ORGANIZATIONAL FACTORS INFLUENCING PREPAREDNESS OF TIER 3 CATHOLIC HOSPITALS FOR HEALTH SERVICE DELIVERY DURING INFLUX OF PATIENTS IN NAIROBI COUNTY, KENYA

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DECLARATION AND RECOMMENDATION

Student Declaration:

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

Signature ---------- Date ----------

HSM-3-0176-1/2018

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DEDICATION

This work is dedicated to staff in tier 3 catholic hospitals in Kenya, the assumption sister of Nairobi, my family, and supervisors Ms. Lilian Muiruri and Mr. Oluoch Musa.

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My gratitude to God for giving me health, knowledge, and grace to complete this document. My gratitude to my academic supervisors Ms. Lillian and Mr. Musa, for their guidance, support, and encouragement during my study. Thanks to Dr. Hillary for reading and correcting my grammar, and for his continuous encouragement and support. I thank the assumption sisters of Nairobi superior general Sr. Bernadette Ndele and the general council for financial support for my whole study program. My gratitude to all administrators of the four tier 3 hospitals especially Sr. Dr. Caren Otieno and assistant nursing officer Silvanus Wafula of St Mary's hospital, Sr. Dr. Joan and Dr. Njihia of St. Francis Kasarani, Sr Carol and Margaret of Mary Immaculate hospital, Sr. Rachel and Victor of Jamaa hospital for giving me permission to carry out the study and coordinating the staffs to enable me get the information I needed for this study.

ABSTRACT

Tier 3 catholic hospitals' preparedness for health service delivery during inflow of patients in Nairobi County, Kenya remains a challenge. During crises and disasters, many patients seek healthcare services from them, increasing the clientele level from their normal daily numbers, causing overstretching of the organizations' health systems and staff. Broad objective of the study was to determine the organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients in Nairobi County, Kenya. Specific objectives were to determine if staff training, infrastructure, procurement of hospital materials, finances, and policy guidelines have influence on preparedness of these hospitals for health service delivery. The study targeted 647 members of staff from the selected hospitals. St Mulumba catholic hospital in Kiambu county was used for questionnaires pretest. The hospitals were purposively selected while the staffs were selected using Stratified random sampling. Slovan's formula was used to determine the sample size. A cross sectional descriptive study design was used with quantitative approach for data collection. Data was analyzed using STATA software version 16. Descriptive statistics in form of frequencies and percentages were used for reporting. Inferential statistics in form of correlation and regression analysis were used to find out the relationship between independent and dependent variables with a corresponding confidence interval of 95%. P-value of 0.05 was considered to be statistically significant. The study established that staff training, infrastructure, procurement of hospital materials, finances and policy guidelines influenced preparedness of catholic hospitals for health service delivery during influx of patients in Nairobi County. From the correlation model a positive and significant relationship was found on staff training at ($r=0.211$; $p<0.01$), infrastructure (beds) at ($r=0.285$; $p<0.01$) availability of drugs at ($r=0.146$; $p<0.05$), availability of lab reagents at ($r=0.218$; $p<0.01$), saving accounts at ($r=0.269$; $p<0.01$), policy manuals at ($r=0.269$; $p<0.01$), emergency guidelines at ($r=0.307$; $P<0.01$). This means that the hospitals are perceived as prepared for health service delivery during influx of patients. However, staff drills at ($r = -0.147$; $p<0.05$), hospital space at ($r = -0.243$; $p<0.01$) and financial policies at ($r = -0.259$; $p<0.01$), were found insignificantly influencing preparedness for services delivery, meaning the hospitals would be unprepared even if these 3 parameters were in place. The study recommends that the managers should have scheduled staff trainings, have saving accounts, and care guidelines in place to support activities for emergency response to avoid confusion.

TABLE OF CONTENTS

DECLARATION AND RECOMMENDATION ..... **ii**
DEDICATION ..... **iv**
ACKNOWLEDGEMENT ..... **v**
ABSTRACT ..... **vi**
LIST OF TABLES ..... **ix**
LIST OF FIGURES ..... **x**
LIST OF ABBREVIATIONS ..... **xi**
CHAPTER ONE: INTRODUCTION **1**
1.1 Background of the Study 1
1.2 Statement of the Problem 6
1.3 Purpose of the Study 7
1.4 Study Objectives 7
1.5 Research Questions 8
1.6 Justification of the Study 9
1.7 Limitations of the Study 10
1.8 Delimitation of the study 11
1.9 Significance of the study 12
1.10 Assumption of the study 12
1.11 Operational Definitions of Terms 14
CHAPTER TWO: LITERATURE REVIEW **18**
2.1 Introduction 18
2.2 Staff Preparedness 18
2.3 Infrastructure Preparedness 26
2.4 Financial Preparedness 29
2.5 Procurement of Hospital Materials 33
2.6 Policies and Guidelines Preparedness 35
2.7 Theoretical Framework 38
2.8 Conceptual Framework 41
CHAPTER THREE: RESEARCH METHODOLOGY **44**
3.1 Introduction 44
3.2 Research design 44

3.3 Study Location 44
3.4 Target population 47
3.5. Sampling procedure 48
3.6 Inclusion and exclusion criteria 50
3.7 Research instruments and tools 50
3.8 Ethical Considerations 54
CHAPTER FOUR: RESULTLS AND DISCUSSION 56
4.1 Introduction 56
4.2. Pretest reliability results 56
4.3. Response rate of the respondents and demographic information 56
4.4 Descriptive Results and Discussion 57
4.5 Inferential results and discussions 74
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS 86
5.1 Introduction 86
5.2 Summary 86
5.3 Conclusion 90
5.4 Recommedations 91
REFERENCES 93
APPENDECES 97
Appendix I: Consent for the participants 97
Appendix II: Data collection tools 103
Appendix III: Letter to KeMU Science and Ethics Review Committee 110
Appendix IV: Clearance Letter from Kenya Metodist University Ethics Committee 111
Appendix V: Introduction Letter to NACOSTE 113
Appendix VI: Clearance Letter From NACOSTE 114
Appendix VII: Letter from St mary's Hospital 115
Appendix VIII: Map of Kenya showing the counties copied from Kenya census map 2019. 116
Appendix IX: Map of Nairobi county: copied from internate maps 117

LIST OF TABLES

Table 3.1 Summary of the target population 47

Table 4.1 Classification of Staff (X_4) 61

Table 4.2 Staff Qualifications (X_5) 62

Table 4.3 Years of Service (X_6) 63

Table 4.4 Hospitals Staff Size (X_7) 63

Table 4.5 Staff Training on Disaster Management (X_8) 64

Table 4.6 Staff Performance of Drills and Exercises (X_9) 65

Table 4.7 Enough Hospitals Space (X_{10}) 66

Table 4.8 Enough Hospitals Beds (X_{11}) 67

Table 4.9 Enough Hospitals Drugs (X_{12}) 68

Table 4.10 Enough Hospitals Lab Reagents (X_{13}) 69

Table 4.11 Hospital Financial Policies (X_{14}) 70

Table 4.12 Hospital Disaster Savings Account Instituted (X_{15}) 71

Table 4.13 Hospital Risk Preparedness Plan Manual Availability (X_{16}) 72

Table 4.14 Hospital Emergency Care Guidelines Available (X_{17}) 73

Table 4.15 A Correlation Matrix on Factors Associated with Hospital Preparedness in Handling Emergency Influx of Patients in Hospitals 76

Table 4.16 Probit Regression Results on the Factors Influencing Hospital Preparedness in Handling Influx of Patients 81

LIST OF FIGURES

Figure 2.1 Whole Systems Theory by Radichel and Baldwin (1997)..... 40

Figure 2.2 Conceptual Framework..... 43

Figure 4.1 Staff Perceptions About Hospital Preparedness to Deal with Emergencies.. 57

Figure 4.2 Age of the Respondents (X_1)..... 58

Figure 4.3 Sex of the Respondents (X_2) 59

Figure 4.4 Marital Status of the Respondents (X3)..... 60

LIST OF ABBREVIATIONS

CEO	Chief executive officer
CO	Clinical officer
CNO	Chief nursing officer
DRs	Doctors
FBOs	Faith based organizations.
FM	Financial manager
HRM	Human resource manager
KEMU	Kenya Methodist university
KNH	Kenyatta national hospital
KRCHN	Kenya registered community health nursing
LAB	Laboratory
LMICs	Low- and middle-income countries
MoH	Medical officer of health
MOH	Ministry of health
MCH/FP	Maternal child health and family planning
NACOSTI	National commission for science, technology and innovation
NGOs	Non – governmental organizations
OOP	Out of pocket
SERC	Scientific ethical review committee
SWAP	Sector wide approach
WHO	World health organization

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Preparedness for health service delivery continues to be a challenge for the catholic hospitals. Globally disasters and crisis are highly unpredictable and they can hit communities at any time, causing serious human suffering and death, thus calling for emergency response for health service delivery. when disasters occur they overwhelm the health systems of the organizations due to increasing numbers of casualties, making it difficult for the hospitals to cope up with the situation (World Health Organization [WHO], 2013).

Health Systems are built on six building blocks which include: health service delivery, healthcare financing, health information system, health workforce, medical products, vaccines and technologies and leadership and governance. According to World Health Organization (WHO, 2007) in Geneva Switzerland, quality healthcare services are those which deliver effective, efficient, safe, timely, and cost-effective services to the customers, when and where they need them with minimum waste of resources. A well-performing healthcare workforce is one which is responsive, fair, knowledgeable, efficient and productive with the available resources given the circumstances in service delivery for better health outcomes and for client satisfaction (WHO, 2007).

This study is based on service delivery, one the pillars in health systems strengthening. According to the WHO (2007), healthcare work force is the backbone of any healthcare

organization for it to succeed in offering healthcare services to the population. The success of healthcare service delivery is also linked with all the other pillars and as it cannot work in isolation (WHO, 2007)

Globally disasters and crisis are highly unpredictable and they can hit communities at any time, causing serious human suffering and death, hence calling for emergency response for service delivery. When they occur, they overwhelm the health systems of the organizations due to the increasing number of casualties, making it difficult and hard for the facilities to cope up with the increasing number of clients (WHO, 2013).

Disaster preparedness for emergency healthcare services for unexpected influx of patients is not easy to plan for. Most disaster planning is performed at organizational level with little collaboration between organizations, especially for public and private healthcare providers. At the heart of each and every health system, the healthcare workforce is central in advancing healthcare service to the community. Disaster planning is ranked below more urgent needs and, influx of patients during disasters the normal patients' volume in the health care organizations including catholic hospitals will still come. In the catholic hospitals this is realized more during healthcare professional strikes, bomb blasts, massive road accidents, and terrorist attacks. This increases the organizations' workload, over burdening and straining the already strained healthcare workforce (Welzel et al., 2010)

Emergency preparedness for any disaster planning starts with a comprehensive risk assessment and vulnerability analysis to identify the most likely threats to a particular community and the hospital around (Kaji & Lewis, 2006). Planning for any emergency

response must be done in a multi-sectoral approach for it is everybody's business for better results. These disasters cause massive injuries, psychosocial problems even death and disruption in the community affected. Preparing the country, counties and the community capacities for timely and effective response, recovery and, building health resilience reduces the vulnerability of the disasters to the vulnerable communities and populations. Unfortunately, most of the time the healthcare facilities do not involve the surrounding stakeholders, and each health facility plans for its own response for the massive casualties they receive (WHO, 2013).

Emergency preparedness calls for all major hospitals to be fully prepared for any type of disaster and when mass casualties are brought to the hospital, proper triaging must be done and prompt referral system of casualties to the appropriate care departments to save lives (Frykberg, 2004). Reduction of disaster risks and mitigation requires collaboration between individual organizations, political wing, ministry of health and other governmental ministries, NGOs, private health institutions and communal organizations, especially amongst the vulnerable communities. Every human being has a right to the highest healthcare services which is safe, effective, timely, efficient, and cost effective, focused on customers' health care needs and satisfaction. A good working health care system is responsive to the identified health needs of the community they serve as people-centered. Health care services should focus and be organized around the health needs and expectations of the people served rather than on diseases (Rezaei et al., 2018; WHO, 2007).Therefore all healthcare institutions should plan their healthcare programs based on the needs of the communities they serve (Khan et al., 2018).

In Africa between 30 -70% healthcare facilities are owned by the Faith Based Organizations (FBOs). FBOs offer healthcare services to the public on subsidized prices, often catering for the poor, marginalized communities and vulnerable groups of the society where the government may not reach (Kenya, 2016).

In Kenya most emergency inflow of patients which calls for emergency health service delivery preparedness for the catholic hospital is mainly caused by healthcare professionals' strikes, bomb blasts coupled with terrorist attacks, floods, fire, disease outbreaks, accidents, landslides and buildings collapse. The government of Kenya has a responsibility to offer quality, effective, efficient, timely and safe healthcare service to its citizens. It does this in collaboration with the private and faith-based organizations (FBOs) which contribute about 69% of healthcare services offered to Kenyan population (Fort, 2017). These faith-based healthcare facilities are low-cost health organizations and are not spared when disasters and crisis occur. Patients seek healthcare services from them, due to their quality and affordability of the services, and are usually affected due to scarcity of staff, materials, money and poor infrastructure as they depend on donations (Wafula, 2017). This leads to increased number of clientele levels, causing overstretching of the health facilities and overwhelming the staff to advance care.

Within Nairobi County FBOs accounts for 10% of all the healthcare facilities in the county (Fort, 2017). But most of the catholic hospitals are not prepared for influx of patients, especially during healthcare professionals' strikes which have been affecting Kenya of late, accidents with massive casualties, bomb blasts, terrorist attacks, fire and diseases outbreaks. Unfortunately, doctors and nurses' strike and terrorist's attacks have become a

common phenomenon in many countries in the world including Kenya (Adam et al., 2018). Fortunately, the catholic hospitals' staffs do not join in the healthcare professionals' strikes. When they occur, the catholic hospitals are affected by increased influx of patients, and, have to carry the burden of healthcare provision in the country. In order to manage the increased number of patients, the hospitals hire new locum staffs to manage the clients who stream into their facilities seeking healthcare services. This may compromise the quality of care given to the patients as the new staffs have no knowledge of the organizational policies and procedures for care delivery because most of the time there is no time to induct them properly to the organization's practices due to heavy workload (Wafula, 2017).

In a study conducted to assess the contribution of the FBOs health service delivery in Kenya it was found that they were the best nationwide in their presence, offering wide range of healthcare services. They were also the best in offering better management practices and support mechanisms than the public and non-Governmental organizations (NGOs) and private sectors. FBOs in Kenya contribute 11% of the country's health facilities and 23% of all available bed capacity. This indicates their relative strength in owning middle-level hospitals around the country. FBOs scored 69% being the best in the country in managing authorities and 70% in readiness for service delivery and availability of commodities and medicine, better than the government (Fort, 2017). There is a gap in research and documentation on how the catholic hospitals are prepared for service delivery during influx of patients in their hospitals. Therefore, this study is set to find out how the catholic hospitals are prepared for health service delivery when there is increased number

of clients in their hospitals more than their usual customers, caused by any type of disaster, document the findings for future reference and recommend actions according to the findings.

1.2 Statement of the Problem

Catholic hospitals have minimal number of staff, materials and finances. Influx of patients to their healthcare institutions are commonly caused by healthcare professionals' strikes, terrorist attacks, disease outbreaks and road traffic accidents. When the strikes occur, they affect the catholic hospitals so much as most the patients seek healthcare services from them due to the quality of the services and affordability. This affects and overwhelms the institutions' health systems and staff (Oketch, 2017). The chief executive officer of Mathari catholic hospital in Nyeri county reported to the media that when the strike of doctors lasting 100 days, followed by the nurses' strike lasting for 150 days in 2016/2017 occurred, he had to call on the county government to end the strike. This is because the facility was overstretched and overwhelmed beyond capacity as critically ill patients kept on streaming in the hospital. He feared that there would be increased number of deaths due to thin number of staff taking care of the patients (Gitau, 2016).

During the same strikes, Lugulu Mission hospital in Bungoma County had to take the burden of a referral hospital in Bungoma, despite being poorly equipped as it relies on donations. There were hardly half a number of beds to manage the influx of patients. The staffs were overwhelmed by the increased workload and the shifts of doctors became meaningless as they all found themselves working throughout. The chief executive officer

of the hospital shared with the media people, that one of the doctors had to perform 12 caesarian section alone until he became dizzy, due to increased stress, tiredness, fatigue and burn out" (Wafula, 2017).

Therefore, this study is focused on establishing organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in their Healthcare Institutions in Nairobi County, Kenya, document the findings for future reference and give recommendations to address the gap**.**

1.3 Purpose of the Study

The purpose of this study is to investigate the organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi, Kenya to help them be more prepared for service delivery.

1.4 Study Objectives

1.4.1 Broad Objective

To establish the organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya.

1.4.2 Specific Objectives

i. To determine whether staffs' knowledge influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya.

ii. To establish whether infrastructure influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi, county Kenya.

iii. To establish if procurement of hospital materials influence preparedness of. of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya

iv. To determine whether finances influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya

v. To examine if policy guidelines influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya

1.5 Research Questions

i. To what extent does Staff knowledge influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya?

ii. To what Level does infrastructure influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County Kenya?

iii. To what Extent does procurement of hospital materials influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya?

iv. To what Level does finances influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya?

v. To what extent does policy guidelines influence preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in Nairobi County, Kenya?

1.6 Justification of the Study

The results of this study are generalized to all other catholic Hospitals in Kenya. The results of the study are expected to help the managers of these hospitals to objectively plan for strategies and make informed decisions on how to be prepared for healthcare service delivery in their organizations in case there is increased inflow of patients caused by any type of disaster or crisis. It is expected that these results will help the managers to improve their networking with other healthcare institutions, financial partners, NGOs, and the Ministry of Health (MOH), to lobby for more support to improve patient healthcare service delivery. This is expected to improve the overall quality of care and provide efficient, satisfying and timely healthcare services to the communities, clients and their families, hence improve the patient health and overall health outcomes.

The county governments will be well informed by these results about the preparedness challenges that face the catholic healthcare institutions which should help them consider

assisting the catholic hospitals with professional medical and paramedical personnel, supplies and financial support to improve service delivery, as they contribute 11% of healthcare facilities and 23% of bed capacity in healthcare sector in Kenya (Fort, 2017). This support will help the Kenyans to access quality healthcare service when and where they need it (WHO, 2007).

