

**ASSESSMENT OF THE LEVEL OF DISASTER
PREPAREDNESS OF HEALTH MANAGEMENT
COMMITTEES IN PUBLIC HOSPITALS
IN NANDI COUNTY, KENYA**

A Thesis Submitted to the School of Nursing
University of Eastern Africa, Baraton

In Partial Fulfillment of the Requirements for the Degree of
Master of Science in Global Health

Obed Limo

June, 2017

APPROVAL SHEET

This thesis entitled *Assessment of the level of disaster preparedness of health management committees in public hospitals in Nandi County, Kenya*, written and submitted by **Obed Limo** in partial fulfillment of the requirements for the degree of Master of Science in Global Health, is hereby accepted and approved.

Dr. Joyce Owino
Supervisor

Date

Prof. Jackie K. Obey
Supervisor

Date

Accepted in partial fulfilment of the requirements for the degree of Master of Science in Global Health

Ms. Mary Njeru
Department Chair

Date

Prof. Elizabeth Role
Director of Graduate Studies and Research

Date

ABSTRACT

This study aimed at assessing the level of disaster preparedness of health management committees in public hospitals in Nandi County. The study employed descriptive research design. The researcher used census method where with use of self-administered questionnaire and interview guide, the researcher was able to collect data from 41 and 16 committee members respectively. Quantitative data was processed and analyzed using the Statistical Package for Social Sciences SPSS version 20 while qualitative data was summarized consistent with the themes in the study objectives. Spearman's correlation test of relationship was employed to test significance of relationship of challenges with the preparedness factors.

The study established that the HMCs are not able to adequately fund disaster preparedness activities and putting in place programs for disaster preparedness within Nandi County. The overall rating on the staff preparedness for disaster is low. There is a significant relationship between Infrastructure developments for disaster readiness and lack of cooperation from the neighboring community and Lack of knowledge on disaster preparedness. Likewise, there is a significant relationship between inappropriate infrastructure and Funding of disaster preparedness and Programs in place for disaster.

The study concludes that HMCs are not adequately prepared for disaster. The study recommends that the HMC should seek control and allocate more funds to disaster preparedness. The HMCs should be sensitized on disaster preparedness and similarly encouraged to work on the cooperation that lacks between the community and the public hospitals in Nandi County.

ACKNOWLEDGEMENT

I would like to first acknowledge the Almighty God who gives me the courage, health and strength. His grace and love has enabled me come this far.

I wish to sincerely thank my supervisors Dr. Joyce Owino and Prof. Jackie Obey for their continuous guidance and support.

Special thanks to my family: wife Judy and my children, Jesse and Jason. To my mother, Ann and grandmother Miriam for their support and prayers along my academic journey.

My thanks also go to all the lecturers Mary Njeru, Dr. Ikali, Yana Tiili, Dr. Miyayo, Arja Koski, Gunbriit, Njagi and my fellow students Tai, Chikchik, Lydia, Lysbeth, Ayodo, Festus, Yulia, Christine, Rutto, Naomi, Ken, Mary and Stanley for their kind sharing of knowledge. To Ndovu team Helli, Railli and Apelles for their co-operation and excellent teamwork. I appreciate UEAB Librarians and Marketta (Diak) who made available reading material needed during the course and of course Riika Halonen for her facilitation in student exchange programme to Finland and Tony for his words of encouragement.

I would also like to thank Prof. Elizabeth Role, the Director of Graduate Studies and Research for her kind-heartedness and the Kwale County Government for granting me a study leave and Nandi County for allowing me to conduct my study in their institutions.

Finally, thank you University of Eastern Africa, Baraton for your wholistic education. God bless

DEDICATION

To my loving wife Judy and our two sons Jesse and Jason for their great support and encouragement through my studies and most especially when I went away from home on student exchange program.

TABLE OF CONTENTS

APPROVAL SHEET	i
ABSTRACT.....	ii
DEDICATION.....	iv
TABLE OF CONTENTS.....	v
LIST OF ABBREVIATIONS.....	x
CHAPTER ONE	1
INTRODUCTION	1
Background of the Study.....	1
Statement of the problem	4
Purpose of the Study	4
Research Objectives	4
Hypothesis.....	5
Assumptions of the study	5
Significance of the Study	6
Justification of the study	6
Theoretical framework	7
Scope of the Study.....	9
Definition of Terms.....	9
CHAPTER TWO	11
REVIEW OF RELATED LITERATURE AND STUDIES	11
Place of Health Management Boards and Committees in Kenyan Health Sector	11
Role of Management Committees/Boards in Hospital Preparedness.....	13
Disaster Preparedness in Hospitals	13
Disaster Preparedness and Planning.....	15
Role of Hospital Committee in Disaster Preparedness Funding	17
Staff Training for Emergency Preparedness	18
Disaster Preparedness Programs	20
Infrastructure and Disaster Preparedness	21
Challenges Facing Hospital Management Boards in Execution of their Mandate	24
Summary of Related Literature	26

CHAPTER THREE	27
RESEARCH METHODOLOGY	27
Research Design	27
Study Setting	27
Study Population	28
Research Instruments	29
Questionnaire	29
Key informant Interviews.....	29
Validity and Reliability analysis	30
Data-Gathering Procedures	31
Statistical Treatment of Data.....	32
Ethical Considerations.....	33
CHAPTER FOUR.....	34
PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION.....	34
Background Information	34
The Level of Health Management Committees’ Disaster Preparedness.....	37
CHAPTER FIVE	53
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	53
Summary of the study	53
Summary of the findings	54
Conclusion.....	55
Recommendations	56
Recommendation for Further Study	57
REFERENCES	58
APPENDICES	66
I: HMCs’ QUESTIONNAIRE	66
II: INTERVIEW SCHEDULE FOR CHAIRMEN AND BOARD SECRETARIES OF HOSPITAL BOARDS	71
III: INTERVIEW SCHEDULE FOR CHMB CHAIR, CEC, CO, & COUNTY DIRECTOR.....	72
IV: MAP OF NANDI COUNTY	73

V: ETHICS CLEARANCE LETTER.....	74
VI: RESEARCH PERMIT REQUEST.....	75
VII: DATA GATHERING AUTHORIZATION.....	76
VIII. RELIABILITY ANALYSIS	77
IX: CURRICULUM VITAE.....	80

LIST OF TABLES

Table 1. Reliability analysis.....	28
Table 2. Sampling size.....	31
Table 3. Gender of the respondents	34
Table 4. Marital status	35
Table 5. Health management Committees’ funding of disaster preparedness activities.....	37
Table 6. Mean interpretation Scale	38
Table 7. Health management Committees’ Staff preparedness for disaster	40
Table 8. Health management committee and staff positive attitude.....	42
Table 9. Programs put in place for disaster preparedness.....	43
Table 10. Mean Ratings of Infrastructures developed for disaster preparedness.....	45
Table 11. Mean ratings of Challenges Facing Health Management Committees	47
Table 12. Nonparametric Correlations (Spearman rank-order correlation coefficient)	51

LIST OF FIGURES

Figure 1. MOH leadership framework.....	12
Figure 2. Highest level of education completed.	35
Figure 3. Academic specialization.....	36
Figure 4. Challenges Facing Health Management Committees.....	49

LIST OF ABBREVIATIONS

CEC	County Executive Committee
CHMB	County Health Management Board
CO	Chief Officer
GoK	Government of Kenya
GOV.UK	Government of United Kingdom
HMC	Health Management Committee
MDG	Millennium Development Goals
MOH	Ministry of Health
SDG	Sustainable Development
SPSS	Statistical Package for Social Sciences
UN	United nations
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

This chapter presents the background to the study, statement of the problem, research objectives, hypothesis, assumptions of the study, significance and justification of the study, theoretical framework, and scope of the study, and definition of operational terms used in the study.

Background of the Study

Disaster incidences which were merely theoretical have become a disturbing reality in many communities (Mohammed, 2011). This is because they are events that are sudden, unanticipated and require quick decisions and responses. Disasters affect all economic, political, and cultural infrastructures of afflicted communities (Hojat, 2008). Disasters can be natural, such as earthquakes, floods, and disease outbreaks; or they can be man-made, such as transportation incidents, terrorist bombings, mass shootings, and biological or chemical attacks. The sustainable development goals (SDG's) 2015-2030 place more emphasis on disaster preparedness and response activities as a key element for sustainable development by 'strengthening the capacity of all countries for early warning, risk reduction and management of national and global health risks' (WHO, 2015).

Experience has shown that when disasters strike, confusion and chaos are the most common issues confronted by the hospital. Disasters have the potential to kill thousands of people in minutes. For example, in Bam earthquake in Iran, the city was destroyed completely and over 43,000 people were killed, 8600 whom were health workers, 30,000 injured, about 20,000 houses ruined and 45,000 people were displaced

(Fialko, 2005). UN reported that the earthquake in Haiti in 2010 caused 225,570 deaths (UN 2010). The 2015 Annual Disaster Statistical Review recorded that there were 22,765 deaths caused by natural disasters and 110.3 million victims worldwide with estimated economic damage of US\$ 159.7 billion (CRED, 2016).

In Africa there were 30.9 million victims in 2015, way above the 25.8 million people annual average during 2005-2014 periods, with drought affecting 10.2 million Ethiopia accounting for 36.5% of this. A total of 0.9 million people in Somalia were affected by floods. In Malawi, droughts affected 639,000 (Guha, 2016).

Wachira (2013) says that Kenya's disaster profile is dominated by droughts, floods, fires, terrorism, collapsed buildings, accidents in the transport sector and disease and epidemics. For example, the violence that broke out in Kenya after the 2007 disputed presidential elections claimed 1300 lives and displaced 350,000 people (HAB, 2011). On January 28, 2009, Nakumatt supermarket in downtown Nairobi caught fire killing 29 people and destroyed property. Three days later 31 January, 2009 fuel tanker overturned and burst into flames in Molo where 130 were burned beyond recognition and a further 72 died in Nakuru and Molo hospitals which were overwhelmed with victims. This included small children suffering from horrific burns (GOK, 2009).

Kenya National Disaster Operation centre reports that on 11th December 2016, a traffic fireball occurred in Naivasha killing 43 and injuring more than 50 people (NDOC, 2016). Furthermore, building collapses have been reported in Kisii and Nairobi as well. In mass-gatherings, 7 people were killed and 30 injured when a crowd forcefully entered Nyayo National stadium in October 2010. On April 2, 2015, Alshabbab gunmen stormed Garissa University College and killed 147 people (Mutambo, 2015). The repetitive nature

of both natural and man-made incidents with a high number of deaths and injuries suggest that Kenya is still not adequately prepared to handle major incidents with all the pressure being felt in hospitals (Wachira, 2013).

When disaster happens, members of the community look to the hospital as a safe place whether it is an immediate medical need, a search for food, shelter and electricity or just fear of the unknown thus placing heavy and intense demands on the health system within a very short period (Barker, 2014). During the West Gate mall shootings where over 67 people lost their lives and several injured, victims were rushed to Kenyatta National Hospital overwhelming the accidents and emergency department. The hospital plays a crucial role in disaster preparedness and response since it is the epicenter of medical care accorded to those who are injured.

The health management committees (HMCs) both at the county and hospital comprise of key stakeholders and representatives of other sectors whose role is to oversee the smooth provision of quality responsive and client centered services and ensure client representation and prudent use of resources. This stewardship team work, to provide overall leadership in addressing the health agenda in the country (MOH, 2010).

These boards are categorized into HMCs, county hospital board, sub-county management committee and primary care facility management committees. The Kenya health Sector disaster risk management capacity assessment report of 2013, identified leadership and governance as one of the weaknesses as either lacking or inadequate in disaster preparedness. It also identifies research and preparedness planning as inadequate.

The board's oversight responsibility is to ensure that there is a clear preparedness plan in place and the hospital is financially stable and is able to render care to the community in the face of a disaster (Buchbinder & pShanks, 2007).

Statement of the Problem

Hospitals in the face of disaster have suffered severe damage as a result of natural and man-made disasters leading to partial or total collapse of the structures and interruption of the health services depriving their respective communities of the medical care urgently needed by disaster victims.

Studies done on hospital preparedness (Mohammad, 2011 Seroney, 2015, Kiongo, 2015) have revolved around technical staff namely nurses, and clinicians. Less attention has been put on Health Management Committee (HMC). Health Management Committee (HMC) plays a crucial leadership role in Kenyan hospitals. They are ultimately responsible for the hospital's ability to prepare for disasters since it is an important organ in a health system whose decisions are strategic and significant.

Despite their existence, hospitals in Nandi County still have a big challenge in handling disaster victims such as, violent thefts, mass accidents, fires and disease outbreaks due to inadequate preparedness and no studies have been done to assess their level of disaster in the hospitals they represent.

Purpose of the Study

The purpose of this study was to assess the level of disaster preparedness of health management committees in public hospitals in Nandi County.

Research Objectives

This study was guided by the following specific objectives:

1. To assess the health management committees' level of disaster preparedness in terms of:
 - i. Funding of disaster preparedness activities.
 - ii. Staff preparedness for disaster
 - iii. Programs in place for disaster preparedness
 - iv. Infrastructure development for disaster readiness
2. To identify the challenges facing health management committee in regard to disaster preparedness in Nandi County
3. To determine if there is a significant relationship between the challenges faced by health management committees and the level of disaster preparedness in the areas of
 - a) Funding of disaster activities,
 - b) Staff preparedness
 - c) Programs in place
 - d) Infrastructure development

Hypothesis

In order to meet the research objective on the significance of relationships between the challenges faced by health management committees and their level of disaster preparedness, the null hypothesis below was tested.

H₀₁: There is no significant relationship between challenges faced by HMCs and the HMCs level of disaster preparedness.

