SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

KNOWLEDGE, ATTITUDE AND PERCEPTION OF HEALTH WORKERS TOWARDS THE EBOLA VIRUS DISEASE AT TEMSA GENERAL HOSPITAL, GHANA

BY
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(10042002)

DISSERTATION SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

JULY, 2015
DECLARATION

I, Wilhelmina Komley Appiah hereby declare that except for references to other people’s work that have been duly acknowledged, this dissertation is the result of my own independent work undertaken under supervision. I further declare that this dissertation, either in whole or in part has not been submitted elsewhere for the award of another degree.

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WILHELMINA KOMLEY APPIAH (MRS) .......................................................... Date
(STUDENT)

........................................................................................................................................
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PROF. PHILIP BABA ADONGO .............................................................. Date
(SUPERVISOR)
DEDICATION

I dedicate this work to my beloved husband Michael Kodwo Appiah and my three beautiful children Amanda, Amana and Michelle Appiah. Thank you for your love, sacrifice and support in times of need. To my mother Lucy Mends I say a big thank you for being there for me.
ACKNOWLEDGEMENTS

I wish to extend my most sincere gratitude to the Most High God, for making me who I am. I am a grateful woman. I have every reason to be thankful to God for surrounding me with people to encourage and support me.

I am most grateful to Bishop Dag Heward-Mills for the encouragement given me to further my education. Without whose words I might not have come this far. Also to my supervisor Professor Phillip Baba Adongo, head of Social and Behavioural department and my academic supervisor, thank you so much for the enormous assistance and for the times you took off your busy schedule to supervise my work.
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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>EVD</td>
<td>EBOLA VIRUS DISEASE</td>
</tr>
<tr>
<td>WHO</td>
<td>WORLD HEALTH ORGANISATION</td>
</tr>
<tr>
<td>CDC</td>
<td>CENTRE FOR DISEASE CONTROL AND PREVENTION</td>
</tr>
<tr>
<td>USA</td>
<td>UNITED STATES OF AMERICA</td>
</tr>
<tr>
<td>EHF</td>
<td>EBOLA HAEMORRHAGIC FEVER</td>
</tr>
<tr>
<td>DRC</td>
<td>DEMOCRATIC REPUBLIC OF CONGO</td>
</tr>
<tr>
<td>MOH</td>
<td>MINISTRY OF HEALTH</td>
</tr>
<tr>
<td>GHS</td>
<td>GHANA HEALTH SERVICE</td>
</tr>
<tr>
<td>KAP</td>
<td>KNOWLEDGE, ATTITUDE, PERCEPTION</td>
</tr>
<tr>
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<td>HEALTH CARE WORKERS</td>
</tr>
<tr>
<td>H1N1</td>
<td>INFLUENZA A</td>
</tr>
<tr>
<td>SARS</td>
<td>SEVERE ACUTE RESPIRATORY SYNDROME</td>
</tr>
<tr>
<td>HIV</td>
<td>HUMAN IMMUNODEFICIENCY VIRUS</td>
</tr>
<tr>
<td>AIDS</td>
<td>ACQUIRED IMMUNE DEFICIENCY SYNDROME</td>
</tr>
<tr>
<td>PLWHAS</td>
<td>PEOPLE LIVING WITH HUMAN IMMUNO VIRUS DISEASE AND ACQUIRED IMMUNE DEFICIENCY SYNDROME</td>
</tr>
<tr>
<td>BBC</td>
<td>BRITISH BROADCASTING CORPORATION</td>
</tr>
<tr>
<td>HBM</td>
<td>HEALTH BELIEF MODEL</td>
</tr>
<tr>
<td>NCI</td>
<td>NATIONAL CANCER INSTITUTE</td>
</tr>
<tr>
<td>PPE</td>
<td>PERSONAL PROTECTIVE EQUIPMENT</td>
</tr>
</tbody>
</table>
IDI  IN-DEPTH INTERVIEW

OPD  OUT-PATIENT DEPARTMENT

KII  KEY INFORMANT INTERVIEW
ABSTRACT

This study was set out to identify the knowledge, attitude and perception of health workers about EVD. It also explored the level of preparedness and work habits in dealing with EVD. The study utilised qualitative research method design and it involved purposely selected Medical Doctors, Physician Assistant, Midwives, General Nurses, Orderlies and Mortuary Attendants as study participants. Following the analysis of the qualitative information from participants, the study found that the level of knowledge of health workers about EVD was considerably high. Many health workers interviewed showed understanding of the causes of EVD, the critical signs and symptoms of EVD and the mode of transmission. However few of the health workers (such as Mortuary Attendants) erroneously associated EVD with airborne disease. The study also found mixed attitude of health workers towards EVD. Whilst some health workers showed positive attitude towards EVD, there were few staff who indicated resigning from the hospital should there be a confirmed case of Ebola. There were also mixed perceptions about EVD. Whilst some believed there is a high risk of EVD outbreak in Ghana, there were those who expressed the view that there is a minimal risk of EVD infection considering the level of education and sensitisation that have been offered across the country. It was also found that some level of preparations have been done to manage EVD at the Tema General Hospital in the form of the establishment of Ebola Isolation Centre coupled with the formation and training of Ebola Response Team. However, it was further revealed that the centre has not been adequately resourced with PPE to be able to effectively deal with EVD. In view of these findings, the study recommended further education on EVD and provision of adequate PPEs to the Ebola Isolation Centre.
CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Studies have shown that the Ebola Virus, which causes the Ebola Virus Disease (EVD), was first discovered in 1976 when two unrelated outbreaks occurred in Northern Zaire (now Democratic Republic of Congo) and Southern Sudan (WHO, 1978; Meyers, et al., 2014; CDC, 2014a; Barry, et al., 2014). In September 1976, an outbreak of a disease first thought to be typhoid fever, but was not initially confirmed by laboratory test in the southern part of Sudan, was later diagnosed in Khartoum as one of the viral hemorrhagic fevers. The World Health Organization (WHO) was contacted and requested to help identify the virus. The disease was severe with diarrhea and hemorrhagic symptoms. The fatality rate of the cases was quite high and a large number of the cases were identified among the health care staff of the Marldi Hospital. The first hypothesis put forward was that it could be one of these conditions, which are Yellow fever, Lassa fever, Congo-Crimean hemorrhagic fever and Marburg disease, all of which were known to be present in Africa.

Samples collected by Sudanese epidemiologists were sent to a high-security laboratory in the United Kingdom and the United States of America. While work was ongoing to identify the type of virus in the above mentioned case, similar outbreaks were identified in Northern Zaire, a distance of about 1000km from the earlier cases in Sudan. Specimens from patients in the Zaire cases were sent to the Prince Leopold Institute of Tropical Medicine in Antwerp. Within a matter of less than two weeks, in all the three laboratories, the virus under investigation, which was thought to resemble Marburg virus
under the electron microscope, was confirmed by the Center for Disease Control (CDC) in Atlanta, USA, that the new virus is called Ebola virus. The virus was given the name Ebola, named after a small river near the epicentre of the Democratic Republic of the Congo (Muyembe-Tamfum, et al., 2012; Feldman & Geisbert, 2012).

The recent outbreak of the EVD in six West African countries namely Guinea, Liberia, Sierra-Leone, Nigeria, Mali and Senegal has drawn the attention of not only these worst affected countries but the world as a whole. Although the first discovery of this disease dates back to four decades ago in 1976, analysts have estimated that the recent outbreak, which began in March, 2014 is the largest in the world history (Meyers, et al., 2014; CDC, 2014a). Consequently, the World Health Organization (WHO), on August 8, 2014, declared the current EVD outbreak as a “public health emergency of international concern” (WHO, 2014). This declaration was due to a number of reasons such as the high fatality rate of the disease, which is about 90%, the ease of spread of the disease which is mainly through contact with infected persons, hence its potential for international spread and the constrained public health capacity of the affected countries (Bojoch, et al., 2014).

Despite on-going efforts directed at experimental treatments and vaccine development, current medical management of EVD is largely limited to supportive therapy, thus making early case identification and immediate implementation of appropriate control measures critical (Meyers, et al., 2014). This poses a great risk to all. Persons who are considered high risk include those who have come into contact with blood or other bodily fluids or human remains of a patient known to have or suspected to have EVD, residence in or travelled to an areas where EVD transmission is active, or
direct handling of bats or non-human primates from disease-endemic areas (http://www.cdc.gov/vhf/ebola/hcp/case/definition.html). Furthermore, the risk factors must have been present within the 21 days preceding the onset of symptoms.

According to CDC, (2010), there is no standard cure for Ebola Hemorrhagic Fever (EHF). Those infected with the virus are just given a supportive therapy. This therapy involves maintaining the patient’s fluids and electrolytes, maintain the patient’s oxygen status, blood pressure and any other complicating infections. Scientists are battling with a number of challenges in relation to EVD. These challenges include developing additional diagnostic tools to assist in early diagnosis of EHF and the conduction of ecological investigations of Ebola virus and its possible reservoir.

Ebola is now a global issue since there has been reported case in the United States of America, England, Spain and other developed countries (Meyers, et al., 2014). Considering the fact that the disease is mainly transmitted by coming into contact with an infected person, the most vulnerable group of people are health workers who come into contact with infected patients to treat or manage the disease.

In Ghana, evidence is missing regarding the country’s preparedness to prevent the Ebola virus transmission. There have therefore been calls for increased scientific research on this virus disease. This study is part of the response to this challenge and it seeks to focus on the knowledge, attitude and perception of health workers regarding the EVD.

1.2 Problem Statement

Statistics by WHO and other studies have shown that unprecedented number of health workers in particular, the frontline staff dealing with medical management of EVD
(doctors, nurses, etc.) are among the group of people who have considerably been infected with EVD and several have died of the disease (Bausch, et al., 2014). The available statistics jointly compiled by WHO and CDC for instance estimates the global toll of Ebola as currently over 14,413 Ebola reported cases, resulting in nearly 5,160 deaths in eight countries (CDC, 2014). This figure is believed to be underestimated because of unreported deaths and undiagnosed cases occurring in communities away from health facilities (Cunning–Bruce, 2014; Meyers, et al., 2014). Furthermore statistics by CDC (2014c) estimates that about 425 health workers have been infected with EVD of whom over 236 have died.

Although Ghana has so far not recorded any EVD case since its outbreak in March, 2014, in other West African countries (Guinea, Sierra Leone and Liberia) assessments by Bojoch, et al., (2014) indicates that it is among the high risk countries likely to records a case of EVD. Based on the experience of other countries, it appears that if EVD outbreak is recorded in Ghana, health workers would most likely be worse affected because they would be among the high risk persons, since they are the first category of people to encounter an infected patient. However it seems that generally the knowledge level of health workers regarding the EVD is patchy and their attitude towards the condition also seems lukewarm or at best ambivalent. The existing evidence is however based on conjecture without any empirical data to support it. In this view, this study seeks to reflect on some key questions which have been asked in this research study.
1.3 Research Questions

The following are the key questions that this study attempted to provide answers to

1. What knowledge, attitude and perceptions do health workers have about EVD?

2. How are health workers prepared towards dealing with EVD?

3. What work habits may contribute to EVD infection?

1.4 Objectives

The general objective is to assess the knowledge, attitude and perception of health workers towards the EVD.

