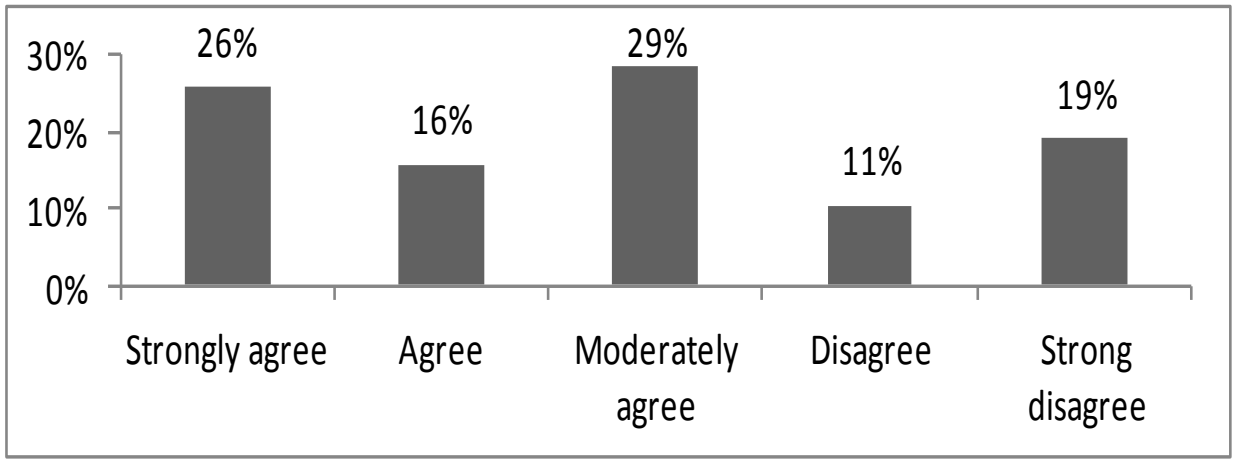
Bar chart showing drug formulary dissemination and awareness creation



The level of dissemination and awareness creation on the formulary document varied with at 41% being in agreement and 37% being in disagreement.

Figure 4.33

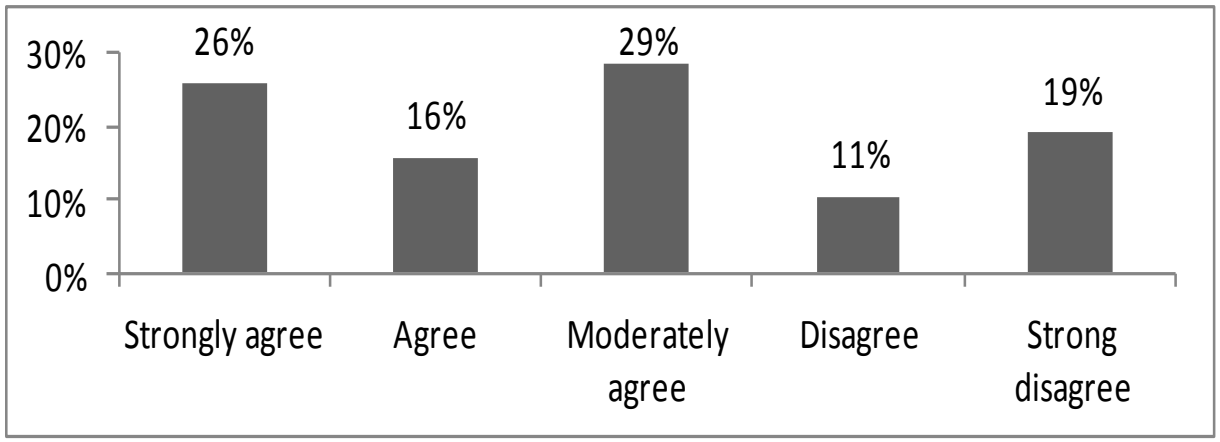
Bar chart showing whether facilities distribute adequate copies of formularies free of charge



The findings show that all in all categories explored, facilities are only able distribute adequate copies of formularies free of charge moderately according to Figure 4.33 above.

Figure 4.34

Bar chart showing whether awareness creation is only greatest when the specific drugs have harmful effects



Awareness creation was also found to be greatest when the specific drugs have harmful effects to a moderate extent with 42% in agreement while 30% disagree.

Table 4.26

Table showing dissemination and awareness creation on drug use information cross tabulated against facility type

Dissemination and awareness creation * Facility type Crosstabulation					
Dissemination and awareness creation	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	15%	46%	15%	0%	23%
Agree	21%	18%	5%	21%	34%
Moderately agree	17%	43%	3%	20%	17%
Disagree	4%	32%	6%	26%	32%
Strong disagree	43%	57%	0%	0%	0%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Dissemination and awareness creation carried out to a moderate extent in all facility types.

Table 4.27

Table showing dissemination and awareness creation on drug use information cross tabulated against facility ownership

Dissemination and awareness creation * Ownership of facility Crosstabulation							
Dissemination and awareness creation	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	8%	8%	62%	0%	0%	23%	0%
Agree	5%	24%	42%	3%	5%	8%	13%
Moderately agree	4%	11%	56%	3%	6%	7%	14%
Disagree	2%	14%	62%	4%	4%	0%	14%
Strong disagree	14%	14%	57%	0%	0%	14%	0%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

The findings also indicate that dissemination and awareness creation carried out to a moderate extent in accross the different facility ownership as shown on Table 4.27 above.

Table 4.28

Table showing dissemination and awareness creation on drug use information cross tabulated against job designation

Dissemination and awareness creation * Job designation Crosstabulation						
Dissemination and awareness creation	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	0%	23%	31%	15%	15%	15%
Agree	3%	24%	24%	24%	13%	13%
Moderately agree	4%	9%	30%	19%	26%	14%
Disagree	2%	4%	48%	16%	26%	4%
Strong disagree	0%	14%	29%	29%	29%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Table 4.28 above indicate that accross the proffession category, the formulary document dissemination and awareness creation is done moderately. However, administrtors greatly agree to this end.

4.5.6 Education and training

Figure 4.35

Bar chart showing whether there is regular provision of objective information

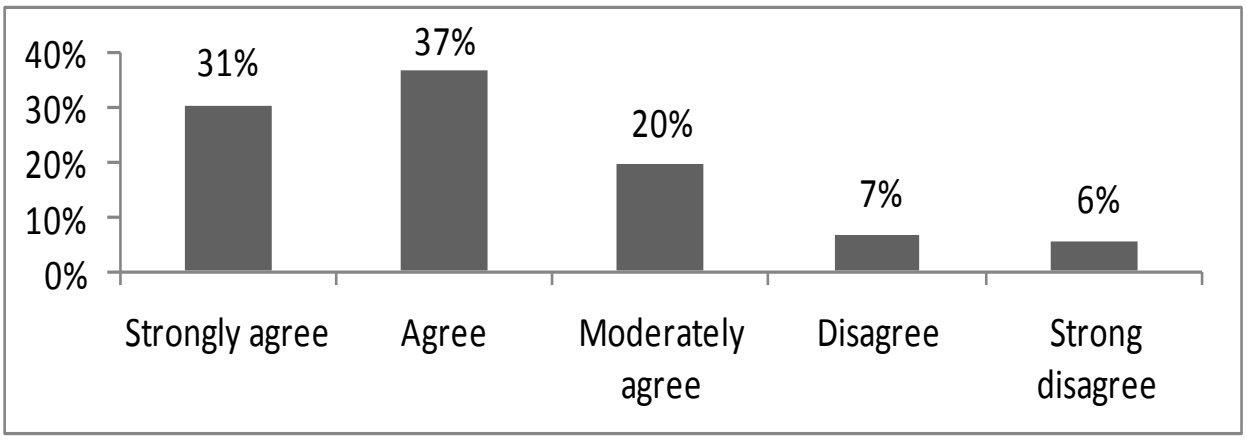


Figure 4.35 above indicate that there is regular provision of objective information in health facilities sampled with over 88% being in agreement.

Figure 4.36

Bar chart showing whether there is continued training of personnel dealing with drugs

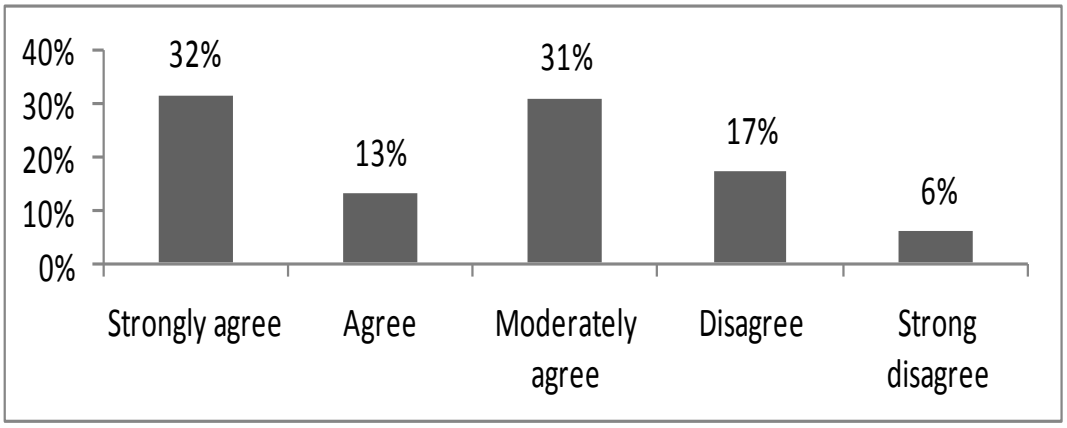
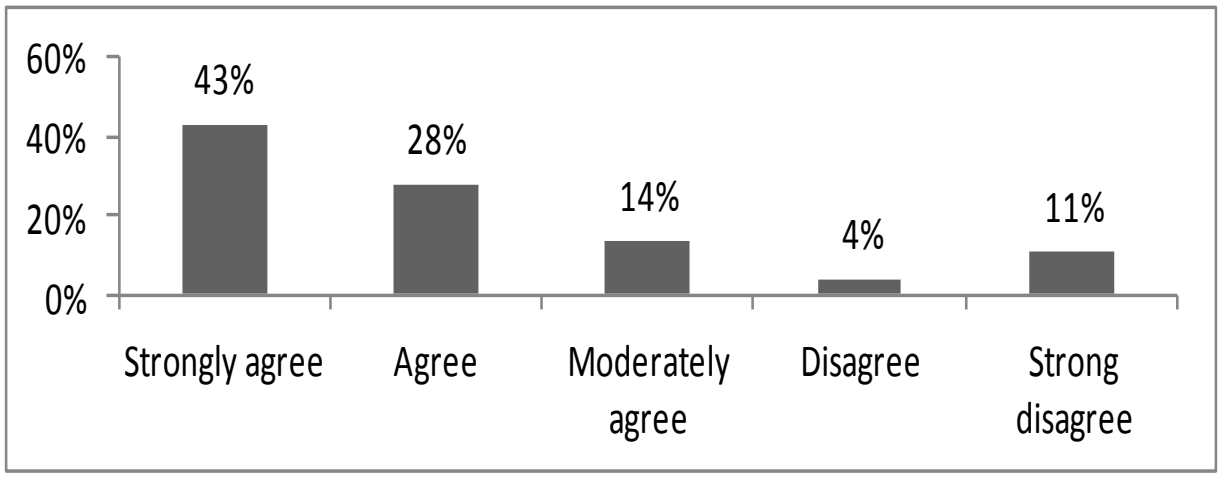


Figure 4.36 shows that training of personnel dealing with drugs at health facilities is generally done with 45% in agreement against 23% who disagree.

Figure 4.37

Bar chart showing whether majority of trainings are internally organized as opposed to government initiatives



The research findings indicated that trainings are internally organised as opposed to government initiatives.