Assumptions of the Study

This study assumed that:

- i. The respondents obtained through census provided the information needed to draw relevant conclusions for the study.
- ii. The respondents were knowledgeable and gave honest responses.
- iii. The instruments used in the study adequately gathered the desired information

Significance of the Study

Health sector policy can be advanced from the findings of this study. The findings of this study should help the national and county government officials to better their service delivery through emphasis on disaster preparedness. The entire health sector will benefit because the findings of this study highlights the challenges hindering the committees work. The findings of the study could also be co-opted by managers of private health facilities such as Baraton Jeremic hospital, St. Luke hospital and many others. It will also enable health management committees to appreciate the importance of disaster preparedness. Finally, the result of the study provides a foundation for future research in the same field.

Justification of the Study

Leadership and governance is a critical building block of any health system (WHO, 2014). The Health Management Committees' decision making, oversight, coalition building and accountability roles, directly influence the hospitals functions (MOH, 2015). This justified the need to determine their level of disaster preparedness.

This study looked at the factors that influence preparedness such as funding, staff preparedness, programs and infrastructure whose realization hinges on HMCs functions. It also shed light on the challenges to disaster preparedness which when overcome,

could provide opportunities to use disaster preparedness to improve the quality of service provided to the community, strengthen hospital's community relationships, and build partnerships that make hospitals resilient to disaster.

In studies done separately by Ndavi et al (2009) and Lemedeket (2015) to evaluate the effectiveness of decentralization of health systems and effectiveness of health management committees respectively, the findings showed that leadership, health financing and health staffing directly influenced effectiveness of the health management committees which consequently affects service delivery in hospitals which include emergencies and or disasters.

Theoretical Framework

The study was premised on systems theory which is critical in understanding all parts of the emergency management process. A system is composed of interrelated and interdependent parts arranged in a manner that produces a unified whole. Smith *et al* (2004) observes that a system is a perceived whole whose elements hang together because they continually affect each other over time and operate towards a common purpose

The central argument of the theory is that actors interact in statuses and develop agreements to sustain patterns of interaction that according to Turner (2001) become institutionalized. Institutionalization leads to relatively stable patterns of interaction among actors in a system.

The view of the organization as a system suggests a very special role for hospital management committees in handling disasters because they must deal with uncertainties concerned with adapting the organization to new and changing environments. Thus, it is

useful for viewing the relationships between interdependent parts in terms of how these relationships affect the performance of the overall system.

Disaster preparedness is composed of many parts including: national government, county government, private and non-profit actors and the local community. Individuals in these units may interact in emergency management activities in an open environment with few organizational barriers or collaborative and cooperative efforts limited by specific organizational policies, rules and procedures.

This theory grounded this study for it maintains that everything is related to everything else. That, combined and coordinated actions of the parts of the health systems in hospitals achieve more than all of the parts acting independently causing synergy which is an important concept for emergency managers since it emphasizes the need for individuals, as well as departments to work together in a cooperative fashion (Smith, 2004).

Nyabuti (2014) and Kimathi (2011) utilized this theory in carrying out a study on safety policy implementation framework for secondary schools in Kenya and disaster preparedness in public secondary schools in Kiambu County respectively. Both studies showed that systems theory provides institutions managers with a critical perspective to view and understand how to prepare for, respond to hazards and mitigate their adverse impacts. The theory integrates the diverse interconnectedness of actors including individuals, groups, formal or informal organizations, attitudes, motives, interactions, goals, status, authority in disaster preparedness. It challenges the hospital management board to ensure that all parts of the hospital are coordinated internally and with external organization that are involved in disaster preparedness.

Scope of the Study

The study was carried out among the 57 gazetted board members drawn from the seven level 4 public hospitals and the County Health Management Board in the Department of health in Nandi County. This team forms a critical component in decision making that shape strategic direction of health facilities. Some respondents were issued with self-administered questionnaires while others were taken through in-depth interviews to collect data. Level of management committees'/boards' in hospital preparedness is assessed based on the following variables; disaster preparedness and planning, disaster preparedness funding, staff training for emergency preparedness, disaster preparedness programs, infrastructure and disaster preparedness and challenges facing Hospital Management Boards in execution of their mandate.

Definition of Terms

Disaster preparedness:	Refers to measures taken by a hospital and board aimed at dealing with situations that may occur prior to, during and after the tragedy.
Disaster:	Refers to serious disruption of the functioning of the society causing widespread human, material or environmental damage and losses which exceed the ability to cope using their own resources. They include large motor vehicle accidents, floods, fire, buildings collapse, plane crash, infection outbreaks, landslides and explosions
Health Management Committee/ board:	A group of gazetted individuals that bring together county government, health workers, and the community who

provide management and supervision support. They also assist in the management, development and review of health and safety policies (board and committee used interchangeably in the document)

Level 4 Hospitals-

These are the health facilities for clinical care at the Sub-County level that provide comprehensive medical and surgical services. They are referral centers for the smaller units

Public Hospital.

A Public Hospital or Government Hospital is a facility that is owned and funded by government for its daily operation. They provide medical care either free of charge or at subsidized rates, the cost which is covered by finances from the National or County Governments.

Qualitative Data

Data that cannot be translated (reduced) to numbers easily. These are opinions , values, concepts and behavior of people in social concept

Deductive approach

Using research questions to group the data and then look for similarities and differences used when qualitative research is a smaller component of a larger quantitative study

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND STUDIES

In this chapter, the researcher reviews literature from various sources on disaster preparedness in hospitals. The main themes reviewed are place of Hospital Management Committee (HMC) and Boards in Kenyan health sector, disaster preparedness in hospitals, the role of management committees in disaster preparedness, HMC and funding, staff training and emergency preparedness, disaster preparedness programs, infrastructure development and HMC challenges of disaster preparedness and in hospitals will also be covered.

Place of Health Management Boards and Committees in Kenyan Health Sector

Kenya Health Sector Strategic focus in Kenya is guided by Vision 2030 that aims to transform Kenya into a globally competitive and prosperous country with a high quality of life. Its actions are grounded in the principles of the 2010 constitution, specifically aiming to attain the right to health, and to decentralize health services management through a devolved system of Governance (MOH, 2015).

The Ministry of health both at national and county level, exercises this responsibility through its leadership framework that recognizes hospital committees and boards as playing a crucial role on sector partnership, governance, and stewardship. The leadership framework, works to provide overall leadership in addressing the health agenda in the Country as shown below:

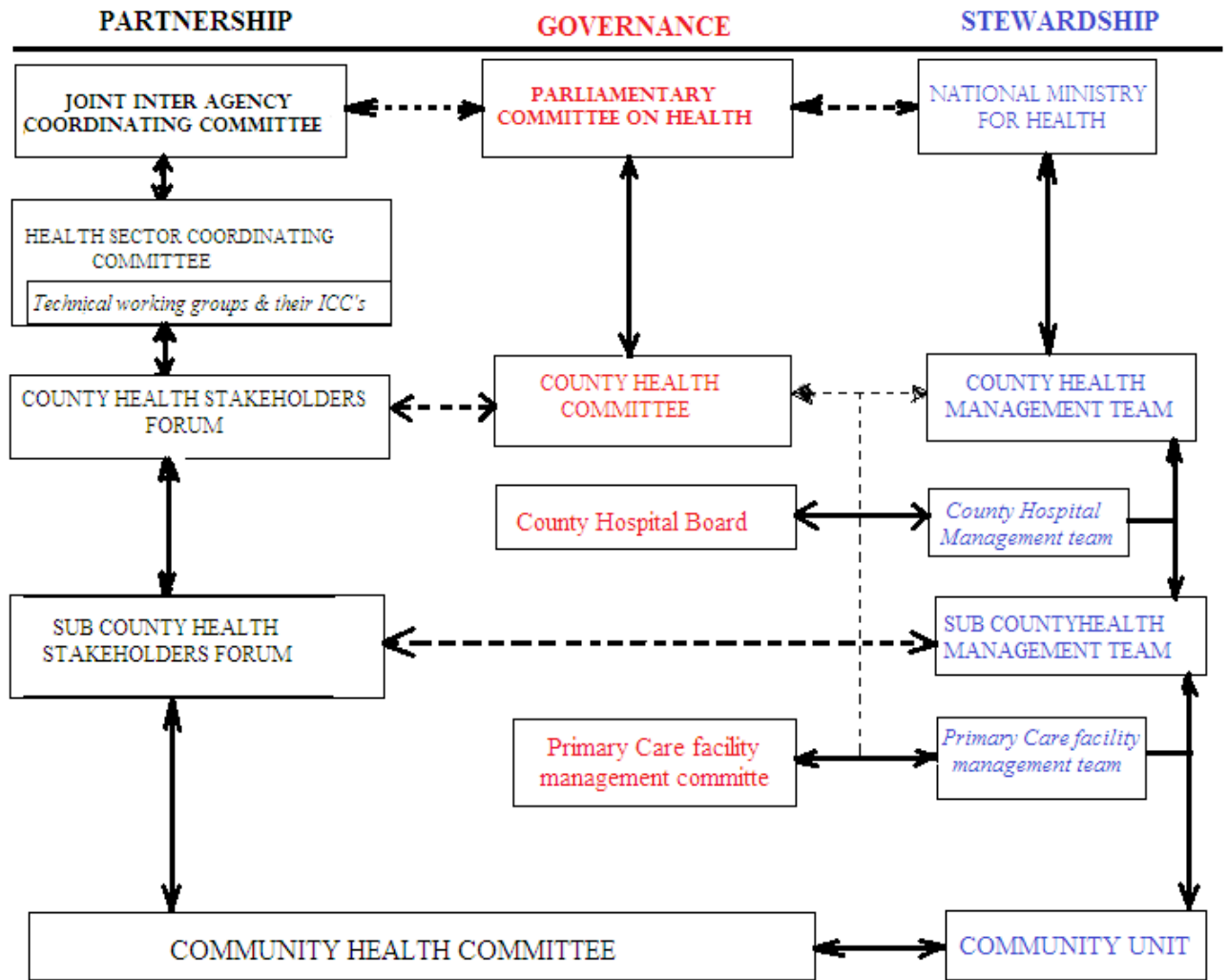


Figure 1. MOH leadership framework.

Source: MOH 2015

Citizen’s high expectations are grounded on the fact that the new Constitution states that every citizen has the right to life, right to the highest attainable standard of health including reproductive health and emergency treatment, right to be free from hunger and to have food of acceptable quality, right to clean, safe and adequate water and reasonable standards of sanitation and the right to a clean healthy environment (GOK, 2010).

It is futile to declare rights to emergency healthcare yet fail to have an elaborate disaster preparedness plan. In Kenya, cases have been reported about patients' needing emergency care but have been turned away by private healthcare providers (Kilonzo, 2015). This is unlike government hospitals where every patient can access services despite the challenges experienced by public hospitals. There is need of increased hospital resilience to disasters through strengthening hospital preparedness capacity.

Role of Management Committees/Boards in Hospital Preparedness

Kenya health sector reforms have been realized through The Kenya Health Policy Framework of 1994, and the National Health Sector Strategic Plans of 1999–2004, 2005–2010 and 2011-2017. These frameworks and plans have a strategic focus to create an enabling environment for increased private sector and community involvement in the health sector through strengthening the capacity of Health Management Committees, which include the person in-charge of the health facility, and community members elected from the facility catchment area (Goodman et al 2011).

Increased stake of boards in the leadership of the hospitals makes them play a significant role in the disaster preparedness of their institutions. Understanding of the correct approach to successfully fulfill this purpose is critical for preparing their organizations for positioning adequately in the health care market (Culica, 2009).

Disaster Preparedness in Hospitals

Disaster preparedness is a broad concept that describes a set of measures that minimizes the adverse effects of a hazard including loss of life and property and disruption of livelihoods. It refers to measures taken to reduce the effects of disasters, that is, to predict and where possible prevent them, mitigate their impact on vulnerable

populations, and respond to and effectively cope with their consequences Kiongo et al (2015). It is best as a goal, rather than as a specialized programme that immediately precedes disaster response.

According to (Tierney, 2006) the concept of disaster preparedness encompasses measures aimed at enhancing life safety when a disaster occurs, such as protective actions during an earthquake, hazardous materials spill, or terrorist attack. It also includes actions designed to enhance the ability to undertake emergency actions in order to protect property and contain disaster damage and disruption, as well as the ability to engage in post-disaster restoration and early recovery activities. Preparedness is commonly viewed as consisting of activities aimed at improving response activities and coping capabilities. However, emphasis is increasingly being placed on recovery preparedness—that is, on planning not only in order to respond effectively during and immediately after disasters but also in order to successfully navigate challenges associated with short- and longer-term recovery.

International Federation of Red Cross and Red Crescent Societies (2010) notes that disaster preparedness is a continuous and integrated process, resulting from a wide range of risk reduction activities and resources rather than from a distinct sectoral activity by itself. It requires the contributions of many different areas—ranging from training and logistics, to health care, recovery, livelihood to institutional development.

It entails preventive measures, including the insurance of timely and effective early warnings, temporary evacuation of people and property from the threatened locations and readiness to contain the effects of a forecasted disastrous event to minimize loss of life, injury, and damage to property . It is achieved through a process

of planning and formulating policies training and exercise; acquisition of important equipment and infrastructure needed for emergency response; and the acquisition and improvement of the knowledge and capabilities of staff (Adini et al., 2006; Perry & Lindell, 2003).

Despite legal and regulatory requirements, disaster preparedness is too often not a top priority for many hospital leaders. In the 2009, American College of Healthcare Executives' annual survey, only 1% of CEOs selected disaster preparedness as one of their top three issues. Among the top issues selected were financial challenges, health care reform implications, care for the uninsured and patient safety and quality (Joe, 2010).

Being prepared in a disaster has implications in all of these areas of health care. Health care reform requires that public or private hospitals are prepared to care for all victims alike during a disaster. This has far-reaching implications on quality and patient safety (Joe, 2010). Investments in improving administration and strengthening the resource base of public institutions will have a general positive impact on the effectiveness of preparedness arrangements, emergency responses and the quality of longer-term recovery planning (Coppola, 2006).

Disaster Preparedness and Planning

Disaster preparedness is achieved partially through readiness measures that expedite emergency response, rehabilitation and recovery and result in rapid, timely and targeted assistance. It is also achieved through community-based approaches and activities that build the capacities of people and communities to cope with and minimize the effects of a disaster on their lives (International Federation of Red Cross

and Red Crescent Societies, 2010).