Specifically, the study sought:

1. To assess the knowledge, attitude and perceptions of health workers about EVD.

2. To assess health workers preparedness towards EVD.

3. To identify work habits that may contribute to EVD infection.

1.5 Justification for the Study

The EVD is a global public and animal health problem. It is a major zoonotic threat and its pathogen is potential for international spread. Since the latter part of the year 2013, the epidemic of EVD has killed thousands of people globally. The WHO declared the 2014 West African Ebola epidemic as a public health emergency of international concern in view of its potential for further international spread across borders.
The way ahead as far as the EVD is concerned looks alarming and considering that this disease at the moment has no proven and tested cure, it is important that measures are put in place to prevent it from being recorded in Ghana and spread within the country. It is expected that health workers who are the frontline people in the management of the Ebola disease are supposed to be more knowledgeable on the disease than the lay person. These are the people who the public would normally rely on to give health talk on Ebola, allay their fears, reassure the public, as well as manage cases among others. It is also important that health care workers take appropriate measures to protect themselves from the disease, so that we don’t lose them, and that they are available to help manage the disease.

If their knowledge base on the disease is shallow and they have a wrong attitude and perception towards the disease, then residents of Ghana stand to be at great risk if the disease shows up on our shores. The study is necessary, in other to understand how people especially health workers would allay the fears of the public and reassure them, should an unlikely event occur within the borders of Ghana. A study of the knowledge, attitude and perception of the health workers towards the EVD would go a long way to improve our disease management and response level. It will inform us on what to do to bring the epidemics under control. This study therefore aims at gathering data that will assist health authorities (Ministry of Health, Ghana Health Service) and other stakeholders in the design and implementation of programs geared towards the prevention of EVD outbreak in Ghana.
1.6 Scope of the Study

The study focused on knowledge, attitude and perceptions of health workers about EVD, their preparedness towards EVD and work habits that can contribute to EVD infection in the event of an outbreak at the Tema General Hospital in Ghana.

1.7 Organisation of the Study

Chapter One provides an introduction to the research and discusses the objective, research questions and justification for the study. Chapter Two discusses the theoretical and conceptual review of existing literature. Chapter Three describes the methodology employed in the study, while chapter Four deals with analysis of the data and presentation of the findings of the study. Chapter Five summarizes findings, makes concluding remarks, direction for future research and recommendations.

1.8 Operational Definitions

The key terms in this study are knowledge, attitude, perception, preparedness and habits. Rarely do concepts have universal definition hence it is important to define how these terms were applied in this study to avoid conceptual misunderstanding. Regarding knowledge, the study was concerned about the level of understanding of the vectors transmitting/spreading the disease, causes, signs and measures to avoid or prevent the disease. In other words, the knowledge possessed by health workers on Ebola refers to the understanding of health workers regarding this disease. This definition has been used in the conduct of past KAP studies (Kaliyaperumal, 2004).

Regarding the concept of attitude, the literature search yielded several definitions. One of the elaborate definitions of attitude was that given many years ago by Allport
(1935) in which attitude is defined as ‘mental or neutral state of readiness, organized through experience, exerting a directive or dynamic influence on the individual’s response to all objects and situations to which it is related’. Pickens (2014) however gives a very simple definition of attitude as a mindset or a tendency to act in a particular way due to both an individual’s experience and temperament whilst Sikudhani (2012) citing Zimbardo, et al., (1999) refers to attitude as a favourable or unfavourable, positive or negative evaluation of people towards a particular subject. These definitions imply that attitude explains a person’s beliefs, values and behaviour. Hence in the context of this work, attitude assessment will be concerned about health workers’ beliefs and behaviour (positive or negative) towards the EVD.

The last of the three key terms of the study is perception which is closely related to knowledge and attitudes. It is the process by which people interpret and organize sensation to produce a meaningful experience of the world (Pickens, 2014), a process of interpreting information about another person (Nelson & Quick, 1997) or constructing an understanding of the social world from the data we get through our senses (Michener, 2004). The common characteristic that runs through these definitions is that perception concerns the opinions that people form about another person or about a subject. Hence in this study, perception assessment will focus on health workers’ opinions (including myths or misconceptions) regarding the EVD.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents the epidemiology of EVD, which discusses in details the nature of the EVD in terms of mode of transmission, signs and symptoms and prevention strategies and trends of the disease since it was first recognized in 1976. It further looks at a case analysis of the recent Ebola outbreak focusing on the intense-transmission countries of Guinea, Liberia and Sierra Leone. It discusses the conceptual framework for the study which has been designed against the background of the Health Belief Model. The constructs of the Health Belief Model have been explained to guide subsequent discussions.

2.2 The Epidemiology of EVD

Since it was first discovered, there have been several outbreaks in many countries in Africa. The available statistics show that since it was first recognized in 1976, there have been 24 outbreaks between 1976 and 2012, mostly in Central African Countries such as Democratic Republic of Congo, Gabon, South Sudan and Uganda. The highest number of Ebola cases in previous outbreaks was about 425 recorded in Uganda in the year 2000. The available epidemiological data indicates that the recent outbreak recording over 20,000 cases has been the worst in the world’s history. In Table 2.1 is an illustration of the chronology of the previous outbreak of the EVD (1976 – 2012).
Table 2.1: Chronology of Previous EVD Outbreaks

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Ebola Virus Species</th>
<th>Cases</th>
<th>Deaths</th>
<th>Case Fatality</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Democratic Republic of Congo</td>
<td>Bundibugyo</td>
<td>57</td>
<td>29</td>
<td>51 %</td>
</tr>
<tr>
<td>2012</td>
<td>Uganda</td>
<td>Sudan</td>
<td>7</td>
<td>4</td>
<td>57 %</td>
</tr>
<tr>
<td>2012</td>
<td>Uganda</td>
<td>Sudan</td>
<td>24</td>
<td>17</td>
<td>71 %</td>
</tr>
<tr>
<td>2011</td>
<td>Uganda</td>
<td>Sudan</td>
<td>1</td>
<td>1</td>
<td>100 %</td>
</tr>
<tr>
<td>2008</td>
<td>Democratic Republic of Congo</td>
<td>Zaire</td>
<td>32</td>
<td>14</td>
<td>44 %</td>
</tr>
<tr>
<td>2007</td>
<td>Uganda</td>
<td>Bundibugyo</td>
<td>149</td>
<td>37</td>
<td>25 %</td>
</tr>
<tr>
<td>2007</td>
<td>Democratic Republic of Congo</td>
<td>Zaire</td>
<td>264</td>
<td>187</td>
<td>71 %</td>
</tr>
<tr>
<td>2005</td>
<td>Congo</td>
<td>Zaire</td>
<td>12</td>
<td>10</td>
<td>83 %</td>
</tr>
<tr>
<td>2004</td>
<td>Sudan</td>
<td>Sudan</td>
<td>17</td>
<td>7</td>
<td>41 %</td>
</tr>
<tr>
<td>2003 (Nov-Dec)</td>
<td>Congo</td>
<td>Zaire</td>
<td>35</td>
<td>29</td>
<td>83 %</td>
</tr>
<tr>
<td>2003 (Jan-Apr)</td>
<td>Congo</td>
<td>Zaire</td>
<td>143</td>
<td>128</td>
<td>90 %</td>
</tr>
<tr>
<td>2001-2002</td>
<td>Congo</td>
<td>Zaire</td>
<td>59</td>
<td>44</td>
<td>75 %</td>
</tr>
<tr>
<td>2001-2002</td>
<td>Gabon Zaire</td>
<td></td>
<td>65</td>
<td>53</td>
<td>82 %</td>
</tr>
<tr>
<td>2000</td>
<td>Uganda</td>
<td>Sudan</td>
<td>425</td>
<td>224</td>
<td>53 %</td>
</tr>
<tr>
<td>1996</td>
<td>South Africa (ex-Gabon)</td>
<td>Zaire</td>
<td>1</td>
<td>1</td>
<td>100 %</td>
</tr>
<tr>
<td>1996 (Jul-Dec)</td>
<td>Gabon</td>
<td>Zaire</td>
<td>60</td>
<td>45</td>
<td>75 %</td>
</tr>
<tr>
<td>1996 (Jan-Apr)</td>
<td>Gabon</td>
<td>Zaire</td>
<td>31</td>
<td>21</td>
<td>68 %</td>
</tr>
<tr>
<td>1995</td>
<td>Democratic Republic of Congo</td>
<td>Zaire</td>
<td>315</td>
<td>254</td>
<td>81 %</td>
</tr>
<tr>
<td>1994</td>
<td>Cote d'Ivoire</td>
<td>Taï Forest</td>
<td>1</td>
<td>0</td>
<td>0 %</td>
</tr>
<tr>
<td>1994</td>
<td>Gabon</td>
<td>Zaire</td>
<td>52</td>
<td>31</td>
<td>60 %</td>
</tr>
<tr>
<td>1979</td>
<td>Sudan</td>
<td>Sudan</td>
<td>34</td>
<td>22</td>
<td>65 %</td>
</tr>
<tr>
<td>1977</td>
<td>Democratic Republic of Congo</td>
<td>Zaire</td>
<td>1</td>
<td>1</td>
<td>100 %</td>
</tr>
<tr>
<td>1976</td>
<td>Sudan</td>
<td>Sudan</td>
<td>284</td>
<td>151</td>
<td>53 %</td>
</tr>
<tr>
<td>1976</td>
<td>Democratic Republic of Congo</td>
<td>Zaire</td>
<td>318</td>
<td>280</td>
<td>88 %</td>
</tr>
</tbody>
</table>

Source: Compiled by WHO (2014)
There are five distinct species of the Ebola virus including Bundibugyo virus (Bundibugyo Ebola virus), Tai Forest virus (Tai Forest Ebola virus, formerly Cote d’Ivoire Ebola virus), Sudan virus (Sudan Ebola virus), Ebola virus (Zaire Ebola virus) and lastly Reston virus (Reston Ebola virus). The first four viruses are believed to have caused disease in humans whilst the last virus (Reston Ebola virus), is believed to have caused disease in non-human primates (Ohiobrain, 2014). The WHO (2014b) indicates that the recent Ebola outbreak is caused by the Zaire Ebola virus with incubation period (meaning the time interval from infection with the virus to the start of symptoms of the disease) estimated to be between 2 and 21 days. During this incubation period, it is believed that human beings are not infectious until symptoms of the viral disease begin to manifest.