Table 4.29

Table showing education and training of health staff on drug use cross tabulated against facility type

Education and training * Facility type Crosstabulation					
Education and training	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	22%	44%	11%	4%	20%
Agree	13%	32%	4%	23%	28%
Moderately agree	14%	34%	2%	25%	25%
Disagree	7%	50%	0%	21%	21%
Strong disagree	25%	0%	0%	50%	25%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.29 above indicate that accross the facility types, education and training varies greatly while this was considered best at the nursing homes.

Table 4.30

Table showing education and training of health staff on drug use cross tabulated against facility ownership

Education and training * Ownership of facility Crosstabulation							
Education and training	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	0%	4%	65%	4%	4%	9%	13%
Agree	1%	16%	57%	1%	9%	3%	13%
Moderately agree	9%	16%	48%	4%	2%	11%	11%
Disagree	14%	14%	50%	0%	0%	7%	14%
Strong disagree	0%	75%	25%	0%	0%	0%	0%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

Findings indicate that training is in place with exception of ministry of health facilities who felt that education and training was not satisfactory as shown in Figure 4.30 above.

Table 4.31

Table showing education and training of health staff on drug use cross tabulated against job designation

Education and training * Job designation Crosstabulation						
Education and training	Medical doctor	Phamacist	Clinical officer	Nurse	Pharmaceutical technologist	Administrator
Strongly agree	2%	20%	11%	28%	20%	20%
Agree	1%	15%	39%	13%	22%	10%
Moderately agree	2%	4%	45%	16%	27%	7%
Disagree	14%	7%	29%	29%	21%	0%
Strong disagree	0%	0%	50%	25%	25%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

The table above show that pharmacists and administrators consider education and training on drug use carried out satisfactorily while medical doctors do not. The responses vary greatly among other professions.

4.5.7 Medical audits and supervision

Figure 4.38

Bar chart showing the level of agreement on whether trends in prescribing patterns are monitored and evaluated.

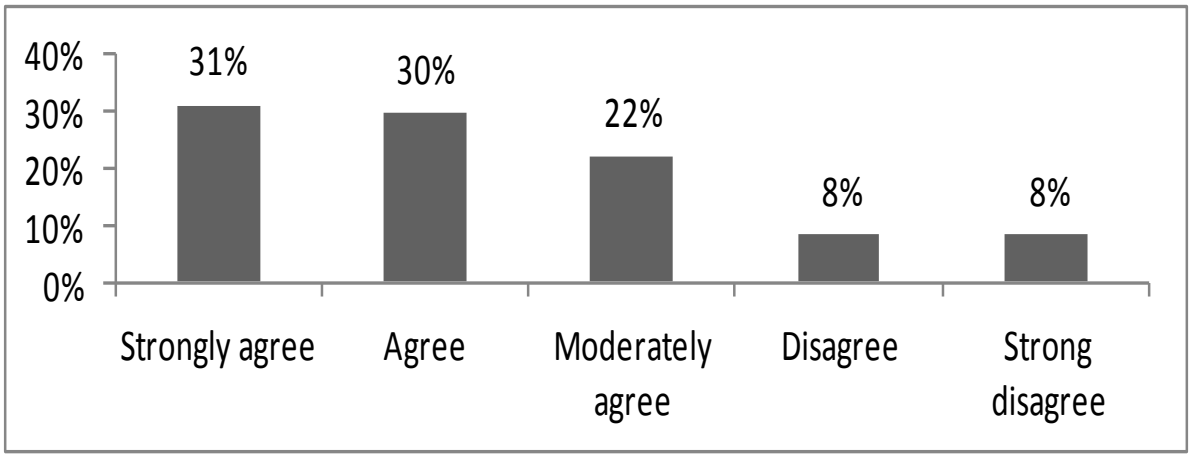


Figure 4.38 above shows that over 83% of the facilities carry out monitoring and evaluation of prescribing patterns in the health facilities.

Figure 4.39

Bar chart showing whether greater proportion of medical audits is through document reviews as opposed to direct observation

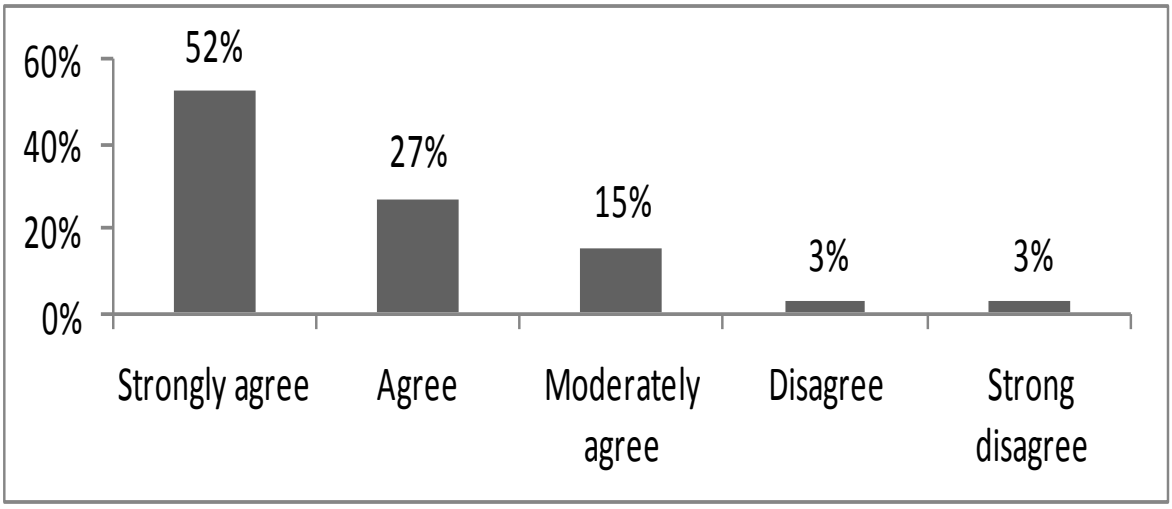


Figure 4.39 above shows that over 94% of the facilities carry out medical audits through document reviews.

Table 4.32

Table showing conduction of medical audits and supervision cross tabulated against the facility type.

Medical audits and supervision * Facility type Crosstabulation					
Medical audits and supervision	**Hospital**	**Medical Clinic**	**Nursing Home**	**Health Centre**	**Dispensary**
Strongly agree	10%	39%	10%	19%	23%
Agree	22%	41%	0%	17%	19%
Moderately agree	14%	33%	3%	20%	30%
Disagree	10%	20%	20%	30%	20%
Strong disagree	20%	20%	0%	20%	40%
Total	**15%**	**36%**	**5%**	**20%**	**24%**

Table 4.32 above show that medical audits and supervision on drug prescribing patterns are carried out at least to a moderate extent in the health facilities.

Table 4.33

Table showing conduction of medical audits and supervision cross tabulated against the facility ownership.

Medical audits and supervision * Ownership of facility Crosstabulation							
Medical audits and supervision	Ministry of health	Local authority	Private medical enterprise	Parastatal	NGO	Community based	Faith based
Strongly agree	2%	23%	48%	2%	6%	8%	12%
Agree	2%	5%	67%	2%	5%	5%	14%
Moderately agree	5%	13%	53%	5%	5%	6%	14%
Disagree	30%	10%	40%	0%	0%	20%	0%
Strong disagree	0%	60%	40%	0%	0%	0%	0%
Total	**4%**	**14%**	**55%**	**3%**	**5%**	**7%**	**12%**

Table 4.33 shows that medical audits and supervision on drug prescribing patterns low in the ministry of health facilities.

Table 4.34

Table showing conduction of medical audits and supervision cross tabulated against job designation

Medical audits and supervision * Job designation Crosstabulation						
Medical audits and supervision	**Medical doctor**	**Phamacist**	**Clinical officer**	**Nurse**	**Pharmaceutical technologist**	**Administrator**
Strongly agree	2%	14%	14%	29%	15%	27%
Agree	2%	21%	36%	12%	24%	5%
Moderately agree	3%	5%	45%	17%	25%	5%
Disagree	0%	0%	40%	20%	40%	0%
Strong disagree	20%	0%	40%	20%	20%	0%
Total	**3%**	**12%**	**33%**	**19%**	**23%**	**11%**

Table 4.34 above shows the level of agreement on medical audits and supervision was highest in pharmacists and administrators

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

Privately owned facilities presented the highest number of health facilities sampled at 55.0%, local authority facilities followed second at 14.3% while ministry of health and parastatal health facilities were the lowest at 4.8% and 2.6% respectively. It is important to note that disciplined forces health facilities were excluded from the study while they form a significant number in the ministry of health category in Nairobi province.

The study also established that most of the employees in registered healthcare institutions in Nairobi were clinical officers, nurses and pharmaceutical technologists. The majority of the respondents were 30 years and above though the findings also indicated that majority of employees in registered healthcare institutions in Nairobi had been in practice for at most 14 years.

The majority (60.8%) of health workers had no experience in PTC. Despite this, awareness of drug formularies and the Kenya Essential drug List was high (at 94%) with only 3% of the respondents being not aware of the drug formularies. On enquiring, some in the 94% confirmed to have never seen the essential drug list itself; even in public sector, rather, they are aware of it as well as the essential drug concept employed in its development. Others had only seen the related documents such as the treatment guidelines. 57.7% of respondents had never participated in development of an STG or a drug formulary. Nevertheless, the majority of respondents considered the drug formularise to be a very important management tool in the drug management process. Only one respondent felt that drug formularies and STG were not necessary at all and that they make health workers narrow minded.

The study also revealed that 73.5% of the registered health facilities in Nairobi had adopted the KEDL while about half of the registered health facilities in Nairobi have their own (facility specific) formulary. Some of the facility specific formularies had been based on the Kenya essential drug list. The majority, (93.6%) considered their drug formularies open while only 6.4% consider their formularies closed. Closed drug formularies in hospitals are mainly on antibiotics whereby restrictions are made to ensure rational prescribing. No negative or

incentivised formularies were noted in Nairobi health facilities. It may however be necessary to offer incentives to prescribers so as to have increased compliance to the drug formulary.

On updates and reviews, 88.4% of the respondents' facility formularies were updated after 2010, though it is important to note that only 55.0% responded to this question and the rest could not remember when the document was last updated. It is very important to review the formulary to be in line with changing treatment needs. It is hereby noted that this study was carried out at a time when the national EDL and STG had been reviewed (2010). The documents had however not been distributed to the public health facilities. The study also revealed that most of the health facilities did not use categorized formularies and only 33.9 had them. The categories included disease specific, age specific and a general one with facilities having two or three of these categories. Categorised formularies are considered to be more detailed e.g. a paediatric formulary indicating a higher level of formulary management. It may also be merely due to facility specialization e.g. gynaecological formulary for maternity hospitals. Finally, 60% of the respondents disclosed that their respective organizations had no objection to use of multiple formularies or other formularies other than facility own. Further enquiry confirmed that this was mainly for information basis as some detailed formularies are more informative to health workers such as the British National Formulary.

Regarding the government establishing adequate reinforcement for the adoption of national medicines policies and especially the KEDL in Kenya, majority of facilities considered it generally fair with 45% positively acknowledging the government's efforts. They felt that the government in commitment to the same has carried out several activities such ensuring policy review, supplies of medicines through the Kenya Medical Supplies Agency, availing the relevant documents such as STG and offering supervision among others. Despite this, drug shortages especially in public health facilities made it counterproductive for compliance to the EDL. This is in agreement with the WHO report on medicine availability (WHO 2009). They also cited lack of personnel and mainly the pharmaceutical personnel in health facilities as a great set back to implementation of national medicines policies.

Results indicate that essential drug list and updated list of registered products are not readily available to both the private and public facilities by 68%. Availability of the essential drug list

and the updated list of registered products to the Pharmacy and Therapeutic Committee empowers them to make sound drug decisions. Facilities felt that during decision making on drugs for example when a product was promoted to them, it was not easy to know of the registration status. This is true as some drugs may not be registered as found in a study where 42.2% of drugs found in the Kenyan market were unregistered, (MOH 2007). Some respondents expressed their opinion that drugs would not be in the market if they were not registered.