Knowing how the Mission Hospitals get overstretched and overwhelmed during this emergency inflow of patients in these organizations, more especially during the healthcare professionals' strikes which are more common in Kenya, the county government should plan to meet the needs of the healthcare professionals and prevent the strikes.

1.7 Limitations of the Study

The researcher found that some of the staffs were holding back some information in one of the hospitals due to fear of being implicated. But the respondents were reassured that their names were not to appear anywhere in the document, so they cannot be identified. Secondly, they were assured that all the information gathered from them were unanimous, and were held with the highest level of confidentiality, remained under key and lock, and only were used for the purpose of this study. The researcher did not get enough respondents as forecasted in one of the hospitals due to low number of staffs on duty at every shift and other staffs had taken their leave due to low numbers of patients as a result of Covid 19 issues. The researcher solved this by interviewing all the selected staffs during every shift and allocated enough time for data collection to be able to reach all the selected staffs of every facility. The covid 19 pandemic was another unforeseen challenge which

came in as a barrier to data collection as there were restrictions for close contact with the respondents. The researcher gave enough time for data collection and used all protocols and protective gears for protection whenever she was in the hospitals to collect data. She also allowed the respondents to carry the questionnaires home, and allocated the hospital Matron to collect all the filled questionnaires for her, reducing contacts with the respondents. The researcher allocated time to collect all the filled questionnaires from every hospital. The researcher lacked enough funds due to donors' fatigue, covid 19 effects, and low income from the Assumption sisters of Nairobi administration. She tried to work with the available funds given by the assumption sisters, cutting some costs on transport and printing by staying in the convents of the sisters and printing the document in her office to complete the project.

1.8 Delimitation of the study

This study only focused on establishing how the Catholic hospitals in Nairobi County are prepared for service delivery during influx of patients in their healthcare institutions. It only examined the staff preparedness, infrastructure preparedness, hospitals' procurement of materials preparedness, financial preparedness and any policy guidelines in place that are used by the hospitals to guide service delivery during increased inflow of patients. It left out all other non-Catholic hospitals in the county, all other catholic health institutions outside Nairobi County and any other factors of preparedness for emergency service delivery during increased inflow of patients in the healthcare institutions.

The researcher created a work schedule and followed it strictly and gave enough time of 3 months for data collect and other 3 months for careful data entry, analysis and report writing for credible results of the study. For the study to be successful the researcher sought for financial support from the Assumption sisters of Nairobi administration, and utilized the funds more effectively to complete the study.

1.9 Significance of the study

This study will contribute to the pool of knowledge in knowing the factors that make the catholic health facilities not be prepared to handle increased number of patients during any disasters or crisis. This will help the leadership of the catholic health institutions and other healthcare institutions to strategically plan on how to be always prepared by mitigating the challenging factors. It will also encourage other researchers to contact more research on this topic in other catholic and mission hospitals in other counties, document and share information with the facilities to help them be prepared always by putting in place the recommendations and sustaining them for preparedness for health service delivery throughout.

1.10 Assumption of the study

Assumptions are beliefs that are regarded as true but have not yet been proven (Bowers, 2019; Stenberg et al., 2019). Therefore, it is believed that the respondents gave sincere answers to the questions posed to them to reveal the factors that influence preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients. The selected sample size was representative of the total target population. The method used

for data collection and analysis was appropriate for the study and gave credible results and the budget forecasted was enough to carry out the study to completion.

1.11 Operational Definitions of Terms

Administrative staff: These include the chief executive officer, chief nursing officer, deputy chief nurse, human resource manager, heads of the departments.

Administration Support Staff: Those working in non-medical departments such as the Accounts, Registration, Maintenance, housekeeping, records and procurement departments.

Catholic hospitals: These are healthcare organizations/institutions run by the catholic church.

Clinical staff: It is used in this research document to mean Consultants, Doctors and Clinical officers.

Crisis: It is a situation or an event that occurs and causes disruption of the communities' health situation, calling for quick decision making and response to arrest the situation.

Disaster: Any occurrence that disrupts the health of the community, causing massive injuries, loss of lives and distract the social and financial capacity of an organization/community necessitating support from outside the affected community or organization and needing emergency healthcare response to prevent more injuries, deaths and save lives.

Emergency Care: It is an immediate response to a situation/event to give services and prevent more injuries and save lives.

Faith based organizations (FBOs): These are healthcare institutions/organizations run by different churches/denominations.

Health service delivery: This is part of a health system where patients/customers receive care, treatment, procedures and supplies for their healthcare needs from the healthcare providers.

Health system resilience: It is the capacity of health actors, institutions/organizations, and populations to prepare for and effectively and efficiently respond to crisis, maintaining core functions when a crisis occurs and, quickly reorganize themselves in case of another crisis having learned from the previous one.

Health institutions/health organizations: These two are being used in this document interchangeably to mean places where people go for healthcare services.

Inflow/Influx of patients: These two are being used synonymously in this document to mean unexpected increase in number of patients beyond the normal number seen on daily basis in a healthcare facility that overstretches and overwhelms the staff and facility abilities to cope up and provide care.

Non-profit making healthcare institutions/organizations: These are healthcare institution which charge the customers minimal healthcare fees to promote access to quality healthcare services for all people especially the poor, marginalized and vulnerable communities.

Organizational Policies: These are the rules, regulations, principles or guidelines that govern the employees of an organization in provision of care services, which they are expected to follow as they deliver their services to the customers.

Preparedness: A state of being ready to respond to a situation or event with good knowledge of what to do/Readiness to respond to an emergency situation or event, immediately and appropriately without delay.

Staffing: It is a process of short listing, selecting, recruiting, training, placing, and inducting the personnel to participate in achieving the organizational goals in delivery of healthcare service.

Medical Support Staff: These are the staffs working in medical and paramedical departments such as the nurses, licensed pharmacy staff, licensed laboratory staff, licensed imaging staff, licensed physiotherapy staff, licensed counselors, and nutritionists.

Tier 3/Level 4 Hospitals: These are hospitals which are in every county and are the coordinating and referral centers for smaller sub-county units. Level 4 which are now tier 3 hospitals in Kenya have the resources to provide twenty-four hour (24) comprehensive medical and surgical care. They are responsible for clinical care in the county and form integral part of the healthcare system. They provide curative, preventive, promotive and rehabilitative healthcare services at the county level. They also offer treatment of common diseases and infections, outpatient and inpatient services, MCH/ FP, laboratory and other diagnostic services, training and supervision of other healthcare centers such as, Health

centres, maternity units, nursing homes, dispensaries and community-based healthcare programs.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses what is known about preparedness of a health facility to handle large numbers of patients who stream in a healthcare institution seeking healthcare services. This may occur during times of crisis such as healthcare professionals' strikes, and disasters such as terrorist's attacks, floods, landslides, diseases and fire outbreaks, industrial chemical hazards, earthquakes, hurricane, disasters, and, accidents with massive casualties which may occur in countries. It focuses on preparedness for service delivery for many casualties caused by any of the disasters or crisis. The factors discussed include: staff, infrastructure, procurement of hospital material, financial and policy guidelines preparedness for health service delivery during increased inflow of patients in healthcare institutions.

2.2 Staff Preparedness

Every healthcare institution, service delivery is managed by the staff of the organization who are the backbone of the organization in advancing health care services to the communities within which they serve (WHO, 2017). In order to give quality healthcare services to the customers, the organization staff have to be well educated, trained, knowledgeable and fast in skills in health service delivery. World health organization has given a guideline for emergency preparedness for quality healthcare service delivery during disasters (WHO, 2017). The disasters could be caused by Biological Hazards such as outbreak of diseases such as haemophiles influenza, Ebola, corona virus, societal

hazards, e.g. civil unrest, armed conflicts, terrorists, fire outbreaks, chemical hazards, radiological and nuclear agents, accidents, healthcare workforce strikes and other disasters creating a crisis (WHO, 2017).

Governance, leadership and political will for preparedness are important in working in collaboration with all other healthcare actors and civil society to support the activities of emergency response. These cause emergency need for proper effective, efficient and timely management of those involved in the disaster or crisis. disaster response must be managed by a well prepared, trained, Skilled and knowledgeable multidisciplinary medical and non-medical team which creates a long term staff recruitment, training and retention, ready to respond for service delivery (Kruk et al., 2015). This is because everybody has a right to the highest level of quality healthcare services as declared by WHO in delivering quality healthcare services to all (WHO et al., 2018).

A study carried out in Los Angeles said that due to limited training, experience and exposure staffs may not be able to respond appropriately, spontaneously and effectively for health services in face of any disaster or crisis. Non announced drills and exercises are necessary to keep the staffs for emergency response ready and always maintain effectiveness and resilience (Kaji & Lewis, 2006).

A study carried out in Israel defense forces by Hershkovich et al. (2016) said that medical leadership is very important and essential during emergencies to direct clinical care of patients and safe lives. Physicians are the ideal leaders in healthcare service delivery in the 21st century especially during the emergency times. But majority are not trained in

leadership skills in order to offer credible work in directing care during emergency. This creates a gap in knowledge and skills hence need for training to poster preparedness by gaining knowledge and skills. In order to establish order, appropriate needs assessment, appropriate allocation of resources and timely communication to staff and the community affected is necessary (Hershkovich et al., 2016). This ensures timely, efficient and effective service delivery, improving performance, quality of care and patient satisfaction and poster improved healthcare outcomes which is the global focus (WHO, 2019). This is because delivery of healthcare services is more complex in times of emergency than in normal operations. This will enable the healthcare leaders to carry out rapid assessment, analyze the complex environment, identify where and what help is needed, assemble effective multidisciplinary staff to provide care, make informed decisions rapidly, keeping in mind the mission and vision of the organization and maintain its values. The leaders of care will also be capable of continuous self-assessment and adapt to the unfamiliar and rapidly changing conditions and management, thus, ensuring seam- less provision of quality care (Kruk et al., 2017).

According to Hershkovich (2016) and team in Israel Defence forces, leaders need to think strategically and be good communicators to the employees and the population in need. They should have the ability to organize care in terms of personnel, materials, equipment, infrastructure, and finances and develop care policies to guide service delivery, collaborating with the heads of departments and other stakeholders. This helps in building staff resilience, encouraging the team to deliver and remain focused, while taking care of their needs (Hershkovich et al., 2016). As revealed by Hannah et al. (2009) in their study

in the university of Nebraska in Lincoln, they said that the role of leadership during disaster and emergency need of care is more directive and transactional, building the team and their organizational behavior in order to work continuously, motivating them to build and strengthen their resilience and commitment to the mission (Hannah et al., 2009). Therefore, it is very crucial to have a well-trained and prepared Human resource with knowledge and skills, and are committed and resilient in order to carry out the activities and responsibilities assigned to them during emergency response to deliver credible and quality health services and save lives.

A good political will is also necessary to support the activities and prepare the community volunteers and involve all the stakeholders to prepare a pool of emergency response team through training for all hazards to enable them handle any type of hazard (Welzel et al., 2010). In a world health report Frenk et al. (2006) suggested that healthcare workforce is the most important in healthcare service delivery in advancing healthcare delivery. They discovered that preparation of healthcare workforce for disaster emergency response and deliberate planning for staffing to meet the needs of a mass casualty event was lacking, creating a gap in knowledge, leading to under staffing (Frenk et al., 2006). It is necessary that the staffs in the mission healthcare institutions are professionally and emotionally prepared to deliver healthcare services during emergency influx of patients in their healthcare institutions. Preparing mission hospitals' staff and other healthcare facilities for emergency healthcare service delivery created by any of the disasters should be a national security priority. As it was experienced in US, health facilities preparedness to handle emergencies is very essential (Toner, 2017).

Emergency preparedness is a continuous process which demands availability of well trained and motivated staff, availability of funds, Materials and guideline to direct the response activities (Kruk et al., 2015; Taschner et al., 2017).

Healthcare providers' education and training should prepare the healthcare team to provide care during and after all-hazards incidents. Communication and collaboration with other healthcare professionals and inter-professional stakeholders to respond and work effectively for emergency management and treatment of disaster casualties is the key to success in managing mass casualties. This will improve the patient healthcare service delivery and ultimately improve health outcomes. Together with the training, it is importance for the healthcare workforce to exercises and perform drills to master and improve in their knowledge and hand on skills for timely, effective and efficient response to the casualties' healthcare needs. Each personnel should be allocated duties according his or her specialty, capability and expertise, for effective and efficient care delivery (Taschner et al., 2017).

According to Taschner et al. (2017) in their study in Massachusetts Hospitals in United States, they identified the need for Preparation of the staff using standardized training to gain knowledge and skills on how to manage emergencies created by various disasters. This is key to efficient and effective response and management of the casualties to prevent more injuries and damage of properties. They further said that Emergency preparedness training, knowledge, and skills are critical for safe and effective disaster management in today's health care environment (Taschner et al., 2017).

Disaster team need to be prepared for emergency response and triaging the casualties for proper management. These teams should have diverse healthcare professionals with different skills and knowledge on all disasters for timely, efficient and effective management of the casualties. Their skills need to be tested regularly for adding new knowledge and improvement of their old skills through unannounced drills for changing health needs of the customers during disasters. The team should be deployed according to their expertise to respond to the health needs of the affected casualties. In Iran earthquakes were the most dangerous of the disasters, affecting the country with about 71% of the casualties dying within the first few minutes and 80% of deaths occurring within the first 6 hours after the earthquake. This happening was attributed to poor planning, Lack of training and proper preparedness (Abbasi & Salehnia, 2013).

A study carried out in African Healthcare Institutions by Olu et al. (2018) identified lack of skilled healthcare workforce in Africa on disaster risk management for response. Understaffing of health institutions in Africa makes it hard for a healthcare institution to manage high influx of casualties during a disaster (Olu et al., 2018).

Welzel et al. (2010) in their study in Cape Town in South Africa health institutions discovered a gap in staffing during mass casualties because deliberate planning for staffing to meet the needs of a mass casualty event was lacking. The study concluded that Cape Town hospitals were understaffed for a mass casualty incident therefore this brought about the need to develop a disaster risk management centre. The centre in turn had to develop a system whereby private and public healthcare personnel could be mobilized as a single

team platform to respond to any type of emergency need for healthcare services for the casualties created by any hazard (Welzel et al., 2010).

A study done in Tanzania in the regional hospitals revealed that there was a gap of human resource for all cadres in each region which was below the recommended ratio. Highly trained health professionals were in administration while emergency response was being handled by junior staff who were not highly qualified, leading to poor patient management and healthcare outcomes. They further said that most of the highly qualified professionals were concentrated in the big cities while the rural regional hospitals were left to junior staff to run. This portrayed unequitable distribution of healthcare personnel in all regions creating a gap in staffing. They further identified a gap in staff training on disaster management leading to inefficient response (Koka et al., 2018).

In Kenya Bungoma County, in an interview with the nation staff the chief executive officer (CEO) of Lugulu mission hospital reported that, the hospital is poorly staffed and despite this, they had to take the burden of the referral hospital during the healthcare professionals' strike of 2016/2017. The strike found them unprepared with only minimal number of staffs to take care of the increasing number of customers. This caused overstretching of the staff as the doctors' shift became meaningless as they all found themselves working throughout with no relief, causing staff strain, tiredness, fatigue and burnout. The CEO reported that he had to perform 12 caesarian sections alone until he became dizzy due to tiredness and fatigue (Wafula, 2017).

A research done by Adam et al. (2018) at Kijabe mission hospital in Kiambu county revealed that during the doctors' and the nurses' strikes of 2016/2017, there was increased need and demand for care which occurred across all services including, staffing, supplies and finances, overwhelming the hospital's ability to support all the care activities (Adam et al., 2018).

A study carried out in Kenyatta National Hospital (KNH) by Kiongo (2015) on disaster preparedness of KNH staff, revealed that the staffs lacked proper knowledge about disaster preparedness and majority of the staff at 58% were not prepared on disaster management, lacking skills for effective response for service delivery to the disaster casualties. He further said that the staffs at 66.7% were aware that disaster plan was available but 59.6% were not aware of the contents of the document, showing that the leadership had not inducted the staffs on the contents of the document portraying poor communication of leaders to the staff and poor staff training on the manual. The leadership also needed to coordinate the disaster management effectively as majority 92.5% said that there was poor coordination. There was need to add more staffs as 52.6% of the respondents reported shortage of staff. He suggested that there is need of training the staff on disaster management, and frequent drills practice as 43.5% were not aware of any hospital drills. This is to enhance knowledge and skills on disaster management and improve service delivery to the disaster casualties (Kiongo, 2015).

2.3 Infrastructure Preparedness

Disaster affects basic infrastructure such as safe shelter, water systems, electricity and security which are essential for better services. Some of the communities affected by disasters have limited basic health services and infrastructure, complicating emergency response even more (WHO, 2013).

As described by Leslie et al. (2017) in their study in low- and middle-income countries (LMICs), quality of care given is not always related to the infrastructure. Quality care can be offered in any facility as long as the basic amenities for delivery of care are available and the processes are correctly done to improve healthcare services and patient health outcomes (Leslie et al., 2017). An analysis of the nation's response to the 9/11/2001 United States (U.S) terrorist attacks revealed lack of readiness and resilience to respond to future terrorist incidents creating a gap in response preparedness (Homeland Security, 2008).

In a study conducted by Cristian (2018) noted that hospitals are not always well prepared to manage multiple clients' health needs brought about by any of the disasters due to lack of proper infrastructure and amenities. Disasters are known to cause disruption to the community affected, cause injuries to the affected people, loss of lives and properties, and affect infrastructure and social setting of the community and the organization where the casualties are taken (Cristian, 2018).

According to Leslie et al. (2017) in their study in 10 LMIC in Africa and other countries such as, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda, Tanzania, Bangladesh and Haiti, where 636 hospitals were assessed and most of them were found to

be insufficiently equipped to offer basic clinical care. They had a mean service readiness index of 77% and only a third of them 191 out of 636 (30%) of the hospital were completely ready to offer basic healthcare services while the rest 445 (70%) were not ready.

In Los Angeles a study conducted by Kaji and Lewis (2006) revealed that out of 45 hospitals assessed, only 6 hospitals (43%) had surge capacity of more than 20 beds (Kaji & Lewis, 2006). This indicates a gap of inadequate bed capacity to accommodate the casualties. Collaborative partners such as multiple public and private partnerships between institutions, outsourced service providers, public health office, county government, financial partners, fire fighters, medical services, pharmaceuticals and medical supplier companies for networking must be in place before the disaster occurs (Rezaei et al., 2018). This is to facilitate easy mobilization of the partners for support for quick and effective response.