Healthcare workers (HCWs) are at risk of contracting communicable diseases due to their exposure to blood and body fluids. Filoviruses are highly infectious agents and certain precautions must be applied when handling them (WHO, 2014). The EVD outbreaks constitute a major public health issue in Sub-Saharan Africa in particular and the world at large. Since the first documented outbreak of the EVD in 1976 up to 2012, over 16,704 cases have been confirmed with 7,136 deaths. The 2013/2014 outbreak has recorded the highest number of cases in a single outbreak in history, hitting more than 22,159 cases confirmed in Liberia, Sierra Leone, Guinea, Nigeria, United States, Mali, Senegal and Spain which outstrip all cases put together since the discovery of the deadly EVD. Out of this, 8,844 deaths have occurred (www.cdc.gov/vhf/ebola/index.html, 2014).
As of 12 October, 2014, WHO reported 425 healthcare workers infected with EVD of whom 236 died. Table 2.2 gives a detailed distribution of cases and deaths among health workers in the affected countries in West Africa.

Médecins Sans Frontières reported that from March to 26 September, 2014, 14 of their healthcare workers, including one international staff member, had been infected; eight of whom had died. Outside West Africa, 3 health workers have been reported to be infected with the EVD; 2 in the USA and 1 in Spain (European Centre for Disease Prevention and Control, 2014). To date, approximately 9% of Ebola victims have been health-care workers (WHO, 2014).

An epidemiologic data analysis suggests that the human outbreaks of EVD, begun through direct contact with an infected animal or its body fluids (Barry et al., 2014; Meyers, et al., 2014; CDC, 2014a).

2.3 The Transmission, Signs and Symptoms of EVD

According to WHO (2014), fruit bats of the Pteropodidae family are believed to be the natural hosts of the Ebola virus. A number of studies have therefore suggested that human outbreaks of Ebola begun through direct contact with an infected animal or its body fluids (Dowell, et al., 1999; Roels, et al., 1999). Similarly the WHO (2014) believed Ebola was introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines which are either ill, dead or which are in the forest. The WHO (2014b) further adds that Ebola then spreads through human-to-human transmission through direct contact with the secretions, blood, organs or
other bodily fluids of infected people and with surfaces and materials infected with these fluids (WHOER, 2014; CDC, 2014b). The way and manner through which EVD is known to spread are direct physical contact (broken skin or mucous membranes) with body fluids like blood, saliva, stool, vomit, sperm, urine, and sweat of an infected person; direct physical contact with materials and other items used by an infected person; the use of skin piercing instruments that have been used by an infected person; un-sterilized injections; direct physical contact with someone who has died of EVD; touching/handling or eating fruits and other foods that have been partly eaten by infected animals such as bats and monkeys. EVD also spreads quickly in health facilities (clinics, hospitals) where health workers are not wearing appropriate protective equipment such as masks, gowns and gloves.

Transmission of the EVD occurs by direct contact through broken skin or mucous membranes of infected person or by the use of objects such as needles, razors and object that come into contact with the body fluid of affected person that was applied to another person. Body fluids, such as saliva, blood, vomit, diarrhea, and semen, all appears to be highly infectious (CDC, 2014). It is known that transmission of the disease has also occurred from deceased Ebola victims to family members who performed ritualistic washing of the corpse at the burial. The EVD has also been transmitted through direct contact with infected animals, especially handling infected animal carcasses or consuming bush meat of infected animals (Muyembe-Tamfum, et al., 2012). It is believed that simple physical contact with an infected individual does not appear sufficient for contracting the disease (Francesconi, et al., 2003). In general, EVD is not thought to be spread by droplets or airborne transmission, although the role of airborne transmission
during recent outbreaks has not been entirely ruled out (Feldmann, et al., 2003). Contaminated droplets can be released briefly into the air during procedures performed on infected patients (Cuming-Bruce, 2014). Ebola virus disease infection affects multiple cell types such as endothelial cells, hepatocytes, adrenal cortical cells, epithelial cells. This causes endothelial injury, which leads to vascular permeability and disseminated intravascular coagulation. This causes severe immune suppression (Meyers, Frawley, Goss, & Kang, 2014). According to a report by Fasina (2014) the case fatality of EVD in Nigeria ranges from 35-50%, while that for Guinea, Liberia, Sierra Leone stood at 61-89%. The disease can affect both humans and non-human primates such as monkeys, gorillas, and chimpanzees. The natural reservoir host of the virus is still unknown, however, researchers believe that the virus was animal borne and fruit bats are the most likely carriers of the virus (CDC, 2014a). It is believed that a person with Ebola infection is not contagious until symptoms appear. The signs and symptoms of the disease include fever, fatigue, severe headache, general body weakness, muscle pain, diarrhoea, vomiting, chest pain, cough, dry painful throat, rash, abdominal pain, bleeding among others. These symptoms may start to show up from 2 to 21 days after exposure to the Ebola virus. Available records indicate that Ebola outbreak has occurred in the past in countries such as Democratic Republic of the Congo (DRC), Gabon, South Sudan, Ivory Coast, Uganda, and South Africa.

The critical symptom often exhibited by an Ebola infected person is high grade fever (more than 101°F) along with one or more of the following additional symptoms: headache, joint and muscle pains, vomiting (sometimes with blood), diarrhea, anorexia/loss of appetite, lethargy, difficulty in swallowing, breathing difficulties,
stomach pains, blood spots in the eyes, blood in cough or stool, unexplained hemorrhage (bleeding from the nose or other body parts), (WHO, 2014; Team WHOER, 2014; CDC, 2014b).

**Table 2.2: Infected Countries with EVD Cases and Deaths from Oct 2014-Jan 2015**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Reporting Date</th>
<th>Total Cases</th>
<th>Confirmed Cases</th>
<th>Total Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea</td>
<td>27 Jan2015</td>
<td>2920</td>
<td>2575</td>
<td>1913</td>
</tr>
<tr>
<td>Liberia</td>
<td>26 Jan 2015</td>
<td>8643</td>
<td>3138</td>
<td>3700</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>27 Jan2015</td>
<td>10,561</td>
<td>7989</td>
<td>3216</td>
</tr>
<tr>
<td>U.K</td>
<td>29 Dec2014</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nigeria</td>
<td>15 Oct 14</td>
<td>20</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>Spain</td>
<td>27 Oct 14</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Senegal</td>
<td>15 Oct 14</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>United States</td>
<td>24 Oct 14</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Mali</td>
<td>23 Nov 14</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>22,159</td>
<td>13,735</td>
<td>8,844</td>
</tr>
</tbody>
</table>

**Source:** European Centre for Disease Prevention and Control, 2014

**Table 2.3: Infected Health Worker with EVD Cases and Deaths in 2014**

<table>
<thead>
<tr>
<th>Country</th>
<th>Healthcare worker cases (% of reported cases)</th>
<th>Healthcare worker deaths (% of reported deaths)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea</td>
<td>76 (5.2)</td>
<td>40 (4.7)</td>
</tr>
<tr>
<td>Liberia</td>
<td>209 (4.9)</td>
<td>96 (3.9)</td>
</tr>
</tbody>
</table>
There is currently no proven and tested medical cure for Ebola but it has been recommended that Ebola can be prevented through the ways such as avoiding direct contact with body fluids of a person showing the signs and symptoms of Ebola; protection through the use of gloves, goggles and masks (Personal Protective Equipment); avoiding hand shake with persons showing signs of Ebola; avoiding handling/touching dead or live animals such as bats, monkeys, antelopes with bare hands; washing hands regularly with soap under clean running water especially when there are confirmed cases; proper cleaning and disposal of instruments (needles, syringes). In its clinical case management guidelines for Ebola, the WHO (2014) identified the following as procedures to follow in managing the disease in a health facility; isolate the patient; follow standard precautions including appropriate Personal Protective Equipment (PPE); restrict visitors; avoid aerosol generating procedures; implement environmental infection control measures; proper disposal of potentially infected material following biohazard precautions.

The latest situation report compiled by WHO (2015) shows that the recent incidence of the EVD has so far been recorded in nine countries across three continents (Africa, Europe and North America). The worst recorded cases and deaths as a result of Ebola have been in Sierra Leone (10,340 cases and 3145 deaths) followed by Liberia.
(8478 cases and 3605 deaths) Guinea (2871 cases and 1876 deaths). The recorded cases of Ebola in other countries are illustrated in Figure 2.1.

**Figure 2.1: Recorded Cases/Deaths in Nine Countries Affected by Ebola**

*Source: Constructed Using Data Published by WHO (2015)*

The data presented in Figure 2.1 indicates that by January ending, the case incidence of Ebola was over 20,000 claiming the lives of almost half of the people diagnosed with the disease. The intense-transmission countries are Sierra Leone, Liberia and Guinea. In these three intense-transmission countries, the total number of deaths among health workers is almost 500 out of recorded cases of 828. This is illustrated in Figure 2.2.
Figure 2.2: EVD Infections among Health Workers in the Three Countries with Intense Transmission

Source: Constructed Using Data Published by WHO (2015)

The records compiled by WHO since the recent outbreak of Ebola in West Africa in March 2014 indicates that the case incidence of Ebola has been falling. This situation can be attributed to a number of national and international preparedness and response efforts or measures jointly put together by international organisations and governments and non-governmental organisations to contain the spread of this contagious disease. The key activities which have aided efforts to deal with the EVD include Public awareness and community engagement; logistics support (such as PPE) for infection prevention and control, case management of the disease at health facilities, safe burials of people died as a result of Ebola, epidemiological surveillance, contact tracing of people believed to have come into contact with Ebola infected persons, capacity building for health workers especially frontline health personnel and at points of entry, increased laboratory capacity.
to diagnose Ebola. Other studies however show that the response to this epidemic has been inadequate in the intense-transmission areas. MSF (2014) for instance observes that although the worse affected countries have received some support from foreign governments and international organisations, the support has focused primarily on financing or building case management facilities leaving staffing to NGOs and local healthcare staff who do not have the expertise to do so. MSF (2014) further indicates that there are also inadequate facilities in which to diagnose and care for patients and there are also major gaps in other elements of the response. In Liberia for example, it has been observed that most of the operational beds are concentrated in the Monrovia, the national capital city whilst remote areas are benefitting from little international support. Also in Sierra Leone, there are still inadequate additional case management facilities for the increasing number of infections across the country (MSF, 2014).

2.4 Knowledge, Attitude and Perceptions of health workers

The literature search appears to suggest that not many studies have been done to examine the knowledge, attitude and perception of health workers towards EVD. The research conducted focused on the general population regarding the disease under review. A case in point is a study conducted by FOCUS 1000 in conjunction with UNICEF and Catholic Relief Service (CRC) in September 2014 to identify the public knowledge, attitude and practices relating to Ebola in Sierra Leone (UNICEF, CATHOLIC SERVICES AND FOCUS 1000, 2014). This study involved 1413 individuals selected from 706 households through a multi-stage sampling technique. In this study, it was found that although overwhelming majorities (97%) of people have heard of Ebola, a much lower proportion of the survey respondents (39%) had comprehensive knowledge
about EVD. Comprehensive knowledge about Ebola was defined as identifying at least three correct means of preventing Ebola and rejecting common myths about Ebola (such as that spiritual healers or traditional healers can treat Ebola successfully; and that bathing with salt and hot water can prevent Ebola). In view of the low percentage of household respondents with comprehensive knowledge about Ebola, it was observed that majority of the respondents (95%) would like to receive additional information on Ebola especially on the ways to prevent the disease and the treatment options available for persons infected with the disease.