In addition, over 78% percent of respondents lack support from the National Medicines and Therapeutic Committee (NMTC). The NMTC mainly develops national guidelines and establishes and reviews drugs to be included in the EDL. Essentially the committee offers the same support to facility PTC which has not been fully explored. It was important to note that over half of the facilities sampled (59%) acknowledged that development of the PTC is mandatory for facilities especially hospitals as stipulated in the Kenya National Pharmaceutical Policy. Despite this, they felt that the National Medicine and Therapeutic Committee had not offered enough support to the health facilities. The health facilities needed to get more guidelines on how to form PTC, requested for samples of drug formulary, the basis of drug decision making as well as an understanding of the essential drug concept.

Across the sampled categories (by cross tabulation), agreement on legislation and regulation varied widely among the facility types and facility ownership. However, among the professions, the nurses and clinical officers considered the reinforcement of medicine policies at national level best with medical doctors and administrators considering it poorest. The regulation and legislation at national level was considered the second most factor affecting the management of hospital drug formularies. Although it was registered that the previous national drug policy had not been well monitored, it is now expected that the government would do more in the implementation of the reviewed Kenya National Pharmaceutical Policy (KNPP 2008).

Regarding drug promotion, specifically, over 94% of the respondents were in agreement that drug promotion induces prescription and purchase of non-formulary drugs while some of facilities attested to having appropriate mechanisms to regulate the practice. Despite the challenge, further research to verify information provided during medicine promotion remains

low with 31% of the respondents taking the information as is. Drug promotion was rated the greatest external factor inducing prescription of formulary drugs which was supported by the literature review. This was also true for medical doctors which contrasts the argument that medical doctors underestimate this influence (Norris *et al* 2005). It was however unfortunate that some facilities had no provisions for dealing with the issue. Some respondents however felt that drug promotion was an important source of drug information especially in Continuous Medical Education which updated them on new drugs and products in the markets. Not many facilities though conducted independent research on medication to support existing information provided during medicines promotions and advertising. The extent of research to support existing information provided during medicines promotions and advertising was however not defined and could have ranged from mere consultation with colleagues, getting other literatures or to complex clinical researches involving comparative studies with existing molecules or follow up with cumulative data during treatment.

Insurance was considered the least factor affecting management of hospital drug formularies in the sampled health facilities in Nairobi. This was mainly attributed to the fact that most health facilities did not have insurance except in hospitals, nursing homes and a few others and only 48% of respondents had insurance in their facilities. At least, only 5% and 4% of the hospitals and nursing homes sampled do not have insurance respectively. In other categories, 43% of medical clinics, 21% of health centres and 26% of dispensaries do not offer any form of insurance facility. The findings also show that hospitals are mainly the health facilities that have encountered different drug restrictions from insurance companies and are also likely have provisions for dealing with external drug formulary requirements/restrictions that differ from their medicines policies. The study further indicated that private medical enterprises have a greater interaction with insurance facilities among the facility types while the same varied greatly among the different professionals sampled.

Regarding internal factors influencing the management of hospital drug formularies, majority of the institutions attested to having institutional medicine policies in place (over 79%) though most health centers and dispensaries do not. Administarators too agreed on having institutional policies on drug use at their facilities. Pharmacists also considered their health facilities to have

institutional medicine policies in place too, however the nurses do not consider their facilities to having institutional medicine policies in place.

Further, the study established that over 50% of the facilities considered their internally generated policies on drug use to comprehensively addressed drug use. Every institution would like to be viewed as having institutional policies on drug use but the study did not establish how medicine-specific this policies were or what they actually spelt. This was commendable; however, prescription by generic name was not good enough. Specifically, at least 40% of the facilities sampled practised generic prescribing or considered it appropriate while 37% do not agree. The remaining 23% practice generic prescribing only to a moderate extent. Literature review pointed that that even where prescribed drugs may all be from the Essential Drug List, other aspects of the essential drug concept may not be followed such as generic prescribing (Naseeb & Nasser 2005). Drug promotion could be the most likely reason for low generic prescribing where the manufacturer insists on the brand name as a positioning strategy.

The study findings showed that only 53% of health facilities had Pharmacy and Therapeutic Committees whether active or not, while 47% did not. Very few health facilities in Nairobi had vibrant Pharmacy and Therapeutic Committees and these were mainly hospitals. The study also shows that most of the hospitals have appropriately formulated PTC and only 2% of the hospitals sampled did not have PTCs. Under the Ministry of health facilities sampled, the study showed that only 3% did not have PTC. Private medical enterprises vary greatly in responses. Across the profession category, pharmacist and medical doctor consider PTC appropriately formulated while the level of agreement varies widely among other professionals.

The findings further showed that PTC membership was not multidisciplinary in most of the cases and that experience, competence and expertise in a range of medical specialties had not been considered in their composition. Specifically, competence and expertise has been considered in the PTC composition in 26% of the facilities. A further 24% had confidence in their PTC drug decisions while 10% did not. The main cause for lack of multidisciplinary PTCs was cited as staff turnover with subsequent lack of replacements. Health centres and dispensaries rarely had PTC. They were characterised by lack of pharmaceutical personnel with the nurses multitasking in majority of activities. The KNPP mainly encourages the major health facilities to have PTC.

The study established that over 85% of the respondent's formulary related documents are reviewed within acceptable time frame and only 15% are not. Further, 49% of the facilities agreed to having the current copies of the formulary documents available to stakeholders, 30% do not have at all while 21% agree to a moderate extent. Across the categories sampled, agreement on document updates and reviews varied greatly among the facility types and ownership however, it was considered poorest by the ministry of health facilities. This may be because the document review takes a while to review (2002 to 2010). Across the professional category, administrators, medical doctors and pharmacists consider documents review and updates highest. In regard to whether the latest updates involved major changes on the drug formulary, the responses were very variable, 35% of respondents agreed that the latest formulary updates involved major changes on the formulary while a similar 35% did not. Another 30% of the respondents agree to this concern only to a moderate extent.

The level of dissemination and awareness creation on the formulary document varied with at least 41% of the respondents being in agreement and 37% being in disagreement. The findings show that in all categories explored, facilities are only able distribute adequate copies of formularies free of charge only to a moderate extent. This may indicate that individuals make personal effort to access formulary documents. The study also established that awareness creation greatest when the specific drugs have harmful effects with 42% in agreement while 30% disagree.

Training of personnel dealing with drugs at health facilities is generally done with 45% in agreement against 23% who disagree. The research findings indicated that trainings are internally organised as opposed to government initiatives. Across the categories, findings indicate that training is in place with exception of ministry of health facilities who felt that education and training was not satisfactory. Objective information is provided in health facilities sampled with over 88% being in agreement.

The findings shows that over 83% of the facilities carry out monitoring and evaluation of prescribing patterns in the health facilities. It also indicated that over 94% of the facilities carry

out monitoring and evaluation of prescribing patterns in health facilities through document reviews as opposed to direct observation. Across the categories, medical audits and supervision on drug prescribing patterns was low in the ministry of health facilities while the level of agreement on medical audits and supervision was highest in pharmacists and administrators.

5.2 Conclusions

Druf formulary mangement in Nairobi health facilities is not fully developed. It was also evident from the study that the drug formulary system management faces several challenges within the health facilities in Nairobi. The formulary type adopted and the medicine policies in place determine the drug treatment outcomes. For example, while facilities have adopted the KEDL and recognize the essential drug concept in drug selection, the majority of the facilities operate with "open formularies" where restrictions are minimal. Incentivised formularies have also not been explored in our settings. There is also minimal utilization of categorised formularies and generally the level of drug formularly management in Nairobi health facilities is low with great room and potential for growth.

The demand for growth of the drug formulary management can not be empasized considering many factors that are challenging compliance. This include varying degree of national and institutional capacity to enforce drug decisions evidenced by aspects such as low availability of therapeutic committess, poor documents dissemination and others. The greatest challenge poses as promotion of drugs and advertising by manufacturers.

5.3 Recommendations

- There is need to base all facilities-own formularies on set standards such as the EDL. Exploration of higher level of formulary management will ensure more benefits to patients.
- Individual facilities must be more proactive in ensuring facilities operate within the national medicine policies.
- The government should continue to play a big role in regulation of pharmaceutical promotion in consideration that promotion continues to be a major factor affecting management of hospital formularies.

- Self regulation by health facilities is a critical component drug formulary managemnt.
- Pharmacy and Therapeutic Committee in facilities to be enforced and also for health centres and dispensaries on need basis.

5.4 Suggestions for further research

Future studies should attempt to explore the limited practice of hospital PTCs in drug formulary management. Most available healthy facility PTCs have not remained vibrant and further studies be done on specific health facilities that have demonstrable effective formulary system management. Specifically the study should explore the benefits reported, identify specific challenges faced, and best practices. These would be used as a benchmark for all other facilities.

The need for PTC in lower facilities should also be explored especially on need basis

Future studies to explore utilization of incentivised formularies. It may be necessary to offer incentives to prescribers so as to have increased compliance to the drug formulary.

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Appendix I: QUESTIONNAIRE

I am Nancy M. Njeru working with the Ministry of Medical Services (NQCL) and currently a postgraduate student at the Kenya Methodist University (Msc. HSM). I am conducting a research on "Factors affecting management of drug formularies by Health facilities in Nairobi". Your Health Facility has been selected to form part of this study. You are faithfully requested to complete the attached questionnaire. Information collected is for academic purpose and will be treated in confidence. Your name or that of your institution will not be mentioned in the research.

PART A: DEMOGRAPHIC INFORMATION

1) Name of the health facility(Optional)_____
2) Where is your organization located? _____
3) Ownership of your organization

❑ Ministry of Health ❑ NGO

❑ Local Authority ❑ Community Based

❑ Private Medical Enterprise ❑ Faith based Health Facility

❑ Parastatal ❑ Other Private

Any other (Kindly specify) _____

4) What is your gender?

❑ Male ❑ Female

5) What is your age?

❑ Less than 30 years ❑ 40 – 49 years

❑ 30 – 39 years ❑ 50 years and above

6) What is your job designation?

❑ Medical doctor ❑ Pharmaceutical technologist

❑ Pharmacist ❑ Administrators

❑ Clinical officer ❑ Quality Assurance

❑ Nurse

Any other (Kindly specify) _____

7) For how long have you been in practice?

❑ Less than 5 years ❑ 10 –14 years ❑ 20 years and above

❑ 5 –9 years ❑ 15 –19 years

8) What years of experience do you have as a member of Pharmacy and therapeutic committee

❑ Less than 5 years ❑ 5 –9 years ❑ Over 10 years

9) Are you aware of drug formularies and the Kenya Essential Drug List?

❑ Yes ❑ No ❑ Not sure

10) Have you ever participated in the development of a Standard Treatment Guideline or a drug formulary? Yes -------- No ----------

11) To what extent do you consider drug formularies important as management tools in the drug management process?

❑ Not at all ❑ Moderate extent ❑ Very large extent

❑ Less extent ❑ Large extent

PART B: TYPE OF FORMULARY IN USE BY VARIOUS HEALTH FACILITIES IN NAIROBI

12) Drug formularies are management tools that aim at achieving efficiency in the medication use processes. Have you adopted the Kenya Essential Drug List as required by the current national medicines policy?

❑ Yes ❑ No

a) If not, do you have own (facility – specific) formulary?

❑ Yes ❑ No

b) If own, what type of formulary is it? – (multiple responses)

❑ Closed ❑ Positive

❑ Open ❑ Negative

❑ Incentivised

13) When was last update carried out _____?

14) Do you use categorized formularies?

❑ Yes ❑ No

a) If yes, indicate the category e.g. disease specific or age specific such as paediatric formulary_____

15) Does your institution support use of multiple formularies?

❑ Yes ❑ No

PART C: EXTERNAL FACTORS INFLUENCING THE MANAGEMENT OF DRUG FORMULARIES IN NAIROBI HEALTH FACILITIES

16) Regulation and legislation at national level

The government develops national medicine policies and must ensure comprehensive implementation through publishing, launching, disseminating, training, supervision, updating, monitoring and evaluation of the policies countrywide. To what extent do you think the following is true concerning the hospital drug formulary?