A study conducted in Tanzania by Koka et al. (2018) revealed that in all the hospitals there was lack of all the requirements for emergency response, saying that 84 % of the hospitals had fewer than 50% of the surge capacity components, and had low numbers of professional staff, supplies, equipment and necessary amenities, like ICU beds (less than 1/2 of the hospitals did not have the ICUs) and those which had were poorly equipped. Communication systems were limited creating a gap in disaster preparedness and management, hence poor health service delivery (Koka et al., 2018).

When Wafula visited Lungulu mission hospital in Bungoma county in Kenya during the healthcare professionals' strike of 2016/2017, the CEO reported that despite the hospital being poorly equipped as they depend on donors for supplies, they had to take the burden of Bungoma referral hospital. The strike found them unprepared with space, beds and other supplies (Wafula, 2017). In Mathari hospital in Nyeri County Kenya the CEO said that, during the same Strike, critically ill patients kept on streaming into the hospital despite limited space. This overstretched the hospital beyond their capacity and he expressed that he was afraid that the increasing number of critically ill patients would increase the death capacity of the hospital, and this forced him to call upon the county leadership to end the strike to safe the situation (Gitau, 2016).

A research done by Adam and his team of researchers at Kijabe mission hospital in Kiambu county, Kenya, revealed that during the doctors' and the nurses' strikes of 2016/2017,there was increased need and demand for care which occurred across all services in Kijabe hospital, creating a gap in availability of hospital space, finances and Supplies, making it hard for the hospital to cope up with the situation to respond to all the healthcare needs of the clients (Adam et al., 2018).

According to the ministry of health sector plan for health, it was stated in the report that infrastructure and equipment were below standards in many dispensaries and hospitals. Availability of essential medicines and medical supplies was inconsistent, and access to quality referral services and emergency transportation was poor making health service delivery poor. This calls for reforms to improve healthcare service delivery systems in Kenya (Ministry of Health [MoH], 2017). Kiongo (2015) in his study at KNH on disaster

preparedness, he discovered that hospital infrastructure was not adequate 89% said that there was need for improvement to allow handling of big numbers of disaster casualties. He further said that there was need to improve availability of medicine, equipment, and improve premises safety from terrorist attacks to enhance staff safety as they deliver health service to the population (Kiongo, 2015).

2.4 Financial Preparedness

In any organization, financial availability, planning and allocation for the activities is key to the success of the organization's response to any disaster management of the casualties (Bowers, 2019; Stenberg et al., 2017). According to world health organization guidelines, it is essential to have resources ready for emergency preparedness such as finances to fund the activities, supply of materials, equipment and staff remuneration and trainings (WHO, 2017). WHO states that planning for the financial support in healthcare delivery in disaster preparedness is very crucial responsibility for the organization. It is important to network with all other stakeholders for financial support in order to prepare well for any response to disaster emergency casualties which impact seriously on people's health (WHO, 2013). In a study conducted by Leslie et al. (2017) in 10 LMIC in Africa and other countries such as, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda, Tanzania, Bangladesh and Haiti where they assessed 636 hospitals showed that most of the hospitals at 84% (532) were charging user fees, and only 37% (232) of them had money from donor funding (Leslie et al., 2017). Funding for the emergency preparedness needs international collaboration and support to the countries according to their emergency plan.

A study done in South African on Health financing for the country revealed that most health services at 86% were provided by the public sector. The government contributes 50% to the health sector while the other 50% came from private and donor funding. Therefore, the government allocated more funds to the health sector up to 14% of the total government budget. In 2015, 48.3% of total health expenditure was from public sources, 49.8% was from private sources, and 1.9% was from donors. South Africa's Health sector has 83 medical schemes that fund healthcare services for 16% of the population while the rest of the population depend on tax-funded healthcare services. The taxation is heavily levied to allow the non-employed and the poor to access health care services (Health Policy Project, 2016). This protects the population from financial catastrophe and impoverishment and calls for sustainability of healthcare funding.

A research carried out on healthcare financing in Uganda showed that healthcare services were financed by both public (Government and Donor sources) and private sources (households, private firms and not for profit organizations). Out of pocket from the clients contributed 40%-46%, government 17.9%, donors 27.4%, community-based insurances 2% and private payment insurance cover 1%. Total Public health expenditure only constituted 9.6% of the total government expenditure which is far much below the Abuja agreement of 15% of the government expenditure. The government relied more on the house hold contribution leading to inequitable healthcare financing and poor pooling of resources, hence pushing the citizens to financial catastrophe and impoverishment (Zikusooka et al., 2009).

In Tanzania health sector in 2016 spend 11.3% of the yearly Government total expenditure. Although below the Abuja agreement of 15%, it was much more above the average of Low-Income Countries which was at 9.2%. The health sector is heavily funded by donor money at 48%, the government from tax payers money contributed 22%, house hold contribution 15% and private sector 5% (Health Policy Project, 2016). This Put the country at risk in case the donors withdraw their funding, healthcare sector would suffer financial deficit leaving a gap in health system financing.

In Kenya from the time of independence in 1963, Kenya has had a predominantly tax-funded health system. But, gradually introduced series of health financing policy changes. In 1989, user fees (cost-sharing) were introduced in Kenya's health system, but was later abolished for outpatient care in 1990 as a result of concerns about social justice. It was later again re-introduced in 1992, because of budgetary constraints. Until recently, this fee has remained, with its impact on access to health care for the common man in Kenya. This system was significantly altered in June 2004, when the Ministry of Health stipulated that health care services at dispensaries and health Centres level be free for all citizens, except for a minimal registration fee in government health facilities (Carrin et al., 2007).

But the Kenyan health system is still struggling to cope up with the rising cost and demand for quality healthcare services, against the increasing shortage of skilled healthcare workers and infrastructure. It is the country's vision to provide quality healthcare services to its citizens by year 2030. Therefore it is important to device ways and means of closing this gap between vision and reality (Government of Kenya, 2007).

Financial preparation for health service delivery is very important for quality healthcare services for the countries. Most of the countries to finance healthcare services for their citizens depend on the government revenues from taxation, peoples' contributions to insurances and employers' contributions for their employees to private insurances. But this insurance money funds only some services for their partners (MoH, 2017).

Kenya is a low-income country and healthcare financing should be equitable to support all the counties in health service provision. In Kenya 12.7% of the sick people are not able to afford healthcare services due to high cost of the services, bringing in a barrier to access healthcare services. To improve healthcare service financing, Kenya improved NHIF to include outpatient and inpatient service payment and this increased the number of people covered by NHIF. The Ministry of Finance also introduced Health Sector Service Fund (HSSF) and Hospital Management Service Fund (HMSF) through legal notice number 401 and 155 respectively. This was to pull up healthcare finances from the government and the financial partners through Sector Wide Approach (SWAP) and make it directly available to the health facilities through the counties (MoH, 2017).

Abolishing user fee (out of pocket) for payment of healthcare services led to massive influx of patients in public hospitals seeking healthcare services, providing equitable, affordable and accessible healthcare services to all Kenyan citizens. This is in response to vision 2030 that all individuals have a right to the highest attainable standards of healthcare, which includes the right to quality healthcare services (Munge & Briggs, 2014). The Kenyan health system is therefore funded by the government of Kenya from tax revenue collection, Hospital Management Service Fund, Health Sector Service Fund,

at a low-level individual contribution (out of pocket money), NHIF, Private company insurances and donor money especially for TB/Malaria, and HIV/AIDS programs. The government also pulls up funds from partners through Sector Wide Approach (SWA) and gives these funds directly to the facilities through the counties for their annual operational health development programs managed by the facility management committee to improve efficiency and management of financial resources (MoH, 2017).

In Nairobi County, where the mission hospitals are found, health services are financed through national government budget allocations, county revenues collected, corporations including health and medical insurances from different companies, NHIF which is peoples' contributions to the organization, households individual out of pocket payments (OOP) and development partners' funding (donors). In Nairobi City, County households are the major financiers of health care, contributing more than half of the total health expenditure (Nairobi City County, 2019). It is important for Kenya to develop a good medical payment schemes for its citizens to protect them from financial catastrophe and impoverishment brought about by out of pocket payment for healthcare services (Kiongo, 2015).

2.5 Procurement of Hospital Materials

Procurement of hospital materials is very critical for successful delivery of quality healthcare services and quick response, especially during a crisis of influx of patients in the healthcare facility. Since disasters and crisis are unpredictable, materials need to be ready always for efficient and effective response. In a study conducted by Cristian (2018)

in Romania, he said that disaster resources must be organized before the disaster takes place to facilitate efficient response to treat many casualties affected in their diverse health care needs. He also noted that hospitals are not always well equipped and prepared to manage multiple clients' health needs brought about by any of the disasters (Cristian, 2018). Leslie et al. (2017) in their study in Low- and Middle-Income Countries (LMICs) in Bangladesh, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda and the United Republic of Tanzania, said that quality of care given is always related to the supply of materials and equipment. In their study they found out that this was quite low as they had inadequate and low diagnostic capacity as only 14% (88) had basic diagnostic machines, only 44% (283) had equipment, and for essential medications, only 16% (100) had enough medicines to offer healthcare services giving 0% (1) overall service readiness. Only one (1) facility had all the supplies and equipment required by WHO to give basic healthcare services, revealing a gap in availability of hospital materials for healthcare service delivery readiness. All the countries assessed were deficient in basic resources for healthcare service delivery (Leslie et al., 2017).

In an interview with Wafula, the CEO of Lugulu Mission hospital in Bungoma County, Kenya reported that despite the hospital being poorly equipped because they depend on donors for supplies, they had to take the burden of the referral hospital during the healthcare professionals' strike of 2016/2017. The strike found them unprepared with materials, and other supplies (Wafula, 2017).

The CEO of Mathari hospital in Nyeri County, Kenya in an interview with nation people said that despite having low supply of hospital materials, critically ill patients kept on

streaming into the hospital during this same strike of 2016/2017. He had to call the county government to end the strike and safe the situation (Gitau, 2016)

In a study done by Adam et al. (2018) at Kijabe Mission hospital in Kiambu County, Kenya revealed that during the doctors' and the nurses' strikes of 2016/2017 there was increased need and demand for care which occurred across all services, creating a gap on availability of hospital Supplies, overstretching the hospital beyond its capacity, and making it difficult for them to cope up with the situation in response to the clients' needs of healthcare service delivery (Adam et al., 2018).

In the ministry of health sector plan for health, the report stated that equipment were below standards in many dispensaries and hospitals. Availability of essential medicines and medical supplies which are very essential for the management of the casualties were inconsistent creating a gap in supplies of essential medicine. This calls for reforms to improve healthcare service delivery systems in Kenya (MoH, 2017). Kiongo in his study at Kenyatta National Hospital (KNH) on disaster preparedness discovered that the hospital needed to improve availability of medicine and equipment for effective health care service delivery for the casualties (Kiongo, 2015).

2.6 Policies and Guidelines Preparedness

National Policies, guidelines and strategies are very necessary in a healthcare institution to guide and support activities during emergency healthcare service delivery. Hospitals and communities' written policies are very important and necessary for coordination mechanism, especially where emergency response is needed in case of any disaster or

crisis (Kaji & Lewis, 2006). But they are useless unless they are understood and practiced by the hospital staff and community leaders for they became a false sense of security for the hospital and community leaders. In reality very few hospitals have embarked on a realistic plan to support them during emergency healthcare service delivery to save lives (Kaji & Lewis, 2006). Since the Hospitals cannot work alone, this calls for political will, governance and multisectoral collaboration for proper preparation to respond to emergency healthcare needs for patients, especially during disasters and crisis (Kaji & Lewis, 2006). There is need for institutional assessment for different disaster risks in order to determine priorities and early warning signs, to inform and plan mitigation of the risks and for timely, efficient and effective response (WHO, 2017).

Mass casualty management is very different from routine trauma management and proper policies and guidelines of disaster management need to be put in place in order to save lives when massive disaster casualties occur like in terrorists' attacks or during healthcare professionals strike crisis. The specialists' healthcare managers such as the trauma surgeons and critical care specialists should be involved in hospital and community disaster and crisis planning. Frykberg suggests that there is need for the trauma and emergency care specialists to learn anew the management of terrorist casualties which is very different from normal routine trauma management, hence need for care policies and guidelines. He continues to argue that triaging should be done outside the hospital by an experienced trauma surgeon so that those with moderate injuries and can benefit from emergency care are seen first instead of all being brought to the casualty where triaging is impossible (Frykberg, 2004).

Pre- crisis prepared guidelines help to reduce confusion for the actors, facilitate quick response according to the guidelines of the particular disaster. Each team taking their rightful responsibilities and carrying out the activities as prescribe for emergency response and service delivery. When a disaster hits a country when they are not well prepared it causes confusion, panic resulting to massive deaths, massive social disruption and collapse of the country's health system (Kruk et al., 2015). Therefore, it is necessary that the health systems of healthcare institutions are prepared with policies, guidelines and strategies for disasters and crisis response and management. This is to help them handle all types of disasters that occur within the community for efficient and effective response in order to deliver timely and quality healthcare service to the casualties and safe lives. Response to a crisis from any of the disasters, results in a surge of demand for healthcare services. This calls for a vigorous public health response and a highly proactive and functioning healthcare system to work together for delivery of quality healthcare services. Building resilience needs advance assessments of system's capacities and weaknesses, investments in vulnerable components in which the two must work together before a crisis occur. Reinforcements during the emergency, and review of performance after a crisis for resilience is not a static construct but a cardinal measure of success which is very necessary (Kruk et al., 2015).

A study conducted in Tanzania regional hospitals revealed lack of disaster plan in more than half of the hospitals assessed. It is important for hospitals to be prepared for any type of disaster for Poor hospital disaster preparedness leads to poor management of the disaster casualties, leading to massive deaths. It also results to poor patient healthcare

outcome and ultimately poor health outcomes and a failure in health system strengthening. They further said that 40% of the hospitals had no disaster committees in place, which is very essential for disaster planning and management. They also said that there was lack of policies to guide disaster preparedness response and management, leading to poor response and poor management of patients (Koka et al., 2018).

A study carried out by Kiongo (2015) at KNH on emergency preparedness stated that there was need to develop policies in emergency preparedness. This is to ensure that common goals are pursued by the collaborating different sectors and departments involved in the emergency preparedness and response. policies ensure that goals are set, responsibilities are assigned to different departments and peoples according to their expertise, in order to achieve the goals set, and assist in the decision-making process. He also revealed that Disaster preparedness policies were in place, but most of the staff 59.8% of them did not know the contents of the document. This meant lack of preparedness until the staffs are trained on the disaster plan document to know about it and also include the staffs in development and revision of the disaster document for easy adoption and guided

2.7 Theoretical Framework

A theoretical framework refers to the theory a researcher chooses to use to direct his/her research study. It is an application of a theory or set of concepts drawn from one and the same theory to explain a particular event/situation/a phenomenon/or research problem (Imenda, 2014). Theoretical framework is a map or a guide that shows the researcher the

path to follow for the research study, giving the study a foundation of its credibility (Adom et al., 2018).

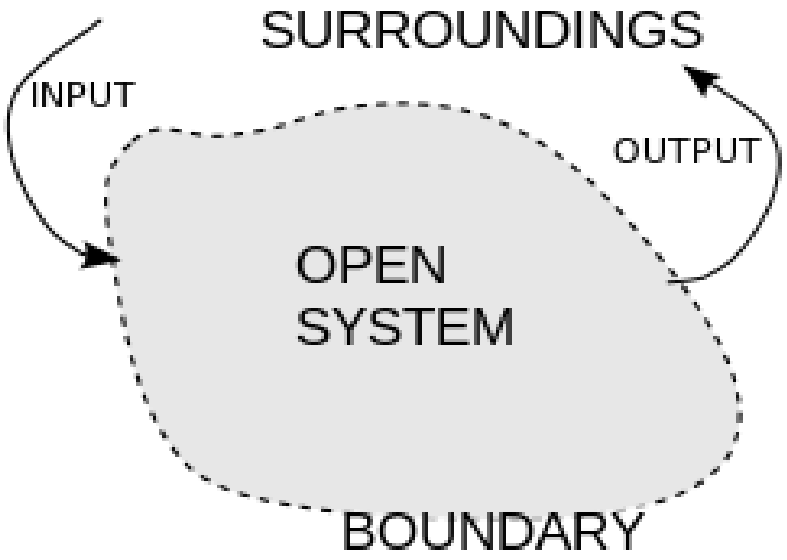
This research study is therefore anchored on the principles of a whole open systems theory, whereby all parts of the system interact and work to together to make the whole (Radichel & Baldwin, 1997). Radichel (1997) and team also argued that the parts of the system influence one another, they are interrelated and interdependent parts that interact with one another in behavior and processes, remaining open to receive and to give to the surrounding environment in order to achieve their goal. Changing one part of the system affects all other parts, hence affecting the outcome of the whole because each of the components supports the whole system, meaning that any problem in any one part of the system affects the whole system and the outcomes. All parts of the system support one another to prevent failure and poster success of the whole system. Therefore it is important for the system to work together in harmony and openness, accepting and giving material into and out of the system to the surrounding environment, each part doing their work perfectly well, maintaining the boundaries for the success of the whole system (Radichel & Baldwin, 1997).

In this study, for the health system of the catholic hospitals to work well and deliver effective healthcare services to the customers during any influx of patients in their institutions, it is important to have the following as the inputs to the system: A well trained, skilled and knowledgeable personnel to manage any disaster casualties and their health complications, a well-informed, trained and good leadership and governance for proper planning and guidance for prompt response, reasonable financial resources to manage the

activities of the emergencies of the disaster. Also, to have good communication channels to the staffs and the community affected for proper coordination and timely response for management of the casualties. It is important to put in place a working and reliable infrastructure, logistics, policies, strategies and guidelines to guide all the activities during disaster or a crisis and its emergencies, and give an output of effective, efficient and timely quality healthcare services for improved health outcomes. It is of paramount importance to have enough materials and medical supplies to manage the casualties of any form of disaster or crisis.

Figure 2.1

Whole Systems Theory by Radichel and Baldwin (1997).



2.8 Conceptual Framework

In a research study, conceptual framework is very important to guide the activities of the study. According to Adom et al. (2018) a concept is a mental image or perception that cannot be measured. It serves as a map that directs the whole research activity and guides the researcher towards realizing the objectives or intention of his or her study and it is mandatory in a research study. It denotes the investigator's synthesis of literature on how to explain a phenomenon, and makes the results of the study meaningful and credible (Adom et al., 2018).