The same study revealed that nearly 70% of people in Sierra Leone have resorted to regular washing of hands with water and soap in order to prevent Ebola although the proportion of people avoiding physical contact with people was found to be low (35%) and 3.7% of people have resorted to wearing of gloves and protective clothing. Only about a quarter of the household respondents indicated that they have been avoiding physical contact with persons suspected of having the EVD. The study also showed a very high number of people (96%) showing discriminatory attitude towards people suspected of having or had survived from Ebola whilst about 8 in 10 people would not welcome a neighbour recovering from Ebola back into the community. It was also found that about one-third of the respondents erroneously believed Ebola can be transmitted through mosquito bite whilst about 2 in 5 respondents wrongly believed Ebola can be cured with washing with salt and hot water whereas 1 in 5 people believed spiritual healers can successfully treat this viral disease.

A similar study in Sierra Leone on Ebola also shows that the knowledge level about the way Ebola spreads was low. In this study it was found that only about 26% and
21% of people in Kailahun and Kenema, Sierra Leone were aware that avoiding contact with the dead remains of an infected person is one of the ways of preventing the spread of Ebola (UNDP, 2014). This awareness is crucial because in African culture and as pertains elsewhere, the remains of a dead person has to be washed often with bare hands before burial. Hence lack of awareness could have contributed to the fast spread of Ebola in West Africa.

Empirical evidence suggests that risk perception affect risk behavior. Major infectious disease outbreaks such as an Influenza Pandemic (IP) as well as EVD are a threat to public health. One concern is whether health care workers will report for work during such outbreaks. It is important for public health management to assess the likelihood that HCWs would report for work and identify the factors that affect their decision. HCWs’ ability and willingness to report for work during a pandemic are essential to pandemic response and have been studied by many researchers (Baron, et al., 2009). As reported by BBC on 19th September, 2014, an eight member team of health workers trying to raise awareness about Ebola were killed by villagers using machetes and clubs in Guinea because community members thought they were transporters of the virus. Also in 2003, volunteers of the Red Cross were chased by locals wielding clubs and knives according the Toronto Star (www.ishingtonpost.com, 2014). The question is how will health workers react in the face of such violence in dealing with such infectious diseases as in the case of EVD?

In addition, health workers are a high risk group in the transmission of the disease by nature of their work. Since health workers attend to various patients in their day to day
activities there was need to put preventive strategies in place to identify cases, protect staff and treat identified cases (Fatiregun, et al., 2011).

During the outbreak of infectious diseases such as EVD the strict compliance with appropriate laboratory practices, infection control precautions, barrier nursing procedures, use of personal protective equipment by health-care workers in handling patients, disinfection of contaminated objects and areas and safe burials are vital for health workers in protecting themselves while dealing with infectious diseases. Sensitive and essential measures identify behaviors that may put people at risk and are crucial in supporting the adoption of practices that can help prevent infection or reduce transmission within the community (WHO, 2014). Therefore, health workers need to feel safe and protected with the assurance that they have the right equipment and standard operating procedures and guidelines to work with.

2.5 Stigmatisation and EVD

Infectious disease is one of the most common conditions associated with stigma. The most recent H1N1 outbreak is characterised and treated as being extremely contagious. In a June 2009 emergency meeting, WHO classified the H1N1 outbreak as “pandemic;” an epidemic of infectious disease that is spreading through human populations across a large region; for instance a continent, or even worldwide (BBC, 2009). Those appearing to have physical symptoms of the virus (albeit due to common allergies) were also stigmatised. From the perspective of those infected or perceived as being at risk of infection, stigma includes shunning, marginalization, and rejection (Lee, et al., 2005). Diverse strategies were undertaken to mitigate the harmful effects of stigma.
as observations reveal “that public stigma is driven by lay beliefs, emotional responses, and lacks a knowledge base. Education makes little difference to making the public more accepting of conditions that are aversive to their lay beliefs” (Mak, et al., 2006). Even healthcare professionals confess to avoiding patients with SARS, reinforcing the idea that “knowledge about the disease had no significant effect on stigma” (Mak, et al., 2006).

AIDS stigma by association with someone who is HIV positive is classified as secondary stigma or “courtesy stigma” which can affect family and friends of people living with HIV/AIDS (PLWHAs), as well as health care workers. HIV/AIDS related stigma and the resulting discriminatory attitudes creates an environment that fuels the epidemic. This is often as a result of inadequate knowledge about the disease in the general population, even among health care professionals (Monjoket, et al., 2009). A study among nurses, physicians and laboratory scientist in Nigeria show that these groups of care givers still lack knowledge about the disease, thus enhancing their negative attitudes and often times refusal to treat and care for PLWHAs (Reis, et al., 2005). AIDS-education/intervention study on health care givers (Ezedinachi, et al., 2002) is designed to increase the knowledge base of the participants. Although the time frame is short after the intervention, 97% of the health workers in the intervention group were willing to touch and care for PLWHAs compared to 14% of the control group 38, indicating that a long term continuous and population based AIDS education program can significantly increase knowledge and thus reduce stigma and discrimination. With recent EVD outbreak, as much as health workers try to use protective suits which include gloves, boots, face mask and goggles which was major requirement for anyone in the Ebola Care Unit, it has been widely reported that amid the safety measures, in which health workers are risking their
own lives, communities where they reside are shunning and rejecting them instead of regarding them as heroes. Also some family members and friends are afraid of them simply because of their line of work. Again, in a Sinyea in Liberia recently community leaders have called a meeting asking health workers to quit their jobs or leave their community (www.crofsblogs.typepad.com, 2014)

There are a number of ethical procedures that healthcare workers have to adhere to, in order to help reduce the risk of infection and transmission. There is the need for health facility leaders to provide clear direction and a set of guidelines for health care worker to adhere to. These include the ability to detect and provide initial appropriate levels of care for all communicable diseases. The facility should be on the alert for any possible case of severe diseases such as EVD. Patients with severe disease of rare nature should be quarantined (Hsin & Macer, 2004). Currently, most health institutions have not developed a standard list of procedures for handling EVD cases, and health care personnel are compelled to use their own judgment about how to handle EVD cases. This poses a great risk and has contributed to the high infection rate among healthcare workers. It was advised that equipment used during procedures on patients with suspected or confirmed Ebola EVD should be completely disposable. A set of standard infection control precautions which already exist at the hospitals needs to be revised and improved to limit the spread of the disease. In a statement by Beth Bell, director of CDC’s National Center for Emerging and Zoonotic Infectious Diseases, “stopping outbreaks where they occur is the most effective and least expensive way to protect people’s health” (Meyers, et al., 2014).
A number of measures were suggested to help minimize infections including, the need for hospitals to build the confidence level of their staff in the medical system so that health care workers and their families will feel protected from transmission during health care. This will go a long way to improve the perception and attitude of health care workers when dealing with EVD cases. Hospital management should ensure that PPE and other resources are available for use by the staff to help with infection prevention and control procedures. Without early identification of potential EVD cases, implementing transmission prevention measures, including patient isolation will yield very little results. The need to put in a team to coordinate the disease response programme. Hospitals should have infection control precautions in place and their staff should be trained for effective use and implementation. Standard contact precautions measures should be strengthened and enforced (Meyers, et al., 2014).

The study also mentioned that dedicated and disposable medical equipment should be reserved for the treatment of Ebola patients and should be handled with care and disposed into sealable containers. Hand hygiene before and after contact should be strictly adhered to. The need for health workers to be concerned about the risk of becoming infected and transmitting infection to their family or friends. However, following the recommended infection prevention guidelines and using the appropriate PPE, will lowers the risk of infection transmission to HCWs. A written plan of these prevention control measures should be made available to health workers. Training programmes should also be organized periodically for health workers as a tool to addressing prevention control measures. All waste especially from EVD cases should be considered hazardous and handled with the utmost care. Personnel handling it should
also be given the necessary training on prevention control measures as stated above including the use of the PPE (Canadian Critical Care Society Canadian Assoc. of Emergency Physicians Assoc. of Medical Microbiology & Infectious Diseases Canada, 2014).

### 2.6 Training and Information

Lack of resources, training and excessive workload were the major factors preventing HCWs at the primary level from practicing Standard Procedures (SPs). This is consistent with other studies. Some studies have shown that incorrect perceptions of HCWs deterred them from practicing hand hygiene (Wong, et al., 2004; Suchitra, et al., 2007). Workload, lack of institutional guidelines, knowledge and/or experience, lack of role models and a sense of reward contributed to a lack of compliance. Annual educational programs highlighting SPs and infection control guidelines have been shown to increase retention of knowledge and improve attitudes, with an overall improvement in compliance and a decrease in the risk of exposure at the primary level of care (Wong, et al., 2004; Tarek, et al., 2009). Nurses in the United States and around the world participated in a global day of Action, demanding better training and equipment to combat the Ebola epidemic. Nurses around the world have complained for months that hospitals expect them to treat infected patients with shoddy equipment and inadequate training (www.reuters.com, 2014).

Health care workers in developing countries continue to lack access to basic and practical information to enable them to deliver safe, effective care. In developing countries, many health care workers have little or no access to basic and practical
information (Pakenham-Walsh, et al., 2009). Indeed, many have come to rely on observation, advice from colleagues and building experience empirically through their own treatment successes and failures. Godlee, et al., (2004) have identified that some important steps have been made towards meeting the information needs of the health professionals, but remarkably little progress has been achieved in meeting the information needs of primary and district health care providers in the developing world (Bailey & Pang, 2004). This disparity is due to several factors, including unequal distribution of internet connectivity, and also a failure of international "information for development" policies and initiatives, which have intended to focus on "innovative" Internet based approaches for higher-level health professionals and researchers, while ignoring, relatively speaking, other approaches that remain essential for the vast majority of primary and district health workers. The "information poverty" of health workers in Africa is exacerbating what is clearly a public health emergency on a massive scale (Pakenham-Walsh & Bukachi, 2009).

A robust communication between health workers and the supervisors is vital, particularly in the light of the Ebola outbreak. Access to reliable information about Ebola diagnosis, treatment and prevention as well as health worker safety will enable health workers and their communities to fight against the diseases (www.intrahealt.org, 2014).

2.7 Theoretical and Conceptual Framework

Theory of Health Behaviour

This study utilized health belief model (HBM) to explain the behavior of Nurses. This theory emerged in the 1950s to explain personal beliefs or perceptions about a
disease, the strategies that are available to decrease its occurrence, possible reasons for non-compliance with accepted health action (Turner, et al., 2004). This theory was originally developed by social psychologists working at the U.S. Public Health Service. The original theory was anchored on four main constructs – perceived seriousness, perceived susceptibility, perceived benefits and perceived barriers. In recent times, there has been addition of other constructs to the original theory. These include cues to action, motivating actors and self-efficacy.