Disaster preparedness planning involves identifying organizational resources, determining roles and responsibilities, developing policies and procedures and planning preparedness activities aimed at ensuring timely disaster preparation and effective emergency response. It provides a platform to design effective, realistic and coordinated planning, reduce duplication of efforts and increase the overall effectiveness of National Societies, household and community members' disaster preparedness and response efforts. Disaster preparedness activities embedded with risk reduction measures can prevent disaster situations and also result in saving maximum lives and livelihoods during any disaster situation, enabling the affected population to get back to normalcy within a short time period (O'Brien, 2005).

The aim of preparedness planning is to identify assignments and specific activities covering organizational and technical issues to ensure that response systems function successfully in the event of a disaster. The ultimate objective is not to write a plan but to stimulate on-going interaction between parties, which may result in written, usable agreements (IFRC, 2010).

Applying an effective management system in emergency preparedness provides maximum efficiency with using minimum facilities and human resources. It is recommended that responsible managers in different levels of health care system prepare necessary conditions for implementing such a system (Yarmohammadian et al., 2011).

Moghaddam et al., (2005) argue that an effective management system with accurate organization and preplanned activities minimizes negative consequences of

disasters. Successful response of hospitals to emergencies requires coordination among all hospital units, planning and coordination of police, fire-fighting and pre-hospital emergency actors such as the Red Cross in order to make sure communication lines are established and there is needed flexibility for responding to extent and severity of an emergency incident (Prestipino 2004).

A well-prepared community will have a comprehensive planning process, a thorough emergency operations plan, established response capability, and an ongoing surveillance and notification system for identifying and communicating emergencies.

Role of Hospital Committee in Disaster Preparedness Funding

Kenya's health sector services are financed through government taxation, user fees, and external sources from partners such as United States Agency for International Development (USAID) and insurance like National Hospital Insurance Fund (MOH, 2015).

Boards initial role is to help ensure that proper disaster preparedness are in place and fully funded. Generally, preparedness for larger hospitals is normally greater than that for smaller hospitals thus improved funding for hospitals could increase the level of preparedness for disaster. Involvement in national security events have also been shown to cause greater public health preparedness for disaster management (Fricker *et al* 2005).

This means that not only must hospitals have a policy in place for how to provide care to patients during times of emergency, but also boards need to ensure their organizations are prepared financially to handle the initial cost and long-term financial implications of caring for patients during an emergency.

The management of disasters by government departments at various spheres of engagement is almost entirely reactive in nature. This is because the full continuum necessary for disaster management, such as prevention, mitigation, preparedness, response and rehabilitation is not an integral component of current disaster management systems. Rather, each disaster is treated as a crisis, and preparations are conducted to deal only with emergency situations. Tang (2015) argues that there is a clear distinction between disasters that occur spontaneously, and those that are a result of cumulative effects. Such distinctions require different kinds of planning and management of risk, hence the need for preparedness.

Staff Training for Emergency Preparedness

During an emergency or disaster, hospital staffs are generally required to go beyond their routine day to-day roles and responsibilities and to take on tasks with which they are less familiar and which they will, in all probability, have to carry out in a stressful environment. To meet these new demands all staff members, irrespective of their hospital, departmental and individual duties, need to be involved in the emergency planning process so that they can distinguish between their routine and their emergency responsibilities and can better contribute to the emergency response (WHO, 2014).

The importance of disaster training and education in the health sector has given rise to the discipline of disaster medicine. Training programs in general, and especially those with a technical focus, can be expected to improve the implementation of mitigation and response measures (Ciottone, 2006). Recent reports have expressed concern that hospitals are not adequately integrated into community planning. Hospitals are said to be isolated in their planning of activities as a result, are possibly the weakest

link in emergency response (Rubin 2004). Mohammad *et al*, (2011) identified lack of theoretical and practical training for staff and lack of planning as barriers to emergency preparedness. He argues that appropriate training for major actors, especially nursing supervisors and physicians as well as adherence to rules, correct knowledge of mass emergencies and interaction of the hospitals with other organizations boosts preparedness levels of health facilities.

The key hospital personnel should be trained to implement a formal incident command system, which is an organized procedure for managing resources and personnel during an emergency. The hospitals should also have adequate availability of personal protective hazardous materials suits, negative pressure isolation rooms and decontamination showers. A hospital's emergency response plan has to be evaluated as to whether that plan addresses these issues. (Mehta, 2006).

Moghaddam *et al* (2005) blames lack of understanding of system's goals and the spirit governing it, non-conformity of existing organization with target organization and high cost of change in organization as among the main barriers to staff capacity building. Prestipino (2004) notes that, planning and appropriate training of major actors, especially nursing supervisors and physicians of emergency department is very effective in disaster preparedness. He further identifies that adherence to rules, correct knowledge and understanding of emergency system, interaction with other organizations and internal parts coordination are critical areas of focus in staff empowerment. Morrison *et al* (2011) note that many institutions/governments agencies have drawn up major incident plans, but are often missing vital elements such as education/training.

In Kenya, results of a study conducted at Kenyatta national hospital showed that nurses who had done specific courses related to emergency care were more knowledgeable than their counterparts who had not done the same (Rutto *et al.*, 2012). Furthermore, nurses who had done courses on trainings related to emergency care nursing had better knowledge while those who had not undergone training had poor practices with regards to emergency preparedness (Rutto, et al., 2012). Seroney (2015) in her study in Kapsabet district hospital found out that although nurses had a reasonable knowledge on disaster preparedness, there was need for ongoing training and regular updates on disaster preparedness.

Disaster preparedness planning ensures that, given available resources and circumstances, there are sufficient qualified staffs with a correct skill mix to respond to a crisis and that relevant continuous education and training programmes are in place (WHO, 2012).

Disaster Preparedness Programs

Various reliable protocols have been utilized around the world for preparing and increasing efficiency in hospitals in such crisis circumstances. One of them is Hospital Emergency Incident Command System (HEICS) by Mohammad *et al.*, (2011). HEICS is an incident management system composed of some specific roles in the form of an organizational table with specific mission during crisis situation, with a list of individual job descriptions that guide appointed persons in the crisis situation carefully. This protocol allows providing as many responsibilities as required at any time, and it means more effectiveness and lower cost. The method gives hospitals capability of adapting to different kinds of incidents and crisis of any magnitude. HEICS provide

more coordination between hospitals and other institutions involved in emergency incidents by utilizing logical management structure, duty descriptions, creating clear reporting channels as well as developing a common and simple system which doesn't rely on specific people, but it is flexible (Abbas, et al 2013). Internal and external barriers have been identified to prevent establishment of such systems. This include poor management and lack of careful planning, existing parallel organizations and absence of intersection coordination (Rayadh, 2013).

Disaster preparedness programs must be realistic and simple with contingencies integrated in them. Legg *et al* (2009) argue that disaster programmes provide the framework for disaster response but without drills they are worthless. They have to be routinely tested. Walker (2011) argues that they require working collaboratively with local and regional communities to ensure that all the key players know what they should be doing and are comfortable with their roles.

Seroney (2015) in a study on importance of drills in Kapsabet District hospital nurses re cognized the importance of drills. However, they acknowledged that this does not happen. This shows that despite the acknowledgement that disaster preparedness programs ought to be in place, there no standard written guidelines for tailored to suit public hospitals in Nandi County.

Infrastructure and Disaster Preparedness

Infrastructure is defined to include buildings, communication and Information Communication Technology, transport, and equipment (MOH, 2015). Kiongo (2015) argues that adequate infrastructure plays an important role in disaster response. He urges managers to invest and upgrade infrastructure in hospitals to enhance efficiency

in service delivery in times of disaster as well as facilitating emergency trainings and drills. Medical equipment availability and functionality of diagnostic and medical equipment is critical in emergency situations.

The US Joint Commission manual (2010) recommends that during emergencies, there should be proper communication plan that must include technologies for communicating to staff and media, alternative utilities of providing electricity, water and fuel, arrangements for transporting patients , hygiene and sanitation needs, medical supplies, mental health needs and mortuary services. In addition, infrastructure must include how hospital will document and track patients' clinical information.

In recent years in the US for example, hospitals nationwide have fines and law suits for not meeting their requirements for disaster preparedness. Most notably, Pendleton Methodist Hospital Services of Pennsylvania have faced lawsuits for negligence relating to not being prepared for the scale of disaster caused by Hurricane Katrina. Three years prior to the hurricane the hospital conducted an analysis of its vulnerability for flooding and determined that its generator could not withstand flood water. Despite the documented concern, the hospital did nothing to resolve the issue. When disaster struck, power went off and a patient on respirator died (Bowers, 2010).

The Constitution of Kenya 2010, article 43 (2) declares that every person has the right “to the highest attainable standard of health”, and that, “a person shall not be denied emergency medical treatment. The Health Bill 2014 provide that health care facilities should “protect, respect, promote and fulfill the health rights of all persons in Kenya by providing pre-hospital care, stabilizing the health status of the individual and or arranging for referral in cases where the health provider of first call does not have

facilities or capability to stabilize the health status of the victim (GOK, 2016). It is important to highlight that this right can only be served in the context of proper infrastructure. With the increased legal consciousness and democratic space in Kenya, there is possibility that hospitals might be sued for loss of lives occurring in their facilities during emergencies.

Infrastructure development includes management of supplies and equipment needed as a reserve in case of crisis, as well as the development and application of appropriate technologies. In practice, hospital staff leaders order the equipment, supplies and other materials necessary to carry out a plan while the board must make certain sufficient funding in place for the purchases as well as additional staffing that needs to be funded (Walker,2010).

In Kyrgyzstan for example each hospital has a budget from which it can make repairs and renovations as deemed necessary by the respective hospital director or Medical superintendents to make the infrastructure friendly for mass casualties. This is done in order to reduce the structural and non-structural vulnerability of key health facilities through renovations or repairs (WHO, 2012). In Nandi county, most of the health facilities have infrastructure challenges (County Government of Nandi 2013) that need to be addressed wherefore the hospital management committees need to address.

According to a report by United Nations Environmental Program (2012), Critical infrastructure is important for the speedy roll-out of emergency activities and contributes to improving resiliency in society. Sectors like energy, transport, communication and water are seen as critical infrastructure are often network based,

thus, a disruption in one part of the infrastructure raises the possibility for damage across entire networks. Infrastructure for disaster avoidance and mitigation is one of the main tools for disaster risk reduction. However, building, maintaining and upgrading infrastructure is costly, which hinders overall improvement in hospitals.

Telecommunications networks rely upon many other local and regional technical systems to ensure their proper operation. These supporting infrastructures often date from an earlier era and lack resiliency to physical damage. Electrical distribution systems are by far the most important supporting infrastructure for telecommunications networks. Electrical power is required to operate most modern telecommunications equipment, often in large amounts. Yet electric power distribution systems lack the “self-healing” capabilities of telecommunications networks, although future improvements are expected to give power networks greater capabilities. With the widespread use of mobile phone technology, a lot of improvements are bound to happen (Townsend & Moss 2005).

Challenges Facing Hospital Management Boards in Execution of their Mandate

Mohammad et al. (2011) identified challenges that hinder establishment of emergency preparedness programs in hospitals. These include; lack of administrative culture for crisis management, lack of need for establishment of such programme on behalf of managers, absence of statutory requirements and instructions related to crisis management, too many decision maker authorities, high cost of implementation, lack of authorities’ support and non-commitment of managers, lack of qualified managers in different levels, poor communication and coordination in crisis team, lack of competitive atmosphere for progress and excellence and planning among hospitals,

attention to daily activities by managers, absence of a common management language, constant change in regulations and lack of unity of command in hospitals.

It is until recently that the Ministry of health for the first time in post independent Kenya that it developed a master plan for disaster risk reduction yet disasters have been part and parcel of our history in Kenya. Hospitals will be prepared when these challenges are alleviated.

According to Nabutola (2012) Lack of a coherent policy, lack of Political will, low budgetary allocations, old and unsuitable equipment and sometimes lacking completely, low capacity amongst the citizenry to prepare and to respond to disaster is limited in cities, towns and especially in the country side.

Insufficient levels of implementation for each monitored activity are also a significant challenge. For example, although Disaster Risk Management (DRM) plans or risk sensitive building codes exist, they are not enforced because of a lack of government capacity or public awareness or because so much development takes place in the informal sector. Risk information acquired through assessments is often not translated into policy partly because policy makers are not aware of how to use such information. Staging public awareness raising campaigns, while useful, run the risk of being a one-time event and may not bring any real change in people's behaviour or actions Nabutola (2015). Weak capacity at the local level undermines the implementation of building codes and land use plans. National policies also need to be adapted to the local context (e.g. the national school curricula on Disaster Risk Reduction (DRR) that can be tailored to local risks and needs. Failure of integration of climate change issues into DRM (e.g. risk assessment, research, building codes, and

land use planning) given that climate change will lead to shifts in risk patterns. DRM policymakers have difficulty in obtaining political and economic commitment due to other competing needs and priorities. While many agree that reducing disaster risks is important for saving lives and property, few countries have appropriate measures in place because other issues (e.g. poverty reduction, economic growth, social welfare and education) require greater attention and funding (Global Facility Disaster Reduction & Recovery 2015).

Poor coordination between stakeholders, and a lack of information sharing, with respect to risk assessment, monitoring and evaluation, early warning, disaster response and other DRM activities to a large extent, contribute to ill preparedness.

Mainstreaming disaster preparedness in all policy areas and ensuring the commitment of sector agencies is important in preventing new risks from arising and also helps stakeholders address existing risks and strengthen the resiliency of society (Global Facility Disaster Reduction & Recovery 2015).

Summary of Related Literature

Various elements in a health system interact interdependently with a common purpose, working toward problem solving in disaster preparedness. There is potential for HMCs to play an active and important role in health facility management, particularly where they have control over some facility level resources. However, to optimize their contribution, efforts are needed to improve their training, clarify their roles, and improve engagement with the wider community and hospitals they represent. Literature reviewed indicate that there is limited information on the assessment of HMC in disaster preparedness in Kenya hence the need for the study

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter examines the research design, the study setting, target population, sample size and sampling procedures, data collection and analysis procedures, and ethical considerations.