Kindly tick where appropriate using scale 1 – 5 where 5 **represents to a "strongly agree"** while **1** is award on **"least agree"**

	5	**4**	**3**	**2**	**1**
The government has established adequate reinforcement for the adoption of national medicines policies and especially the KEDL in Kenya					
The essential drug list and the updated list of registered products are readily available to the PTC					
The National Medicine and Therapeutic Committee supports health facility PTCs in both public and private sector					
Development of Pharmacy and therapeutic committees is mandatory for health facilities					

17) Drug Promotion

There are rigorous drug promotions and advertisings due to increasing numbers of pharmaceutical products in the Kenyan market. To what extent do you agree with the following statements? Kindly tick appropriately using scale 1 – 5 where **5** represents **"strongly agree"** while **1** is award on **"least agree"**.

	5	**4**	**3**	**2**	**1**
Promotion induces prescription and purchase of non-formulary drugs					
We have appropriate mechanisms to regulate persuasive activities by manufacturers regarding medicine promotion and advertising within the hospital					
We conduct independent research on medication to support existing information provided during medicines promotions and advertising					

18) Insurance and health maintenance organizations

Insurance companies have used the formulary system to help control costs in the way drug expenditures are reimbursed. To what extent do you think the following has impacted on your institution? Kindly tick where appropriate using scale 1 – 5 where **5** represents **"strongly agree"** while **1** is award on **"least agree"**

Insurance and health maintenance organizations (HMO)	**5**	**4**	**3**	**2**	**1**
We have encountered different drug formulary requirements/restrictions from insurance companies and HMOs					
Restrictions imposed by insurance companies on drugs are both quality and cost oriented					
Our PTC has provisions for dealing with external drug formulary requirements/restrictions that differ from our medicines policies					

PART D: INTERNAL FACTORS INFLUENCING THE MANAGEMENT OF DRUG FORMULARIES IN NAIROBI HEALTH FACILITIES

19) Institutional policy on drug use

National guidelines are adopted or adapted to different degrees from one institution to another depending on laid down institutional policies. Kindly tick where appropriate using scale 1 – 5 where **5** represents **"strongly agree"** while **1** is award on **"least agree"**

	5	**4**	**3**	**2**	**1**
We have in existence an institutional medicines policy					
Prescription by generic name is a requirement in our institution					
Our internally generated policies on drug use are more strict and comprehensively address drug use					

20) Reinforcement by the management

Reinforcement of internally laid down procedures is a strong pointer to self-regulation. To what extent do you agree with the following statements? Kindly tick where appropriate using scale 1 – 5 where **5** represents **"strongly agree"** while **1** is award on **"least agree"**

	5	**4**	**3**	**2**	**1**
Our institution has a vibrant therapeutic committee					
The management is keen on compliance the drug formulary/EDL					

Requests for non-formulary prescribing are formalized and evaluated					

21) Appropriately formulated PTC

The PTC formulation criteria may lead to a respected or a non-respected prescriber's formulary. Kindly tick where appropriate using scale 1 – 5 where **5** represents **"strongly agree"** while **1 is** award on **"least agree"**

	5	**4**	**3**	**2**	**1**
PTC membership is multidisciplinary in composition pooled from all relevant fields					
Experience, competence and expertise in a range of medical specialties have been considered in our PTC composition					
Prescribers and other health staff have confidence in our PTC drug use decisions					

To what extent do you agree with the following statements? Kindly tick where appropriate using scale 1 – 5 where 1 represents factors with least effects while **5** represents **to a "strongly agree"** while **1** is award on **"least agree"**

22) Document updates and reviews	**5**	**4**	**3**	**2**	**1**
The formulary and related documents are reviewed within acceptable time frame					
The current formulary document is available to all stakeholders					
The latest updates involved major changes on the formulary					
23) Dissemination and awareness creation	**5**	**4**	**3**	**2**	**1**
We distribute adequate copies of formularies free of charge					
Awareness creation is only greatest when the specific drugs have harmful effects					
24) Education and training	**5**	**4**	**3**	**2**	**1**
There is regular provision of objective information					
There is continued training of personnel dealing with drugs					
Majority of trainings are internally organized as opposed to government					

initiatives					
25) Medical audits and supervision	**5**	**4**	**3**	**2**	**1**
Trends in prescribing patterns are monitored and evaluated					
Greater proportion of medical audits is through document reviews as opposed to direct observation					

Kindly give your comment or additional remarks that would shed more light on challenges in drug formulary management in health facilities as well as how we can overcome them.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for availing your time to respond to the questions. A copy of the findings will be sent to the Provincial Director of Medical Services for your viewing.

Appendix II REQUEST FOR DATA COLLECTION

Dr. Nancy M. Njeru

P.O. Box 45240-00100,

KEMU, Nairobi

Date: 16th May 2

DORKCARE NURSING HOME

DORKCARE NURSING HOME
P. O. Box 33541
NAIROBI
TEL: 760498

Dear,

REF: REQUEST FOR AUTHORITY TO CARRY OUT ACADEMIC RESEARCH:

I am a civil servant working under the ministry of Medical Services and stationed at the National Quality Control Laboratory, (NQCL). I am pursuing my masters' degree in Health Systems Management at the Kenya Methodist University (KEMU). I have been granted a permit to conduct research on **'Factors affecting management of Hospital drug formularies in health facilities in Nairobi'** by the National Council for Science and Technology via *Research Permit No. NCST/RR1/12/1/MED-011/42.*

The academic research will involve use of a questionnaire to be filled by the respondent after consent is sought. The respondent will be any individual who is a member of the Pharmacy and Therapeutic committee or the personnel in charge of medicines in the facility where the PTC is not available.

Your facility has been randomly selected to form part of the 189 facilities to be included in the study. I hereby write to seek your much needed authorization to be able to carry out the research; any prompt response accorded is very important and highly appreciated so as to be able to complete the research within the period authorized in the permit. Information acquired will be treated with utmost confidence.

I look forward to your favorable consideration and subsequent filling of the attached questionnaire.

Attached are approvals from other authorities.

Yours sincerely,

16th May 2011

Dr. Nancy M. Njeru.

Appendix III List of registered health facilities in Nairobi, (Kenya Health facilities 2010

List of registered health facilities in Nairobi, (Kenya Health facilities 2010

Code	District	Facility	Owner	Type	Location	Status
12868	Nairobi East	Aga Khan Medical Clinic	Private Medical Enterprise	Medical Clinic - Other	Makadara	Operational
12869	Nairobi East	Alice Nursing Home	Private Medical Enterprise	Nursing home without Maternity	Embakasi	Operational
12871	Nairobi East	APTC Health Centre	Armed Forces	Health Centre	Embakasi	Operational
12872	Nairobi East	Arraw Web Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12873	Nairobi East	Aski Medical Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12880	Nairobi East	Bahati Medical Clinic	Private Medical Enterprise	Medical Clinic - Other	Makadara	Operational
12887	Nairobi East	Brother Andre Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
12888	Nairobi East	Buruburu Medical Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
12889	Nairobi East	Cana Family Clinic	Other Faith Based	Medical Clinic - Other	Makadara	Operational
12896	Nairobi East	CIDI Kayole Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
12897	Nairobi East	CIDI Mukuru Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
12903	Nairobi East	Conerstone Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
12904	Nairobi East	Coptic Clinic	Other Faith Based	Medical Clinic - Other	Makadara	Operational
12908	Nairobi East	Dabliu Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
12911	Nairobi East	Dandora (EDARP) Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
12910	Nairobi East	Dandora (PCEA) Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
12912	Nairobi East	Dandora II Health Centre	Local Authority	Health Centre	Embakasi	Operational
12913	Nairobi East	Dandora II Health Centre (Nairobi East)	Local Authority	Health Centre	Embakasi	Operational
12914	Nairobi East	Deblin Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12915	Nairobi East	Delta Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12917	Nairobi East	Diwopa Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
12920	Nairobi East	Donholm Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
12925	Nairobi East	Dr Mohamed Clinic	Private Medical Enterprise	Medical Clinic - Other	Makadara	Operational
12935	Nairobi East	Embakasi Health Centre	Local Authority	Health Centre	Embakasi	Operational
12936	Nairobi East	Emmaus Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
12943	Nairobi East	Flack Clinic	Other Private	Medical Clinic - Other	Makadara	Operational

12947	Nairobi East	Garrison Health Centre	Armed Forces	Health Centre	Embakasi	Operational
12949	Nairobi East	Genessaret Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12952	Nairobi East	Getrude Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12958	Nairobi East	Giwa Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12962	Nairobi East	GSU Health Centre (Nairobi East)	Armed Forces	Health Centre	Embakasi	Operational
12967	Nairobi East	Hakati Medical Clinic	Private Medical Enterprise	Medical Clinic - Other	Embakasi	Operational
12969	Nairobi East	Hono Clinic	Local Authority	Medical Clinic - Other	Makadara	Operational
12971	Nairobi East	Hope World Wide Mitindwa Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
12977	Nairobi East	Huruma Nursing Home - K	Other Private	Nursing home with Maternity	Embakasi	Operational
12978	Nairobi East	Huruma Nursing Home - P	Other Private	Nursing home with Maternity	Embakasi	Operational
12981	Nairobi East	Imara Medical Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
12982	Nairobi East	Immaculate Sisters Clinic	Other Faith Based	Medical Clinic - Other	Makadara	Operational
12984	Nairobi East	Jamaa Hospital	KECCS	Other Hospital	Makadara	Operational
12988	Nairobi East	Jericho Health Centre	Local Authority	Health Centre	Makadara	Operational
12991	Nairobi East	JKIA Health Centre	Ministry of Health	Health Centre	Embakasi	Operational
12992	Nairobi East	Juhudi Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
12998	Nairobi East	Kaloleni Dispensary	Local Authority	Dispensary	Makadara	Operational
12999	Nairobi East	Kaloleni Medical Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13002	Nairobi East	Kapu Medical Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13014	Nairobi East	Kayole Hospital	Private Medical Enterprise	Other Hospital	Embakasi	Operational
13015	Nairobi East	Kayole I Health Centre	Local Authority	Health Centre	Embakasi	Operational
13016	Nairobi East	Kayole II Sub-District Hospital	Local Authority	Primary Hospital	Embakasi	Operational
13017	Nairobi East	Kayole Soweto Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
13038	Nairobi East	Komarock Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13040	Nairobi East	Landmawe Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13047	Nairobi East	Lea Toto Kariobangi South Clinic	NGO	Medical Clinic - Other	Embakasi	Operational
13051	Nairobi East	Loco Dispensary	Ministry of Health	Dispensary	Makadara	Operational
13053	Nairobi East	Lunga Lunga Health Centre	Local Authority	Health Centre	Makadara	Operational
13056	Nairobi East	Makadara Health Centre	Local Authority	Health Centre	Makadara	Operational
13057	Nairobi East	Makadara Ms Dispensary	KECCS	Dispensary	Makadara	Operational
13060	Nairobi East	Makogeni Clinic	Local Authority	Medical Clinic - Other	Makadara	Operational
13063	Nairobi East	Maria Maternity	Other Private	Dispensary	Embakasi	Operational
13064	Nairobi East	Mariakani Cottage Hospital	Other Private	Other Hospital	Makadara	Operational