Perceived seriousness refers to an individual’s judgment of the severity of the disease. This perception of seriousness is often based on the available medical knowledge about the disease in question. It may also be based on an individual’s belief about the effects of a disease on his or her life in general (McCormick-Brown, 1999 cited in Turner, et al., 2004). For instance Ebola is known to be a very deadly/fatal disease with no known proven cure hence the perception is that it is a serious disease with devastating consequences. With this perception of seriousness, the HBM argues that people will engage in behaviour that will prevent them from being infected with the EVD. Conversely, people who do not perceive a disease to be serious are not likely to take positive preventive actions according to the HBM.

The Health Belief Model hypothesises that the higher the risk in contracting a disease, the higher the likelihood in engaging in behaviour that has the potential of decreasing the risk. Since Ebola for instance is a contagious disease, people would avoid contacts with infected humans. Perceived susceptibility would also motivate frontline health workers dealing with Ebola to put on PPE, which is known to reduce the risk of contracting EVD. The combination of perceived susceptibility with perceived seriousness
yields perceived threat according to the logic of the Health Belief Model. Again the theory argues that people change their behaviour based on the perception of threat of a fatal disease (Mullens, et al., 2003; Turner, et al., 2004). Other studies have however shown that increased susceptibility or threat of a disease does not always lead to healthy behaviour (Lamanna, 2004).

Perceived benefit indicates that people would adopt healthier behaviour when they believe that behaviour change would decrease their chances of contracting a disease. For example since Ebola is a zoonotic disease, the logic of this theory is that people would avoid contacts with animals or avoid the consumption of animals which are known to be carriers of the Ebola virus (such as bats and monkeys or other wild animals). However, just as perception of increased risk or threat does not always lead to behaviour change, neither does the perception of benefits.

Perceived barrier is the last of the original construct of the HBM. Regarded to be the most important in the determination of behaviour change, ‘perceived barriers’ refers to an individual’s judgment as to what will stop him or her from adopting a new behaviour. The argument is that an individual will adopt a new behaviour if in his or her opinion the benefits associated with change in behaviour will be more than the consequences with the old behaviour.

The four constructs discussed above represent the original tenets of the Health Belief Model. As earlier indicated, there have been additional dimensions such as modifying variables including culture, educational level, past experiences, skill, etc. Other additional constructs of HBM include cues to action (events or things that cause people to change their behaviour such as media reports, advice from others, health
campaign etc. (Graham 2002; Ali, 2002). The last construct which was added in 1988 through the works of Rosenstock, et al. (1988) is the construct of self-efficacy which is the personal belief in one’s own ability to do something. Turner, et al., (2004) observes that if an individual believes a new behaviour (such as regularly washing of hands) is useful in the prevention of Ebola (perceived benefit) but does not think he or she is capable of doing it (perceived barrier), the chances are that it will not be tried. In Sum, the HBM hypothesises that modifying variable, cues to action, and self-efficacy influence perception of seriousness, perception of susceptibility, perception of benefits and barriers. These variables combine to influence people’s behaviour towards a disease.

**Conceptual Framework**

On the basis of the theoretical underpinning of the study (Health Belief Model) and the results of case analysis in the three intense transmission countries (Sierra Leone, Liberia and Guinea), Figure 2.4 presents the conceptual framework to guide further discussions. From the above discussion, it can be inferred that modifying variables (such as demographics, prior experience about a disease etc.), cues to action (such as educational campaign through mass media), and self-efficacy, influence perception of seriousness, perception of susceptibility, perception of benefits and barriers towards disease management. These variables combine to influence people’s behaviour towards a disease (such as wearing of PPE, regular washing of hands, proper disposal of equipment especially at health facility to avoid EVD). The conceptual framework was adapted from the HBM to suite this particular study. Most people are likely to change their behaviour when they perceive that a particular disease is serious and can easily lead to death, such
as EVD (Maddux & Rogers, 1998). The model was adapted because it is the most commonly used theory in health education and promotion (Glanz et al., 2002).

![Health Belief Model Diagram](https://example.com/health-belief-model)

**Figure 2.3: Health Belief Model**

*Source: Stretcher and Rosenstock (1997)*
Figure 2.4: Conceptual framework for the study

Source: Adapted from Stretcher and Rosenstock (1997)
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This chapter presents an overview of the methods that were employed to carry out the study. It details the procedures, techniques and processes that were used to obtain the information required to provide appropriate answers to the research. It is a systematic, theoretical analysis on the methods applied to the field of study.

3.2 Study Design
This study employed a qualitative research design which was considered appropriate in gaining deeper insight into the level of knowledge, attitude and perception of health workers towards EVD. The choice of this study design was informed by Strauss and Corbin (1998 cited in Creswell, 2012 page 45) who proposed that “qualitative methods can be used to obtain the intricate details about phenomena such as attitudes, feelings, thought processes and emotions that are difficult to extract or learn about through more conventional methods”. Considering that the major objects of this study concern the attitude, feelings, emotions and perception of health workers towards EVD, it was therefore appropriate that qualitative research design is utilised to provide appropriate answers to the research questions. This design also afforded the opportunity in finding out details about the preparations that the Tema General Hospital (i.e. the case study health facility) have made to deal with EVD should there be an outbreak in the Tema Metropolitan Area and beyond. With this approach, the researcher asks the questions in a
neutral manner, listens to the participant’s responses and then asks a follow-up question and probes further based on the responses he or she gets.

3.3 Study Location

The study was conducted at the Tema General Hospital which is located in the Tema Metropolitan Area in the Greater Accra region of Ghana. The Greater Accra region was selected because it has a mix of people from different parts of the country, who come to access health services. The hospital was constructed in 1954 by J. Williams Harrow and Sons Limited, who constructed the Tema harbour to serve the health needs of their workers. It was handed over to the Government of Ghana in 1962. This case study hospital is the major hospital in the Tema Metropolis. The metropolis is grouped into twenty-six communities. Tema is part of the districts in the Greater Accra Region of Ghana. Tema is the capital of Tema Metropolis. It is located 25km east of the capital city of Ghana, Accra. Three major religious groups that can be identified in the metropolis include Christianity, the African Traditional Religion and last but not least the Islamic Religion. The Christian religious group comprise mainly of Catholics and Protestants. Some ethnic groups in Tema, are the Akans, Gas, Ewes, Dagombas and others. It has the largest seaport in Ghana and it is a vibrant commercial and industrial city. It has a large harbour, one of the world’s biggest man-made harbours which is one of the main entry sea port to Ghana. It accommodates the only oil refinery in Ghana as well as the home to numerous factories or industries. It is linked to Accra by a high way and a railway. There are several educational facilities at all levels (basic, secondary and tertiary institutions).
The health system in the metropolis is carried out by the Metropolitan Health Management Team which strategies, forms and coordinates implementation of health care and related events in the metropolis. Presently the metropolis is sub-divided into three health sub-metros which directs, plans organises activities that relate to health and there are three (3) public health facility. These are Tema Poly Clinic, Tema Municipal Assembly Maternity Clinic and Tema General Hospital, the latter which was chosen for the case study location for this present study. There are about eighty-four (84) private health facilities including Hospitals, Clinics and Maternity Homes spread through-out the Metropolis and other Herbal clinics.

The study was carried out at the various units of the Tema General Hospital specifically the Out Patient Department (OPD), Emergency, Medical, Maternity, Children’s ward, Mortuary, Fevers Unit and the In-Service Training Unit. The study was carried out in the hospital because it is a district hospital and the biggest health facility in the Tema Metropolis. It is the largest Public Health Institution in the Tema Metropolis. It serves as a referral unit for other health facilities (both private and government) in and around the Tema Metropolis and serves many patients. The hospital is located in Community 9, Tema. The catchment areas include the whole of Tema Metropolis and its satellites towns like Newtown, Kpone, Ashaiman, Dawhenya, Afienya, Kakasunanka, Prampram, Lashibi, Klagon and extend as far as to Nungua, Dawa, Sege, Kasseh and Ada.

The hospital provides emergency services to both victims of industrial and road traffic accidents especially along the Tema motorway. Tema municipality has a population of 402,637 with about 392,004 living in the urban parts of the metropolis (National Population and Housing Census, 2010). The hospital in addition to being situated in a
highly industrial city is also very close to three major high ways namely the Tema Motorway, Tema-Aflao and Tema-Akosombo roads. These are all accident prone areas and therefore lots of road accidents and industrial accidents cases are referred to the hospital. The total number of wards is ten (10) with a bed compliment of 294. The hospital also provides a 24-hour specialist and general services on both Out-Patient and In-Patient basis. The hospital has staff strength of 839. It has an Ebola Centre and in case of an EVD outbreak, would serve as a collection centre for the treatment and management of Ebola related cases. The facility runs a 24 hour service each day and caters for about 200 patients daily which includes both new attendants and follow-up patients.

3.4 Study Population

The study had its population to be the frontline health workers of the Tema General Hospital. This is because they are the frontline workers, who come into contact with blood, body fluids and dead bodies, and are at the risk of acquiring EVD. The target groups were doctors, physician assistant, midwives, general nurses, laboratory technicians, orderliness, and mortuary attendants.

3.5 Study Participants

The work involved a total of twenty health workers purposively selected from the different categories of health care workers in the Tema General Hospital. Specifically speaking, the study used the Maximal Variation Sampling which is a purposeful sampling strategy in which the researcher sample cases or individuals that differ on some
characteristics (Creswell, 2012). This was because considering the different categories of health workers (medical doctors, nurses, laboratory technicians etc), it is appropriate that the Maximal Variation Sampling is employed to elicit responses from the different categories of health workers so as to guarantee a fair representation and unbiased responses. The study participants were therefore staff of Tema General Hospital from the various specified units including the OPD, Emergency, Medical, Maternity, Children’s ward, Laboratory and Mortuary units.

Out of the twenty interviews that were conducted during the field visit to Tema General Hospital, four of the interviewees were regarded as key informants and the remaining sixteen were in-depth interviews. The key informants were staffs who are part of the Ebola Response Team and they include one Medical Doctor, one Senior Nursing Officer, one Laboratory Technician, and one mortuary attendant. While the participants of the in-depth interviews were not key informants. They included three Medical Doctors, six Nurses, three Midwives, one Physician Assistant, two Laboratory Technician, two Orderlies, and three Mortuary Attendants.

The selection of participants was purposely done taking into consideration health workers who have been trained, those on the Ebola Response Team and other health workers who are not part of the Ebola Response Team. The study focused on health workers because they are trained particularly for the management and treatment of diseases as well as those who will come into contact with EVD cases at the health centres.
3.6 Data Collection Techniques/Methods & Tools

Before data was collected, permission was sought from the Metropolitan Health Management Team and the administrators of the Tema General Hospital. Verbal consent was also sought from all the health workers who took part in the study as respondents. The health workers were chosen from the various units to elicit their diverse views on knowledge, attitude, and perception of healthcare givers towards EVD. An interview guide was used to conduct an in-depth interview with a health worker at a time. The interview guide sort to bring out information towards the subject matter underpinning the study. The responses from participants were audio recorded and notes written down in a field book. Two research assistants were engaged, one as a note taker and the other as a recording person.