Research Design

This study employed descriptive research design. This method allowed the researcher to collect data from respondents on the assessment of HMC level of disaster preparedness and provide factual descriptive nature as it exists at the time of study. Descriptive design integrates both qualitative and quantitative research approaches (Fox & Bayat 2007). Correlational design is employed in explaining the relationship between the independent variables and challenges facing HMCs. The use of both quantitative and qualitative approaches provided a more complete understanding of the research problem than either approach alone. According to Kothari (2011), descriptive research studies are concerned with describing the characteristics of a particular individual or group of people.

Study Setting

The study was conducted in the Nandi County which is in North Rift of Kenya, occupying an area of 2,884.4 Km². The County is bordered by Kakamega County to the west, Uasin Gishu County to the North East, Kericho County to the South-East corner, Kisumu County to the South and Vihiga County to the South West. Kapsabet County Referral Hospital and Nandi Hills County hospital are the two major healthcare

facilities in Nandi County. The county has five Sub-county hospitals, nine health centers and 45 dispensaries. The doctor to population ratio is 1:94,000 (County Government of Nandi, 2013) way below the WHO recommended of 1:1000 (WHO, 2014). The Nurses ratio is 41 per 100,000 people (MOH, 2015). These figures shed light on the human resource challenge faced by health facilities in the county.

Study Population

According to Kothari (2004), the items under consideration in any field of inquiry constitute a population. This study population comprised of all the County Health Management Board (CHMB) members and all board members responsible for the seven (7) level four hospitals. Forty-one (41) of them answered the self-administered close ended questionnaires. Sixteen (16) respondents participated in in-depth interviews. These comprised of secretary and chairman, from the county and hospital boards. The total number of participations therefore was fifty-seven (57).

Table 1

Study Population

Health Management Committees	Total members	Questionnaires	In-depth Interviews	Percent (%)
CHMB	8	3	3	75%
Kapsabet CRH	7	5	2	100
Nandi Hills CH	7	5	2	100
Mosoriot Sub-County	9	7	2	100
Kaptumo Sub-County	8	6	1	87.5%
Meteitei Sub-County	7	4	2	87.5%
Chepterwai Sub-County	7	5	2	100
Kabiyet Sub-County	8	6	2	100
TOTAL	61	41	16	94.87%

Research Instruments

The research instruments that were used for data collection in this study were: questionnaires and two key - informant interview guides to enable the researcher to get detailed information on the level of health management committees' disaster preparedness. This was necessary to diversify responses as well as reduce question fatigue' Kothari (2011). One research assistant was recruited, trained and utilized in the data collection.

Questionnaire

The questionnaire was developed in line with the study objectives. Multiple choice questions, rank-order (or ordinal) scale questions and rating scale question formats were used in different sections of the instrument. The questionnaire had six parts (A, B, C, D, E and F). Part A dealt with respondents background highlighting the gender, marital status, education level and area of academic specialization of the committee members; part B on the funding of disaster preparedness activities; Part C looked at staff preparedness; Part D considered disaster preparedness programs; part E on infrastructure development for disaster readiness. Part F dealt with challenges faced by the committee in regard to disaster preparedness. The questionnaire contained close-ended questions with four-point-Likert scale used to scale responses in the study from; where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree.

Key Informant Interviews

In-depth interview is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation (Patton, 2002). The researcher

conducted in-depth interviews with County Executive Member for Health, County Health Director, and Chairman and secretary drawn from each of the seven hospital committees. Two different interview schedules (see appendix II& III) were developed for both groups.

Validity and Reliability Analysis

Patton (2002) states that validity and reliability are two factors which any researcher should be concerned about while designing a study, analyzing results and judging the quality of the study.

The interview guides were given to researchers' supervisors and other experts in research to seek their opinion about the adequacy and representativeness of the instrument as a way of ensuring content validity.

A pilot study was also conducted in Huruma and Uasin Gishu District hospitals to pre-test the instrument before the main survey. Saunders et al, (2009), agree that in any research, it is expedient as a matter of validity and reliability to check that the instrument is pre-tested before the final administration. The pilot study enabled the researcher to assess the clarity of the questionnaire. Those items found to be redundant were discarded and those misunderstood were modified to improve the quality of the research instrument, thus increasing its validity.

After the pilot study a reliability test was carried to establish whether the instruments had the ability to yield the same results consistently when repeated measurements were taken under the same conditions. The Cronbach's Alpha was used as a measure of reliability and internal consistency. Cronbach's Alpha is a reliability coefficient that indicates how well items in a set are positively correlated to one another. It measures the inter-correlations among test items, with a measure of 1 being the

ultimate of internal consistency and reliability and $\alpha \geq 0.7$ being acceptable (Revelle & McDonald, 2006).

In this study, all sections of the questionnaire designed by the researcher to be filled by health management committee had reliability ranging from 0.703 to 0.889 as shown in the summary table below.

Table 2

Reliability Analysis

Factor No.	Factors/Subscales	No. of Items	Cronbach's Alpha (α)
Factor 1	Funding of disaster preparedness activities	6	.703
Factor 2	Staff preparedness for disaster	4	.722
Factor 3	Programs in place for disaster preparedness	5	.867
	Infrastructure development for disaster readiness	5	.889
Factor 4	Challenges faced by HMCs in disaster preparedness	6	.759

Data-Gathering Procedures

Data collection procedures are the series of events to be followed during the data collecting process. The researcher collected data after receiving permission from the University of Eastern Africa, Baraton (UEAB) Research Ethics Committee. Authority to gather data was sought from the Chief Officer department of Health, Nandi County who issued an approval letter. The respondents selected for the in-depth interviews participated in a relaxed and comfortable setting to enhance confidentiality and enable them talk freely. Due to tight schedules, nature of work and distance from the study area of some respondents, the researcher carried out telephone interviews. In order to capture

the dialogue between the researcher and the respondent, a digital device a pen, and a note book were used.

After obtaining a list of all the officially gazetted committee members from all the seven hospitals and CHMB the researcher aimed at interviewing all the members that is census method was used to determine who participated in the study. The return rate of questionnaires was 95.34% while that of the interview yielded 88.89%. This good return rate was attributed to the fact that the researcher did not leave any questionnaires with respondents except two which were collected after a day and also where one-on-one encounter was not convenient the researcher conducted telephone interview. The return rate was good hence could be relied upon in the findings.

Statistical Treatment of Data

Data analysis is the process of creating order, structure and meaning to the mass of information collected (Mugenda, 2003). Statistical Package for Social Sciences (SPSS) version 20.0 which is a software tool for data analysis was used. The data collected using the questionnaire was analyzed using descriptive statistics. Descriptive statistics included means, frequencies and percentages. Boone and Deborah (2012) say that Likert questions can be analyzed using descriptive statistics. Presentation of this information was done using tables, graphs and charts. Spearman's correlation test of relationship was employed to test significance of relationship of challenges with the preparedness factors.

Qualitative data was gathered using in- depth interviews. These are opinions values concepts and behavior of respondents in social concept that cannot easily be reduced into numbers. Qualitative data in itself has meaning, i.e. Apple. Therefore data collection and analysis may happen simultaneously (Nigatu, 2012). It involves looking at

the data, assigning categories and putting together the emerging issues into themes in an attempt to answer the research questions (Jwan & Ong'ondo, 2011). Content analysis, where verbal data i.e. unstructured text (audio recordings) and structured text (interview writings) was categorized for the purpose of summarization and classification. The study then adopted deductive-analysis approach where the research objectives were used to group data and then make interpretation based on similarities and differences. This is because the qualitative component of the research was smaller of the larger quantitative study (Nigatu, 2012).

Ethical Considerations

Researchers whose subjects are people or animals must consider the conduct of their research and give attention to ethical issues associated with carrying out their research (Orodho, 2009). Despite the high value of knowledge gained through research, knowledge cannot be pursued at the expense of human dignity and a researcher should describe how he or she ensured that ethical requirements are upheld in the study (Oso & Onen, 2009).

The researcher obtained informed consent from the participants. No person was coerced to participate in the study. They were informed of the study objectives, methods and its relevance. Confidentiality was assured to the respondents by instructing them not to indicate their names and their hospitals in the questionnaires for anonymity. The researcher ensured that all participants and informants were treated with respect and their privacy observed. Research approval was sought from relevant institutions and the study findings shall be disseminated to the hospital boards in Nandi County.

CHAPTER FOUR

PRESENTATION OF FINDINGS, ANALYSIS AND INTERPRETATION

This chapter contains the detailed presentation, analysis and interpretation of the data gathered to assess the level of disaster preparedness of the Health management committee in public hospitals in Nandi County. The interpretations and presentations are done using tables and charts (graphs and pie charts) form, following the research questions and objectives that guide this study.

Background Information

Table 3

Gender of the Respondents

	Response	Frequency	Percent
Valid	Male	29	70.7
	Female	12	29.3
	Total	41	100.0

Table 3 shows the gender of the respondents. The table indicates that 70.7 % of the respondents are male and 29.3 % are female. This indicates that the composition of the committees is male dominated. Times have changed and there is need to raise the number of women appointed to hospital management committees.

Table 4

Marital Status

	Response	Frequency	Percent
Valid	Single	8	19.5
	Married	33	80.5
	Total	41	100.0

Table 4 shows that majority of the respondents who participated in the study are married (80.5%) while 19.5% were single at the time of the study. It is clear that most of the respondents were married individuals.

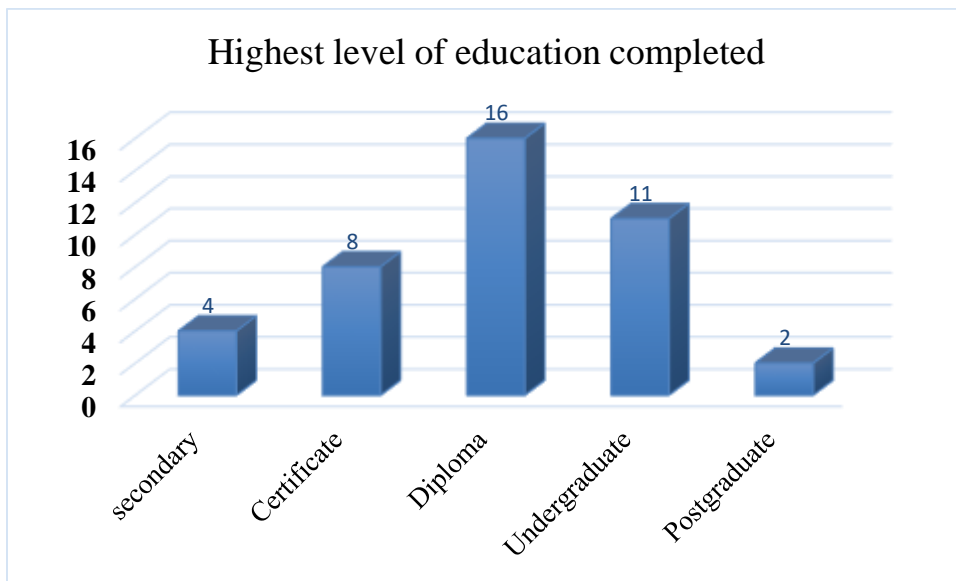


Figure 2. Highest level of education completed.

The bar graph above shows the highest level of education the respondents who participated in the current study have had attained during the time of the study. It is evident in the study that majority of the respondents 16 (39.0%) hold diploma as their

highest level of education, this is followed by undergraduates 11(26.8%), then 8 (19.5%) who hold college certificates while 4 (9.8%) have high school education only. The minority of the respondents 2 (4.9%) have postgraduate degree. There is need to provide training to improve disaster preparedness practices since the literacy levels are high.

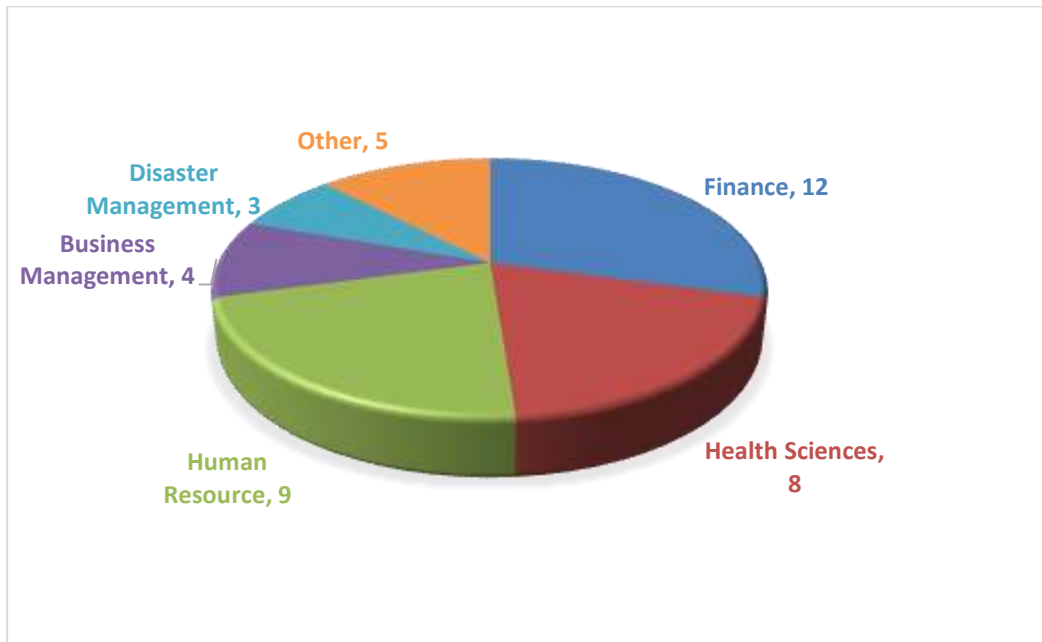


Figure 3. Academic specialization.