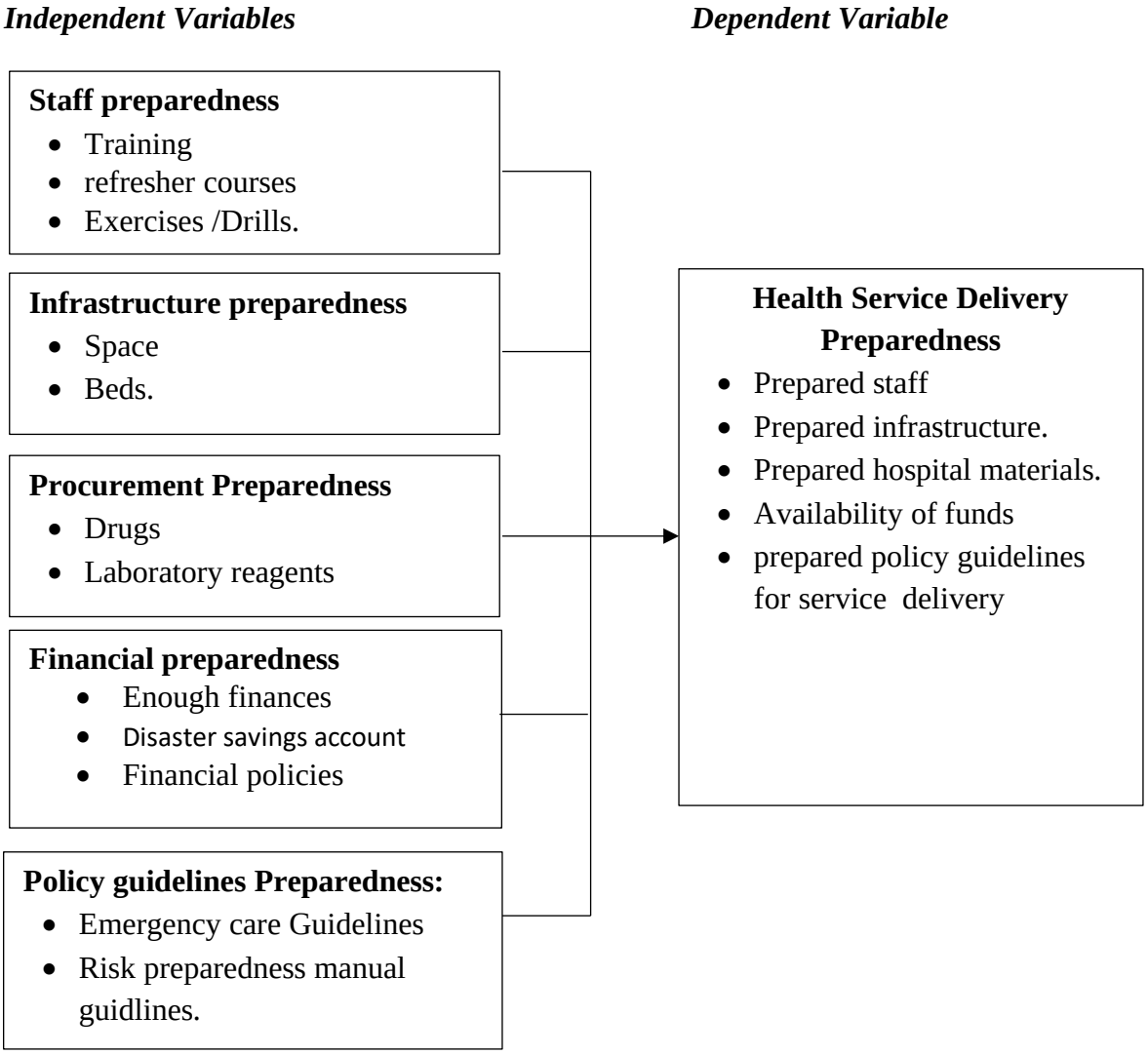
Kumar (2012) argues that conceptual framework maps out the actions required in the development of the research study given the researcher's previous knowledge of other researchers' point of view and his/her observations on the subject of research. He further states that conceptual framework helps the researcher to understand how his/her study variables connect to each other, hence identifying the type of variables needed in his/her research study and the researcher uses it as a map to guide the study investigation (Kumar, 2012). Therefore, conceptual framework directs the formulation of the particular research questions based on the study problem statement and the study variables under investigation. This means that it is developed from the variables of the study guided by the study problem statement. It shows the relationship between independent and the dependent variables.

A conceptual framework is a synthesis of views of literature review concerning a specific area of study or a particular phenomenon/situation from both empirical and theoretical

findings of a research study (Imenda, 2014). The purpose of a conceptual framework is to guides the researcher in his/her research study and help him/her to see clearly the concepts in a given study, giving life to the study. It guides the path of the study and offers the foundation of its credibility. In any research study the independent variables causes the dependent variables and the depended variables cause the outcomes of the study (Adom et al., 2018).

Figure 2.2

Conceptual Framework



The Variables of the study

1. Staff preparedness
2. Infrastructure preparedness
3. Procurement of medical Supplies, Materials, preparedness
4. Financial preparedness
5. Policies guidelines on emergency service delivery preparedness

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the study design, location, target population, sample size determination, sampling methods, data collection and management methods, inclusion and exclusion criteria, pretest, validity, reliability, and ethical issues.

3.2 Research design

This study followed descriptive cross sectional study design using quantitative approach for comprehensive evidence for studying the research problem (Creswell & Clark, 2018). According to Mugenda and Mugenda (2003), a descriptive study is concerned with data collection to answer questions about the current status of the subjects in the study, reporting the way things are at the time of the study (Mugenda & Mugenda, 2003). According to Kothari (2019), a study design is an arrangement of condition for data collection and analysis. A descriptive study seeks to describe a unit in detail, context and holistically (Kothari, 2019). This was done through data collection using self-administered questionnaires to answer the question of preparedness for health service delivery during influx of patients in catholic hospitals in Nairobi County.

3.3 Study Location

The study was conducted in tier 3 catholic hospitals in Nairobi County. Nairobi county is found in Nairobi city which is the capital city of Kenya. It is the 3rd largest city in the

African great lakes with modern financial and communication systems covering an area of 69,491 square kilometers (Nyanchama, 2018). It is a well-developed city with modern buildings and infrastructure and hosting the country's largest industrial center. The city is located at 1.2921° South, 36.8219° east of Kenya and at an elevation of 5,889ft above sea level. It has a population of 4,556,381as per 2019 census (males-2,192,452 and females 2,204,376) with 1,506,888 households. It occupies 703.9 acres/sq. Km of land with a density of 6,247 persons /sq. Km, distributed in 17 administrative sub counties (Kenya National Bereau of Statistics [KNBS], 2019). The name Nairobi comes from the Maasai phrase 'Enkare Nyrobi', which translates to "cool water". The area occupied by Nairobi city was once non inhabited swamp. It has the highest number of constituencies and wards in Kenya, and is one of the most populated cities in the country. Nairobi county has 17 sub counties and 85 wards, five wards in every sub county, each represented by a member of parliament (MP) and a member of county assembly (MCA), who are elected by the people on a five-year term but can contest for another term of five years maximally. The former Nairobi province had nine districts namely: Westlands, Kasarani, Dagoretti, Starehe, Langata, Embakasi, Kamukunji, Njiru, and Makadara (Nyanchama, 2018).

Kenya has an extensive network of both public and private healthcare facilities, from small local clinics to large hospitals. There are a number of private hospitals and medical clinics in Nairobi and some are nonprofit making health facilities such as the mission healthcare facilities. Others are for profit making healthcare facilities with well-trained medical staff and modern diagnostic equipment and machines, and are quite expensive. Most rich people prefer to use private healthcare facilities in Kenya despite being more

expensive than the public facilities. This is because the quality of services are better, doctors are often more experienced, hygiene levels are high, quality of equipment and care are much improved than in the public sector (Nairobi City County, 2019).

The public hospitals in Nairobi County include Kenyatta National Teaching and Referral Hospital (KNH) which is the largest national referral and teaching hospital in Kenya. Others are Mbagathi sub county hospital, Mama Lucy Kibaki sub-county hospital, Pumwani sub-county maternity &teaching hospital, national spinal injury referral hospital, Kenya defence forces memorial hospital and Mathari national psychiatric hospital. These are public health institutions belonging and fully run by the government administration (Nairobi City County, 2019). The health sector in the county is involved in preventive, promotive, curative and rehabilitative healthcare services provision to the community. Healthcare services in Nairobi County are funded by house hold contributions at 54.8%, county government 18.1%, corporations 16.1% and donor's money at 11.1%. households contribute more than half of the healthcare expenditure (Nairobi City County, 2019).

Nairobi county has 5 catholic hospitals located in different slum areas in the county. Among the hospitals 4 are tier 3 hospitals which include Jamaa Catholic Hospital in Umoja, St. Francis Community Catholic Hospital at Kasarani, Mary Immaculate Mission Hospital at Kawangware, St. Mary's Catholic Hospital at Lang'ata/Kibra and mater misericordia which is a tier 4 hospital in south B. All these hospitals except mater hospital are low-cost hospitals located near slum areas to serve the health needs of the populated slum communities around them, which they serve without discrimination.

3.4 Target population

This study targeted 647 members of staff from the 4 selected catholic hospitals, to include hospital administrators/leadership, clinical and medical staff and support staffs from tier 3 catholic hospitals in Nairobi County: namely Jamaa, St. Francis community, Mary Immaculate and St Mary's Lang'ata catholic hospitals from which a sample size was determined. According to Mugenda and Mugenda (2003), a target population is a complete set of individuals, cases or objects with some common observable characteristics from which a sample size is calculated from (Mugenda & Mugenda, 2003).

Table 3.1

Summary of the target population

	NAMES OF THE HOSPITALS				
Cadre of staff	St. Mary's Mission Hospital	St. Francis Community Hospital	Jamaa mission Hospital	Mary Immaculate Mission Hospital	TOTAL
Administrative Staff	10	9	7	7	33
Doctors/ Consultants	20	30	22	6	78
Clinical officers	24	12	10	6	52
Nurses	92	110	42	20	264
Pharmacy staffs	11	8	12	7	38
Laboratory staffs	16	10	11	6	43
Nutritionists	1	2	1	1	5
Counselling staffs	5	2	1	2	10
Imaging Staff	3	11	14	1	29
Health records staff	4	3	2	2	11
Procurement staffs	4	5	2	2	13
Finance staffs	24	17	12	7	60
physiotherapists	2	5	3	1	11
Total no of staff in each hospital	216	224	139	68	647

3.5. Sampling procedure

The 4 catholic hospitals were purposively selected while the staff were selected using stratified random sampling by putting them into strata then simple random sampling was employed to select the respondents from each stratum to be included in the study (Mugenda & Mgenda, 2003). The tier 3 hospitals were selected because they are the cheapest catholic hospitals in the county for all people to afford quality healthcare services.

3.5.1 Sample size determination

This study used Sloven's formulae to calculate sample size, as used by Kothari which allows the researcher to take a small sample using random sampling method as appropriate. The formula allowed the researcher to sample the population with a desired degree of accuracy of results (Bowers, 2019; Stenberg et al., 2019). The formula is as follows:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n=Desired sample size

N= total population size= 647

e=Level of precision (Margin of error tolerance) = 0.05 At a Confidence level of 95%

$$\mathbf{n} = \frac{\mathbf{647}}{\mathbf{1+647\times 0.05^2}} = \mathbf{247.1824} \cong \mathbf{247}\textbf{. Therefore n = 247}$$

Therefore, the calculated sample size for this study was 247 participants selected from the four catholic hospitals and each hospital was calculated as follows:

Total number of each hospital staff x 100 to get the representation of each hospital
Total sample size

1. St Mary's Lang'ata Hospital

$$= 216/647x100 = \ 33.38\% \cong \ 33\% \ = 33/100x247 = \ 81.51 \cong \mathbf{81}$$

2. St Francis Kasarani hospital

$$= 224/647x100 = 34.62\% \cong 35\% = 35/100x247 = 86.45 \cong 86.5 \cong \mathbf{87}$$

3. Jamaa Hospital

$$= \ 139/647x100 = 21.48 \cong 21/100x247 = 51.8 \cong \ \mathbf{52}$$

4. Mary Immaculate hospital

$$= \ \ 68/647x100 \ = \ 10.5 \cong 11/100x247 = 27.17 \cong \mathbf{27}$$

$$\boldsymbol{TOTAL}\ (\mathbf{81 + 87 + 52 + 27}) = \ \mathbf{247}$$

Then from each subgroup the representative number was calculated from the total number of the hospital staff represented as follows

No of staffs in the cadre X calculated sample size of the hospital
Total no of staffs in the particular hospital

NB: Those calculated were 247 but those who returned the questionnaires were 236, but 11 respondents from one of the hospitals did not return the Questionnaires

3.6 Inclusion and exclusion criteria

3.6.1 Inclusion

The study included the selected staffs from the 4 sampled hospitals' subgroups who were one year and above serving in the facility since they had good experience working in the hospital, who were willing to participate in the study and were on duty during the data collection period

3.6.2 Exclusion criteria

The study excluded all other staffs from the sampled hospitals who were not selected, those who were below one year of service in the facility, those who were unwilling to participate in the study and those who were on leave or off duty during the data collection period.

3.7 Research instruments and tools

3.7.1 Data collection methods

The data for the study was collected using quantitative method approach, by using self-administered questionnaires addressing the objectives. The researcher used contingency Matrix of self-administered questionnaires using Likert rating scale consisting of 5 responses (0-4). It offered a range of options, in order to elicit information from the 247 participants. A questionnaire is a research instrument consisting of series of questions for

the purpose of collecting information from the respondents to get information about the variables under study (Mugenda & Mugenda, 2003) taking about 30 minutes.

3.7.2 Pretest

Pre-test of the data collection instruments was conducted at St. Mulumba Mission Hospital in Thika, Kiambu county prior to using the questionnaires in order to refine them. This was done not only to assess the questions validity and likely reliability of data but also to ensure that the respondents had no problems in answering the questions. The necessary corrections of the questionnaires were made according to the suggestions given by the respondents. The number of respondents pretested were 30, and the results showed that the instruments for data collections were valid and reliable after necessary corrections were made. St Mulumba catholic hospital was chosen for the pretest of the data collection tools because it is near Nairobi and spilling of patients from the mission hospitals from Nairobi County may be referred to this hospital which is a tier 3 hospital in the region and quite busy with a bed capacity of 80 beds and a staff population of 82 members.

3.7.3 Validity

According to Mugenda and Mugenda validity is the accuracy and meaningfulness of inferences that are based on the research results. They further argue that validity is how accurate the researcher collects the data to represent the variables under study. They also say that validity in research refers to whether the research truly measures that which it was intended to measure or how truthful the research results are and ensures accuracy of information gathered (Mugenda & Mugenda, 2003). Kumar (2012) argues that validity of

the study means appropriateness, quality and accuracy of the procedures in the research study process, or the ability of an instrument to measure accurately what it is meant to measure. It is the degree to which a researcher has measured what he/she had planned to measure and reflect the concept of the research question (meaning that the value obtained represents the area of the researcher's interest) (Kumar, 2012).

One checks how well and accurately the test measures what it is meant to measure to get true results of the area of interest (Solomon & Young, 2009). Validity of instruments is critical in all forms of research and an acceptable level is largely dependent on logical reasoning, experience and professionalism of the researcher. For this reason, the researcher formulated questionnaires that were specifically tailored to obtain relevant and accurate response from the respondents. The research instruments were pretested with 30 respondents randomly selected from the target population at St Mulumba catholic hospital, Thika. On the basis of their comments, changes were made to the questionnaire to clarify wordings, removed repetitions, and increased the validity and understanding of the questions.

3.7.4 Reliability

Reliability is synonymous to consistency thus reliability is a measure of how consistent the results from the study are. According Kumar reliability is a degree to which a particular measuring procedure gives similar results over and over again on a number of repeated trials (Kumar, 2012). According to Kothari an instrument is reliable if it gives consistent results if measured more than once (Kothari, 2019). To ascertain the reliability of the

instruments, the researcher used Cronbach Alpha to teste the tools. This was done using the various questionnaire items administered to respondents. The results showed that the Cronbach Alpha was 0.8 and therefore above a threshold of 0.7. This means that the instruments were sufficiently reliable for the measurement of the internal consistence of the study after the necessary corrections were made.

3.7.5 Data analysis and presentation

Quantitative data collected for the study was coded, cleaned and assessed for consistency, completeness and reliability. Descriptive statistics such as frequencies and percentages together with inferential statistics such as Pearson's correlation and binary probit regression estimates were used, and results derived from the collected data using the STATA software v16. Correlation analysis was used to find out the nature of association between the variables of interest in the study where a negative value implied negative association and a positive value implied a positive association between any two variables. A value equal to 0 was also used in the study to indicate zero association between any two variables under investigation. For the regression analysis, the binary probit model was used to estimate factors influencing workers' perceptions towards hospital preparedness in handling the emergency inflow of patients in the hospitals. In this case, dependent variable (DV) as previously mentioned was binary in nature taking a value of "ONE" if the hospital staff perceived that the hospital was prepared to handle the emergency inflow of patients, and "ZERO" if the hospital staff perceived otherwise. The statistical model was algebraically expressed as:

$$\text{Preparedness} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \cdots + \beta_n x_n + \epsilon$$

where DV = preparedness ; β_0 = constant for the regression model; = IVs = likert scaled X_s with 0 = strongly disagree and 4= strongly agree; β_i = model coefficients; ϵ = model error term. The empirical model estimated in the study was thus expressed as:

$$\begin{aligned}\text{Percieved hopspital preparedness by staff} = {} & Constant + \beta_1 age + \beta_2 gender \\ & + \beta_3\, marital\ status + \beta_4\, profession + \beta_5\, academic\ qualification \\ & + \beta_6\, work\ experience + \beta_7\, hospital\ size \\ & + \beta_8\, training\ on\ disaster\ management \\ & + \beta_9\, frequency\ of\ emergency\ drills \\ & + \beta_{10}\, whether\ hospital\ space\ is\ enough \\ & + \beta_{11} whether\ hospital\ beds\ are\ relatively\ enough \\ & + \beta_{12}\, whether\ hospital\ drugs\ are\ readily\ available \\ & + \beta_{13}\, whether\ hospital\ lab\ reagents\ are\ readily\ available \\ & + \beta_{14}\, whether\ hospital\ financial\ management\ policies\ are\ available \\ & + \beta_{15}\, whether\ hospital\ disaster\ savings\ account\ is\ available \\ & + \beta_{16}\, whether\ hospital\ risk\ preparedness\ manual\ is\ available \\ & + \beta_{17}\, whether\ hospital\ emergency\ care\ guidelines\ are\ available\end{aligned}$$

3.8 Ethical Considerations

Ethical approval to carry out the research study was sought from Kenya Methodist University (KEMU) Scientific Ethical Review Committee (SERC), and permissions from National Commission for Science, Technology and Innovation (NACOSTI), Hospital Administration of each of the 4 hospitals and from each participant of this study. Participation in the study was voluntary and participants' names were not reflected in any way on the questionnaires. All information collected from the study participants was handled with great care and confidentiality, and remained unanimous. The participants

were fully explained about the type of study, its significance and the methods used in data collection were explained, the part they were to play in the study and the time frame of the study were well explained to them, and all their question were well answered before they gave informed consent to participate in the study.