3.7 Quality Control

The tools for the research were first put to a pretesting process at the Ridge Hospital and errors detected were corrected in order to eliminate possible inconsistencies in the course of data collection. These formed part of the quality assurance measures.

3.7.1 Pre-testing

A pre-testing interview was conducted at Ridge hospital before the actual collection of data. This was done in order to understand the instrument for the study and to familiarize one’s self with it. Three health workers (nurses) who had been trained on EVD, were interviewed using the guide and revisions were made.
3.8 Data Processing and Analysis

The recorded interviews were later transcribed verbatim. A code system (book) was developed based on the various themes. These were then input into the Software (NVIVO 7) for analyze. Thematic content analysis was done. This is a vivid presentation of qualitative data which could take the form of interview transcripts collected from research respondents or other identified texts that reflect experientially on the topic of study.

3.9 Ethical Consideration

Ethical clearance was obtained from the Ethics Committee of University of Ghana and the Ghana Health Service. Again consent was sought from the Metropolitan Health Directorate and the hospital authorities, as well as the head of the various departments where the study participants work. Verbal consent was also sought from the individuals interviewed before the interview was carried out. The aim and purpose of the research were explained to the health workers. Participation was voluntary rather than imposition, as individuals were given the option to or not to take part in the study. Privacy and confidentiality of respondents were assured by informing them that data was for the research purpose only.

Description of subjects involved in the study: The study included Doctors, Physician Assistant, Midwives, General Nurses, Laboratory Technicians, Orderlies and Mortuary Attendants who offer health cares to clients.
Potential Risks/Benefits: The study did not pose any harm to the participants but rather the outcome of the study would help curb the spread of this devastating disease, should it occur in Ghana.

Privacy/Confidentiality: Data collection was done in an enclosed place where there were no disturbances and privacy was assured. The information gathered was treated as confidential and used for the purpose of the study only.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

In line with the objective of the study and the questions that this study seeks to find appropriate answers, the interviews that were conducted with the selected study participants focused on the following key issues;

- Health workers knowledge towards the EVD;
- Health workers attitude towards the EVD;
- Health workers perceptions towards the EVD;
- Health workers preparedness towards dealing with EVD;
- Work habits that may contribute to EVD infection.

The discussion of results of the interviews has therefore been group into categories based on the above-mentioned issues. The discussion begins with identifying the level of awareness among health workers regarding the EVD. This is followed by health workers’ attitude towards EVD and then health workers perceptions’ about the disease. Further efforts were made during the work to determine the extent of preparedness of the Tema General Hospital to manage EVD should there be reported cases or an outbreak. The last but not the least issue discussed in this section are the issues of work habits that may influence, either positively or negatively, on the Ebola viral infection. It is important to emphasize here that the discussions were based on the responses from twenty sampled health workers comprising of three Medical Doctors, one Physician Assistant, three midwives, six General Nurses, two Laboratory Technicians, two Orderlies and lastly
three Mortuary Attendants. Although these interviews were based on the views of the 20 selected health workers, it is the believe of the researcher that their views reflect the different categories of health workers across the different units in the hospital. Hence the ensuing responses could be said to be representative of the groups for which they represent.

4.2 Health Workers’ Level of Knowledge of EVD

Despite talks and campaigns that have gone on through the media and the various institutions including the hospital under study, there is the need to know the knowledge level of people responsible for health issues in Ghana. This is because their knowledge level is an indication of what management practices would be put in place and what treatment regime would be adopted in the care of patients and themselves.

Overall the study found that the level of knowledge among health workers about EVD was high. In particular the study participants who are members of the Ebola Response Team demonstrated a very high level of awareness about the causes, symptoms and medical options to deal with EVD. A Laboratory Technician who is part of the Ebola Response Team at the Tema General Hospital demonstrated his level of knowledge about the disease by first tracing the origin of the diseases since it was first discovered in the Democratic Republic of Congo (formerly Zaire);

*We know that [Ebola] is a viral haemorrhagic fever which has been in existence in Africa for some quite a number of years and was first recorded in Zaire, now Democratic Republic of Congo. It [Ebola] comes in different streams but in all those instances they were hundred but not as compared to what we witness in the three West African countries*
of Liberia, Sierra Leone and Guinea in recent times. (KII interviewee, Laboratory technician)

The above comment illustrates a health professional who has an in-depth knowledge of the disease to the extent of recalling the origin of the disease and some previous outbreak since it was first discovered in the Democratic Republic of Congo in the 1970s. This level of awareness could be as a result of the extensive training given to members of the Ebola Response Team. Besides members of the Ebola Response Team, other study participants also showed that they are aware of the causes, signs and symptoms of EVD. Most of the study participants identified the mode of Ebola transmission to include direct physical contact with body fluids such as blood, sweat, saliva, urine etc. They are also well aware of the period from infection and the period the disease begins to manifest (i.e. the incubation period).

We also know that it [Ebola] is transmitted through body fluids. When one comes into contact with body fluids, he or she gets infected and we also have an incubation period between two to twenty one days but recently [referring to the 2014 Ebola outbreak in the three West African countries of Liberia, Sierra Leone and Guinea] the incubation period has reduced and its now two to five days or so and immediately one is exposed, he starts to show signs and symptoms of the disease. (IDI interviewee, OPD Doctor)

Similar comment made by a study participant to demonstrate his knowledge about EVD is as follows;
Ebola is a viral disease; it’s gotten from infected people through contact. The mode of transmission is by contact, with an infected person or the things of an infected person or when the person sneezes or coughs. (IDI interviewee, Labour ward Midwife)

The above illustration goes to emphasize that many health workers have deep knowledge about the mode of Ebola transmission including the incubation period. That is the period from infection with the Ebola virus to the start of symptoms of the disease. The literature review also indicated an incubation period of Ebola of between two to twenty one days which are consistent with the responses given by the health worker participants.

Besides awareness about Ebola mode of transmission, most of the health workers who participated in the work also demonstrated high level of awareness about the critical symptoms of the disease. The following comments illustrate that;

When it comes to the symptoms [of Ebola], the infected person could get a high temperature of 38 degree Celsius plus other symptoms like rashes, bleeding from the orifice. (IDI interviewee, OPD Nurse)

As the name suggests it is a haemorrhagic fever, so it is an infection caused by virus and usually the cardinal points of symptoms are fever and then bleeding they are the cardinal symptoms. We are talking about it now because the upsurge we had over the past year in West Africa. It depends on the phase you catch the person, so our routine things, going through history and examination, early detection in the disease the patient will present, something like sore throat, a little fever, some malaise that’s very early in the disease later on the patient will start showing symptoms of diarrhea then they start bleeding from
different orifices that’s when the disease is fully grown and I must add that other things can cause this, so it is not just about that but more importantly this is, if someone is showing any of these and the person has come into contact with persons suspected or coming from an endemic place and then if the person has been in or has consumed bush meat or things of the sought, so is not just someone, but someone who has the history of the sought. (IDI interviewee, Emergency ward Doctor).

Regarding the management of EVD case, many of the health workers enumerated the precautions to take in dealing with a patient showing signs and symptoms of the disease. The comments below illustrate that;

*When I see the person; if am having my gloves I’ll put on gloves before I think of holding the person; if I don’t have gloves, I think when I see such a person I’ll refer the person to come to Tema General Hospital and I’ll direct her to where the unit is and she would be attended to.* (IDI interviewee, Maternity ward Midwife)

Similar precautionary measures enumerated by a Medical Doctor are captured as follows;

*Because the patient suffering from Ebola is very contagious, first of all as health personnel you need to protect yourself first if you can help save the person’s life you must as well protect yourself first, you understand and you protecting yourself; there are some strict protocol that as health personnel you need to go through, the PPE (personal protective equipment), you need to make sure you are well equipped, you know you wear your lab coats, your gloves, the gloves is very important because so far as someone you know is a patient, and the person having that virus, you will definitely touch the person*
so if you don’t put on your gloves and you try to be a saint like an angel you might also lose your life, and moreover to you, you know you have helped the patient. You educate the patient on maybe how the patient might treat him/herself you understand, the education is very key to fighting Ebola. (IDI interviewee, Medical Doctor)

Wow, in an environment, how will you deal with it; I think you talk to those around not to have contact with the person, one to prevent spreading and anybody who has gotten into contact with the person you need to convey them to the hospital ASAP. I don’t think that place you can get the protective clothing like the boots, the gloves and stuff like that, I heard somebody say you can use a polythene on your hand and (everybody laughs) but what of if its perforated you can get it. So even if I meet him, I will not risk myself never, (RA: so you will distant yourself) no I won’t distant myself but I will just talk to them to board a vehicle or something to the place. (IDI interviewee, OPD Doctor)

Findings revealed that some categories of health workers had erroneous understanding of EVD. One of the nurses who were interviewed could not demonstrate a comprehensive knowledge of the disease when she indicated;

*I don’t know whether the Ebola itself is an abbreviation or it’s just a name given to the disease.* (IDI interviewee, OPD Nurse).

However this participant had correct knowledge about some aspects of the disease when she further indicated that *but I know it’s a haemorrhagic disease and when it attacks or affects the individual, it stays in the body like or with an incubation period of about 2-21 days with the major signs and symptoms being bleeding heavily, sudden death, and I know it is incurable.* (IDI interviewee, OPD Nurse).
The study further found that some of the mortuary attendants had wrong knowledge about the cause of EVD. One mortuary attendant (participant) erroneously associated EVD as an airborne disease;

*I know it is a sickness. It is an airborne disease, if someone uses a blade or anything one may get it.* (IDI interviewee, Mortuary worker)

These findings indicate that though many health workers had correct knowledge about EVD, there are some who require further education on the disease. This is critical in boosting the effort to deal with the disease if it is to be recorded in the country.

4.3 Attitude of Health Workers towards the EVD

The assessment of the attitude of health workers towards Ebola was difficult because as at the time of the study Ghana has not recorded a single case of the disease. This means none of the health workers interviewed had come into contact with an Ebola patient and a real assessment of practical incidence could not be established in all the interviews conducted. Nonetheless, the study attempted to find out the way and manner that the interviewees would react should there be a real test case. The responses revealed mixed form of attitude towards Ebola.