The study revealed (figure 3) that among 41 respondents who participated in the study are specialists in finance (29.3%), 22.0% of the participants were human resource specialists, while 19.5% were specialized in Health Sciences. However 12.2% of the respondents did not specify their area of academic specialization and were classified as other. Business management and Disaster management were the minority with a score of 9.8% and 7.3% respectively.

Analysis of objectives is based on the mean. The scale of the interpretation of the mean is shown on the table below.

Table 5

Mean Interpretation Table

Mean	Interpretation
1.0 - 1.49	Strongly Disagree
1.50 - 2.49	Disagree
2.50 - 3.49	Agree
3.50 - 4.0	Strongly Agree

The Level of Health Management Committees' Disaster Preparedness

Research objective 1. To assess the health management committees' level of disaster preparedness in terms of:

- a. Funding of disaster preparedness activities.
- b. Staff preparedness for disaster
- c. Programmes in place for disaster preparedness
- d. Infrastructure development for disaster readiness

Six questions of the research instrument addressed each question of Health management committees' role in funding of preparedness. Table 6 below shows a summary of descriptive statistics of the Committee member's rating of HMCs' funding role for disaster preparedness.

The HMCs' Level of Funding of Disaster Preparedness Activities

Table 6 presents the findings of the descriptive statistics on health management team funding of disaster preparedness activities.

Table 6

Health Management Committees' Funding of Disaster Preparedness Activities

Statement: Our Health Management Committee...	N	Mean	Std. Deviation	Mean Scale
Sets aside funds for disaster preparedness	41	2.39	1.137	Disagree
Ensures that disaster management allocations are adequate	39	2.00	1.192	Disagree
Facilitates partnerships with other organizations that deal with disaster preparedness funding	41	2.22	1.107	Disagree
Facilitates accountability and feedback to the county government and partners on preparedness allocations and expenditure.	41	2.78	1.151	Agree
Oversees disaster Preparedness budget implementation	41	1.88	1.077	Disagree
Ensures that funding for disaster preparedness is sustainable	41	2.05	1.264	Disagree
Funding of disaster preparedness activities	41	2.2325	.85899	Disagree

Respondents disagreed that the health management team sets aside funds for disaster preparedness, the mean rating was 2.39, disagreed that the team ensures that disaster management allocations are adequate, mean rating of 2.00, they further disagreed that the committee facilitates partnerships with other organizations (mean, 2.22).

Furthermore, the respondents agreed that the health management committee facilitates accountability and feedback to the county government and partners on preparedness allocations and expenditure with a mean score of 2.78. These findings confirmed the findings of Peek (2006) which indicated that investments in improving administration and strengthening the resource base of public institutions will have a general positive impact on the effectiveness of preparedness.

However, they disagreed that the health management committee oversees disaster Preparedness budget implementation the mean rating on this particular item was 1.88. It is important to note that the implementation is done by the technical members of staff who work under the leadership of the county executive member for health. Respondents again disagreed that the health management committee ensures that funding for disaster preparedness is sustainable with a mean rating of 2.05. In an overall rating of 2.23, the respondents disagreed that their health management committee adequately funds disaster preparedness activities within Nandi County.

A good health financing system ensures adequate funds for the health system and financial protection in case of a crisis. In addition to providing funds for essential crisis preparedness processes, it ensures that crisis victims have access to essential services and that health facilities and equipment are adequately insured for damage or loss (WHO, 2012). The present study is in agreement with a report that, towards El-Niño preparedness, The Nandi County Government allocated only thirty percent of the Kshs.93, 287,872 to health department (County Government of Nandi, 2016). This shows that the level of funding generally in this particular County is very low.

HMCs' Level of Preparedness on Staff Preparedness for Disasters

Four questions of the research instrument addressed this question of Health management committees' role in staff preparedness for disaster with 41 responses. Table 7 shows a summary of descriptive statistics of the Committee member's rating of the role of HMCs in ensuring Health Facilities' Staff Preparedness for disaster.

Table 7

Health Management Committees' Staff Preparedness for Disaster

Statement: Our Health Management Committee...	N	Mean	Std. Deviation	Mean Scale
Promotes staff training on disaster preparedness	41	2.17	1.116	Disagree
Ensures that there are adequate resources for staff to use during disaster outbreak	41	2.22	.962	Disagree
Mobilizes the community to work hand in hand with health staff during disaster	41	2.29	1.101	Disagree
Works towards ensuring that staff have positive attitude towards disaster preparedness	41	2.54	1.142	Agree
Staff preparedness for disaster	41	2.3049	.70824	Disagree

This study also wanted to know the staff is prepared for the disaster preparedness within Nandi County. From the analysis in table 7 above, respondents disagreed that health management team Promotes staff training on disaster preparedness with a mean rating of 2.17, and as well as the management team ensures that there are adequate resources for staff to use during disaster outbreak, the mean rating of the item is 2.22. In addition, participants disagreed that the health management team mobilizes the community to work hand in hand with health staff during disaster, the mean score is 2.29. Finally, the respondents agreed that the health management team works towards ensuring that staff have positive attitude towards disaster preparedness with a mean rating of 2.54. In an overall rating on the staff preparedness for disaster, the respondents disagreed HMCs have adequately facilitated the staff preparedness for a disaster with a mean rating of 2.30.

This study concurs with a study that hospital boards typically have a diverse number of members, many of whom are not disaster experts. Hence a board relies on the technical members of staff such as nurses, clinical Officers, doctors etc. on emergency and preparedness issues. Conceivably it is time when in the appointment criteria of board members, individuals with disaster management background are considered. Running a health care organization is a team sport. It is very important that all members of the team whether on the medical staff, in management, or on the board work together to prepare their hospitals (Don, 2002). The health management committee should make sure that they are prepared to handle disaster by making sure that there are improved appointment criteria so that the right individual are appointed for the right job.

Additionally, on a verbal interview conducted among the Chairpersons and board secretaries of Hospital Boards a similar result was yielded. These executives were asked to respond to the query; “What is your role in disaster preparedness in the county health department?” In their responses, it they pointed the following as the responsibility of HMC in ensuring Disaster preparedness. To utilize available resources to maximize productivity to ensure adequate staff mix in disaster management teams and to ensure functional and responsive transport system for disasters. Although the professional health staff are not directly accountable to the committees, the committee is to have only a supporting role

Preparedness of the hospital staff has a significant impact on the effectiveness of the general Disaster preparedness. It gives the facility ability to provide uninterrupted service to the community since every staff member has a role to play in the hospital

operations and in the ability to provide care to the community regardless of circumstances. Any Failure or deficiency in Staff preparedness is a set back to the Health facility and a disadvantage to the community. When committee members and professional staff come together in a training programme, then they more quickly and more effectively come to appreciate each other's roles and responsibilities

Table 8

Health Management Committee and Staff Positive Attitude

Item	Response	Frequency	Percent
Our HMC Works towards ensuring that staff have positive attitude towards disaster preparedness	Strongly Disagree	10	24.4
	Disagree	10	24.4
	Agree	10	24.4
	Strongly agree	11	26.8
	Total	41	100.0

Table 8 shows that 26.8 % of the respondents strongly agreed that their health management committee works towards ensuring that staff have positive attitude towards disaster preparedness, 24.4% agree, 24.4 % disagreed and 24.4% strongly disagreed.

Programs Put in Place by the Health Management Committees in Readiness for Disasters

Five items of research instrument addressed this question with 41 members responding to the five items. Table 9 shows a summary of descriptive statistics of members' rating of the Committee Involvement in putting in place disaster preparedness programmes.

The analysis in table 9 shows that the respondents disagreed that the health management committee offer financial support for disaster emergencies (mean, 2.10), some members agreed that the committee initiate community sensitization program on

Table 9

Programs Put in Place for Disaster Preparedness

Statement: Our Health Management Committee...	N	Mean	Std. Deviation	Mean scale
Offer financial support for disaster emergencies	41	2.10	1.068	Disagree
Initiate community sensitization program on disaster preparedness	41	2.93	1.127	Agree
Mobilize resources to support the disaster preparedness programs	41	2.17	1.093	Disagree
Support emergency drills and simulation programs	41	1.85	.910	Disagree
Participate in disaster preparedness training programs	41	1.78	1.061	Disagree
Programs in place for disaster preparedness	41	2.1659	.66016	Disagree

disaster preparedness (mean, 2.93). They also disagreed that the health committee mobilize resources to support the disaster preparedness programs (mean, 2.17), furthermore disagreed that HMC support emergency drills and simulation programs, with a mean score of 1.85 and in the same way that HMC participate in disaster preparedness training programs with a mean score of 1.78. In an overall rating, the respondents disagreed that the HMC has put in place programs in place for disaster preparedness with an overall mean score of 2.165.

In a similar interview with, the County Health Management Board Chair, County Executive Member for Health, Chief Officer Health Department, And County Health Director, it was noted that there is no clear policy direction taken to ensure disaster preparedness in the county. This is due to more attention being put to curative services. The board is not knowledgeable since they have not been sensitized on disaster issues.

Only those who had foreknowledge on disaster issues before their appointment to the HMC were fairly knowledgeable. The following challenges were identified; lack of financial resources and little appreciation of disaster preparedness among stakeholders- resources earmarked for disasters are held at the Governor's office. It was also indicated that in disaster preparedness in Nandi County, the County health management board play the role of monitoring and evaluation of Disaster preparedness initiatives.

This differ with a study done in Israeli hospitals, in preparedness for dealing with disasters, where they have developed standard operating procedures that facilitate the management of mass casualty incidents. Not only do these procedures allow for an organized response to a disaster, they also allow for an ongoing process of quality improvement since there are standards against which to measure performance (Adini, Goldberg, Laor, Cohen, & Bar-Dayyan, 2007).

HMCs and Infrastructure Development in Readiness for Disaster

Five items of research instrument addressed this question with 41 members responding to the five items. Table 10 shows a summary of descriptive statistics of members' rating of the Committee Involvement in infrastructure development for disaster preparedness.

Table 10 displays the data analysis on infrastructure development. The findings revealed that the respondents disagreed that the HMC has built new well designed buildings and renovated existing buildings to suit mass emergencies with a mean rating of 2.07, they also disagreed that HMC has facilitated sourcing of medical, communication equipment and ambulances, the mean rating on this item was 2.30. In addition, they also disagreed that HMC has established partnerships with Community and

Table 10

*Mean Ratings Of Infrastructures Developed for Disaster Preparedness**by Health Management Committees*

Statement: Our Health Management Committee...	N	Mean	Std. Deviation	Mean scale
Has built new well designed buildings and renovated existing buildings to suit mass emergencies	41	2.07	.818	Disagree
Has facilitated sourcing of medical, communication equipment and ambulances	41	2.30	1.018	Disagree
Has established partnerships with Community and private hospitals.	41	2.05	.815	Disagree
Has championed establishment of utilities and services essential for the development of a disaster plan within the hospitals in the county.	41	1.88	.954	Disagree
Has supported availing of adequate technical expertise to administer or manage the disaster plan activities	41	2.07	1.104	Disagree
Infrastructure development	41	2.0707	.66642	Disagree

private hospitals with a mean score of 2.05. Moreover the respondents disagreed that the HMC has championed establishment of utilities and services essential for the development of a disaster plan within the hospitals in the county (mean, 1.88) and as well that (mean, 2.07) has supported availing of adequate technical expertise to administer or manage the disaster plan activities. In an overall rating of 2.07, respondents disagreed that there is adequate infrastructural development in readiness to disaster preparedness in Nandi County.

In a study done in Ghana, it was evident that there were many of the nation's hospitals not prepared for large disaster resulting in surge demands, and did not possess

general emergency preparedness infrastructure. The hospitals' respective ability to handle large scale referral is compromised by the lack of competent medical and allied health personnel, inadequate infrastructure and medical supplies (WHO, 2015).

Those respondents interviewed indicated that they have Ambulances, equipment such as x-ray, Buildings (casualty department), wheelchairs. On whether the infrastructure is adequate, they responded they are not adequate because priority is given to regular clinical services. Majority of the members also indicated that only less than one percent (1%) of the financial resources is allocated for this exercise. Although some reported that they did not know for sure.

Challenges Facing Health Management Committees in Disaster Preparedness

Research objective 2. To identify the challenges facing health management committee in regard to disaster preparedness in Nandi County

Six items of research instrument addressed this question with 41 members responding to the six items. Table 11 shows a summary of descriptive statistics of members' rating of the Challenges facing Health Management Committee in relation to funding of disaster preparedness, Creation of staff awareness, Development of disaster preparedness programs and infrastructure.

The health management committee in Nandi County faces various challenges; the researcher identified possible problems and asked respondents in the same county to identify those problems facing them. The respondents strongly agreed that HMC lack of adequate funds with, the mean rating is 3.93, strongly agreed that HMC have inadequate medical facilities, mean, 3.73. They also strongly agreed that they faced with the

Table 11

Mean Ratings of Challenges Facing Health Management Committees

Statement: As HMCs, the challenges we face in regard to disaster preparedness include...	N	Mean	Std. Deviation	Mean scale
Lack of adequate funds	41	3.93	.264	Strongly Agree
Inadequate medical facilities	41	3.73	.549	Strongly agree
Inadequate resources to handle disaster situation	41	3.73	.672	Strongly agree
Lack of cooperation from the neighboring community during disaster	41	3.28	.960	Disagree
Lack of knowledge on disaster preparedness	41	2.76	1.113	Agree
Inappropriate infrastructure	41	3.22	1.129	Agree

challenge of inadequate non- financial resources to handle disaster situation (mean, 3.73), agreed that HMC lack of cooperation from the neighboring community during disaster (mean, 3.28). They agreed that HMC lack of knowledge on disaster preparedness, mean rating of 2.76 and agreed that inappropriate infrastructure (mean, 3.22). In overall rating of 3.17, the health manage committee agreed that they as Health Management Committee the challenges they face in regard to disaster preparedness include the ones listed by the researcher.