There was no remunerations or personal benefits of any kind given to the participants for their time spend on data collection for the study. A written consent form was issued to each participant to sign on accepting to participate in the study and all were set free to withdraw from the study at any stage without any form of ridicule. They were also protected from any harm by ensuring that they were not exposed to any physical or psychological harm, and they were not ridiculed or endangered in any way.

CHAPTER FOUR: RESULTLS AND DISCUSSION

4.1 Introduction

This chapter includes reliability pretest results, respondents' demographic characteristics, and the study descriptive and inferential statistical results, and discussions, based on the data collected and analysis. Tables, pie and Bar charts were used to summarize the report, and statistics applied to explain the preparedness of Catholic Hospitals for service delivery during emergency influx of patients in their institutions and the relationship of the variables.

4.2. Pretest reliability results

The pretest was done in St. Mulumba Mission Hospital Thika. The number of respondents pretested were 30, and the results showed that the Cronbach Alpha was 0.8 and therefore above a threshold of 0.7. This means that the instruments were sufficiently reliable for the measurement of the internal consistence of the study after necessary corrections were made.

4.3. Response rate of the respondents and demographic information

This study targeted the Clinical Staff, Medical Support Staff, Administration Support Staff and Mangers of 4 tier 3 Catholic Mission Hospitals in Nairobi County. Questionnaires were given to these teams and later collected by the researcher for analysis. Out of calculated sample size of 247 respondents, 236 of them returned the completed questioners which was good for analysis. Only 11 respondents from one of the hospitals did not return their filled questionnaires, even after constant follow up. The response rate

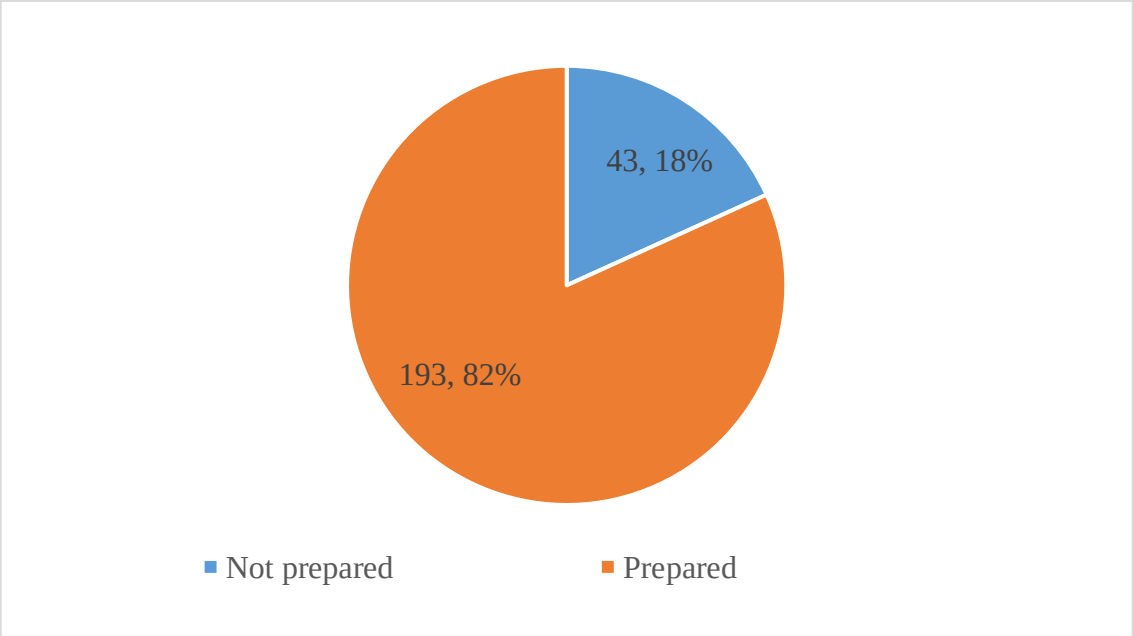
was 95.546% ≅ **96**%. According to Mugenda and Mugenda (2003), high return rate is important as it makes the study results more valid and may give accurate results.

4.4 Descriptive Results and Discussion

The study aimed at demonstrating preparedness of the Catholic hospitals in Nairobi County to handle emergency influx of patients in their healthcare institutions during times of any disaster or crisis. The results of the staffs' perception on Hospital preparedness are demonstrated on the figure Below.

Figure 4.1

Staff Perceptions About Hospital Preparedness to Deal with Emergencies



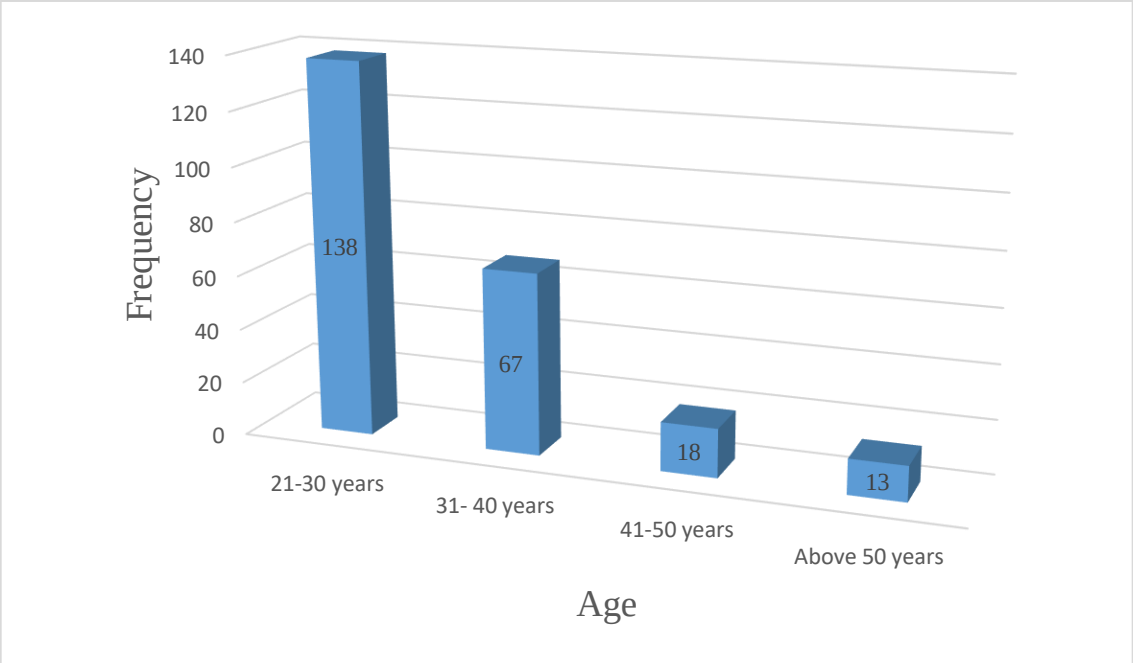
The study revealed that cumulatively, 82% (193) of the respondents thought that the Hospitals are prepared to attend to emergency influx of patients in their healthcare

institutions, while 18% (43) of them thought that the hospitals were not prepared. This gives a very positive conclusion that the hospitals are ready to attend to emergency influx of patients leading to ability to care for patients to improve their health, hence improve their health outcomes.

4.4.1 Demographic characteristics of the respondents

Figure 4.2

Age of the Respondents (X_1)

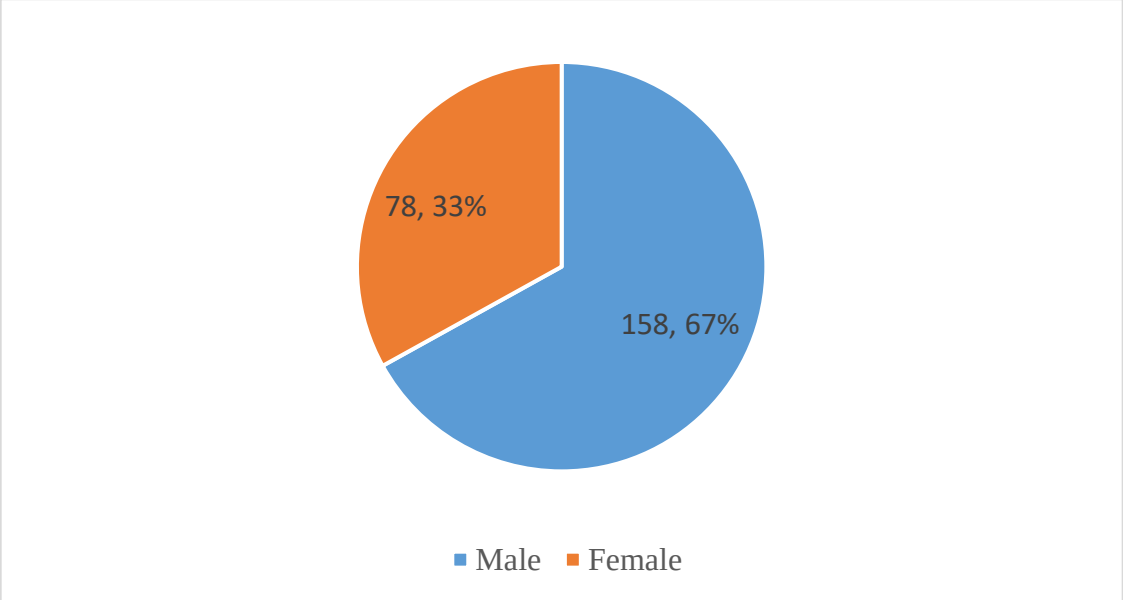


The demographic data showed that majority of the respondents in the hospitals were young adults aged between 21-30 years accounting at 59%, (138), those aged 31-40 years accounted for 28% (67), those aged 41-50 years accounted for 8% (18) while those above 50 years of age were 5% (13). This shows that the respondents from the hospitals are

young adult staffs who can be well trained to improve their knowledge and skills and serve for a longer period in the facilities and be able to respond to the emergency influx of patients. These are young and energetic and can built resilience to manage big numbers of patients who come to their healthcare facilities in times of disaster or crisis as the backbone of the hospital is the healthcare workforce and reduce the workload, like the strikes of health care professionals in 2015/2016 (Oketch, 2017, Wafula,2017).

Figure 4.3

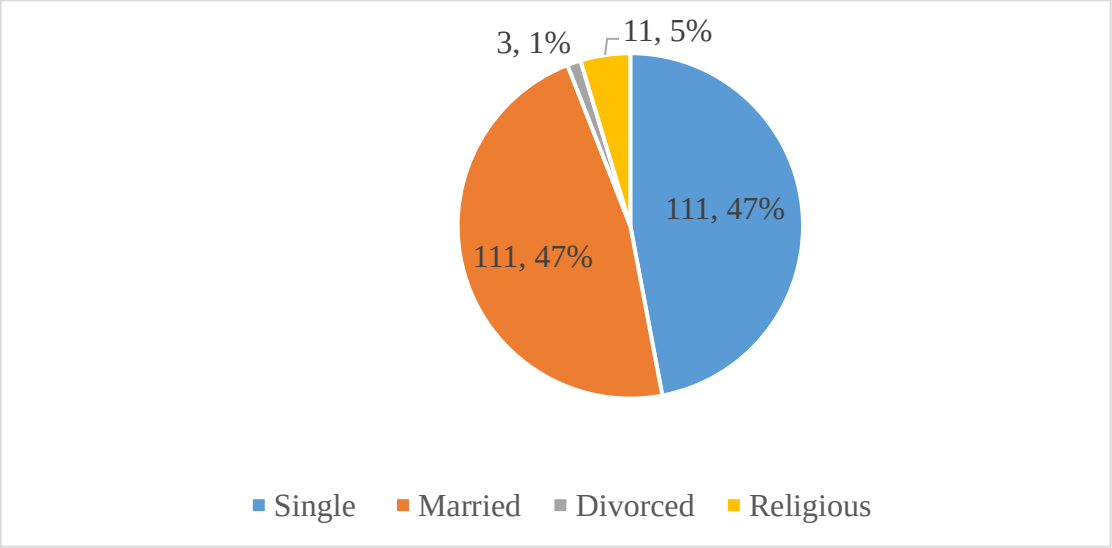
Sex of the Respondents (X_2)



The study also sought to identify the gender of the respondents, and the results showed that majority of the respondents were males accounting for 67% (158) while females accounted for 33% (78). This shows that there was gender disparity in those who took part in the study.

Figure 4.4

Marital Status of the Respondents (X3)



The study also sought to find out the marital status of the respondents and the results identified that most of the respondents were single and married staffs, each accounting for 47% (111) respectively. Those who were religious accounted for 5% (11) and those who were divorced were few accounting for 1% (3). This shows that those who took part in the study were married and single staffs cumulatively accounting for 94% (222), who may have taken responsibility in their lives and may be more responsible if charged with taking care of emergency increase of casualties.

Table 4.1

Classification of Staff (X_4)

Key	Frequency	Percentage
Clinical staff	33	14.0%
Medical Support Staff	185	78.4%
Administration support staff	17	7.2%
Managers	1	0.4%
	236	**100%**

The researcher wanted to classify the respondents taking part in the study. The results showed that those who took part in the study majority were medical support staffs accounting for 78.4% (185) followed by the Clinical Staff accounted for 14% (33), Administration support staff accounted for 7.2% (17) while the Managers accounted for only 0.4% (1). This means that majority of those who took part in the study were the medical support staffs, and the clinical staffs who are in the frontline in healthcare delivery and are more likely to come into contact with the clients' healthcare needs for healthcare services, and can be easily prepared for response in case of influx of patients in the healthcare facilities.

Table 4.2

Staff Qualifications (X_5)

Key	Frequency	Percentage
Certificate	17	7%
Diploma	144	61%
Bachelors	70	30%
Masters	5	2%
	236	**100%**

The study sought to find out the qualifications of the respondents. The results showed that majority of the respondents were diploma holders accounting for 61% (144), Bachelors accounted for 30% (70), Certificate holders accounted for 7% (17), while masters holders accounted for 2% (5). This means that most of the staffs working in the catholic health facilities who took part in the study were middle level certificate holders with diplomas and degrees and therefore were able to understand the importance of the study, and are able to assimilate new information, gain new knowledge and skills in preparation to attend to emergency influx of patients in the healthcare institutions. This is important for delivery of quality healthcare service.

Table 4.3

Years of Service (X_6)

Key	Frequency	Percentage
1-5 years	182	77%
6-10 years	30	13%
11-15 years	24	10%
	236	**100%**

The research wanted to know how many years the respondents had worked in the health facility. The results showed that majority of the respondents worked in the facilities for 1-5 years accounting for 77% (182), while 13% (30) had worked for 6-10 years and 10% (24) had worked for 11-15years. This shows that those who took part in the study were new staffs in the facilities and may be prepared and developed to build their knowledge, skills and resilience to the work within the institutions

Table 4.4

Hospitals Staff Size (X_7)

Key	Frequency	Percentage
St Francis Kasarani	86	37%
St. Mary's	85	36%
Jamaa	36	15%
Mary Immaculate	29	12%
	236	**100%**

The hospitals varied in staff respondents' population depending on the total population of staff for each hospital from which the sample size was calculated. The hospital with the highest number of staff respondents was St Francis community hospital with 37% (86),

followed by St Mary's with a population respondent of 36% (85), Jamaa respondents' population was 15% (36) while Mary Immaculate had 12% (29). The higher the number of hospital staff population, the higher the number of staffs who participated in the study.

Table 4.5

Staff Training on Disaster Management (X_8)

Key	**Frequency**	**Percentage**
trongly Disagree	12	5%
Disagree	20	9%
Neutral	67	28%
Agree	98	42%
Strongly Agree	39	16%
	236	**100%**

The study sought to find out whether the staffs were trained on disaster management and the results showed that 42% (98) out of the total respondents agreed that the staffs are trained on disaster management, 28% (67) remained neutral in which they were not sure whether the staffs were trained or not, 16% (39) strongly agreed that the staff are trained on disaster management, 9% (20) strongly disagreed, while 5% (12) disagreed that staff are trained on disaster management. Staff preparedness to deal with influx of patients in case of a disaster or crisis is very important for quality healthcare services to improve health outcomes of the patients. Cumulatively majority with a total of 58% (137) agreed that the staff are trained on disaster management, while 28% (67) remained neutral, and 14% (32) disagreed. Though this showed positive results that the staffs are trained, there is need for the hospitals' staffs to be trained on disaster management for quick response

when faced with emergency influx of patients for prompt management. This agrees with what Kaji and team said, that limited training, experience and exposure may make the staffs unable to respond appropriately, spontaneously and effectively when faced by any disaster or crisis (Kaji & Lewis, 2006). As Taschner and team said, emergency preparedness training for knowledge and skills are critical for safe and effective disaster management in today's health care environment (Taschner et al., 2017).

Table 4.6

Staff Performance of Drills and Exercises (X_9)

Key	Frequency	Percentage
Strongly Disagree	20	8%
Disagree	23	10%
Neutral	77	33%
Agree	100	42%
Strongly Agree	16	7%
	236	**100%**

The study sought to find out if the hospitals' staffs perform drills and exercises. The results revealed that 42% (100) agreed that the staff perform drills and exercises to sharpen their knowledge and skills while 33% (77) remained neutral, 10% (23) disagreed that staff contact drill, while 8% (20) strongly disagreed, while 7% (16) strongly agreed that the staff do drills. Cumulatively 49% (116) agreed that staff perform drills which is below average, while 18% (43) disagreed and the rest at 42% (100) were not sure where they stood. This shows that the staff skills and knowledge are somehow updated to deal with increased number of emergency casualties, but there is great need to improve their

knowledge and skills through drills and exercises to improve their quick and prompt response. Performance of drills and exercises are very important to keep the staffs abreast with new knowledge and skills for emergency response which is very important for disaster quick response in case of increased number of casualties. This agrees with what Kruk and team argued when they said that disaster response must be managed by a well prepared, trained, Skilled and knowledgeable multidisciplinary medical and non-medical team. This creates a long term need for staff recruitment, training and retention ready for the service delivery (Kruk et al., 2015). Emergency preparedness training, knowledge, drills and skills are critical for safe and effective disaster management in today's health care environment (Taschner et al., 2017).