13069	Nairobi East	Maringo Clinic	Local Authority	Medical Clinic - Other	Makadara	Operational
13074	Nairobi East	Mater Hospital	Other Faith Based	Other Hospital	Makadara	Operational
13079	Nairobi East	Mayflower Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13081	Nairobi East	Mbotela Clinic	Local Authority	Medical Clinic - Other	Makadara	Operational
13084	Nairobi East	Medina Medical Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13090	Nairobi East	Metropolitan Hospital	Other Private	Other Hospital	Makadara	Operational
13094	Nairobi East	Mkunga Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13097	Nairobi East	MOW Dispensary (Nairobi East)	Ministry of Health	Dispensary	Makadara	Operational
13100	Nairobi East	Mukuru Crecent Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13101	Nairobi East	Mukuru MMM Clinic	KECCS	Dispensary	Embakasi	Operational
13102	Nairobi East	Mundoro Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13106	Nairobi East	Mwatate Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13113	Nairobi East	Nairobi South Clinic	Local Authority	Dispensary	Makadara	Operational
13124	Nairobi East	Ngundo (PCEA) Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
13126	Nairobi East	Njiru Dispensary	Community	Dispensary	Embakasi	Operational
13132	Nairobi East	Ofafa I Clinic	Local Authority	Medical Clinic - Other	Makadara	Operational
13136	Nairobi East	P & T Clinic	Parastatal	Dispensary	Makadara	Operational
13142	Nairobi East	Pine Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13143	Nairobi East	Pipeline Medical Clinic	Parastatal	Dispensary	Embakasi	Operational
13144	Nairobi East	Police Band Dispensary	Other Public Institution	Dispensary	Makadara	Operational
13148	Nairobi East	Provide Dandora Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
13151	Nairobi East	Provide Kayole Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
13161	Nairobi East	Remand Dispensary	Prisons	Dispensary	Makadara	Operational
13168	Nairobi East	RTI Dispensary	Academic (if registered)	Dispensary	Makadara	Operational
13169	Nairobi East	Ruai Catholic Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
13170	Nairobi East	Ruai Community Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13171	Nairobi East	Ruai Health Centre	Local Authority	Health Centre	Embakasi	Operational
13173	Nairobi East	Ruben Centre Clinic	Other Faith Based	Dispensary	Embakasi	Operational
13176	Nairobi East	Samaritan Clinic (Nairobi East)	Other Private	Medical Clinic - Other	Embakasi	Operational
13185	Nairobi East	Shepherds Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13190	Nairobi East	South B Clinic	Other Private	Medical Clinic - Other	Makadara	Operational
13191	Nairobi East	Soweto (EDARP) Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
13192	Nairobi East	Special Provision Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational

13197	Nairobi East	St Ann's Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13198	Nairobi East	St Begson Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13211	Nairobi East	St Jude Medical Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13214	Nairobi East	St Mark Medical Clinic (Nairobi East)	Other Private	Medical Clinic - Other	Embakasi	Operational
13215	Nairobi East	St Mary's Clinic (Nairobi East)	Other Private	Medical Clinic - Other	Embakasi	Operational
13220	Nairobi East	St Monica Donholm Clinic	KECCS	Medical Clinic - Other	Embakasi	Operational
13222	Nairobi East	St Patrick Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13228	Nairobi East	St Thomas Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13229	Nairobi East	St Vincent Clinic (Nairobi East)	Other Private	Medical Clinic - Other	Embakasi	Operational
13236	Nairobi East	Tena (PCEA) Clinic	Other Faith Based	Medical Clinic - Other	Embakasi	Operational
13240	Nairobi East	Umoja Health Centre	Local Authority	Health Centre	Embakasi	Operational
13241	Nairobi East	Umoja Hospital	Other Private	Other Hospital	Embakasi	Operational
13247	Nairobi East	Victory Hospital	Other Private	Other Hospital	Embakasi	Operational
13251	Nairobi East	Wamunga Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13252	Nairobi East	Wangu Clinic	Other Private	Medical Clinic - Other	Embakasi	Operational
13257	Nairobi East	Wentworth Hospital	Other Private	Other Hospital	Embakasi	Operational
12861	Nairobi North	AAR City Centre Clinic	Other Private	Medical Clinic - Other	Central	Operational
12862	Nairobi North	AAR Kariobangi Clinic	Other Private	Medical Clinic - Other	Kasarani	Operational
12863	Nairobi North	AAR Thika Road Clinic	Other Private	Medical Clinic - Other	Kasarani	Operational
12865	Nairobi North	Afwan Nursing Home	Other Private	Nursing home without Maternity	Pumwani	Operational
12875	Nairobi North	Babadogo (EDARP)	Other Faith Based	VCT Centre (Stand-Alone)	Kasarani	Operational
12876	Nairobi North	Babadogo Health Centre	Local Authority	Health Centre	Kasarani	Operational
12877	Nairobi North	Babadogo Medical Health Centre	Other Private	Health Centre	Kasarani	Operational
12878	Nairobi North	Bahati Clinic	Local Authority	Medical Clinic - Other	Pumwani	Operational
12879	Nairobi North	Bahati Health Centre	Local Authority	Health Centre	Pumwani	Operational
12881	Nairobi North	Baraka Dispensary (Nairobi)	Other Private	Dispensary	Kasarani	Operational
12882	Nairobi North	Bethel Clinic	Other Private	Medical Clinic - Other	Central	Operational
12883	Nairobi North	Biafra Dispensary	Local Authority	Medical Clinic - Other	Eastleign South	Operational
12884	Nairobi North	Biafra Medical Clinic	Other Private	Dispensary	Pumwani	Operational
12885	Nairobi North	Blue House Dispensary	NGO	Dispensary	Eastleigh North	Operational
12890	Nairobi North	Canaan Clinic (Nairobi)	Other Private	Medical Clinic - Other	Central	Operational
12895	Nairobi North	Christian Aid Dispensary	Other Private	Dispensary	Kasarani	Operational
12899	Nairobi North	CMA (Jamia) Clinic	Other Faith Based	Medical Clinic - Other	Central	Operational

12900	Nairobi North	CMA (Pangani) Clinic	Other Faith Based	Medical Clinic - Other	Central	Operational
12901	Nairobi North	Community Health Foundation	Community	Dispensary	Central	Operational
12902	Nairobi North	Compassionate Hospital	Other Private	Other Hospital	Kasarani	Operational
12906	Nairobi North	Corner Stone	Other Private	VCT Centre (Stand-Alone)	Kasarani	Operational
12916	Nairobi North	Diani Dispensary	Other Private	Dispensary	Eastleigh South	Operational
12921	Nairobi North	Dorkcare Nursing Home	Other Private	Nursing home with Maternity	Eastleigh North	Operational
12930	Nairobi North	Eastleigh Health Centre	Local Authority	Health Centre	Pumwani	Operational
12931	Nairobi North	Eden Dispensary	Other Private	Dispensary	Kasarani	Operational
12932	Nairobi North	Ediana Nursing Home	Other Private	Nursing home with Maternity	Kasarani	Operational
12933	Nairobi North	Edna Clinic	Other Private	Medical Clinic - Other	Eastleigh North	Operational
12934	Nairobi North	Edna Maternity	Other Private	Nursing home with Maternity	Eastleign South	Operational
12937	Nairobi North	Family Care Clinic Kasarani	Other Private	Dispensary	Kasarani	Operational
12939	Nairobi North	Family Health Options Phoenix	NGO	Dispensary	Central	Operational
12940	Nairobi North	Family Health Options Ribeiro	NGO	Dispensary	Central	Operational
12941	Nairobi North	Family Life Promotions Dispensary	Other Private	Dispensary	Bahati	Operational
12946	Nairobi North	Gaimu Clinic	Other Private	Medical Clinic - Other	Central	Operational
12955	Nairobi North	Giovanna Dispensary	Other Private	Dispensary	Kasarani	Operational
12956	Nairobi North	Githurai Medical Dispensary	Other Private	Dispensary	Kasarani	Operational
12957	Nairobi North	Githurai VCT	Other Private	VCT Centre (Stand-Alone)	Kasarani	Operational
12959	Nairobi North	Good Samaritan Dispensary	Other Private	Dispensary	Kasarani	Operational
12963	Nairobi North	GSU HQ Dispensary (Ruaraka)	Ministry of Health	Dispensary	Kasarani	Operational
12965	Nairobi North	Guru Nanak Hospital	Other Private	Other Hospital	Central	Operational
12973	Nairobi North	Huruma (EDARP)	Other Faith Based	VCT Centre (Stand-Alone)	Central	Operational
12972	Nairobi North	Huruma (NCCK) Dispensary	Other Faith Based	Dispensary	Central	Operational
12974	Nairobi North	Huruma Lions Dispensary	Local Authority	Dispensary	Central	Operational
12975	Nairobi North	Huruma Maternity Hospital	Other Private	Other Hospital	Kasarani	Operational
12976	Nairobi North	Huruma Nursing Home	Other Private	Nursing home with Maternity	Central	Operational
12980	Nairobi North	IDF Mathare Dispensary	Other Private	Dispensary	Eastleigh North	Operational
12983	Nairobi North	Imperial Clinic	Other Private	Medical Clinic - Other	Central	Operational
12986	Nairobi North	Jamii Medical Hospital	Other Private	Other Hospital	Kasarani	Operational
12987	Nairobi North	Jerapha Maternity	Other Private	Nursing home with Maternity	Kasarani	Operational
12989	Nairobi North	Jerusalem Clinic	Local Authority	Medical Clinic - Other	Pumwani	Operational
12996	Nairobi North	Kahawa Garrison Health Centre	Ministry of Health	Health Centre	Kasarani	Operational

12997	Nairobi North	Kahawa West Health Centre	Local Authority	Health Centre	Kasarani	Operational
13000	Nairobi North	Kamiti Prison Hospital	Ministry of Health	Other Hospital	Kasarani	Operational
13006	Nairobi North	Kariobangi Health Centre	Local Authority	Health Centre	Kasarani	Operational
13007	Nairobi North	Kariokor Clinic	Local Authority	Medical Clinic - Other	Central	Operational
13008	Nairobi North	Karma Dispensary	Other Private	Dispensary	Kasarani	Operational
13010	Nairobi North	Kasarani Health Centre	Local Authority	Health Centre	Kasarani	Operational
13011	Nairobi North	Kasarani Maternity	Other Private	Nursing home with Maternity	Kasarani	Operational
13012	Nairobi North	Kasarani Medical Health Centre	Other Private	Health Centre	Kasarani	Operational
13020	Nairobi North	KENWA	NGO	Dispensary	Central	Operational
13021	Nairobi North	Kenya Airways Clinic	Other Private	Medical Clinic - Other	Central	Operational
13022	Nairobi North	Kenya Utalii Dispensary	Other Private	Dispensary	Kasarani	Operational
13024	Nairobi North	Kenyatta University Dispensary	Other Public Institution	Dispensary	Kasarani	Operational
13031	Nairobi North	KIE/KAPC	Other Public Institution	VCT Centre (Stand-Alone)	Central	Operational
13034	Nairobi North	Kilimanjaro Nursing Home	Other Private	Nursing home without Maternity	Eastleigh North	Operational
13039	Nairobi North	Lagos Road Dispensary	Local Authority	Dispensary	Central	Operational
13045	Nairobi North	Lea Toto	NGO	VCT Centre (Stand-Alone)	Kasarani	Operational
13055	Nairobi North	Madina Nursing Home	Other Private	Nursing home with Maternity	Eastleigh North	Operational
13059	Nairobi North	Makkah Nursing Home	Other Private	Nursing home with Maternity	Eastleigh North	Operational
13065	Nairobi North	Marie Stopes Clinic (KENCOM)	Other Private	Medical Clinic - Other	Central	Operational
13066	Nairobi North	Marie Stopes Clinic (Pangani)	Other Private	Medical Clinic - Other	Central	Operational
13068	Nairobi North	Marie Stopes Nursing Home (Eastleigh)	Other Private	Nursing home with Maternity	Eastleigh North	Operational
13070	Nairobi North	Marura Nursing Home	Other Private	Nursing home with Maternity	Kasarani	Operational
13071	Nairobi North	Marurui Dispensary	Other Private	Dispensary	Kasarani	Operational
13072	Nairobi North	Mary Immaculate Sisters Dispensary	Other Faith Based	Dispensary	Bahati	Operational
13075	Nairobi North	Mathare 3A (EDARP)	Other Faith Based	VCT Centre (Stand-Alone)	Central	Operational
13076	Nairobi North	Mathare Hospital	Ministry of Health	Other Hospital	Central	Operational
13077	Nairobi North	Mathare North Health Centre	Local Authority	Health Centre	Kasarani	Operational
13078	Nairobi North	Mathare Police Depot	Ministry of Health	Medical Clinic - Other	Central	Operational
13082	Nairobi North	Medical Reception Dispensary	Other Private	Dispensary	Kasarani	Operational
13083	Nairobi North	Medicare Clinic	Other Private	Medical Clinic - Other	Central	Operational
13085	Nairobi North	Med-Point Dispensary	Other Private	Dispensary	Kasarani	Operational
13092	Nairobi North	Ministry of Education (MOEST) VCT Centre	Other Public Institution	VCT Centre (Stand-Alone)	Central	Operational
13095	Nairobi North	Moi Air Base Hospital	Ministry of Health	Other Hospital	Eastleigh North	Operational