To begin with, it was found that when efforts were made by the Ghana Health Service to select some health workers for training as frontline workers to manage Ebola case should it occur in Ghana, it was fraught with several challenges. One participant who was part of recruiting health workers as Ebola frontline workers indicated that, there was wide spread of staff apathy. This is what he said;
Most [referring to health workers] did not want to join [as frontline workers] so when you go to the health facilities and you’re trying to bring them on board, people shy away. They don’t want anything to do with Ebola. Only a handful of staff would come for training because they were of the view that when they come for training they would be used as scapegoats. (KII interviewee, Laboratory Technician)

The comments by other study participants also showed that some health workers had negative attitude towards EVD. One of the respondents categorically indicated he will resign from the Tema General Hospital should there be a reported case of EVD at the facility;

It [EVD] is deadly, you mean if some appears in Tema General Hospital, I will quit job. I am honest I will quit job, I have kids, I have small children to take care of, I will quit job, I wouldn’t risk my life for Ebola that’s why I am not part of the team [Ebola Response Team], because I was invited but I told them I wouldn’t do it.  

(IDI Interviewee, OPD Nurse).

Other respondents indicated that they would be very reluctant in attending to a patient showing critical symptoms of the disease;

Suddenly I met someone presenting the signs….hmmm……hum…getting closer to the person will be a problem.  (IDI Interviewee, OPD Nurse)

It will be difficult to go near the person or if I am ready to go near, I have to be protected.  (IDI interviewee, Medical Doctor)
The implication here is that, although there is a high level of knowledge about Ebola, the attitude of many health workers toward the disease in terms of serving as frontline workers is not very positive.

The responses by study participants revealed that there are those with positive attitude towards patients with EVD. Other respondents showed on the contrary that they are not afraid of EVD and all they need to do is to take the necessary precautionary measures that would protect them in attending to the patients who may contract the disease. An interviewee at the emergency centre remarked that:

*Well I don’t have a problem with confirm Ebola, I don’t fear Ebola and I will not run away from Ebola I will relate to you of course, I maintain my basic precautions and that is the basic housekeeping I practice, I mean just that I will have restrictions because under normal circumstance when I touch a colleague I will not use glove but for a confirmed case I have to use a glove and as a colleague I expect the person to understand me better that this is my concern, if you say oh be careful in a way the person does not feel stigmatized unlike a normal person who does not understand health issues will say why are you using gloves to approach me and for someone who work with HIV for years I don’t have a problem I mean so when it comes to an approach for me It’s not an issue for me so I will relate normal with the person apart from basic you know glove is the basic thing that kind of thing, then doing my basic infection prevention.*

*(IDI interviewee, Emergency ward Doctor)*
4.4 Perception of Health Workers towards the Risk of Contracting EVD

Nearly all the interviewees emphasised that there is a high risk of the EVD spreading in the country despite the infrastructure put in place, the education and sensitization that have been offered and the training provided to health workers. The perception of a high risk of EVD infection among health workers was expressed by many of the study participants because they are the first group of people most likely to come into contact with EVD patients because of the nature of their work. They believe an outbreak of the disease could cause a high death rate and many health workers would be badly affected by that.

We are about 100% at risk of Ebola like contracting it, we touch patients, you might not know whom you are touching, patients walk in emergency you touch, by checking BP you touch and even if you don’t touch, if you wear gloves to check the BP when you’ve remove the gloves you touch the cuff you used to do the BP, so in case there is any fluid, you know sweats and everything you can also get it but I don’t think we are safe.

(IDI interviewee, OPD Doctor)

Another interviewee at the laboratory section also reiterated this view saying

We are seriously at risk because there are a lot of things we need to have in place, infection prevention. (KII interviewee, Laboratory Technician)

Some of the interviewees think that the Tema General Hospital is the major hospital and a referral point for the Tema Metropolis and adjoining districts and thus makes the hospital highly at risk of EVD infection in case there is an outbreak. The
perception of risk of EVD infection particularly among health workers was further expressed by another health worker at the emergency unit who said that:

*I will give the risk 100% or even more because, all of us are at risk, you never know the next patient who sitting by you, probably has Ebola because the signs and symptoms will not present as Ebola it may just present as simple malaria or typhoid fever but the person has Ebola so the risk is very high coupled with the fact that we are working with patients with a very limited medical record and laboratory support so the risk is very high. So we can say that consider the next person sitting or standing by you as an Ebola patient so that you take all the necessary precautions that you have to take.*

(KII interviewee, Emergency ward Doctor)

*Health workers are at high risk. We are at high risk, a very higher risk of contracting the disease because one, in Ghana our borders are very porous unlike other countries. We just.... Like this Togo everyone goes to Togo anyhow and come.*

(IDI interviewee, OPD ward Nurse)

To buttress the view of risk, a midwife at the maternal unit remarked

*As for the risk, it is very high and I don’t pray that we get Ebola in Ghana but if it appears that we get one in Ghana, most of us are going to die even the health workers because we don’t have the protective equipment even with Labour (delivery) we don’t have gown; everybody comes to the workplace with their own gown it is not provided.*

(IDI interviewee, Maternity ward Midwife)
Others perceived the outbreak of EVD in some West African countries as “a blessing in disguise”, a necessary evil for Ghana so to speak. In other words, they believe the outbreak of EVD elsewhere has created a culture of awareness about the importance of good personal hygiene such as regular washing of hands with soap at critical times, avoiding unnecessary physical contacts, seeking earlier treatment of certain signs and symptoms (such as fever, cough etc.). Others also believe that the EVD outbreak in other countries has pushed health authorities to increase the supply of some equipment to the health facilities. Thus the perceived susceptibility and seriousness of this disease have ignited positive behaviour change in the country. One respondent said:

*I see Ebola as a blessing in disguise because it has brought sanity into our health care system. It was there but we were not actually doing what we ought, it was all over the place but since at least the outbreak happened in the countries, people became sensitive to it. With the awareness creation my colleagues here we don’t take such risk when we are handling patients we always make sure that we are properly protected.* (KII Interviewee, Laboratory Technician).

Others think though the Tema General Hospital is the highest in terms of risk, nowhere is safe in Ghana whether the hospitals, health centres, CHPs compounds or clinics. There can be an outbreak from any point and there is no trust in the current system to curtail EVD if there is an outbreak. Some failed to acknowledge that there are adequate preparations in the general hospital that will be a hope for the nation and the Tema General Hospital is one of such. Some of the interviewees also think that among the general population of the Metropolis, health workers are highest in terms of risk and this was shown in the response. Others also think we are taking things for granted in
Ghana since we neglect seemingly small things like wearing of gloves that can be a major source of spreading EVD if there is an outbreak.

*To be frank with you in Ghana, we take things for granted and we see that other countries whenever there is any outbreak just as Ebola they will make sure that, the measures are there, things the staff will use are there or something, it came to a time even in my ward we were not having disposable glove or something it was just small and even other wards will come and borrow some from our ward so let’s imagine there is an outbreak of Ebola or something like that at that moment it means the health worker is going to contract that disease so as for me Ghana if there is an outbreak, it’s going to be a serious something.* (IDI Interviewee, Children’s ward Nurse).

There are no sustainable protective measures and with time the laid down measures tend to fade of and this means that any infected person could easily spread the virus.

*I think when the whole thing started, OPD when you get there they have their protective clothing and the rest but now, I think they are not wearing it again but when the news was all over the place when you get to the OPD, they were having it but those of us on the ward, we were not protected even we have been saying that what if a patient is been brought from OPD and that time the patient wasn’t showing any sign of Ebola and the patient was admitted on the ward before the sign started showing it means those of us on the ward are going to be infected. So we were even complaining that, they should also give us protective clothing as well but they were only using it at the OPD.*

(IDI interviewee, OPD Doctor)
However, it is perceived that EVD though dangerous and deadly is a blessing in disguise when it occurred since it has help many countries like Ghana to put remedial measures in preparation towards an unexpected outbreak. In view of this, the laboratory Technician also commented that;

*Ebola is a blessing in disguise because it brought sanity into our infection and prevention. It was there but we were not actually doing so, it was all over the place but since at least the outbreak happened in the countries, people became sensitive to it. The awareness was there now my colleagues here we don’t take such risk when we are handling patients we always make sure that we are properly protected so I see this in terms of risk we are all at risk as of now because there are a lot of logistics that need to be in place right from the OPD, right from the gate, we need more to be done to be able to track the patient, track any viral hemorrhagic condition because I feel that whiles Ebola has been able to come there are other ones you don’t know the system that are in place now, anything can happen so if you’re properly prepared the next time around it could not be Ebola but it could be something also lesser or something that could cost you.*  

(KII Interviewee, Laboratory Technician)

Also, it is perceived that since most of the health conditions in the Tema Metropolis pass through the Tema General Hospital, there is a greater sense of insecurity and some of the health workers do not feel safe working in the hospital.

*I will quit the job! I am honest I will quit the job, I have kids, I have small children to take care of (RA: your husband is there ooh) no, no, no my husband can’t do anything, I*
will quit the job, I wouldn’t risk my life for Ebola that’s why I am not part of the team, because I was invited but I told them I wouldn’t do it.

(IDI interviewee, OPD ward Nurse)

In contrast some also think that per what they have seen on videos in terms of the training, the hospital is prepared to tackle the virus if there is an outbreak. This was demonstrated when there was a suspected case some time back. The patient was quarantined, sample of blood was meticulously taken to the research facility at Noguchi to be tested and the patient discharged after confirmation that he did not have the disease. One of the workers after observing some few clips pertaining to training of members of the Ebola unit remarked that:

They had gowns from hair to toe and goggles’ and where they would also put that barriers and things, so I think they’ve done something about it in case we get it they can try. (IDI Interviewee, Children’s ward Nurse).

4.5 Influence of Training and Education

Participants gave their various reasons to what they know about the disease and how it could be handled because of what they have heard, seen, read, or the training session they have attended. The extent of their know-how is based on how extensive they have been exposed to the resources for managing Ebola. Training on the other hand has been one of the useful tools in knowing more of the disease, though the practical sections of wearing the PPE has not been adequate. This also comprises the level of exposure and materials used for the program. For some, it lasted from about one hour to several days which was
adequate enough for them to handle an Ebola case while it wasn’t so for others, moreover, PPEs were not adequate. The training played an essential role for participants to be able to know more about the disease since a lot were discussed and practiced. To buttress this point, some study participants said;

Oh yes there had been. Me per say l have gone through a lot of training couple of months now I could even say one year training on Ebola preparation. I am even part of the rapid response team for the country so as for training I must say I have been exposed a lot quite a lot. (IDI interviewee, Maternity ward Midwife)

We only had a training at the in-service but not for all of us, they chose some selected people and they went for the training but I was not part; but what am saying is what I read on leaflets, I’ve seen on posters they have pasted all around. And I said EBOLA is an infectious disease which is caused by animals. I said monkeys, bats when eating and it’s not well cooked. Pause I think that’s all.