Table 4.7

Enough Hospitals Space (X_{10})

Key	**Frequency**	**Percentage**
Strongly Disagree	27	11%
Disagree,	31	13%
Neutral	58	25%
Agree	82	35%
Strongly agree	38	16%
	236	**100%**

The study also sought to find out if the hospitals' spaces are enough to accommodate large number of patients during an emergency influx. It was revealed that 35% (82) of the respondents agreed that the hospitals' spaces are enough, while 25% (58) remained neutral, 16% (38) strongly agreed that the hospitals' spaces are enough, while 13% (31)

strongly disagreed, and 11% (27) disagreed that the hospital spaces are enough. Cumulatively 51% (120) agreed that the hospitals' spaces are enough but need to be improved, while 24% (58) disagreed while 25% (58) remained neutral. This concurs with what Koka and team (Koka et al., 2018) found out in Tanzania that 84% of the hospitals had less than 50% of the surge capacity to accommodate large number of patients. 51% is on the borderline, but it is important for the hospitals to have enough space to accommodate increased number of patients. But according to Leslie and team, (Leslie et *al., 2017*) quality care can be offered in any facility as long as the basic amenities for delivery of care are available and the processes are correctly done to improve healthcare services and patient health outcomes

Table 4.8

Enough Hospitals Beds (X_{11})

Key	**Frequency**	**Percentage**
Strongly Disagree	16	7%
Disagree,	35	15%
Neutral	60	25%
Agree	87	37%
Strongly agree	38	16%
	236	**100.0**

The researcher through the study wanted to find out if the hospitals' beds were enough to accommodate increased number of patients. The results showed that 37 % (87) agreed that the beds are enough, while 25% (60) remained neutral, 16% (38) strongly agreed that the hospitals' beds are enough, 15% (35) strongly disagreed, while 7% (16) said that the

hospitals' beds are not enough. Cumulatively 53% (125) agreed that the hospital beds are enough, but they need to be increased, while 22% (51) disagreed that they have enough Beds and 25% (60) remain neutral. Although the results showed a positive result at 53% (125), it is on the borderline, and having enough beds in the hospitals is very important and critical to accommodate increased number of patients, because without enough beds admission of the patients will be impossible, and may complicate emergency response even more (WHO, 2013). Lack of enough beds may affect social setting of the community and the organization where the casualties are taken (Cristian, 2018).

Table 4.9

Enough Hospitals Drugs (X_{12})

Key	**Frequency**	**Percentage**
Strongly Disagree	7	3%
Disagree	17	7%
Neutral	50	21%
Agree	104	44%
Strongly Agree	58	25%
Total	**236**	**100%**

The study also sought to know if the hospitals had enough drugs to treat an emergency influx of patients. The results showed that 44% (104) out of the total respondents agreed that the drugs are enough, while 25% (58) strongly agreed, 21% (50) remained neutral, while 7% (17) strongly disagreed that drugs are enough and 3% (7) disagreed that they are enough. Cumulatively the results showed a positive a result of 69% (162) who agreed that the drugs in the hospitals are enough, while 10% (24) disagreed and 21% (50)

remained neutral. It is necessary for the hospitals' drugs to be enough for there is no quality care without supply of enough essential drugs for treatment of the conditions of the patients. The ministry of health sector plan report stated that inconsistent availability of drugs and medical supplies in the healthcare facilities makes healthcare service delivery poor (MoH, 2017)

Table 4.10

Enough Hospitals Lab Reagents (X_{13})

Key	Frequency	Percentage
Strongly Disagree	5	2%
Disagree	13	6%
Neutral,	53	22%
Agree,	105	45%
Strongly agree	60	25%
	236	**100%**

The study sought to find out if the hospitals' Laboratory reagents are enough to help in the confirmation of the clinical diagnoses of the patients. The study results revealed that 45% (105) agreed that the Lab reagents are enough for managing emergency influx of patients, 25% (60) strongly agreed, while 23% (53) remained neutral and those who disagreed accounted for 6% (13) while 2% (5) strongly disagreed. Cumulatively 70% (165) agreed that the Hospitals' Lab reagents are enough showing a strong positive result, while 8% (18) disagreed and 22%. (53) remained neutral. It is very important for the lab reagents to be enough because they are key in assisting the clinicians in making conclusive diagnosis of the patients' health conditions, leading to correct treatment, improving

patients' quality of care which is associate with adequate supply of diagnostic materials (Cristian, 2018). This improves the total health outcome of the patients, hence improving ultimate health outcomes worldwide, which is the global focus (WHO et al., 2018).

Table 4.11

Hospital Financial Policies (X_{14})

Key	Frequency	Percent
Strongly Disagree	14	6%
Disagree	24	10%
Neutral,	87	37%
Agree,	87	37%
Strongly agree	24	10%
	236	**100%**

The study set to find out if there were financial policies governing hospitals' financial mobilization to sustain the health care programs for quality service delivery. The results revealed that 37% (87) agreed that there are financial policies to govern fund mobilization, 37% (87) remained neutral, while 10% (24) disagreed, 10% (24) agreed that there are financial policies and 6% (14) strongly disagreed. Cumulatively 47% (111) agreed, and 16% (38) disagreed while 37% (87) remained neutral. This result is below average, meaning that financial policies are not well established. Financial policies for fund mobilization to support the healthcare service delivery is very key to quality care. Without funds the organizations' staffs cannot be paid, procurement can't be realized and infrastructure cannot be improved. It is essential to have financial resources and policies ready for emergency preparedness to fund the activities, such as supply of materials,

equipment, staff remuneration and trainings (WHO, 2017). This is also in agreement with what Bowers, Stenberg and their teams found, when they said that in any organization, financial planning and allocation for the activities is key to the success of the organization's response to any disaster management of the casualties (Bowers, 2019; Stenberg et al., 2017) check referencing. Financial mobilization for the success of the healthcare service delivery is key to quality, efficient and effective healthcare services for improved healthcare outcomes.

Table 4.12

Hospital Disaster Savings Account Instituted (X_{15})

Key	**Frequency**	**Percentage**
Strongly Disagree	22	9%
Disagree	28	12%
Neutral	138	59%
Agree	42	18%
Strongly agree	6	2%
	236	**100%**

The study was also to find out if the hospitals have disaster savings account instituted to facilitate emergency response to any emergency influx of the patients into the healthcare institutions. The results showed that majority of the respondents remained neutral accounting for 59% (138), 18% (42) agreed that there are savings accounts for disaster management in the hospitals, while 12% (28) disagreed, 9% (22) strongly disagreed, and 2% (6) strongly agreed. Cumulatively those who agreed that there are disaster saving

accounts in the hospitals accounted for 20% (48) while 21% (50) disagreed and majority at 59% (138) remained neutral. The number of those who agreed that there are financial policies is very low and this means that there is need for the administration to be open and let the staff know about facility savings for the emergency need of healthcare services in case of emergency influx of patients in their health institutions. This gives financial security to the institution staffs. The healthcare institutions need to look for more ways of fund raising such as getting to work with healthcare insurances and other financial partners to support the activities otherwise relying more on the house hold contributions will lead to inequitable heath financing and poor pooling of resources, pushing the citizens to financial catastrophe and impoverishment as said by Zikusooka et al (2009). Check referencing

Table 4.13

Hospital Risk Preparedness Plan Manual Availability (X_{16})

Key	**Frequency**	**Percentage**
Strongly Disagree	25	11%
Disagree	13	6%
Neutral	98	41%
Agree	74	31%
Strongly agree	26	11%
	236	**100%**

The researcher sought to find out if the hospitals had risk plan manuals for easy response and preparedness. The results showed that, 41% (98) remained neutral, 31% (74) Agreed that the hospitals have risk plan manuals in place, 11% (26) strongly agreed that the

manuals are in place, 11% (25) strongly disagreed, while 6% (13) disagreed that the manuals are in place. Cumulatively, 42% (100) agreed that the manuals are in place while 17% (38) disagreed and 41% (98) remained neutral. Those who agreed were below Half of the respondents and this shows that there is great need for the hospitals to have risk plan manuals in place to guide activities during emergency influx of patients in order to save lives. This coincides with what Kaji and team said, "that in reality very few hospitals have embarked on a realistic plan to support them during emergency healthcare service delivery to save lives" (Kaji & Lewis, 2006).

Table 4.14

Hospital Emergency Care Guidelines Available (X_{17})

Key	**Frequency**	**Percentage**
Strongly Disagree	14	6%
Disagree	18	8%
Neutral	62	26%
Agree	114	48%
Strongly agree	28	12%
	236	**100%**

The study was set to find out if hospitals' emergency care guidelines were available and the results showed that 48% (114) agreed that the policies are in place while 26% (62) remained neutral, 12% (28) strongly agreed that the policies are in place, 8% (18) disagreed and 6% (14) strongly disagreed that the emergency care policies are in place. Cumulatively, 60% (142) agreed that care policy guidelines are in place while those who disagreed accounted for 14% (32) and the rest at 26% (62) remained neutral. Emergency

care Policy guidelines are very essential in a healthcare institution because they make the care delivery flow as the staff share responsibilities and follow the set guideline to avoid confusion. And promptly save lives. Though the hospitals show that they have the guidelines in place it is important to improve the guidelines and let the staff be aware of them in order to save lives and reduce deaths of casualties when massive disaster casualties occur. If the staffs are not aware of the policy documents, then the documents are mining less and cannot help in saving lives and reducing deaths of the casualties. Lack of policies leads to confusion, delayed and poor response and increased deaths of casualties (Koka et al., 2018). Disaster preparedness policies may be in place, but if most of the staff are not aware of the contents of the document, it means lack of preparedness until the staffs are trained on the disaster plan document to know about it and also include the staffs in development and revision of the policy document for easy adoption as said by Kiongo (Kiongo, 2015).

4.5 Inferential results and discussions

On inferential statistics, both correlation and regression analyses were conducted so as to deduce relationships among the variables. Regarding correlation analysis, a correlation matrix, which is a table that displays correlation coefficients between variables together with their levels of significance was sought. The variables of interest in this case were the perceived hospital preparedness by staff (Y_1), age (X_1), gender (X_2), marital status (X_3), profession (X_4), academic qualification (X_5), work experience (X_6), hospital size (X_7), training on disaster management (X_8), frequent emergency drills/exercises (X_9), enough hospital space (X_{10}), availability of enough hospital beds (X_{11}), availability of hospital

drugs (X_{12}), availability of hospital lab reagents (X_{13}), availability of hospital financial policies (X_{14}), availability of hospital disaster savings account (X_{15}), availability of hospital risk preparedness manuals (X_{16}), availability of hospital emergency care guidelines (X_{17}). The results of the correlation analysis are presented in Table 16 and only results that were statistically significant at 10 percent level or greater are reported.

As shown in the table, the one values on the diagonal line derive from the fact a bivariate correlation between a variable and itself always yields a values equal to one and as such, the level of significance in indeterminant

4.5.1 Correlation results

Table 4.15

A Correlation Matrix on Factors Associated with Hospital Preparedness in Handling Emergency Influx of Patients in Hospitals

		y1	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	x16	x17
y1	Correlation Coefficient (r)	1																	
	Sig. (2-tailed) test	.																	
x1	Correlation Coefficient (r)	0.101	1																
	Sig. (2-tailed) test	0.106	.																
x2	Correlation Coefficient (r)	0.005	0.042	1															
	Sig. (2-tailed) test	0.940	0.497	.															
x3	Correlation Coefficient (r)	0.039	0.279	0.114	1														
	Sig. (2-tailed) test	0.549	0.000	0.081	.														
x4	Correlation Coefficient (r)	0.158	-0.097	-0.080	-0.061	1													
	Sig. (2-tailed) test	0.016	0.118	0.218	0.352	.													
x5	Correlation Coefficient (r)	0.008	0.001	0.120	-0.005	-0.040	1												
	Sig. (2-tailed) test	0.904	0.987	0.065	0.939	0.543	.												
x6	Correlation Coefficient (r)	0.015	0.434	0.087	0.277	0.010	-0.006	1											
	Sig. (2-tailed) test	0.808	0.000	0.171	0.000	0.878	0.924	.											
x7	Correlation Coefficient (r)	0.002	0.156	0.086	0.127	0.031	-0.122	0.205	1										
	Sig. (2-tailed) test	0.978	0.007	0.155	0.036	0.610	0.043	0.001	.										
x8	Correlation Coefficient (r)	0.211	-0.020	-0.124	-0.020	0.040	-0.066	0.062	-0.032	1									
	Sig. (2-tailed) test	0.000	0.721	0.038	0.734	0.500	0.275	0.289	0.562	.									
x9	Correlation Coefficient (r)	-0.147	-0.027	-0.181	-0.044	0.011	-0.143	0.002	-0.091	0.450	1								
	Sig. (2-tailed) test	0.015	0.639	0.003	0.470	0.854	0.018	0.970	0.105	0.000	.								
x10	Correlation Coefficient (r)	-0.243	0.153	-0.089	0.062	0.066	-0.034	0.003	-0.139	0.211	0.189	1							
	Sig. (2-tailed) test	0.000	0.007	0.130	0.294	0.264	0.568	0.956	0.011	0.000	0.001	.							
x11	Correlation Coefficient (r)	0.285	0.137	-0.177	0.050	0.014	-0.010	-0.014	-0.106	0.215	0.233	0.708	1						
	Sig. (2-tailed) test	0.000	0.015	0.003	0.400	0.808	0.866	0.810	0.054	0.000	0.000	0.000	.						
x12	Correlation Coefficient (r)	0.146	0.209	-0.072	0.049	-0.060	0.007	0.125	-0.068	0.295	0.279	0.164	0.266	1					
	Sig. (2-tailed) test	0.015	0.000	0.229	0.416	0.320	0.913	0.033	0.226	0.000	0.000	0.003	0.000	.					
x13	Correlation Coefficient (r)	0.218	0.097	-0.006	0.075	0.038	0.065	0.093	-0.030	0.257	0.311	0.140	0.176	0.369	1				
	Sig. (2-tailed) test	0.000	0.093	0.918	0.216	0.527	0.281	0.115	0.598	0.000	0.000	0.011	0.001	0.000	.				
x14	Correlation Coefficient (r)	-0.259	0.003	-0.079	-0.051	0.161	-0.008	-0.023	-0.097	0.193	0.296	0.151	0.203	0.183	0.271	1			
	Sig. (2-tailed) test	0.000	0.953	0.189	0.400	0.007	0.888	0.699	0.081	0.000	0.000	0.006	0.000	0.001	0.000	.			
x15	Correlation Coefficient (r)	0.269	-0.128	-0.079	-0.036	0.174	0.000	-0.005	-0.069	0.155	0.225	0.186	0.201	0.169	0.216	0.508	1		
	Sig. (2-tailed) test	0.000	0.028	0.194	0.556	0.004	0.994	0.929	0.225	0.006	0.000	0.001	0.000	0.003	0.000	0.000	.		
x16	Correlation Coefficient (r)	0.245	-0.012	-0.133	-0.074	0.143	-0.054	-0.038	-0.219	0.176	0.261	0.202	0.245	0.156	0.271	0.458	0.344	1	
	Sig. (2-tailed) test	0.000	0.833	0.027	0.216	0.017	0.366	0.518	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	.	
x17	Correlation Coefficient (r)	0.307	-0.093	-0.061	-0.019	0.198	0.017	-0.024	-0.178	0.269	0.346	0.146	0.149	0.196	0.349	0.492	0.306	0.622	1
	Sig. (2-tailed) test	0.000	0.107	0.311	0.754	0.001	0.780	0.686	0.001	0.000	0.000	0.008	0.007	0.000	0.000	0.000	0.000	0.000	.

The correlation between preparedness and professional qualification (X_4) of the staff members was found positive and significant ($r=0.158$; $p<0.05$) meaning that the hospital would be perceived to be more prepared if it has more medical support staff as opposed to clinical staff. A positive correlation between preparedness and training of staff members on disaster management (X_8) was also found positive and significant ($r=0.211$; $p<0.01$) implying that the hospital would be seen to be more prepared if staff members were more trained on disaster management issues. A negative correlation was however found between preparedness and the frequency of emergency drills (X_9) by the staff members ($r= -0.147$; $p<0.05$), which means that a hospital would still not be perceived to be prepared regardless of the number of emergency drills it conducts with its staff members. A negative correlation was also found between preparedness and adequacy of hospital space (X_{10}) ($r= -0.243$; $p<0.01$) meaning that a hospital would still not be seen to be prepared for emergency cases even if it had adequate hospital space. A positive correlation was found between preparedness and relative adequacy of hospital beds (X_{11}) ($r=0.285$; $p<0.01$), which implies that a hospital would be understood to be prepared if it had adequate hospital beds to deal with emergency influx of patients' issues. The correlation between preparedness and availability of hospital drugs (X_{12}) was also found positive and significant ($r=0.146$; $p<0.05$) meaning that a hospital would be seen to be prepared if drugs were readily available at the hospital. Moreover, a positive and significant correlation preparedness and availability of hospital lab reagents (X_{13}) was also found positive and significant ($r=0.218$; $p<0.01$) implying that a hospital is seen to be prepared if it has readily available lab reagents. Correlation between preparedness and the availability of hospital

financial policies (X_{14}) was found to be negative but, significant (r= -0.259; p<0.01), which implies that a hospital is not perceived to be prepared even if it has policies that guide its financial operations. As for the relationship between preparedness and the availability of hospital disaster savings account (X_{15}), the study found it to be both positive and significant (r=0.269; p<0.01) meaning that the availability of a hospital disaster savings account was likely to make a hospital be perceived as prepared to handle emergency influx of patients with their healthcare issues. The correlation between preparedness and the availability of a hospital risk preparedness manuals (X_{16}) was also positive and significant (r=0.245; P<0.01), implying that hospitals with risk preparedness manuals were more likely to be prepared to handle emergency influx cases as opposed to those without such manuals. Finally, the study also found a positive and significant correlation between preparedness and the availability of hospital emergency care guidelines (X_{17}) (r=0.307; P<0.01). This means that hospitals with hospital emergency care guidelines are considered more prepared to handle emergency influx of patients when compared to those hospitals without such guidelines as such, the level of significance is indeterminant.