13096	Nairobi North	Mother & Child Hospital	Other Private	Other Hospital	Eastleign South	Operational
13104	Nairobi North	Muthurwa Clinic	Local Authority	Medical Clinic - Other	Pumwani	Operational
13107	Nairobi North	Naioth Medical Clinic	Other Private	Dispensary	Central	Operational
13108	Nairobi North	Nairobi Deaf (Liverpool)	NGO	VCT Centre (Stand-Alone)	Central	Operational
13111	Nairobi North	Nairobi Outpatient	Other Private	Health Centre	Central	Operational
13121	Nairobi North	Ngaira Rhodes Dispensary	Local Authority	Dispensary	Central	Operational
13122	Nairobi North	Ngara Health centre	Local Authority	Dispensary	Central	Operational
13125	Nairobi North	Nimoli Medical Centre	Other Private	Health Centre	Kasarani	Operational
13127	Nairobi North	NSIS Health Centre (Ruaraka)	Ministry of Health	Health Centre	Kasarani	Operational
13128	Nairobi North	Nuffield Nursing Home	Other Private	Nursing home with Maternity	Kasarani	Operational
13130	Nairobi North	NYS HQ Health Centre (Nairobi North)	Ministry of Health	Health Centre	Kasarani	Operational
13133	Nairobi North	Ogwedhi Dispensary (Nairobi North)	Other Private	Dispensary	Kasarani	Operational
13138	Nairobi North	Pangani Dispensary	Local Authority	Dispensary	Central	Operational
13139	Nairobi North	Parkroad Hospital	Other Private	Other Hospital	Central	Operational
13140	Nairobi North	Phoenix (FHOK) Clinic	NGO	Medical Clinic - Other	Central	Operational
13141	Nairobi North	Piemu Medical Health Centre	Other Faith Based	Medical Clinic - Other	Kasarani	Operational
13145	Nairobi North	Pona Mat Dispensary	Other Private	Dispensary	Kasarani	Operational
13147	Nairobi North	Prime Healthservices Dispensary	Other Private	Dispensary	Kasarani	Operational
13149	Nairobi North	Provide Inter Math Dispensary	Other Private	Dispensary	Kasarani	Operational
13150	Nairobi North	Provide International Korogocho	Other Faith Based	Other Hospital	Kasarani	Operational
13153	Nairobi North	PSTC Health Centre	Ministry of Health	Health Centre	Kasarani	Operational
13154	Nairobi North	Pumwani Clinic	Local Authority	Dispensary	Pumwani	Operational
13155	Nairobi North	Pumwani Majengo Dispensary	Local Authority	Dispensary	Pumwani	Operational
13156	Nairobi North	Pumwani Maternity Hospital	Local Authority	Other Hospital	Pumwani	Operational
13157	Nairobi North	Pumwani Maternity VCT Centre	Local Authority	VCT Centre (Stand-Alone)	Pumwani	Operational
13158	Nairobi North	Radent Hospital	Other Private	Other Hospital	Central	Operational
13160	Nairobi North	Redemeed Health Centre	Ministry of Health	Health Centre	Kasarani	Operational
13163	Nairobi North	Rhodes Chest Clinic	Local Authority	Medical Clinic - Other	Central	Operational
13164	Nairobi North	Ribeiro Clinic	Other Private	Medical Clinic - Other	Central	Operational
13166	Nairobi North	Ronil Dispensary	Other Private	Dispensary	Kasarani	Operational
13167	Nairobi North	Round About Medical Dispensary	Other Private	Dispensary	Kasarani	Operational
13172	Nairobi North	Ruaraka Clinic	Ministry of Health	Dispensary	Kasarani	Operational
13174	Nairobi North	Rural AID VCT	Community	VCT Centre (Stand-Alone)	Central	Operational

13175	Nairobi North	Salama Nursing Home	Other Private	Nursing home without Maternity	Eastleigh North	Operational
13177	Nairobi North	Samaritan Comm Dispensary	Other Faith Based	Dispensary	Kasarani	Operational
13180	Nairobi North	Sex Workers Operation Project (SWOP)	NGO	Dispensary	Central	Operational
13182	Nairobi North	Shaam Nursing Home	Other Private	Nursing home without Maternity	Eastleigh North	Operational
13183	Nairobi North	Shauri Moyo Baptist VCT Centre	Other Faith Based	Medical Clinic - Other	Kamukunji	Operational
13184	Nairobi North	Shauri Moyo Clinic	Local Authority	Medical Clinic - Other	Pumwani	Operational
13187	Nairobi North	Single Mothers Association of Kenya (SMAK)	Community	VCT Centre (Stand-Alone)	Central	Operational
13189	Nairobi North	SOS Dispensary	NGO	Dispensary	Bahati	Operational
13193	Nairobi North	Special Treatment Clinic	Local Authority	Dispensary	Central	Operational
13196	Nairobi North	St Annes Medical Health Centre	Other Private	Health Centre	Kasarani	Operational
13199	Nairobi North	St Bridgets Clinic	Other Private	Medical Clinic - Other	Central	Operational
13202	Nairobi North	St Francis Com Hospital	Other Private	Other Hospital	Kasarani	Operational
13203	Nairobi North	St Francis Health Centre (Nairobi North)	Other Faith Based	Health Centre	Kasarani	Operational
13205	Nairobi North	St John Hospital	Other Private	Other Hospital	Kasarani	Operational
13206	Nairobi North	St Johns Ambulance	NGO	VCT Centre (Stand-Alone)	Central	Operational
13207	Nairobi North	St Joseph (EDARP) Clinic	Other Faith Based	Medical Clinic - Other	Kamukunji	Operational
13208	Nairobi North	St Joseph Mukasa Dispensary	Other Faith Based	Dispensary	Kasarani	Operational
13217	Nairobi North	St Mary's Health Centre	Other Private	Health Centre	Kasarani	Operational
13223	Nairobi North	St Peter Dispensary	Other Private	Dispensary	Kasarani	Operational
13224	Nairobi North	St Philips Health Centre	Other Private	Health Centre	Kasarani	Operational
13225	Nairobi North	St Teresa's Dispensary	Other Faith Based	Dispensary	Eastleigh North	Operational
13226	Nairobi North	St Teresa's Health Centre (Nairobi North)	Other Private	Health Centre	Eastleign South	Operational
13230	Nairobi North	St Vincent Dispensary	Other Faith Based	Dispensary	Eastleigh North	Operational
13233	Nairobi North	Supkem (Liverpool)	NGO	VCT Centre (Stand-Alone)	Central	Operational
13235	Nairobi North	Teachers Service Commission	Other Public Institution	VCT Centre (Stand-Alone)	Central	Operational
13237	Nairobi North	Transcom Medical Services	Other Private	Dispensary	Central	Operational
13243	Nairobi North	Upendo Dispensary	Ministry of Health	Dispensary	Central	Operational
13246	Nairobi North	Uzima Dispensary	Other Private	Dispensary	Kasarani	Operational
13248	Nairobi North	Vision Peoples Inter Health Centre	Other Faith Based	Health Centre	Kasarani	Operational
13250	Nairobi North	Wakibe Clinic	Other Private	Medical Clinic - Other	Central	Operational
13253	Nairobi North	Warazo Clinic	Other Private	Medical Clinic - Other	Kasarani	Operational
13260	Nairobi North	Woodstreet Nursing Home	Other Private	Nursing home with Maternity	Eastleigh North	Operational
13261	Nairobi North	Zimmerman Medical Dispensary	Other Private	Dispensary	Kasarani	Operational

16796	Nairobi West	AAR Clinic Sarit Centre	Other Private	Medical Clinic - Other	Westlands	Operational
12864	Nairobi West	Abandoned Child Care	NGO	Dispensary	Dagoretti	Operational
12866	Nairobi West	Afya Medical Health Centre	Other Private	Health Centre	Dagoretti	Operational
12867	Nairobi West	Aga Khan Hospital	Other Private	Other Hospital	Westlands	Operational
16801	Nairobi West	Al-Gadhir Clinic	NGO	Medical Clinic - Other	Dagoretti	Operational
12870	Nairobi West	Amurt Health Centre	NGO	Health Centre	Westlands	Operational
12874	Nairobi West	Avenue Nursing Hospital	Other Private	Other Hospital	Westlands	Operational
12886	Nairobi West	Bomas of Kenya Dispensary	Parastatal	Dispensary	Langata	Operational
12891	Nairobi West	Carolina Dispensary	NGO	Dispensary	Langata	Operational
12892	Nairobi West	Catholic University Dispensary	Other Faith Based	Dispensary	Langata	Operational
12893	Nairobi West	Chandaria Health Centre	Community	Dispensary	Dagoretti	Operational
12894	Nairobi West	Chemi Chemi Dispensary	CHAK	Dispensary	Langata	Operational
12898	Nairobi West	Clinitec Dispensary	Other Private	Dispensary	Westlands	Operational
12905	Nairobi West	Coptic Hospital	CHAK	Other Hospital	Westlands	Operational
12907	Nairobi West	Cotolengo Home	KECCS	Other Health Facility	Langata	Operational
12909	Nairobi West	Dagoretti Approved Dispensary	Ministry of Health	Rehabilitation Centre	Dagoretti	Operational
12918	Nairobi West	DOD Mrs Dispensary	Armed Forces	Dispensary	Westlands	Operational
12919	Nairobi West	Dog Unit Dispensary (O.P. Admin Police)	Other Public Institution	Dispensary	Langata	Operational
12922	Nairobi West	Dr Gachare Medical clinic	Other Private	Medical Clinic - Other	Westlands	Operational
12923	Nairobi West	Dr Karos Medical clinic	Other Private	Medical Clinic - Other	Langata	Not-Operational
12924	Nairobi West	Dr Aziz Mohamed Medical clinic	Other Private	Medical Clinic - Other	Westlands	Operational
12926	Nairobi West	Dr Montet Medical clinic	Other Private	Medical Clinic - Other	Westlands	Operational
12927	Nairobi West	Dr Muasya Medical clinic	Other Private	Medical Clinic - Other	Westlands	Operational
12928	Nairobi West	Dr Were Medical clinic	Other Private	Medical Clinic - Other	Westlands	Operational
16797	Nairobi West	Dr. Waris	Other Private	Medical Clinic - Other	Westlands	Operational
12929	Nairobi West	Dreams Center Dispensary	KECCS	Dispensary	Langata	Operational
12938	Nairobi West	Family Health Medical Dispensary	NGO	Dispensary	Dagoretti	Operational
12942	Nairobi West	FHOK Health Centre	NGO	Health Centre	Langata	Operational
12944	Nairobi West	Frepals Health Centre	Other Private	Health Centre	Langata	Operational
12945	Nairobi West	Future Age Dispensary	Other Private	Dispensary	Langata	Operational
16803	Nairobi West	Gatina United Clinic	NGO	Medical Clinic - Other	Dagoretti	Operational
12948	Nairobi West	Gatwikera (MSF Belgium) clinic	NGO	VCT Centre (Stand-Alone)	Langata	Operational
12950	Nairobi West	Gertrudes Hospital	Other Private	Other Hospital	Westlands	Operational