From the analysis of challenges above it is seen that the Health Management Committees which have a function in funding of disaster preparedness activities are challenged by lack of adequate funds and inappropriate infrastructure such as communication equipment, ambulatory services and poorly designed buildings. This shows that with inadequate funds the committees are not able to adequately fund disaster preparedness activities. Inappropriate infrastructure such as outdated communication

equipment, poor ambulatory services and poorly designed buildings may lead to channeling of funds to the wrong usage such as repairs and reinstallations which leads to loss of funds that could be used for better preparedness measures.

This is also true according to a report by the Ministry of Devolution and Planning that funding for major disaster preparedness contingency in Kenya is not adequate. Prioritizing contingency funds in the midst of many other pressing/competing needs still remains a challenge. Funding sub-national contingency/disaster preparedness structures, leave alone contingency plans still remains a challenge (National progress Report on the implementation of The Hyogo Framework for Action (2013-2015) – Interim)

In a study done in Ghana by Norman (2012) it was found out that the inadequacies of the hospital system in responding to emergencies raise serious public health concerns. The biggest challenge facing the hospitals in their emergency intervention is the lack of pre-emergency and emergency preparedness plans as well as the coordination of the hospitals response mechanisms. The study further found that even in the industrialized nations, hospital mass casualty preparedness efforts were still developing at the time of their survey. The study also found that the hospitals they surveyed lacked critical assets for emergency intervention. Disaster planning, coordination, training, and resource capacity were also lacking in those hospitals (Norman, 2012).

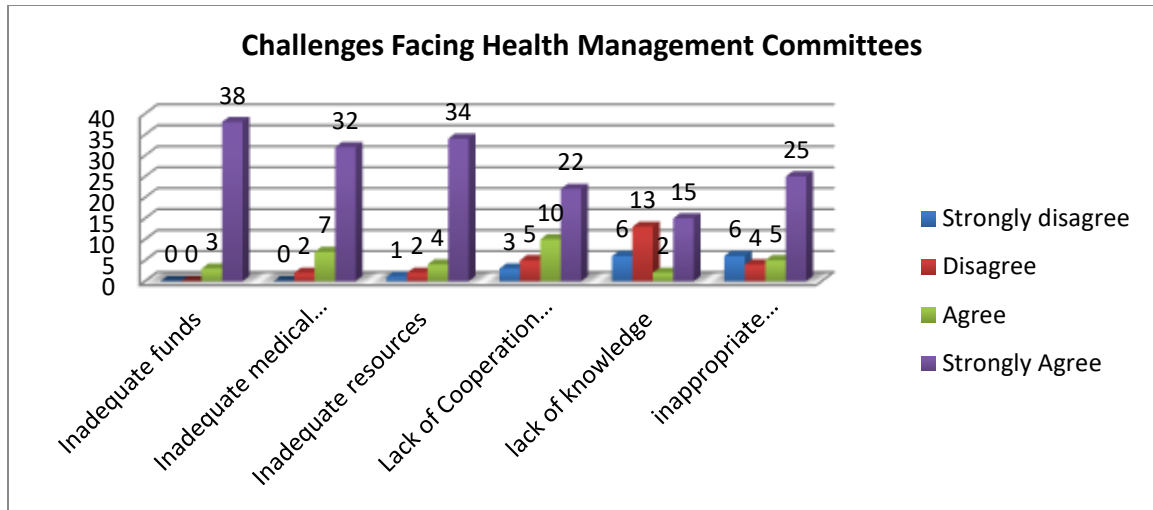


Figure 4. Challenges facing health management committees.

Figure 4 is a bar graph showing the number of the respondent's response on various questions, it evident from the study that the major challenge facing health management team in regard to disaster preparedness in Nandi County is inadequate funds, followed by inadequate non- financial resources, and the availability of medical facilities. Lack of knowledge is the least challenge facing disaster management team in Nandi County. Majority of the respondents 32 members generally agree that the committee lacks cooperation from the neighboring community during disaster.

Preparedness consists of three basic steps: preparing a plan, training to the plan, and exercising the plan. Preparedness deals with the functional aspects of emergency management such as the response to and recovery from a disaster, whereas mitigation attempts to lessen these effects through pre-disaster actions as simple as striving to create “disaster-resistant” communities (GOV.UK, 2013). These findings imply that with inadequate funds, HMCs preparedness fails at the planning stage. There will be inadequate funding of disaster preparedness, inadequate staff preparedness for disaster,

inability to put programs in place for disaster preparedness and Infrastructure development for disaster readiness. Committees' Lack of knowledge on disaster preparedness negatively influence the quality and nature of the programmes and infrastructure to be put in place (Goodman, 2011).

This is also true according to a report by the Ministry of Devolution and Planning that funding for major disaster preparedness contingency in Kenya is not adequate. Prioritizing contingency funds in the midst many other pressing/competing needs still remains a challenge. Funding sub-national contingency/disaster preparedness structures, leave alone contingency plans still remains a challenge (National progress Report on the implementation of The Hyogo Framework for Action (2013-2015) – Interim)

Knowledge is an important factor when it comes to developing programmes (Ndavi, 2009.). If the committee members lack knowledge on disaster preparedness, then what programs can they come up with? The answer is obviously none. Finally, if the available infrastructure is inappropriate then it may not be able to support new programmes, and this becomes a great obstacle.

Relationship between the Challenges Faced by Health Management Committees and the Committees' Level of Disaster Preparedness

The research sought to determine the degree of relationship between the challenges faced by Health Management Committees and the level of disaster preparedness. Spearman rank-order Correlation was used to carry out the test of relationship. Correlation significance is tested at the 0.05 level (2-tailed). Table 1 shows the summary of the correlation.

Table 12

Nonparametric Correlations (Spearman Rank-Order Correlation Coefficient)

		Funding of disaster preparedness activities	Staff preparedness for disaster	Programs in place for disaster preparedness	Infrastructur e developmen t for disaster readiness
Lack of adequate funds	Correlation	.286	-.092	.052	.216
	Coefficient Sig. (2-tailed)	.069	.569	.747	.174
	N	41	41	41	41
Inadequate medical facilities	Correlation	-.129	-.212	-.030	-.079
	Coefficient Sig. (2-tailed)	.422	.183	.852	.625
	N	41	41	41	41
Inadequate resources to handle disaster situation	Correlation	-.260	-.123	-.067	.036
	Coefficient Sig. (2-tailed)	.101	.444	.678	.823
	N	41	41	41	41
Lack of cooperation from the neighbouring community	Correlation	-.210	-.027	.031	.348*
	Coefficient Sig. (2-tailed)	.193	.868	.851	.028
	N	40	40	40	40
Lack of knowledge on disaster preparedness	Correlation	-.138	-.289	.068	.353*
	Coefficient Sig. (2-tailed)	.390	.067	.675	.023
	N	41	41	41	41
Inappropriate infrastructure	Correlation	.340*	.058	.438**	-.157
	Coefficient Sig. (2-tailed)	.030	.718	.004	.328
	N	41	41	41	41

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

From table 12 above it can be seen that the correlation coefficient between lack of cooperation from the neighboring community and Infrastructure development for disaster readiness is significant ($p=0.028 < 0.05$). Likewise, there is a significant relationship between Funding of disaster preparedness and inappropriate infrastructure ($p = 0.03 < 0.05$). Programs in place for disaster preparedness have a significant relationship with inappropriate infrastructure ($p= 0.004 < 0.05$). The correlation coefficient between Infrastructure development for disaster readiness and Committees' Lack of knowledge on disaster preparedness is significant, ($p=0.023 < 0.05$).

The Health Management Committees which try to develop infrastructure preparedness are challenged by lack of cooperation from the neighboring community and by lack of knowledge on disaster preparedness. The Health Management Committees which perform the function of funding of disaster preparedness activities and put in place programs for disaster preparedness are challenged by inappropriate infrastructure such as Communication equipment, ambulatory services, poorly designed buildings.

This is in line with Kiongo (2015) when he argues that adequate infrastructure plays an important role in disaster response. He urges managers to invest and upgrade infrastructure in hospitals to enhance efficiency in service delivery in times of disaster as well as facilitating emergency trainings and drills.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the summary of the study is presented. This is followed by the summary of findings, conclusions, recommendations and finally the recommendations for further study.

Summary of the Study

This study was conducted in Nandi County, situated in Rift Valley Kenya. The study sought assessment of the level of disaster preparedness of health management committees in public hospitals in Nandi County. This study employed descriptive research design. The research instruments that were used for data collection in this study were questionnaires and key informant interviews. The researcher used census method where forty-one (41) committee members responded to self-administered close ended questionnaires while sixteen (16) were interviewed.

The researcher used questionnaires and key informant interviews guides to enable the researcher to get detailed information on the level of health management committees' disaster preparedness. Statistical Package for Social Sciences (SPSS) version 20.0 which is a software tool for data analysis was used. The data collected using the questionnaires was analyzed using descriptive statistics. Descriptive statistics included means, frequencies and percentages. Presentation of this information was done using tables, graphs and charts. The study adopted thematic analysis in analyzing the qualitative data where the responses were summarized consistent with the themes in the study objectives. Spearman's correlation test of relationship was employed to test significance of relationship of challenges with the preparedness factors.

The study indicated that majority of the HMC members were male. Most of the HMC members in the County of Nandi are married and majority of the respondents hold diploma as their highest level of education. Health management committees are unable to adequately fund disaster preparedness activities within Nandi County, they haven't put in place enough programs for disaster preparedness, additionally in regard to infrastructural development in response to disaster preparedness in Nandi County, and HMC are not doing very well. The Health Management Committees face various challenges in regard to disaster preparedness. The study found out that Committees' lack of knowledge on disaster preparedness, inadequate funds and inappropriate infrastructure to be these challenges.

Summary of the Findings

1. The committees are not able to ensure that disaster management allocations are failed in promoting staff training on disaster preparedness, has put inadequate programs in place for disaster preparedness. Additionally, the HMCs: have not been able to establishment of utilities and infrastructure essential for the development of a disaster plan within the hospitals in the county and build new well designed buildings and renovated existing buildings to suit mass emergencies.
2. The Health Management Committee faces various challenges in regard to disaster preparedness. Lack of adequate funds, committee members' lack of knowledge on disaster preparedness, and inappropriate infrastructures are the identifiable challenges to disaster preparedness.

3. There is a significant relationship between Infrastructure developments for disaster readiness is significant and lack of cooperation from the neighboring community. Likewise, there is a significant relationship between Funding of disaster preparedness and inappropriate infrastructure. Programs in place for disaster preparedness have a significant relationship with inappropriate infrastructure. The correlation coefficient between Infrastructure development for disaster readiness and Committees' Lack of knowledge on disaster preparedness is significant.

Conclusions

Well laid out disaster preparedness in institutions providing healthcare is a key way to efficient health services delivery to the people. On the basis of the findings of the study, the researcher was able to draw the following conclusions

1. The health management team is unable to adequately fund disaster preparedness activities in Nandi County because they have an extremely limited role in funding disaster preparedness activities. Staff preparedness for disaster is significantly low in Nandi County. This is attributed to the HMCs inability to support disaster preparedness initiatives. Disaster preparedness programs are limited in public hospitals in Nandi County. There is inadequate infrastructural development in readiness to disaster preparedness in Nandi County
2. The Health Management Committees face various challenges in regard to disaster preparedness. Lack of adequate funds, committee members' lack of

knowledge on disaster preparedness, and inappropriate infrastructures are the identifiable challenges to disaster preparedness.

3. There is a significant relationship between Infrastructure developments for disaster readiness is significant and lack of cooperation from the neighboring community. Likewise, there is a significant relationship between Funding of disaster preparedness and inappropriate infrastructure. Programs in place for disaster preparedness have a significant relationship with inappropriate infrastructure. The correlation coefficient between Infrastructure development for disaster readiness and Committees' Lack of knowledge on disaster preparedness is significant.

Recommendations

1. Based on the findings the hospital management should have a well-established and an all-inclusive disaster management committee to adequately develop and revise the disaster management plan to curb challenges that arise due to disaster.
2. The Nandi County health department and the hospital stakeholders should improve on training of both the medical and the non-medical staff and Health management committee members to enhance its preparedness to deal with disaster related emergencies. Likewise, the health management committee should be sensitized on disaster preparedness and similarly to work on the noted disaster preparedness challenges facing them.
3. Nandi County government should put in place the necessary infrastructure that include well designed casualty departments, protective and diagnostic

equipment for the nurses and the medical staffs. Lack of equipment or insufficient equipment compromise the service delivery to the casualties that may result to further injuries to the victims.

4. The County government should allocate more funds to the hospitals from which Health Management committee can budget for disaster preparedness.
5. The HMC should be given requisite powers to shape the direction of public hospitals' disaster preparedness by being actively involved in decision making. This is informed by the fact that some of the members are a lot knowledgeable in hospital management.
6. The county should adopt and implement Hospital Emergency Incident Command System (HEICS) that has been utilized elsewhere in developed world in order to standardize disaster preparedness in all its hospitals.

Recommendation for Further Study

A study should be conducted to explain the causative factors of low disaster preparedness by HMC.

REFERENCES

- Abbas, H. Mohammad H.Y. Atighechian G.S L. & Haghshenas A. (2013) “Are hospitals ready to response to disasters? Challenges, opportunities and strategies of Hospital Emergency Incident Command System(HEICS)” *Iranian Red Crescent Medical Journal* (12): 3371
- Adini, B.Goldberg, A. Laor D. Cohen R. Zadok,R.& Bar-Dayana, Y. (2006) *Assessing Levels of Hospital Emergency Preparedness*.Prehospital and DisasterMedicine,21 (6), 451-457.
- Barker, C. Mulaki A. (2014). *Devolution of Healthcare in Kenya: Assessing County Health System Readiness in Kenya; a review of selected health inputs*. Health Policy Project, Futures Group.
- Boone, H.N. Jr, Deborah A.B (2012) Analyzing Likert Scale Data. *Journal of Extension*, 50(12)
- Bowers, C. (2010) *Preparedness: Standard of Care Expectations May Be On the Rise*. Business Continuity Consulting. Worcester, UK.
- Buchbinder, S and Shanks, N (2007) *Introduction to Healthcare Management*, Jones & Barlett Publishers Burlington USA.
- Centre for Research on Epidemiology of Disasters (CRED) (2016) *Annual Disaster Statistical Review*, Institute of health and Society Brussels Belgium
- Ciottone, G.R.(2006).*Introduction to Disaster Medicine*.Disaster Medicine(3rded.3-6). Philadelphia, USA: Mosby Elsevier. Commission of Inquiry into post-election violence (2008): Report of the commission of inquiry into post-election violence
- Coppola, D.P (2006). *Introduction to International Disaster Management*. 1st Ed.