4.5.2 Regression results

As mentioned earlier, the dependent variable was the perceived hospital preparedness by staff. This variable was binary in nature (1=prepared and 0=otherwise) and was regressed against a host of factors that include: age (X_1), gender (X_2), marital status (X_3), profession (X_4), academic qualification (X_5), work experience (X_6), hospital size (X_7), training of staff on disaster management (X_8), frequent emergency drills/exercises (X_9), enough

hospital space (X_{10}), relatively enough hospital beds (X_{11}), availability of hospital drugs (X_{12}), availability of hospital lab reagents (X_{13}), availability of hospital financial policies (X_{14}), availability of hospital disaster savings account (X_{15}), availability of hospital risk preparedness manual (X_{16}), availability of hospital emergency care guidelines (X_{17}).

The results of the binary probit regression model are presented in Table 17 below and only results that are statistically significant at 10 percent level or greater are reported. On model diagnostics, it can be noticed that the likelihood ratio statistic as indicated by chi-square was highly significant (LL=82.900; $p<0.000$), suggesting that all the model parameters were jointly significant in explaining the dependent variable. The Pseudo R^2 was 0.3700 indicating that the specification fits the model well and the variables included in the model explain 37% of variation in the perceived hospital preparedness by staff. This signifies the goodness of fit of the model given that this is a probability model. Furthermore, the results also indicate that age (X_1), gender (X_2), marital status (X_3), work experience (X_6), training on disaster management (X_8), adequate hospital beds (X_{11}) and the availability of hospital disaster savings account (X_{15}) were statistically significant in influencing the probability of the hospitals to be prepared to handle emergency inflow of patients during emergency periods. In relation to age, the results were positive and significant in relation to hospital preparedness to handle the emergency inflow of patients. This means that hospitals with older staff members were more likely to be prepared to handle emergency influx of patients as opposed to those hospitals with younger staff members ($\boldsymbol{\beta} = 0.561$; $p<0.01$). This is probably because older staff members are more

experienced at the job in handling emergency cases in hospitals than younger staff members.

As for gender variable, the results were also positive and significant in relation to hospital preparedness to handle the emergency inflow of patients meaning that hospitals with more male staff members were more likely to be prepared to handle emergency inflow of patients compared to hospitals with more female staff ($\boldsymbol{\beta} = 0.638$; $p<0.05$). This is because most male staffs are always present at job unless when they are off duty or on leave unlike females who go for long maternity leaves or are absent due to family and children's issues.

Table 4.16

Probit Regression Results on the Factors Influencing Hospital Preparedness in Handling Influx of Patients

Descriptions	**Coefficient**	**Std. Error**	**z-value**	**p-value**
Hospital preparedness (a binary DV where 1=prepared, 0=otherwise)				
Age of staff members (in years)	0.561***	0.186	3.020	0.003
Gender (1=male, 0=otherwise)	0.638**	0.301	2.120	0.034
Marital status (1=married, 0=otherwise)	0.491**	0.214	2.290	0.022
Profession (1=support staff, 0=otherwise)	0.381	0.262	1.450	0.146
Academic qualification (1=degree holder, 0=otherwise)	0.102	0.218	0.470	0.640
Work experience (in years)	0.555**	0.270	2.050	0.040
Hospital size (number of hospital staff)	0.233	0.154	1.510	0.130
Training on disaster management (4=strongly agree)	0.265*	0.141	1.870	0.061
Frequent emergency drills/exercises (4=strongly agree)	-0.054	0.153	-0.360	0.722
Hospital space is enough (4=strongly agree)	-0.015	0.176	-0.090	0.931
Hospital beds are relatively enough (4=strongly agree)	0.549***	0.194	2.830	0.005
Hospital drugs are relatively adequate (4=strongly agree)	0.013	0.141	0.090	0.927
Hospital Lab Reagents are relatively Enough (4=strongly agree)	0.018	0.155	0.120	0.906
Availability of Hospital Financial Policies (4=strongly agree)	-0.050	0.177	-0.280	0.779
Availability of Hospital Disaster Savings Account (4=strongly agree)	0.503**	0.212	2.380	0.017
Availability of Hospital Risk Preparedness Manual (4=strongly agree)	0.162	0.171	0.940	0.345
Availability of Hospital Emergency Care Guidelines (4=strongly agree)	0.310	0.195	1.590	0.112
Constant	-4.142***	0.937	-4.420	0.000
Model summary statistics				
LR chi-square (17 d.o.f.)	82.900			
Probability > chi2	0.0000			
Pseudo R^2	0.3700			
Number of respondents	236			
Parameters	17			

Explanatory Note: (*) denotes p < 0.1; (**) denotes p < 0.05; (***) denotes p < 0.01.

Hence perhaps male staff members were more available and exposed in handling emergency cases in hospitals than female staff members. On the marital status variable, the results were positive and significant meaning that hospitals with more married staff members were more likely to be prepared to handle emergency cases as opposed to those unmarried staff members ($\boldsymbol{\beta}$ = 0.491; $p<0.05$). This is most likely because married staff members may have had prior experiences in handling emergency cases in their life experience as opposed to unmarried staff members. As for the work experience variable, the results also came out as positive and significant in relation to hospital preparedness to handle emergency influx cases. This implies that hospitals with staff members that have more work experience were more likely to be prepared to handle emergency influx cases as compared to those hospitals whose staff members had limited work experience ($\boldsymbol{\beta}$ = 0.555; $p<0.05$). Staff training on disaster management was another variable whose results were also positive and significant meaning that hospitals that conduct training on disaster management for staff members were more likely to be prepared to handle emergency influx patients, as opposed to cases where staff members are not trained on disaster management. Same was found when probit regression matrix was used at ($\boldsymbol{\beta}$ = 0.265; $p<0.1$).This concurs with what word health organization said, that service delivery is managed by the staff of the organization who are well educated, trained, knowledgeable and fast in skills in health service delivery (WHO et al., 2018). If the staff are not well trained, this leads to poor, and inefficient response (Koka et al., 2018).

Moreover, adequacy of hospital beds variable was also found positive and significant implying that hospitals with enough beds were more likely to be prepared for emergency

influx of patients than those without adequate beds same was found when probit regression matrix was used at (**β** = 0.549; p<0.01) This concurs with what Kaji and Lewis (2006) said in Los Angeles when they found out that out of 45 hospitals assessed, only 6 hospitals (43%) had surge capacity of more than 20 beds to accommodate the patients (Kaji & Lewis, 2006). It is important to be prepared to receive increased number of patients, as Lungulu Mission Hospital in Bungoma was found unprepared with space and beds during the strike of 2016/2017 of the healthcare professionals (Wafula, 2017). The correlation between preparedness and availability of hospital drugs was also found positive and significant at (r = 0.146; p<0.05). This agrees with what Kiongo (2015) said in his study at Kenyatta National Hospital (KNH) on disaster preparedness, that the hospital needed to improve availability of medicine for effective health care service delivery for the casualties (Kiongo, 2015).

A positive and significant correlation between preparedness and availability of hospital lab reagents was also found at (r =0.218; p<0.01). The hospital may be perceived prepared if the lab reagents are available than those without them. It is important to be prepared to received increase number of patients, as Lungulu mission hospital was found unprepared with hospital materials and other supplies during the strike of healthcare professionals of 2016/2017, overwhelming the hospital response as they depend on donations (Wafula, 2017). A positive and significant relationship between preparedness and the availability of hospital disaster savings account was found at (r = 0.269; p<0.01) and (**β** = 0.503; p<0.05) meaning that the hospitals are perceived to be prepared than those who do not have. It is of paramount importance for any organization to have in place financial

planning and allocation as it is key to the success of any disaster management (Bowers, 2019). Rezaei et al. (2018) states that planning for the financial support in healthcare delivery in disaster preparedness is very crucial responsibility for the organization to support the activities (Rezaei et al., 2018). A positive and significant correlation between preparedness and the availability of a hospital risk preparedness manuals was also found at ($r = 0.245$; $P<0.01$). But in reality very few hospitals have embarked on a realistic plan to support them during emergency healthcare service delivery to save lives (Kaji & Lewis, 2006).

A positive and significant correlation was also found between preparedness and the availability of hospital emergency care guidelines at ($r = 0.307$; $P<0.01$). Kiongo (2015) stated that there is need to develop policies and guidelines, and involve the staff in developing them so as to share responsibilities according the staff expertise to respond to emergency increase of casualties (Kiongo, 2015).

Availability of hospital disaster savings account variable also emerged positive and significant, which means that hospitals with disaster savings account were more likely to be prepared for emergency cases than those without such accounts. Same was also found when probit model was used at ($\boldsymbol{\beta} = 0.503$; $p<0.05$). In any organization, financial planning and allocation is key to the success of any disaster management (Stenberg et al., 2017). A positive and significant correlation between preparedness and the availability of a hospital risk preparedness manuals was also found at ($r = 0.245$; $P<0.01$). This disagrees with what Kaji and Lewis (2006) said that in reality very few hospitals have embarked on a realistic plan to support them during emergency healthcare service delivery to save

lives (Kaji & Lewis, 2006). It is important to have the manuals in place for prompt response to void confusion.

A negative correlation was found between preparedness and the frequency of emergency drills by the staff members at ($r = -0.147$; $p<0.05$), and adequacy of hospital space at ($r = -0.243$; $p<0.01$). Implying that a hospital is perceived not prepared to handle influx of patients despite having frequent drills and adequate hospital space. Correlation between preparedness and the availability of hospital financial policies was found to be negative but, significant at ($r = -0.259$; $p<0.01$), the hospital is perceived not prepared even if it has financial policies in place that guide its financial operations.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter includes the summary findings, conclusion and recommendations of the study based on its objectives.

5.2 Summary

The study focused on the organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during influx of patients in their healthcare institutions in Nairobi County. Influx of patient in a healthcare institution may be caused by any disaster or crisis of any kind like strikes of the national health professionals which occurred in 2016/2017, fire, diseases outbreaks, terrorism, floods etc. The findings were based on the five (5) objectives of the study namely, to find out if Staff training, infrastructure, procurement of hospital materials, finances and policies have any influence on preparedness of tier 3 catholic hospitals for immediate response to offer healthcare services during influx of patients in Nairobi County.

5.2.1 Staff preparedness

For the staff preparedness the researcher examined staff training for skills and knowledge on disaster management, and practice on the skills through drills and exercises in order to manage increased number of casualties in the health facilities caused by any disaster or crisis needing emergency response and care. Cumulatively, the results showed that

majority of the respondents with a total of 58% (137) agreed that the staff are trained on disaster management while 28% (67) remained neutral, and 14% (32) disagreed. Training the staff for knowledge and skills acquisition is critical in emergency response to increased number of casualties each coming with their own health problem needing quality of care. In this case, the study found that there was a positive correlation existed between preparedness and training of staff members on disaster management (X_8) at ($r=0.158$; $p<0.05$) implying that the hospital would be seen to be prepared if staff members were more trained on disaster management issues, and could be perceived to be more ready to handle emergency influx of patients than those who are not trained on disaster management using regression model probability at ($\boldsymbol{\beta} = 0.265$; $p<0.1$). However, a negative correlation was found between preparedness and the frequency of emergency drills (X_9) by the staff members at ($r= -0.147$; $p<0.05$), which means that a hospital would still not be perceived to be prepared even if it conducted so many emergency drills with its staff members.

5.2.2 Infrastructure preparedness

Having enough space in the hospitals and the necessary amenities is very important.to accommodate increased number of patients. Availability of Enough hospitals' spaces accounted for 51% (120) while hospital beds accounted for 53% (125). These are on the borderline and improvement for hospital infrastructure is important for accommodation of increased number of patients.in case of any disaster or crisis. This study also found that a negative correlation existed between preparedness and adequacy of hospital space (X_{10}) at ($r= -0.243$; $p<0.01$) meaning that a hospital would still not be seen to be prepared for

emergency influx of patients even if it had adequate hospital space. A positive correlation was however found between preparedness and relative adequacy of hospital beds (X_{11}) at ($r=0.285$; $p<0.01$), and using probit regression model at ($\boldsymbol{\beta} = 0.549$; $p<0.01$), meaning that a hospital would be understood to be prepared if it had adequate hospital beds to deal with emergency influx of patients than those which do not have enough beds.

5.2.3 Procurement of Hospital Materials preparedness

Availability of drugs and laboratory reagents to aid in diagnosis are important for quality healthcare services. Availability of enough drugs accounted for 69% (162), while for the laboratory reagents accounted for 70% (165). Both drugs and lab reagents are above average but still improvement of the hospitals' supplies could be made from 69% to 80% in order to meet the healthcare needs of increased number of patients in the health facilities. This study found a positive and significant correlation between preparedness and availability of hospital drugs (X_{12}) at ($r=0.146$; $p<0.05$) meaning that a hospital would be seen to be prepared if drugs were readily available at the hospital. Moreover, a positive and significant correlation between preparedness and availability of hospital lab reagents (X_{13}) at ($r=0.218$; $p<0.01$), was also found positive and significant, implying that a hospital is seen to be prepared if it had readily available lab reagents.

5.2.4 Financial preparedness

Financial policies to help the hospitals in financial mobilization recorded cumulatively only 47% (111) who agreed that the hospitals have policies, while 16% (38) disagreed that

the financial policies are in place. Cumulatively those who agreed that there are disaster saving accounts in the hospitals accounted for 20% (48) while 21% (50) disagreed and majority at 59% (138) remained neutral. These are below average and reveals that there is need for the managers of the hospitals to develop good financial policies for fund mobilization to fund healthcare activities during emergency influx of patients in their hospitals for quality health service delivery. In this study, the correlation between preparedness and the availability of hospital financial policies (X_{14}) was found to be negative but, significant, which implies that a hospital is perceived to be unprepared even if it has policies that guide its financial operations. About the relationship between preparedness and the availability of hospital disaster savings account (X_{15}), the study found it to be both positive and significant meaning that the availability of a hospital disaster savings account was likely to make a hospital be perceived as prepared to handle influx of patients.

5.2.5 Risk Plan Manuals and Care Policy Guidelines Preparedness

For the risk plan manuals cumulatively, 42% (100) agreed that they are in place while 17% (38) disagreed and 41% (98) remained neutral. For the Care plan policy guidelines, cumulatively, 60% (142) agreed that they are in place while those who disagreed accounted for 14% (32) and the rest at 26% (62) remained neutral. There is a gap in policy guidelines on preparedness which needs to be sealed. In this case, the correlation between preparedness and the availability of a hospital risk plan preparedness manual (X_{16}) at ($r = 0.245$; $P<0.01$) was positive and significant implying that hospitals with risk plan preparedness manuals were more likely to be prepared to handle increased influx of

patients as opposed to those without such manuals. In addition, the study also found a positive and significant correlation between preparedness and the availability of hospital emergency care guidelines (X_{17}) at ($r = 0.307$; $P<0.01$) implying that hospitals with hospital emergency care guidelines are considered more readily prepared to handle influx of patients than those hospitals without such guidelines.

5.3 Conclusion

The study concludes that staff training for knowledge and skills, infrastructure, procurement of hospital supplies and materials, financial mobilization, policies, and care guidelines are very important, essential and significant in a healthcare setting to manage increased number of patients for prompt response. Managers of the catholic hospitals in Nairobi County need to know that unless these are put in place, they may affect prompt response to increased number of patients in their health institutions given that their resources are very limited and may compromise the quality of care given. This will give a negative image of the hospitals of not being able to manage increased number of patients well in case of any disaster or crisis. There is need for the managers to work with other healthcare actors such as the government, non-governmental organizations, financial partners, and other collaborators for support in order to give quality healthcare services to the clients.

5.4 Recommendations

1. Due to low number of respondents who agreed that the staff are trained on disaster management accounting for 58% (137), the researcher recommends that the managers of all the catholic hospitals in Nairobi County need to have scheduled plan for refresher courses and training seminars for the staff to refresh their knowledge and skills for prompt and efficient response. There is also need to create an emergency response team and a pool of healthcare professionals to be called upon to help in response in case of emergency influx of patients in the health facilities.
2. It is important for the catholic hospitals to create enough bed capacity for accommodating increased number of patients.
3. The study recommends that the managers of the catholic hospitals need to improve hospitals' supplies from 69% to 80% in order to meet the health needs of the patients in case they increase in numbers in the facility.
4. The researcher recommends that the managers of the catholic hospitals in Nairobi County need to develop strong and clear financial policies for fund mobilization to support healthcare delivery activities. They also need to network with other healthcare and financial partners for financial support and set aside accounts for timely response to emergency influx of patients in their healthcare institutions.
5. The managers together with their staff need to develop clear risk and care policy guideline manuals to guide activity operations on health service delivery response

during emergency influx of patients in their healthcare institutions to avoid confusion.

Recommendation for further study

1. This study was only done in tier 3 catholic hospitals in Nairobi County. A similar study should be replicated in catholic hospitals in other counties, to find out other organizational factors that influence preparedness of these hospitals for health service delivery in case of emergency influx of patients in their healthcare
2. This study may be generalized in other tier 3 catholic hospitals in other Counties.

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APPENDECES

Appendix I: Consent for the participants

Participants general information consent form

Title: To establish the organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients in Nairobi County, Kenya.

Explanation of the consent form

Part 1: Self introduction

I am a master student at Kenya Methodist university (KEMU) school of health sciences, pursuing a master's degree in health systems management. I am carrying out a study entitled: Organizational Factors Influencing preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients in Nairobi County, Kenya. The study will take about one year to be completed and it is a cross sectional Descriptive study using both quantitative study method approach.

Purpose

This is to inform you that you have been randomly selected to participate in the study as a staff working in this catholic hospital. The participants of the study will include 247 members of staff working in 4 different catholic hospitals in Nairobi County. The study will use contingency matrix of self-administered questionnaires using Likert rating scale.

You will be required to respond to the questionnaires given to you to the best of your knowledge and experience, and the process will last for about 30 minutes. You are free to ask any questions for clarifications at any time. The purpose of this study and the importance of your Participation is to help the researcher to identify organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during emergency inflow of patients in Nairobi County, Kenya, caused by any type of disaster or crisis. It will also help to document the findings to guide the managers of these institutions to make informed decisions on delivering quality healthcare services to the clients during emergency inflow of patients in their healthcare institutions. If you agree to participate in the study, please sign on the space provided for the signature in this form

Duration

Answering the questions for the study may take 30-45 minutes of your time off duty to complete the exercise and other 45 minutes to receive the report of the study.