12951	Nairobi West	Gertrudes Othaya Road Dispensary	Other Private	Dispensary	Westlands	Operational
12953	Nairobi West	Getrudes Clinic Dispensary (Nairobi West)	Other Private	Dispensary	Langata	Operational
16799	Nairobi West	Gichago Dispensary	Other Private	Dispensary	Westlands	Operational
12954	Nairobi West	Gichuru Medical Clinic	Other Private	Dispensary	Dagoretti	Operational
12960	Nairobi West	Good Shepherd Dispensary	Other Private	Dispensary	Dagoretti	Operational
12961	Nairobi West	GSU Dispensary (Nairobi West)	Ministry of Health	Dispensary	Langata	Operational
12964	Nairobi West	GTZ Dispensary	NGO	Dispensary	Westlands	Not-Operational
12966	Nairobi West	Gynapaed Dispensary	Other Private	Dispensary	Westlands	Operational
12968	Nairobi West	Highridge Dispensary	Local Authority	Dispensary	Westlands	Operational
12970	Nairobi West	Hope Community Dispensary	NGO	Dispensary	Dagoretti	Operational
12979	Nairobi West	I R Iran Dispensary	Other Private	Dispensary	Westlands	Operational
12985	Nairobi West	Jamii Clinic (Nairobi West)	Other Private	Dispensary	Kikuyu	Operational
12990	Nairobi West	Jinnah Ave Clinic	Local Authority	Dispensary	Langata	Operational
16802	Nairobi West	JONALIFA Clinic	NGO	Medical Clinic - Other	Dagoretti	Operational
12993	Nairobi West	Kabete Approved Dispensary	Ministry of Health	Dispensary	Westlands	Operational
12994	Nairobi West	Kabete Barracks Dispensary	Armed Forces	Dispensary	Westlands	Operational
12995	Nairobi West	Kabiro Medical Clinic	NGO	Health Centre	Dagoretti	Operational
13001	Nairobi West	Kangemi Health Centre	Local Authority	Health Centre	Westlands	Operational
13003	Nairobi West	Karen Health Centre	Local Authority	Dispensary	Langata	Operational
13004	Nairobi West	Karen Hospital	Other Private	Other Hospital	Langata	Operational
13005	Nairobi West	KARI Dispensary	Ministry of Health	Dispensary	Kikuyu	Operational
13009	Nairobi West	Karura Health Centre	Local Authority	Dispensary	Westlands	Operational
13018	Nairobi West	KCCT Dispensary	Parastatal	Dispensary	Langata	Operational
13019	Nairobi West	KEMRI VCT	Ministry of Health	VCT Centre (Stand-Alone)	Dagoretti	Operational
13013	Nairobi West	Kenya AIDS Vaccine Initiative (KAVI)	Academic (if registered)	Other Health Facility	Westlands	Operational
13023	Nairobi West	Kenyatta National Hospital	Parastatal	Tertiary Hospital	Dagoretti	Operational
13025	Nairobi West	Kesha VCT	Other Private	VCT Centre (Stand-Alone)	Dagoretti	Operational
13026	Nairobi West	KHDP Makina Dispensary	CHAK	Dispensary	Langata	Operational
13027	Nairobi West	Kibera (SDA) VCT	CHAK	VCT Centre (Stand-Alone)	Langata	Operational
13028	Nairobi West	Kibera Community Health Centre - AMREF	NGO	Health Centre	Langata	Operational
13029	Nairobi West	Kibera D.O. Dispensary	Ministry of Health	Dispensary	Langata	Operational
13030	Nairobi West	Kibera South (MSF Belgium) Dispensary	NGO	Dispensary	Langata	Operational
13032	Nairobi West	Kikoshep K VCT	NGO	VCT Centre (Stand-Alone)	Langata	Operational

13033	Nairobi West	Kikoshep Mugumoini Dispensary	NGO	Dispensary	Langata	Operational
13035	Nairobi West	Kisembo Dispensary	Other Private	Dispensary	Langata	Operational
13036	Nairobi West	Kivuli Dispensary	KECCS	Dispensary	Dagoretti	Operational
13037	Nairobi West	KMTC VCT	Ministry of Health	VCT Centre (Stand-Alone)	Dagoretti	Operational
16169	Nairobi West	Lady Northey Dispensary	Local Authority	Dental Clinic	Westlands	Operational
13041	Nairobi West	Langata Health Centre	Local Authority	Health Centre	Langata	Operational
13042	Nairobi West	Langata Hospital	Other Private	Other Hospital	Langata	Operational
13043	Nairobi West	Langata MRS Health Centre	Armed Forces	Health Centre	Langata	Operational
13044	Nairobi West	Langata Women Prison Health Centre	Ministry of Health	Health Centre	Langata	Operational
16800	Nairobi West	Lea Toto Clinic (Nairobi West)	NGO	Medical Clinic - Other	Westlands	Operational
13046	Nairobi West	Lea Toto Dagoretti	NGO	VCT Centre (Stand-Alone)	Dagoretti	Operational
13048	Nairobi West	Lea Toto Kibera	NGO	VCT Centre (Stand-Alone)	Langata	Operational
13049	Nairobi West	Lianas Clinic Health Centre	Other Private	Health Centre	Westlands	Operational
13050	Nairobi West	Liverpool VCT	NGO	VCT Centre (Stand-Alone)	Westlands	Operational
13052	Nairobi West	Lower Kabete Dispensary	Local Authority	Dispensary	Westlands	Operational
13054	Nairobi West	Madaraka VCT	Other Private	VCT Centre (Stand-Alone)	Langata	Operational
13058	Nairobi West	Makina Clinic	Community	Health Centre	Langata	Operational
13061	Nairobi West	Maria Dominica Dispensary	KECCS	Dispensary	Langata	Operational
13062	Nairobi West	Maria Immaculate Health Centre	KECCS	Health Centre	Westlands	Operational
16166	Nairobi West	Marie Stopes Clinic (Dagoretti)	NGO	Dispensary	Dagoretti	Operational
16167	Nairobi West	Marie Stopes Clinic (Langata)	MNGO	Dispensary	Langata	Operational
13067	Nairobi West	Marie Stopes Clinic (Westlands)	NGO	Dispensary	Westlands	Operational
13073	Nairobi West	Masaba Hospital	Other Private	Other Hospital	Westlands	Not-Operational
16798	Nairobi West	Mawamu Clinic	Other Private	Medical Clinic - Other	Westlands	Operational
13080	Nairobi West	Mbagathi District Hospital	Ministry of Health	Primary Hospital	Dagoretti	Operational
13086	Nairobi West	Melchezedek Hospital	Other Private	Other Hospital	Dagoretti	Operational
13087	Nairobi West	Memorial Hospital	Armed Forces	Other Hospital	Dagoretti	Operational
13088	Nairobi West	Mercillin Afya Centre	Other Private	Health Centre	Langata	Operational
13089	Nairobi West	Mercy Mission Health Centre	Other Faith Based	Health Centre	Dagoretti	Operational
13091	Nairobi West	Mid Hill Medical Clinic	Other Private	Health Centre	Dagoretti	Operational
13093	Nairobi West	Mji wa Huruma Dispensary	Local Authority	Dispensary	Westlands	Operational
13098	Nairobi West	MP Shah Hospital	Other Private	Other Hospital	Westlands	Operational
13099	Nairobi West	Mrs Karen Dsc Dispensary	Armed Forces	Dispensary	Langata	Operational

13103	Nairobi West	Muteithania Medical Clinic	Other Private	Health Centre	Dagoretti	Operational
13105	Nairobi West	Mutuini Health Centre	Ministry of Health	Health Centre	Dagoretti	Operational
13109	Nairobi West	Nairobi Equator Hospital	Other Private	Other Hospital	Langata	Operational
13110	Nairobi West	Nairobi Hospital	Other Private	Other Hospital	Westlands	Operational
13112	Nairobi West	Nairobi South C Medical	Other Private	Health Centre	Langata	Operational
13114	Nairobi West	Nairobi West Chidren Dispensary	Other Private	Dispensary	Langata	Operational
13115	Nairobi West	Nairobi West Hospital	Other Private	Other Hospital	Langata	Operational
13116	Nairobi West	Nairobi West Prison Dispensary	Ministry of Health	Dispensary	Langata	Operational
13117	Nairobi West	Nairobi Womens Hospital	Other Private	Other Hospital	Westlands	Operational
16795	Nairobi West	Nairobi Womens Hospital Adams	Other Private	Other Hospital	Westlands	Not-Operational
13118	Nairobi West	Nalis Wananchi Clinic	Other Private	Health Centre	Langata	Operational
13119	Nairobi West	NASCOP VCT	Ministry of Health	VCT Centre (Stand-Alone)	Dagoretti	Operational
13120	Nairobi West	New Life Home (Childrens Home)	NGO	Other Health Facility	Westlands	Operational
13123	Nairobi West	Ngong Road Health Centre	Local Authority	Dispensary	Dagoretti	Operational
13129	Nairobi West	Nyina Wa Mumbi Dispensary	Other Faith Based	Dispensary	Dagoretti	Operational
13131	Nairobi West	Nyumbani Childrens Home	NGO	Other Health Facility	Langata	Operational
13134	Nairobi West	Olive Tree Hospital	Other Private	Other Hospital	Langata	Operational
13135	Nairobi West	Orthodox Dispensary	CHAK	Dispensary	Dagoretti	Operational
13137	Nairobi West	Padens Health Centre	Other Private	Health Centre	Westlands	Operational
13146	Nairobi West	Port Health Dispensary (Langata)	Ministry of Health	Dispensary	Langata	Operational
13152	Nairobi West	Providence VCT	Other Private	VCT Centre (Stand-Alone)	Langata	Operational
13159	Nairobi West	Ray Of Hope Health Centre	Other Private	Health Centre	Dagoretti	Operational
13162	Nairobi West	RGC Jipe Moyo Dispensary	CHAK	Dispensary	Dagoretti	Operational
13165	Nairobi West	Riruta Health Centre	Local Authority	Dispensary	Dagoretti	Operational
13178	Nairobi West	Saola Health Centre	Other Private	Health Centre	Langata	Operational
13179	Nairobi West	Senye Dispensary	Other Private	Health Centre	Langata	Operational
13181	Nairobi West	SGRR Medical clinic	Other Faith Based	Medical Clinic - Other	Langata	Operational
13186	Nairobi West	Silanga (MSF Belgium) Dispensary	NGO	Dispensary	Langata	Operational
13188	Nairobi West	Sokoni Arcade VCT	NGO	VCT Centre (Stand-Alone)	Dagoretti	Operational
16168	Nairobi West	Soweto Clinic	Other Private	Medical Clinic - Other	Langata	Operational
13194	Nairobi West	Spinal Injury Hospital	Ministry of Health	Tertiary Hospital	Westlands	Operational
13195	Nairobi West	St Angela Dispensary	Other Faith Based	Dispensary	Kiambu	Operational
13200	Nairobi West	St Catherine's Health Centre	Other Private	Health Centre	Dagoretti	Operational