Burlington Butterworth Heinemann

County Government of Nandi (2013) *County Integrated Development Plan (2013 – 2017)* Kenya: Government Printer.

County Government of Nandi (2016) *Resource Envelope FY2015/2016* Kenya: Government Printer.

Culica, D.(2009). Hospital Board Infrastructure and Functions: The Role of Governance in Financial Performance. *International Journal of Environmental Research and Public Health* 6 (3): 862–873.

Don, L.A. (2002) Effective governance: The roles and responsibilities of board members. Baylor University. Medical Centre. 15(1)19

Fialko, Y, Sandwell D, Simons M, Rosen P. (2005). Three-dimensional deformation caused by Bam, Iran, earthquake and the origin of shallow slip deficit. *Nature* 435(7040) 295-299

Fox W. & Bayat M.S. (2007) A guide to managing research; Juta Publication Capetown, South africa.

Fricker, R.D, Jacobson, J.O, Davis, L.M (2005).Measuring and evaluating local preparedness for a chemical or biological terrorist attack. *Annual review of Public Health*. Vol. 28

GFDRR (2015) *Why all development finance should be risk-informed*, GFDRR

Goodman, C. Opwora, A. Kabare, M., &Molyneux, S. (2011). *Health facility committees and facility management*; Bossert & Beauvais, 2011

Government of Kenya Government (2010).*Constitution of Kenya 2010*: Government Printers

- Government of Kenya Government. (2016). *Parliament of Kenya: Heal Bill 2016*
Government Printers
- Government of Kenya Government, (2011). *National Disaster Management Policy of Kenya*, Government Printer
- Government of United Kingdom, (2013). *Emergency planning and preparedness: exercises and training; London UK*. National security and intelligence
- Guha-Sapir D, Hoyois PH, Below.R. (2016). The Numbers and Trends, *Annual Statistical Review 2015:.* Brussels: CRED.
- HAB (2011) Kenya and International Criminal Court Prosecution. *Horn of Africa Bulletin*. Vol. 23. No.3
- Hojat, M,(editor) (2008), *A survey of Hospital Disaster Management in medical science*. The 19th International Nursing Research Congress Focusing in Evidence –Based Practice Jahrom, Iran.
- International Federation of Red Cross and Red Crescent Societies (2010) *Disaster Preparedness Training Manual IFRC*
- Joe, C. (2010). Money Tops the List. In *Modern Health care. Trade Publication: 40(2)*, 12
- Jwan, J. O. and Ong’ondo, C. O. (2011). *Qualitative research: an introduction to principles and techniques*. Eldoret: Moi University Press.
- Kilonzo E., (2015, October 10). Private Hospital Criticized for Failing to admit crash victim, *Daily Nation* Retrieved from <http://www.nation.co.ke/news>
- Kimathi, J. (2011) *Disaster Preparedness in Public Secondary Schools In Githunguri District, Kiambu County, Kenya* (Unpublished Masters Dissertation) Kenyatta

University

- Kiongo, J.G Wanyoike J. G, Osero J. O. S , Yitambe A. (2015) State of Disaster preparedness among Members of staff of Kenyatta National Hospital Nairobi ,County Kenya, *European International Journal of Science and Technology* Vol.4
- Kothari C.R (2004).*Research Methodology: Methods and Techniques*. New Delhi: New Age International Publishers.
- Kothari, C.R. (2011). *Research Methodology: Methods and Techniques (2nd ed)*. New Age International Publishers: New Delhi, India.
- Legg, T.J. & Adelman .D.S.(2009) *Disaster Nursing: A handbook for Practice*. Massachusetts,USA Jones and Bartlett Publishers
- Lemedeket, B.S (2015) *Factors influencing the effectiveness of Health Management Committee's: A case of Machakos County* (Unpublished Master's Thesis) The University of Nairobi
- Margolin, F.S, Hawkins S. Alexander J.A, Prybil L. (2006) *Hospital Governance: Initial Summary Report of 2005 Survey of CEOs and Board Chairs*. Health Research & Educational Trust; Chicago, IL, U.S.A.: 2006.
- Mehta, S. (2006) "Disaster and mass casualty management in a hospital: How well are we prepared?" *Journal of Postgraduate Medicine* 52(2):89-90.
- Government of Kenya, Ministry of state for special Programmes (2009) Disaster management and National Policy; Government Printers
- Moghaddam, A.J, AdibNazhad S. Mousavi N. S. (2005) "Study of Hospital Emergency Incident Command System and How Execute". *Journal of Military Medicine*.7

(2):167–75

- MOH (2010) *Operation Manual for provincial General, District and Sub-district hospitals*. Nairobi Afya house
- MOH (2015) *Health Sector Disaster Risk Management Strategic Plan 2014-2018*: Nairobi City Afya House Cathedral Road
- MOH (2015) *Nandi County Health at a Glance, Human Resources for Health*: Nairobi City Afya House Cathedral Road
- Mohammad, Y.H., Atighechian G., Shams L. & Haghshenas A. (2011). “Are hospitals ready to response to disasters? Challenges, opportunities and strategies of Hospital Emergency Incident Command System (HEICS)” *Journal of Research in Medical Sciences*. 16(8): 1070–1077.
- Morrison, G. R. Ross, S. M. Kalman, H. K. & Kemo, J. E. (2011). *Designing effective Instructions* (6thed.): Hoboken: John Willey and Sons.
- Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: ACTS press.
- Mutambo, A. (2015, April 4th) 147 killed in cold-blooded raid on Campus, *Daily Nation* Retrieved from www.nation.co.ke
- Nabutola L. W. (2012) *The Challenges and Opportunities for Integrated Disasters and Risk Management with Particular Reference to Policy, Legislation and Regulations in Kenya*, Republic of Kenya.
- Ndavi, P.M., S. Ogola, P.M. Kizito, (2009). *Decentralizing Kenya’s Health Management System: An Evaluation*. Kenya Working Papers No. 1. Calverton, Maryland, USA: Macro International Inc

- Norman I.D, M Aikins M, Binka F.N , and Nyarko KM (2012) Hospital All-Risk Emergency Preparedness in Ghana. *Ghana Medical Journal* 46(1): 34–42
- National progress Report on the implementation of The Hyogo Framework for Action 2013-2015 (2015) Government of Kenya Government
- NDOC (2016) *National Disaster Operation Centre 2016*: Government of Kenya Government (2016
- Nyabuti J.K., (2014) *Safety Policy Implementation Framework for Secondary Schools in Kenya* (Unpublished doctoral dissertation) University Of Eastern Africa Baraton
- O'Brien, G. and P. Read (2005) 'Future UK emergency management: new wine, old skin?' *Disaster Prevention and Management*. 14(3). pp. 353–361.
- Orodho, J.A. (2009). *Elements of Education and Social Science Research Methods* (2nd Ed.) Kenezja Publishers; Maseno Kenya.
- Oso, W.Y & Onen D. (2009) *Writing Research Proposal and Report*. Jomo Kenyatta Foundation. Nairobi Kenya
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd Ed.). Thousand Oaks, California: Sage Publications.
- Peek L. (2006). Transforming the Field of Disaster Research Through the Next Generation. *International Journal of Mass Emergencies and Disasters*, 371-389.
- Prestipino, A.L, Zane R.D (2004). Implementing the Hospital Emergency Incident Command System: an integrated delivery system's experience. *Pre hospital Disaster Medicine*. 19(4):311–7
- Revelle W., McDonald R . (2006) Estimating generalizability to a universe of indicators that all have one attribute in common: A comparison of estimators for omega.

Applied Psychological Measures vol..30: 121–144

- Riyadh, K.L Maha A. A. (2013) National Perspective on in-hospital emergency units in Iraq. *Qatar Medical Journal* (1); 19-27
- Rubin, J.N. (2004) Recurring pitfalls in hospital preparedness and response *Journal of Emergency Medicine*, 42(3):391–394,
- Rutto J, Mwaura J, Chepchirchir A, Odero T. (2012) Nurse’s knowledge, attitude and practice on the initial management of acute poisoning among adult casualties: Study at Kenyatta National Hospital, Kenya *Open Journal of Nursing*, vol. 2, 149-156
- Saunders, M., Lewis, P. & Thornhill, A. (2009) *Research methods for business students*, (5th ed), Harlow, Pearson Education
- Seroney, C. (2015). The role of a Nurse in disaster management at Kapsabet district hospital: a global health concern: *Baraton Inter disciplinary Journal*, ISSN 2079 4711 VOL (5)
- Smith B., Senge, P., Kleiner, A., Roberts, C., Ross, R., and Roth, G. (2004). *The Fifth Discipline Fieldwork; Strategies and tools for building a learning organization*. Doubleday/currency; New York
- Tang R. (2015), *Evaluation of hospital preparedness for public health Emergencies in Sichuan (China)*, Queensland University of Technology.
- The Joint Commission (2010) *The Joint Commission’s Comprehensive Manual 2010 Standards*. The Joint Commission
- Townsend A. M. & Moss M. L., (2005), *Telecommunications infrastructure in disasters: preparing cities for crisis communications*. New York University

- Turner, J. (2001). *The Structure of Sociological Theory* (5th Ed.) Wardsworth Publishing Company; Belmont.
- UN (2010), *Report of the United Nations in Haiti 2010 Situation, Challenges and Outlook*, UN
- UNEP (2015), *A process for improving community awareness and preparedness for technological hazards and environmental emergencies. UNEP 2015 Annual Report*, Nairobi.
- Wachira, B. Smith, W (2013) Major incidents in Kenya: the case for emergency services development and Training. *Prehospital and Disaster Medicine*, 28 (2), 170-173
- Walker, L. (2011) *Board Brief: The Hospital Board's Role in Disaster Readiness*. Oregon US The Walker Company.
- WHO (2012) *Assessment of Health-System Crisis Preparedness: Kyrgyzstan* WHO Geneva, Switzerland.
- WHO, (2014). *Hospital Preparedness for Epidemics*. WHO Geneva, Switzerland.
- WHO, (2015). *Sustainable development goals*. WHO Geneva, Switzerland.
- WHO/PAHO. (2003). *Establishing a Mass Casualty Management System*. Washington, DC: PAHO.

APPENDICES

I: HMCs' QUESTIONNAIRE

This questionnaire is intended to help in an assessment of the level of disaster preparedness of health management committees in public hospitals in Nandi County. All information given will be used for academic research work purpose only and will be treated with confidentiality. Your co-operation is highly appreciated. You may not sign in your name or that of your hospital.

SECTION A: BACKGROUND INFORMATION

1. Please state your gender
 - a) Male
 - b) Female
2. Please indicate your marital status
 - a) Single
 - b) Married
 - c) Divorced/Separated
 - d) Widowed
3. Highest level of education completed
 - a) Secondary
 - b) Certificate
 - c) Diploma
 - d) Undergraduate
 - e) Postgraduate

4. Please indicate your area of academic specialization

Finance []

Health Sciences []

Human resources []

Business Management []

Disaster Management []

Other (specify)

SECTION B: HEALTH MANAGEMENT COMMITTEES AND FUNDING OF DISASTER PREPAREDNESS ACTIVITIES

5. On a scale of 1-4 (where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree) please score your extent of agreement on the following variables on your assessment of the health management committees and funding for disaster preparedness

	Our health management committee...	1	2	3	4
A	Sets aside funds for disaster preparedness				
B	Ensures that disaster management allocations are adequate.				
C	Facilitates partnerships with other organizations that deal with disaster preparedness funding				
D	Facilitates accountability and feedback to the county government and partners on preparedness allocations and expenditure.				
E	Oversees disaster Preparedness budget implementation				
H	Ensures that funding for disaster preparedness is sustainable				

SECTION C: HEALTH MANAGEMENT COMMITTEE AND STAFF PREPAREDNESS

6. On a scale of 1-4 (where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree) please score your extent of agreement on the following variables on the assessment of health management committees' on staff disaster preparedness

	Our Health Management committee.	1	2	3	4
A	Promotes staff training on disaster preparedness				
B	Ensures that there are adequate resources for staff to use during disaster outbreak				
C	Mobilizes the community to work hand in hand with health staff during disaster				
D	Works towards ensuring that staff have positive attitude towards disaster preparedness				

SECTION D: PROGRAMMES IN PLACE FOR DISASTER PREPAREDNESS

7. On a scale of 1-4 (where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree) please score your extent of agreement on the following variables on the assessment of the disaster health management committees on disaster preparedness programs

	As health management committee we	1	2	3	4
A	Offer financial support for disaster emergencies				
B	Initiate community sensitization program on disaster preparedness				

C	Mobilize resources to support the disaster preparedness programs				
D	Support emergency drills and simulation programs				
E	Participate in disaster preparedness training programs				

SECTION E: INFRASTRUCTURE DEVELOPMENT FOR DISASTER READINESS

8. On a scale of 1-4 (where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree) please score your extent of agreement on the following variables on the assessment of health management committee on infrastructure development for disaster preparedness

	Our health management committee....	1	2	3	4
A	Has built new well designed buildings and renovated existing buildings to suit mass emergencies				
B	Has facilitated sourcing of medical, communication equipment and ambulances				
C	Has established partnerships with Community and private hospitals.				
D	Has championed establishment of utilities and services essential for the development of a disaster plan within the hospitals in the county.				