Confidentiality

All the information that you will give will be held with great Confidentiality and will be coded so that nobody will know who gave the information and will be kept unanimous. Data collected will also be stored under key and lock and the information will only be accessed by the researcher. No names will be written on the forms but form codes will be used in case a clarification may be needed later and the key to the codes will be maintained by the researcher only. The responses from all the participants will be compiled and no names will be attached to the manuscript.

Risks

There will be no risks as such but minimal risks in participating in this study may involve taking some time off duty to answer the questionnaires and some of the questions may force you to reveal some personal information and this can create some fear and anxiety.

Benefits for participating

The study will be conducted within the premises of the hospital during working hours. In regard to personal benefits, there will be no payment or allowances given for participating in this study. The information collected will help the institution mangers on making informed decisions, and to work on the policies and strategies to guide the staffs on service delivery during emergency inflow of patients in the healthcare facility. Hence this will benefit you and the other staffs to work within the set guidelines. The results of the study will be availed to you through dissemination presentation and a copy will be left to the organization for later reference if need be.

Voluntary participation and right to withdraw from the study

The participation in this study is completely voluntary and free. Therefore, you are free to participate or not to participate in the study. You are also free not to answer some questions if you do not want to, and you are also free to withdraw from the study anytime if you feel that you do not want to continue. This you will do by informing the researcher, and, you will not be required to give any explanation, and no consequences will be put against you

for withdrawing from the study. If the researcher deems necessary to withdraw you from the study it will be done without seeking your consent.

Dissemination plan for results:

The study report will be presented to KEMU, department of health systems management on behalf of the university administration. The researcher will also give the information to the administration of each hospital and all the participants of the study through a presentation and a copy of the report will be left for the hospital administration. The report will also be given to the Kenya conference of catholic bishops (KCCB) the national health coordinating office. The results will also be published and be presented in conferences when necessary. No names of the participants will be reflected in any way.

Contact and clarifications:

This research study has been approved by KEMU scientific and ethical review committee (SERC), but in case you have any questions or any clarifications about your safety and confidentiality, feel free to contact the following persons.

Principal investigator:

Sr. Petronella Mueni Kiteng'u

Kenya Methodist university

Ms. Lilian Muiruri.

School of medicine and health sciences

Department of health systems management.

Kenya Methodist university.

Mobile Phone : 0724956049/0733534008

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Mr. Musa Oluoch

School of medicine and health sciences

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Kenya Methodist university.

Mobile Phone :0722483909

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The Chairperson

Kenya Methodist university scientific and ethical review committee (SERC),

P.O. Box 45240 - 00100, Nairobi, Kenya.

Email:*info@kemu.ac.ke*.Telephone:0202248172/0202247987/077242228
Safaricom: 0725-751878; Airtel: 0735-701311, Fax: 020-248160

Part II: Participants Consent Form and Signature:

I hereby agree/consent to participate in the research study on **Organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients in Nairobi County, Kenya**. A case study of 4 catholic Hospitals in Nairobi County. I have been well explained by the researcher about the research study on the above topic and I have understood well the part I will play in the study with no remunerations for my participation. I had an opportunity to ask all the questions about the study and all my questions were promptly answered.

Having understood the objectives of the study, I voluntarily and freely consent to participate in the study, without demanding for any compensation whatsoever for my participation.

Name of the Participant (please print) ……

Signature……Date ……

Witness: Name of the principal Researcher (please print) ……

Signature……Date……

Appendix II: Data collection tools

Topic: organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during inflow of patients in Nairobi County, Kenya

Questionnaire Form

Questionnaire Code No : .....

Date issued: .....

Please Note: All information given shall be treated with great confidentiality

Instructions:

Please do not write your name on this questionnaire.

Please kindly tick in the space provided {√} the correct number/answer which is more applicable to you.

SECTION A: Demographic data:

Q.1: How old are you in complete years

21- 30 years	{ }	41- 50 years	{ }
31- 40 years	{ }	Above 50 years	{ }

Q.2: what is your gender/sex?

Male	{ }	Female	{ }

Q.3: What is your marital status?

Single	{ }	Married	{ }
Divorced	{ }	Religious	{ }

Q. 4: what is your professional qualification?

medical doctor consultant	{ }	Radiographer	{ }
Medical officer of health	{ }	Administration	{ }

Clinical officer	{ }	Physiotherapist	{ }
Nurse	{ }	Procurement staff	{ }
Lab Technician /Technologist	{ }	Finance staff	{ }
Pharmacy Technician/Technologist	{ }	House keeping staff	{ }

Q.5: what is your highest level of professional qualification?

PhD holder	{ }	Diploma	{ }
Masters	{ }	Certificate	{ }
Bachelor	{ }		

Q. 6: How Many completed years have you worked in this hospital?

1- 5 years	{ }	6- 10 years	{ }	11 - 15 years	{ }

Q. 7: Which department are you working in?

Administration:	{ }	Finance	{ }
Outpatient	{ }	Procurement and supplies	{ }
inpatients	{ }	Physiotherapy	{ }
Pharmacy	{ }	Records	{ }
Laboratory	{ }	House keeping	{ }
Imaging	{ }	Maternal Child Health Clinic	{ }

Q.8: Do you think this health institution is prepared for health service delivery during emergency inflow of patients?

Yes { } No { }

For either answer, why do you think so

……

……

SECTION B: Staff preparedness

In a scale of 0-4 where 0 = Strongly Disagree, 1= Disagree, 2=Neutral, 3= Agree, 4= Strongly Agree. Tick (√) the most appropriate answer that appeals to you. There are no wrong answers.

	Statements	**0**	**1**	**2**	**3**	**4**
Q: 9	The hospital leadership have the necessary training and skills to lead this hospital during emergency inflow of patients for service delivery?					
Q: 10	The staffs of this hospital are well trained on disaster management for service delivery during emergency inflow of patients in the hospital**?**					
Q: 12	The staffs perform exercises on emergency Service delivery for emergency inflow of patients in our hospital?					
Q: 13	There are drills carried out in our hospital on any disaster to prepare the staff to handle for big numbers of casualties during emergency inflow of patients?					

SECTION C: Infrastructure preparedness

For the hospital to give, Effective, and efficient healthcare services to the citizens it is important to have enough infrastructure to accommodate the casualties such as Space, beds and linen. On a scale of 0-4, **where 0 =Strongly disagree, 1= Disagree, 2= Neutral, 3= Agree, 4=Strongly Agree. Tick** (√) the most appropriate answer that appeals to you. There are no wrong answers.

	Statements	**0**	**1**	**2**	**3**	**4**
Q:14	The hospital has enough space to accommodate increased number of patients during emergency influx.					
Q:15	The hospital has enough beds to accommodate increased number of patients during emergency influx.					

SECTION D: Procurement of hospital supplies preparedness

For the hospital to give Effective, and efficient healthcare services to the citizens it is important to have enough Drugs and supplies and enough laboratory reagents supplies. On a scale of **0-4, where 0=Strongly disagree, 1=Disagree, 2=Neutral, 3= Agree, 4=Strongly Agree. Tick** (√) the most appropriate answer that appeals to you. There are no wrong answers.

	Statements	**0**	**1**	**2**	**3**	**4**
Q:16	The hospital has enough Essential current drugs for managing emergency influx of patients throughout the year					
Q:17	The hospital has enough essential laboratory Reagents to aid in diagnosis during emergency influx of patients throughout the year.					

SECTION E: Hospital financial preparedness

Hospital Financial preparedness is very key for service delivery preparedness during emergency inflow of patients to pay the extra staffs, fund materials supplies, equipment and other service activities. In a scale of 0- 4 **where 0= Strongly Disagree, 1= Disagree, 2 = Neutral, 3=Agree, 4= Strongly Agree. Tick** (√) the most appropriate answer that appeals to you. There are no wrong answers.

	Descriptive statements.	**0**	**1**	**2**	**3**	**4**
Q: 18	The hospital has enough finances to support healthcare services during unexpected emergency influx of patients throughout the year					
Q: 19	The hospital has financial policies in place to direct expenditures during unexpected emergency influx of patients needing care services.					
Q: 20	The hospital has Disaster savings account for managing unexpected emergency influx of patients throughout the year					

Section F: Hospital policy preparedness:

Hospital policies and guidelines are very important in an institution to guide the staff for effective, efficient and timely health service delivery during emergency influx of patients in a healthcare setting. . In a scale of 0-4 where **0= Strongly Disagree, 1= Disagree, 2= Neutral, 3= Agree, 4= Strongly Agree. Tick** (√) the most appropriate answer that appeals to you. There are no wrong answers.

	STATEMENTS	**0**	**1**	**2**	**3**	**4**
Q: 21	The hospital has risk preparedness plan manual in place.					
Q: 22	The hospital has emergency care guidelines plan in place					
Q:23	The hospital management communicates the hospital care plan policies to the staffs.					
Q:24	I am aware of the hospital policies on care delivery during emergency influx of patients.					
Q:25	I am involved in developing the hospital healthcare policies on service delivery.					

Thank you for your willingness and time to participate in this study and sharing with me how the above variables affect the catholic hospitals preparedness for health service delivery during influx of patients in Nairobi County.

1. What recommendations can you make to ensure preparedness for health service delivery during influx of patients in your healthcare organization?

Appendix III: Letter to KeMU Science and Ethics Review Committee

17/08/2020

Sr. Petronella Mueni Kiteng'u
Kenya Methodist university
School of medicine and health sciences
Department of health systems management

The Chairperson,
KEMU science and ethics review committee,
P.O. Box 267 – 60200,
Meru, Kenya.

Dear Sir/Madam,

RE: REQUEST TO CARRY OUT A RESEARCH PROJECT

I am a postgraduate student in Kenya Methodist university, school of health sciences, and faculty of health systems management. I am pursuing a masters degree in health system management. I am kindly requesting to be allowed to carry out a research study in 4 catholic hospitals in Nairobi County, Kenya Namely: St. Mary's Mission Hospital Lang'ata, St Francis community hospital Kasarani, Jamaa hospital, and Mary Immaculate hospital in Kawangware. The research is to establish the **Organizational factors influencing preparedness of tier 3 catholic hospitals for health service delivery during emergency inflow of patients in Nairobi County, Kenya.** The recommendations from the study will help the managers to make informed decisions in planning on how to provide effective and efficient healthcare services to the Kenyan citizens and improve patients' healthcare outcomes, health outcomes, and overall health systems strengthening. Looking forward for your kind consideration and response which will be highly appreciated**.**

Yours Faithfully,

Sr. Petronella. Mueni. Kiteng'u

Post graduate student

Appendix IV: Clearance Letter from Kenya Methodist University Ethics Committee

KENYA METHODIST UNIVERSITY
P. O. BOX 267 MERU - 60200. KENYA
TEL: 254-064-30301/31229/30367/31171
FAX: 254-64-30162
EMAIL: serc@kemu.ac.ke

December 14, 2020

KeMU/SERC/HSM/41/2020

Petronilla Mueni Kitengu
Kenya Methodist University

Dear Petronilla,

SUBJECT: ORGANIZATIONAL FACTORS INFLUENCING CATHOLIC MISSION HOSPITAL PREPAREDNESS FOR HEALTH SERVICE DURING EMERGENCY INFLOW OF PATIENTS IN NAIROBI, KENYA.

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your above research proposal. Your application approval number is KeMU/SERC/HSM/41/2020. The approval period is 14th December 2020 – 14th December 2021.

This approval is subject to compliance with the following requirements

I. Only approved documents including (informed consents, study instruments, MTA) will be used.

II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.

III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.

IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.

V. Clearance for export of biological specimens must be obtained from relevant institutions.

VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal

VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU SERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

14 DEC 2020

DR. A. WAMACHI
Chair, SERC

Appendix V: Introduction Letter to NACOSTE

KENYA METHODIST UNIVERSITY
P. O. Box 267 Meru - 60200, Kenya
Tel: 254-064-30301/31229/30367/31171
Fax: 254-64-30162
Email: deanrd@kemu.ac.ke

DIRECTORATE OF POSTGRADUATE STUDIES

January 21, 2021

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100,
NAIROBI.

Dear sir/ Madam,

RE: PETRONILLA MUENI KITENGU (HSM-3-0176-1/2018)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, Department of Health Systems Management undertaking a Degree of Master of Health Systems Management. She is conducting research on 'Organizational factors influencing catholic mission hospital preparedness for health service during emergency inflow of patients in Nairobi, Kenya'.

We confirm that her Research proposal has been defended and approved by the University.

In this regard, we are requesting your office to issue a permit to enable her collect data for her research.

Any assistance accorded to her will be appreciated.

Thank you.

21 JAN 2021

Dr. John Muchiri. PHD.
Director Postgraduate Studies

Appendix VI: Clearance Letter From NACOSTE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **714359**

Date of Issue: **28/January/2021**

RESEARCH LICENSE

This is to Certify that Sr.. Kitengu Mueni Petronella of Kenya Methodist University, has been licensed to conduct research in Nairobi on the topic: ORGANIZATIONAL FACTORS INFLUENCING CATHOLIC MISSION HOSPITALS' PREPAREDNESS FOR HEALTH SERVICE DELIVERY DURING EMERGENCY INFLOW OF PATIENTS IN NAIROBI COUNTY, KENYA for the period ending : 28/January/2022.

License No: **NACOSTI/P/21/8729**

714359

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix VII: Letter from St Mary's Hospital

St. Mary's MISSION HOSPITAL Compassion in Healthcare

Nairobi
P. O. Box 960 – 00517 Nairobi
Tel: +254 207851300, 0777663441, 0717305204, 0777305204,
Email: info@stmmh.co.ke

Rift Valley
P. O. Box 224-20116 Gilgil
Tel: +254 0717305089
Email: elementaita@stmmh.co.ke

Our Ref: STMMH/CEO&MED.DIR/31/2021 **Your Ref:** TBA **Dated:** 8th February, 2021

Sr. Petronella Mueni Kitengu,
Kenya Methodist University,
School of Medicine and Health Science,
Department of Health Systems Management.

RE: DATA COLLECTION AT ST. MARY'S MISSION HOSPITAL NAIROBI

We acknowledge receipt of your request and the content therein noted.

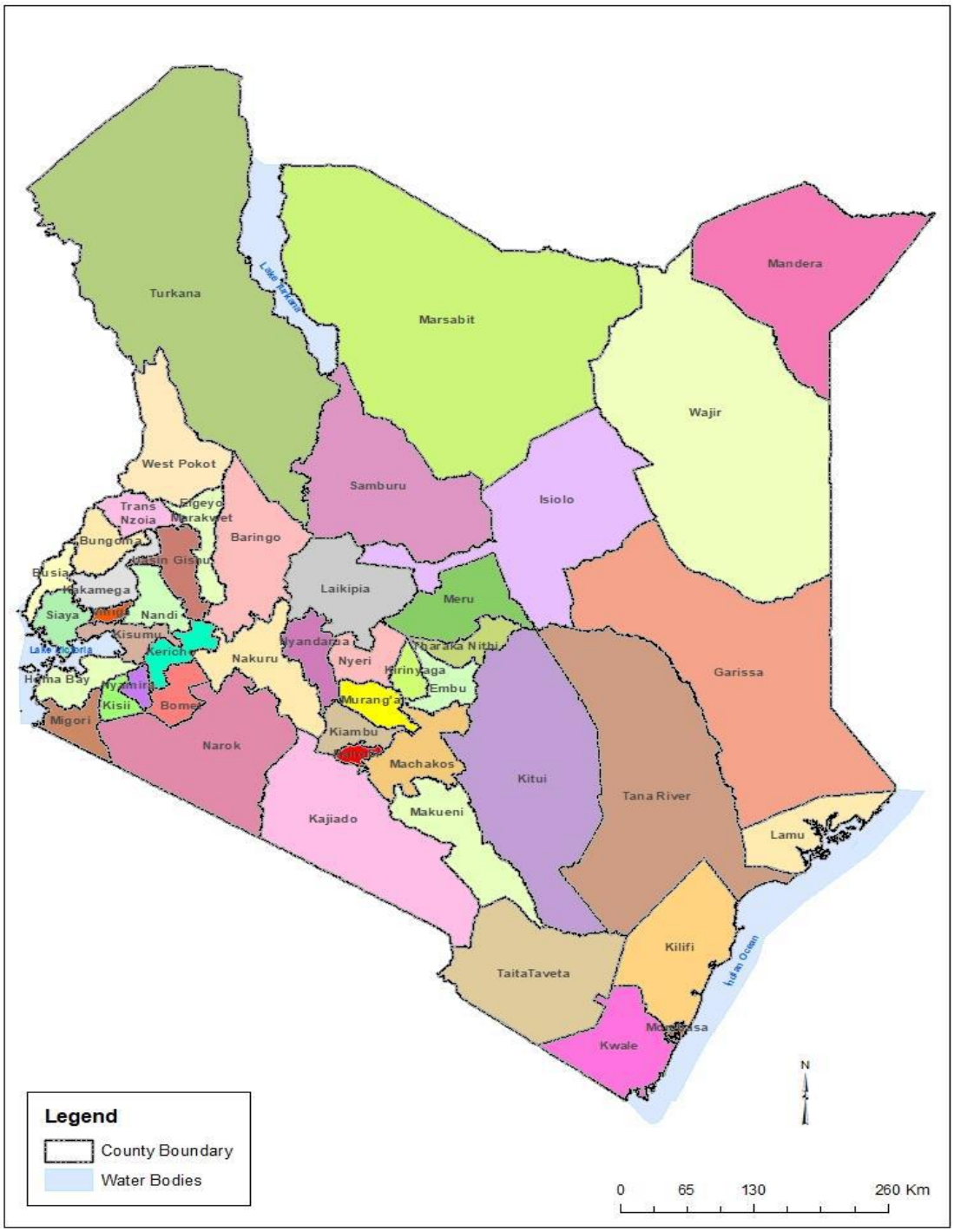
We hereby wish to notify you that your request has been approved. Kindly provide us with your scheduled timeline for this project. We shall expect you to commit to share and discuss the findings of the research with the Hospitals management.

We wish you all the best.

Yours faithfully,

Sr. Dr. Carren Owuor,
CEO & Medical Director
cowuor@stmm.co.ke

Appendix VIII: Map of Kenya showing the counties copied from Kenya census map 2019.



Appendix IX: Map of Nairobi County: copied from internet maps