13201	Nairobi West	St Florence Medical Care Health Centre	Other Private	Health Centre	Westlands	Operational
13204	Nairobi West	St James Hospital	Other Private	Other Hospital	Langata	Operational
13209	Nairobi West	St Joseph W Dispensary (Westlands)	KECCS	Dispensary	Westlands	Operational
13210	Nairobi West	St Jospeh's Dispensary (Dagoretti)	KECCS	Dispensary	Dagoretti	Operational
13212	Nairobi West	St Jude's Health Centre	Other Private	Health Centre	Dagoretti	Operational
13213	Nairobi West	St Lukes (Kona) Health Centre	Other Private	Health Centre	Dagoretti	Operational
13216	Nairobi West	St Mary's Medical clinic	Other Private	Health Centre	Langata	Operational
13218	Nairobi West	St Mary's Mission Hospital	KECCS	Other Hospital	Langata	Operational
13219	Nairobi West	St Michael Clinic	Other Private	Dispensary	Dagoretti	Operational
13221	Nairobi West	St Odilias Dispensary	KECCS	Dispensary	Langata	Operational
13227	Nairobi West	St Teresa's Health Centre	Other Private	Health Centre	Dagoretti	Operational
13231	Nairobi West	State House Clinic	Local Authority	Dispensary	Westlands	Operational
13232	Nairobi West	State House Dispensary	Ministry of Health	Dispensary	Westlands	Operational
13234	Nairobi West	Tabitha Clinic	NGO	Dispensary	Langata	Operational
13238	Nairobi West	Trinity Medical Care Health Centre	Other Private	Health Centre	Dagoretti	Operational
13239	Nairobi West	Uhuru Camp Dispensary (O.P. Admin Police)	Other Public Institution	Dispensary	Langata	Operational
13242	Nairobi West	University of Nairobi Dispensary	Parastatal	Dispensary	Westlands	Operational
13244	Nairobi West	Urafiki Dispensary	Other Faith Based	Dispensary	Dagoretti	Operational
13245	Nairobi West	Ushirika Health Centre	Community	Health Centre	Langata	Operational
13249	Nairobi West	Waithaka Health Centre	Local Authority	Health Centre	Dagoretti	Operational
13254	Nairobi West	Weider VCT	NGO	VCT Centre (Stand-Alone)	Langata	Operational
13255	Nairobi West	Wema Cl Dispensary	Other Private	Dispensary	Langata	Operational
13256	Nairobi West	Wema Nursing Home	Other Private	Health Centre	Dagoretti	Operational
13258	Nairobi West	Westlands Health Centre	Local Authority	Health Centre	Westlands	Operational
13259	Nairobi West	Woodley Clinic	Local Authority	Dispensary	Dagoretti	Operational
13262	Nairobi West	Zinduka Clinic	Other Faith Based	VCT Centre (Stand-Alone)	Langata	Operational

Appendix IV Map of Nairobi

Appendix V Permits

KENYA METHODIST UNIVERSITY
Department of Health Systems Management & Medical Education
P.O. Box 45240 – 00100, GPO NAIROBI Tel. 248172 / 247987

April 4, 2011

The National Council for Science and Technology
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

Re: AUTHORITY TO CONDUCT ACADEMIC RESEARCH – Nancy Njeru Mucoco

(Topic: "Factors Affecting Management of Hospital Drug Formularies by Health Facilities in Nairobi".)

The above named is a student of the Kenya Methodist University undertaking a Master of Science in Health Systems Management degree programme and is due for field research for her thesis towards the award of the degree.

Any assistance accorded her towards this end is highly appreciated.

Thank You

Yours Sincerely

KENYA METHODIST UNIVERSITY
FACULTY OF HEALTH SCIENCE
- 4 APR 2011
sign
NAIROBI CAMPUS
P.O. Box 45240 00100 NAIROBI

Dr B.O. Naftal Oirere
Chair, Health Systems Management and Medical Education

REPUBLIC OF KENYA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telegrams:"SCIENCETECH", Nairobi
Telephone: 254-020-241349, 2213102
254-020-310571, 2213123,
Fax: 254-020-2213215, 318245, 318249
When replying please quote

P.O. Box 30623-00100
NAIROBI-KENYA
Website: www.ncst.go.ke

Our Ref: NCST/RRI/12/1/MED-011/42/4

Date: 19th April, 2011

Nancy Mucogo Njeru
Kenya Methodist University
P. O. Box 45240 – 00100
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on **"Factors affecting management of hospital drug formularies by health facilities in Nairobi"** I am pleased to inform you that you have been authorized to undertake research in **Nairobi District** for a period ending *31st July, 2011.*

You are advised to report to **the Provincial Director of Public Health and the Medical Superintendents of the selected hospitals in Nairobi** before embarking on the research project.

On completion of the research, you are expected to submit **one hard copy and one soft copy** of the research report/thesis to our office.

OFFICE OF THE PROVINCIAL COMMISSIONER
RECEIVED
09 MAY 2011
NAIROBI P.O.

P. N. NYAKUNDI
FOR: SECRETARY/CEO

Copy to:

The Provincial Director of Public Health
Nairobi Province

The Medical Superintendents
Selected Hospitals in Nairobi

PAGE 2

PAGE 3

Research Permit No. NCST/RR1/12/1/MED-0

Date of issue 19th April 2011

Fee received KES1,000

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss/Institution

NANCY MUCOGO NJERU

KENYA METHODIST UNIVERSITY

of (Address) *P.O. Box 45240-00100, NAIROBI*

has been permitted to conduct research in

NAIROBI Location

NAIROBI District

NAIROBI Province

on the topic *FACTORS AFFECTING MANAGEMENT OF HOSPITAL DRUG FORMULARIES BY HEALTH FACILITIES IN NAIROBI.*

for a period ending *31st July*, 2011

Applicant's Signature

Secretary National Council for Science and Technology

LOCAL AUTHORITY INTEGRATED FINANCIAL OPERATIONS MANAGEMENT SYST

BILL

Bill No.	ED1105-
Date Issued	09-May

LA Name: 001 CITY COUNCIL OF NAIROBI

(Custome

CUSTOMER SERVICES OFFICE

The Customer Services Office Notifies

NANCY MUCOGO NJERU

that the amount shown below is due to be paid at your earliest convenience.

Payment is due at the CASH OFFICE of the Council

ATTACHMENT AND RESEARCH FEES BETWEEN 9/5/2011-12/8/2011 (P H D)

DETAIL OF CHARGES

No.	Account Code	Description	Amount (K
1.	1-8243	ATTACHMENT AND RESEARCH FEES	5,00
		BILL TOTAL AMOUNT (KSH)	**5,00**

001159201105040B CSH5000 ED1105-00019-5000 [NANCY MUCOGO NJERU] 201105090759

RECEIVED BY STEPHEN

THANK YOU

Payment Inform

Telegrams: "PRO-MINHEALTH", Nairobi
Telephone: Nairobi 217131/313481
Fax: 217148
E-mail: pmonairobi@yahoo.com

When replying please quote

PMO/NRB/RI/VOL.1
Ref: No.----------

Ministry of Health

PROVINCIAL DIRECTOR OF PUBLIC HEALTH
SANITATION
NAIROBI PROVINCE
NYAYO HOUSE
P.O. Box 34349-00100
NAIROBI

9th May 2011

Nancy Mucogo Njeru
Kenya Methodist University
P.O. Box 45240-00100
NAIROBI

RE: AUTHORITY TO CONDUCT RESEARCH

Refer to your letter dated 19th April 2011. Authority is hereby granted to conduct research on "**Factors affecting management of hospital drug formularies by health facilities**" in Nairobi Province for a period ending 31st July 2011.

At the end of the research please provide the findings to this office.

DR. S. OCHOLA
PDPH&S

DR. P.K. ONYANCHA
PDMS

MEDICAL OFFICER OF HEALTH
KAMUKUNJI DISTRICT

Authority granted to visit Makongo & Balata M/C

MEDICAL OFFICER OF HEALTH

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

9TH MAY, 2011

RE: RESEARCH AUTHORIZATION

Reference is made to letters Ref: NCST/RRI/12/1/MED-001/42/4 dated 19th April, 2011 and HRM/VOL III/2773/2011 Dated 6th May, 2011.

Authority is hereby granted to you to conduct a research entitled "factors affecting management of Hospital drug formularies by Health Facilities in Nairobi"

Please note that your research runs for 3(three) months with effect from May, 2011 to August 2011.

During the course of your research you are expected to adhere to the rules and regulations governing the City Council of Nairobi, you will also be expected to submit a copy of your research project to the office of the undersigned.

By a copy of this letter, all the District Health Administrative Officers's are requested to accord you the necessary assistance.

DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

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NAIROBI

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Nairobi

DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

PLEASE ACCORD NECESSARY ASSISTANCE

DISTRICT HEALTH ADMINISTRATIVE OFFICE
KASARANI DISTRICT
P.O. BOX 20108 NAIROBI

30/5/2011

CITY COUNCIL OF NAIROBI

FOR: DISTRICT MEDICAL OFFICER OF HEALTH
NJIRU DISTRICT

authority granted to visit Ruai H/c and Dandora II H/c. PHMO

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

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NAIROBI

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Ngatembu

DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

DISTRICT MEDICAL OFFICER OF HEALTH
Date: 18/05/11
P. O. Box 7128 – 00100
NAIROBI
WESTLANDS DISTRICT

CITY COUNCIL OF NAIROBI

Received. Accord the bearer any assistance necessary.

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

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DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

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KENYA METHODIST UNIVERSITY
NAIROBI

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DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

DISTRICT MEDICAL OFFICER
MAKADARA DISTRICT
P.O.BOX 48651
NAIROBI

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

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DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

DEPUTY MEDICAL OFFICER
OF HEALTH
PUMWANI MATERNITY HOSPITAL

Cc. - ALL DMOH'S
ALL DHAO'S

16/5/2011
Authority Granted to visit the health

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

9TH MAY, 2011

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Nairobi

DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

DISTRICT MEDICAL OFFICER OF HEALTH
KAREN/LANGATA BOARD
NAIROBI

24/05/2011
Received and permission granted on the following facilities.
① Dagoretti Health Centre
② Waithaka Health Centre
③ Mutuini Sub District Hospital
for the relevant documents from BDPHQS, PDMS & CCN

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

9TH MAY, 2011

DISTRICT MEDICAL OFFICER OF HEALTH
EMBAKASI
Recommended
25/05/2011
P.O. Box 49581, NAIROBI.

RE: RESEARCH AUTHORIZATION

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Nairobi

DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

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TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

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NAIROBI

9TH MAY, 2011

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DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

11-05-2011
HF 1/c

DISTRICT MEDICAL OFFICER OF HEALTH
NAIROBI WEST
P. O. Box 43651 - 00100 NAIROBI

275

CITY COUNCIL OF NAIROBI

PUBLIC HEALTH DEPARTMENT

MEDICAL OFFICER OF HEALTH
TEL: 2224281

P.O. BOX 30108
site: Citycouncilofnairobi.go.ke

REF: PHD/MOH/R.1/56/2011

NANCY M NJERU
KENYA METHODIST UNIVERSITY
NAIROBI

9TH MAY, 2011

25/5/11

DISTRICT MEDICAL OFFICER OF HEALTH
STAREHE DISTRICT
P. O. Box 30108
NAIROBI

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DR. GATHONI GATEMBU
DEPUTY MEDICAL OFFICER OF HEALTH

Cc. - ALL DMOH'S
ALL DHAO'S

THE NAIROBI HOSPITAL

Our Ref: TNH/ADMIN/CEO/12/05/11

12th May 2011

Dr. Nancy M. Njeru
P. O. Box 45240 - 00100
NAIROBI

Dear Dr. Njeru,

REF: ACADEMIC RESEARCH

Reference is made to your letter dated 11th May 2011 requesting to conduct your academic research at The Nairobi Hospital.

We regret that approval has not been granted. However, we thank you for the interest you have shown in our organization.

Yours sincerely,
FOR: THE NAIROBI HOSPITAL

Dr. Cleopa Mailu, EBS
CHIEF EXECUTIVE OFFICER

The Aga Khan University Hospital, Nairobi

P.O. Box 30270 - 00100 G.P.O., Nairobi, Kenya
Tel: (254 20) 3740000 / 3662000 / 3742531 / 353999
Fax: (254 20) 3741749

May 17, 2011

Dr. Nancy M. Njeru
P O Box 45240-00100
Nairobi

Dear Dr. Njeru

Re: Request to undertake a research at Aga Khan University Hospital, Nairobi

We are in receipt of your letter and research proposal dated 12th May 2011 requesting for permission to use the Aga Khan University Hospital for your research.

Please note that your request has been approved and permission granted to carry out the study on *"Factors affecting management of Hospital drug formularies in health facilities in Nairobi"* for your Masters degree in Health Systems Management at the Kenya Methodist University (KEMU).

The following are the terms and conditions of the study: -

1. This hospital will in no way be responsible for funding of this project.
2. No material belonging to the hospital e.g. files, CDs, etc may be taken out of the hospital premises.
3. On completion of the study, a copy of the report will be presented to the Hospital or the result of the study may be given in a lecture form to the medical fraternity in the hospital.
4. No part of the study may be published without written permission from The Aga Khan University Hospital, Nairobi Kenya.

Yours sincerely,

Dr. John M. Tole
Chief of Staff / Medical Director