E	Has supported availing of adequate technical expertise to administer or manage the disaster plan activities				
---	---	--	--	--	--

SECTION F: CHALLENGES FACING HEALTH MANAGEMENT COMMITTEES

9. On a scale of 1-4 (where 1=strongly agree, 2= agree, 3= disagree and 4= strongly disagree) please score your extent of agreement on the following variables on the challenges faced by health management committee on disaster preparedness

	As health management committee the challenges we face in regard to disaster preparedness include;	1	2	3	4
A	Lack of adequate funds				
B	Inadequate medical facilities				
C	Inadequate resources to handle disaster situation				
D	Lack of cooperation from the neighboring community during disaster				
E	Lack of knowledge on disaster preparedness				
F	Inappropriate infrastructure e.g. Communication equipment, ambulatory services, poorly designed buildings.				

THANK YOU FOR YOUR COOPERATION

II: INTERVIEW SCHEDULE FOR CHAIRMEN AND BOARD SECRETARIES OF HOSPITAL BOARDS

1. What is your role in disaster preparedness in the county health department?
2. What infrastructure have you put in place for disaster preparedness?
3. Why do you think these are adequate?
4. What percentage of your financial resources is allocated for this exercise?
5. What disaster preparedness programs have you put in place?
6. In your assessment, do you think that staff's serving the facilities are prepared for disasters?
7. Can you identify some challenges that hinder disaster preparedness?
8. How does the health facilities in your jurisdiction partner with the local community?
9. Is there any other information you would like to add regarding your role in disaster preparedness?

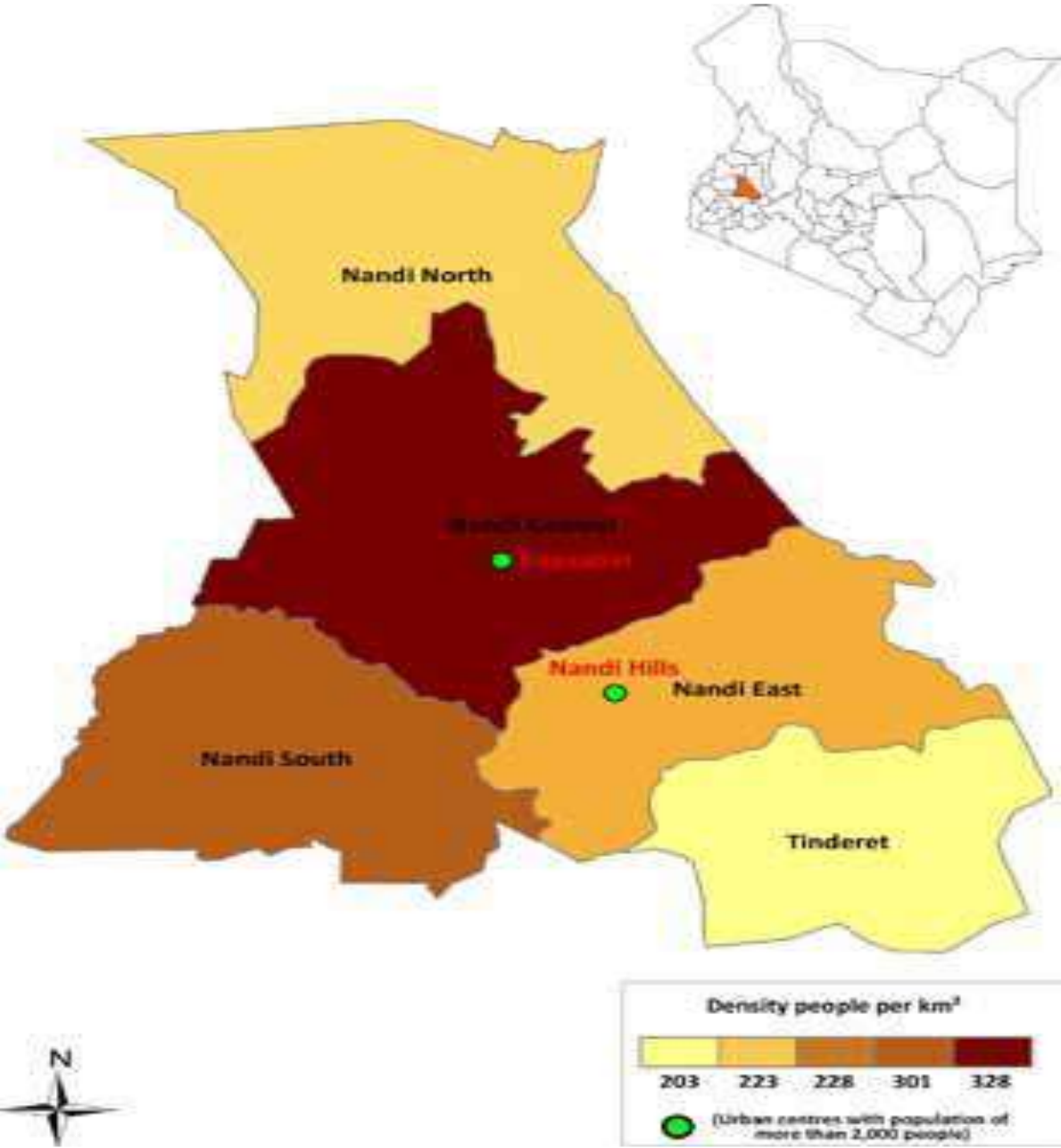
THANK YOU FOR YOUR COOPERATION

III: INTERVIEW SCHEDULE FOR CHMB CHAIR, CEC, CO, & COUNTY DIRECTOR

1. What specific role do you play to ensure your hospitals are prepared for disaster in Nandi County?
2. What policy direction have you taken to ensure disaster preparedness in the county?
3. What resources are allocated towards disaster preparedness?
4. What can you say about the hospital board's knowledge about their disaster preparedness?
5. What is your role in their knowledge on disaster preparedness?
6. What challenges do you face while preparing hospitals for disaster?
7. What role does the County health management board play in disaster preparedness in Nandi County?
8. What do you suggest should be done to enhance their role in disaster preparedness?
9. Is there any other information you would like to add regarding your role in disaster preparedness?

THANK YOU FOR YOUR COOPERATION

IV: MAP OF NANDI COUNTY



Source: Kenya National Bureau of Statistics

V: ETHICS CLEARANCE LETTER



OFFICE OF THE DIRECTOR OF GRADUATE STUDIES AND RESEARCH

UNIVERSITY OF EASTERN AFRICA, BARATON

P. O. Box 2500-30100, Eldoret, Kenya, East Africa

May 9, 2017

Obed Limo
University of Eastern Africa, Baraton
School of Nursing

Dear Obed,

Re: ETHICS CLEARANCE FOR RESEARCH PROPOSAL (REC: UEAB/9/5/2017)

Your research proposal entitled "*Assessment of the Level of Disaster preparedness of Health Management Committees in Public Hospitals in Nandi County*" was discussed by the Research Ethics Committee (REC) of the University and your request for ethics clearance was granted approval.

This approval is for one year effective May 9, 2017 until May 9, 2018. For any extension beyond this time period, you will need to apply to this committee one month prior to expiry date. Note that you will need a clearance from the study site before you start gathering your data.

We wish you success in your research.

Sincerely yours,

A handwritten signature in blue ink that reads "Jackie K. Obey".

Dr. Jackie K. Obey
Chairperson, Research Ethics Committee



VI: RESEARCH PERMIT REQUEST



**OFFICE OF THE DIRECTOR OF GRADUATE
STUDIES AND RESEARCH**
UNIVERSITY OF EASTERN AFRICA, BARATON
P. O. Box 2500, Eldoret, Kenya

11 May 2017

THE COUNTY EXECUTIVE MEMBER FOR HEALTH
Nandi County
Kapsabet

Re: REQUEST FOR PERMISSION TO GATHER RESEARCH DATA

Mr. Obed Limo is a graduate student pursuing the degree **Master of Global Health** at the University of Eastern Africa, Baraton. He is currently writing his thesis entitled *Assessment of the level of disaster preparedness of health management committees in public hospitals in Nandi County, Kenya.*

I request you to please allow him to administer his questionnaires to members of health management committees in public hospitals in your county. He will gather his research data within this month of May 2017.

Any assistance you will grant him will be greatly appreciated. May God richly bless you in all your undertakings.

Sincerely yours,


Prof. Elizabeth M. Role, PhD
Director

Cc: Dean, School of Nursing
Office File



VII: DATA GATHERING AUTHORIZATION

REPUBLIC OF KENYA



COUNTY GOVERNMENT OF NANDI

Telephone
When replying
Please quote
Ref: T/GEN/VOL.I/15/8

Office of Chief Officer
Health and Sanitation
Nandi County
P O Box 802 - 30300
Kapsabet

May 15th, 2017

TO WHOM IT MAY CONCERN.

RE: AUTHORITY TO GATHER RESEARCH DATA

MR. OBED LIMO

The above named, is a Masters Student at the University of Eastern Africa, Bararton. He is writing a thesis on the Assessment of the level of disaster preparedness of Health Management Committees in Public Hospitals in Nandi County.

This office has granted authority to undertake the same.

Please accord him the necessary assistance.

A handwritten signature in black ink, appearing to read 'Philip K. Kogo'.

Philip K. Kogo
For Chief Officer
Health & Sanitation.



VIII. RELIABILITY ANALYSIS

Scale: Health management committees and funding of disaster preparedness activities.

Case Processing Summary

		N	%
Cases	Valid	8	100.0
	Excluded ^a	0	.0
	Total	8	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.703	6

Scale: Health management committee and staff preparedness

Case Processing Summary

		N	%
Cases	Valid	8	100.0
	Excluded ^a	0	.0
	Total	8	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.722	4

Scale: Health Management Committees and disaster preparedness programmes

Case Processing Summary

		N	%
Cases	Valid	8	100.0
	Excluded ^a	0	.0
	Total	8	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.867	5

Scale: Health Management Committee and Infrastructure Development For Disaster Readiness.

Case Processing Summary

		N	%
Cases	Valid	8	100.0
	Excluded ^a	0	.0
	Total	8	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.889	5

Scale: Challenges facing Health Management Committees

Case Processing Summary

		N	%
Cases	Valid	8	100.0
	Excluded ^a	0	.0
	Total	8	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.779	6

IX. CURRICULUM VITAE

OBED KIPKEMBOI LIMO

P.O. BOX 2796-30100, ELDORET, KENYA

Cell phone: +254722610831

Email: limoobed@gmail.com

PERSONAL PROFILE

Sex	:	Male
Year of birth	:	1978
Nationality	:	Kenyan
Marital status	:	Married
Religion	:	Christian

OBJECTIVE

To serve as an effective Health Administrative officer and progressive researcher in Global Health.

EDUCATION

Academic Qualification

2014 to date University of Eastern Africa, Baraton Master of Global Health

Thesis Title: Assessment of the level of disaster preparedness of Health Management Committees in public Hospitals in Nandi County.

1999-2003 MOI UNIVERSITY

Bachelor of Arts in Social Studies

Sociology Major-SECOND CLASS HONOURS UPPER DIVISION

1994-1997 KERICHO HIGH SCHOOL

Kenya Certificate of Secondary Education KCSE- B (PLAIN)

1985-1993 KAPNYEBERAI PRIMARY SCHOOL

Kenya Certificate of Primary Education KCPE -68 POINTS

Training

2015 August-November. Attended North South student exchange programme in Helsinki, Finland

2015 Strategic Human Resource Management and Development Course- Kenya School of Government

2014 Global Health Care Masters Degree Intensive Care Program (September 2014) University of Eastern Africa, Baraton

2011 Senior management training – Kenya Institute of Administration

2011 Performance Contracting – Prime Minister’s Office

2010 Transforming procurement – Public Procurement Oversight Authority (PPOA)

2010 Management Development Programmes – AMREF

2007 Health Administration – Kenya Institute of Administration (KIA)

Computer Proficiency

2006 MS Office [Excel, Word, Publisher, Power point, Statistical Package for Social Sciences (SPSS)]:

Internet applications [Microsoft Outlook Express, Microsoft Internet Explorer]

WORK EXPERIENCE/EMPLOYMENT RECORD

- 2007 to date- Work for Ministry of Health- Kwale County
- 2015 Finn Church Aid: Disaster and Emergency Relief work –Helsinki-Finland
- 2007-to date Consultant and Trainer for Global Trainers and Consultants
- AUG 2010 Presiding Officer in national referendum
- AUG 2009 Deputy Supervisor KNBS National census
- JULY 2007 Global trainers – as a trainer of trainers
- SEPT 2006 – DEC 2006 Part-time lecturer -The Eldoret Polytechnic – Community Development Courses
- JULY 2004-DEC 2006 Tutor -African Institute of Development and technology – Eldoret
Head of department – Designing programs and Coordinating departmental activities

RESEARCH WORK

- August 2006 Presented a Paper – Moi University 2nd Annual International Conference
- Thesis Project 2004-2005
Title: Factors influencing the performance of community development projects case of Soy division Uasin Gishu
- February 2005: Research Assistant I Choose Life (ICL) Moi University – Kenya
- Research Project 2002-2003
Title: Factors associated with students' pregnancy cases of schools in Turbo Division Uasin Gishu District (For Moi University)

PERSONAL STRENGTHS

- Team building and creativity
- Good Communication and interpersonal skills
- Personal initiative and integrity
- Organizational skills and flexibility

PROFESSIONAL AFFILIATIONS

- Kenya Association of Health Administrators (KAHA)
- Kenya Institute of Management(KIM)
- Associates of Moi University SDA(MUSDA)

RESPONSIBILITIES

- Organizing Secretary)- Moi University Sociology Students Association(MUSSA)
- Vice Chairman-Wareng University Students Association (WUSA)
- Chairman-Glorious Singers Moi University
- Kericho High School-Dormitory Captain

INTERESTS AND RESPONSIBILITIES

Outreach
Reading
Soccer
Singing
Athletics

REFEREES

Dr. Joyce Owino, PhD
P.O.BOX 2500
ELDORET
Email address: owinoj@ueab.ac.ke

Prof. Jackie K. Obey
P.O.BOX 2500
ELDORET
Email address: jackieobey@gmail.com