(IDI interviewee, Children’s ward Nurse)

Education is key and if we say we have to educate, we need to educate at the minimum lowest people I mean we should start from the basic school because we can’t say we will educate those at the upper level and ignore those at the lower level and you know the viral disease is no respecter of person, is no respecter of person. So we should start from the basic school and we go to the market where more populated people are ...more populated people do meet you understand especially the market square, you go to the playground and staff and we try to educate them on how we can salvage it on our own small way maybe not something very big that you need to give, we need to give this drug
the way we can, I mean if we try to promote some personal hygiene, it will be very good so we should start from the lower level upwards I believe that. (IDI interviewee, Physician Assistant)

4.6 Preparedness of Health Workers towards EVD

The study found that some amount of efforts have been made by the Tema General Hospital with assistance from the Ghana Health Service and other institutions to establish Ebola Isolation Centre at the hospital. Responses by key informants and field observation confirmed the establishment of Ebola Isolation Centre at the Tema General Hospital as part of the preparation to effectively manage EVD should a person be diagnosed or show the critical signs and symptoms of this disease. A comment by a key informant interviewee illustrated this;

The national Ebola centre is fortunately within our premise, there is a counselling unit that is available to the relative and the staff and even other patients coming in to the hospital who may be scared of having contracted the Ebola out of fear and anxiety so the psychological aspect is very good and then the approach of the staff. The staffs having been sensitised to know that if a patient should come in with Ebola they are going to handle the patient so they have been sensitised to prepare themselves for such eventuality so I think the support is there. (KII interviewee Emergency Ward Doctor)

Whilst efforts have been made to establish an Ebola Isolation Centre at the Team General Hospital coupled with an accompanying Ebola Response Team, the study found that other equipment and resources are required to make the preparation towards managing Ebola comprehensive and adequate. Health workers preparedness highly
depends on the availability of resources to work with at the health facility. The actions that are taken by health workers to early detect cases with Ebola, avoiding the spread of the EVD, and controls measures put in place to address the issue at stake is paramount. However, the discourse of the study participants revealed that the Personal Protective Equipment (PPE) and other required resources and materials to aid effective prevention and treatment of EVD are not adequate. Some of the responses that illustrate this concern include;

_I think we were not having enough PPEs (protective dresses) so most of us were not able to wear and then see whether we were ok with the training of how to wear the dress, the gowns, the boots and so forth. The hand washing, veronica bucket too were not enough and some of us did the hand washing others didn’t get the chance to do it._

(IDI interviewee, Female medical ward Nurse)

Though some respondents were appreciative of the establishment of the Ebola centre at Tema General Hospital many others expressed concerns about the inadequate preparedness of the hospital in dealing with suspected EVD case;

_Among health workers, I think when the person comes to the OPD, we have to get the things they use to check like, not coming into contact with the person then we can ask them of their travelling history so that we find out where the person has been because there was a case here, the person was from Sierra Leone then we didn’t know we had all touched the patient, and later they were suspecting it was Ebola they had to confirm and later check._ (IDI interviewee, Female medical ward Nurse)
Everybody was running away even the doctors didn’t want to near the patient but later it was not Ebola. (IDI interviewee, Mortuary worker)

As a result of lack of adequate preparation towards dealing with EVD, some staff were not confident enough to attend to people who would come to the hospital with critical signs and symptoms of EVD. For instance some staff said;

Is deadly, you mean if some appear in Tema General Hospital, (RA: yes ), I will quit job (everybody laughs) I am honest I will quit job, I have kids, I have small children to take care of (RA: your husband is there ooh) no, no, no my husband can’t do anything, I will quit job, I wouldn’t risk my life for Ebola that’s what I am not part of the team, because I was invited but I told them I wouldn’t do it.

(IDI interviewee, OPD Nurse)

So if Ebola comes to Ghana per say hmm some of us will have to resign and laugh

(IDI, interviewee, Maternity ward Midwife)

Well I if you should give me grades or rating, I could give rating I’ll be comfortable to give you rating that maybe on confidence level I could give the hospital 3/5 because there is a lot when it comes to boosting the confidence of.

(KII interviewee, Laboratory Technician)

4.7 Health Workers Habits that may contribute to EVD Infection

The study also assessed how the habits of health workers may contribute to EVD infection in the study area or minimise the risk of EVD. Overall, it was encouraging to
find that a considerable number of health workers illustrate good work habits that are critical to minimising EVD. Even in situation where a worker doesn’t know what to do, it was refreshing to find that many health workers were prepared to consult other personnel as far as EVD is concerned. A laboratory technician commented that:

*When you don’t know something you consult, you don’t just say anything, you consult if you know you don’t have any knowledge on it, don’t go near it, seek for help ask for information I think that one I believe negligence in all aspect being it cracking of the patient, being it handling of the patient, being it treatment, even sample taking, if you don’t follow proper protocol, you’ll get yourself infected when you are administering treatment if you don’t follow proper protocol so sometimes you might know but negligence on your part to you didn’t follow and you end up affecting yourself and other staff too.*

*(KII interviewee, Laboratory Technician)*

The laboratory technician also added that in suspected cases, there must be certain ethical procedures that would help prevent health workers and other patients from being infected with the EVD. The laboratory technicians further explained that when there is a suspected EVD case:

*We just take the sample, keep the patient at the holding area even that last case we had to keep him at the waiting area here just in front of the laboratory here. We screened the patient and took a sample to Noguchi so that period all, it was the later part that doctor came in and said we should transfer the patient to the Ebola centre so that he stays there*
while we await the result, we realize that that place was not conducive.” (KII interviewee, Laboratory Technician)

A woman at the maternity ward also reiterated that when there is a suspected case, health workers should avoid.

Coming too close to the patient when she comes to the OPD till she is taken to the holding bay, you have to protect yourself properly by wearing your PPEs and clothing your calf, goggles, mask boots and all other things that comes into play, protecting oneself and disposing off properly any secretion from the clients, patients yes. (KII Interviewee Maternity ward Midwife)

Also, there is a need to respect the safety of all the workers in the hospital, duly inform them about EVD and thoroughly show them the various facilities and boundaries of movement so that they can stay within their limits so that only the right workers would attend to suspected cases.

The information should be disseminated even to the last staff it could be even be the security man if he is able to pick the basics at the gate because like now while we have the screening area there, he knows there are certain things there, he has some ample information that could help track and minimize the spread.

(KII interviewee, Laboratory Technician)

The interviewees acknowledged that the pressure in the hospital can be great in most of the days and this coupled with forgetfulness on certain days one can forget to use gloves, wash their hands or use hand sanitizers and properly dispose waste. Sometimes
the health workers forget and touch other patients and these are some of the actions that can easily cause infection of the EVD. A midwife at the maternity ward positively responded that health workers should

*Make sure whatever you use for one patient should not be used for other patients. When you use needle on one patient you discard that needle, when it is gloves, after taken care of that patient you remove that glove and take care of another person.*

*(KII Interviewee Maternity ward Midwife).*

Another health worker at the Children’s Ward added that another way to prevent the infection is to make sure there is a

*Proper disposal of waste.* *(IDI Interviewee, Children’s ward Nurse)*

And making sure that when removing gloves or touching fluids, they will not be affected. Another health worker at the Maternity Ward explained that there are some practices that when adhered to in the hospital will minimize EVD infection in the hospital.

*Right after you remove your glove you deep one into in decontaminants before you remove your gloves and wash your hands before you come and sit down to write your reports. So hand washing facilities we have a lot.*

*(IDI Interviewee Maternity Ward Midwife).*

Other relevant habits that were realized in the interview which could lead to infection if appropriate measures are not taken included cleaning the floor upon spill of blood, cleaning of maternity beds that are meant for patients with infectious diseases such
as EVD. Since fluids may contaminate the floor or bed, a respondent at the Maternity Ward emphasised that:

*We put chlorine and we call them to come and clean the blood so that we don’t step it and contaminate ourselves and when we put a patient on a bed after delivery too, we put the bleach on it and they clean it before another patient uses it.*

*(IDI Interviewee, Maternity ward Midwife)*
CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter presents a discussion of the findings of the knowledge, attitude and perception of health workers towards the EVD. The discussion gives the actual exposé of the main themes of the study and those salient issues that contributes to the themes.

5.2 Knowledge of Health Workers on Ebola Virus Transmission

According to the WHO (2014), the largest and most complex outbreak of the EVD has been recorded in West Africa where many lives have been lost. Understanding EVD will help to minimise its impact. According to the Liberian Ministry of Health (2015), December 2014, the knowledge of the deadly EVD was widespread globally after the virus had claimed thousands of lives in some countries in West Africa. Generally, all the health workers had a fair understanding about the EVD. The history of the EVD was well explained by the Ebola trained health workers and the other health workers also demonstrated appreciable understanding of the causes, signs, symptoms and mode of transmission of the virus. Knowledge about Ebola varied across varied categories of health workers.

The medical field is dynamic and therefore knowledge acquisition is paramount to a health worker if he or she will be able to function effectively and efficiently in the area of specialisation. Almost every time, health workers are confronted with various forms of diseases presented by clients. EVD is no exception and it poses a high threat to all people.
in its way. From the study, most of the health workers knew something about the EVD especially what it is, the signs and symptoms, and its mode of transmission. This finding is in agreement with the study done in Lagos, Nigeria by Falade, et al., (2014) which revealed that health workers are among the category of people with extensive knowledge about the Ebola disease because it falls within their area of work and expertise. In line with the HBM, the perceived susceptibility of EVD to health workers was high, as well as the perceived severity, since EVD is deadly. Many health workers have died from EVD infection in the course of discharging their duties (WHO, 2014; MSF, 2014). This threat could be the reason for the high knowledge level of the disease among health workers.

The study revealed that most staff acquired their knowledge through in-service training. Those who were not covered by the in-service training had their knowledge of EVD through other informal means. This was indicated by the comments of some of the respondents. In-service training is an important tool which health workers normally adopt to upgrade themselves (Wong, et al., 2004; Tarek, et al., 2009). Also, health workers in every health centre must be updated on new and emerging diseases occurring locally or globally. From the study, it was observed that the training offered to staff were of varied degrees from an hour talk, sensitization and/or practical workshops, to prolong intensive training sessions. These trainings were offered to some staff by institutional management and the government. This is in line with the study done in Lagos Nigeria by Oladimeji, et al., (2014), where they concluded that training is a predictor of good practices. In their study they found out that, majority of healthcare workers had good theory of what the Ebola disease was but in good practice only a few had it. The situation
was not uncommon to our study where some health practitioners complain of having been given good theory but the practical was not intensive.

Information is one of the building blocks of today’s world; therefore modern society cannot do without information. Some health workers at the Tema General Hospital were not fortunate to be part of the in-service training session organized by the hospital so they acquired their knowledge about the disease through reading of books, leaflets, information from various social media outlets on the internet, television etc. These enabled them to have a fair knowledge about the disease, signs and symptoms, mode of transmission and some method in dealing with the disease. This is not contrary to what Vailaya-Raghavendra, et al., (2014) concluded in their discussion that, knowledge about EVD outbreak was largely known through electronic media, followed by newspapers and television. This means of information has helped health workers to update their medical knowledge. The history of EVD was well explained by the trained health workers and the supposedly untrained workers, who however, have been educated on the causes, signs, symptoms and ways of transmission of the EVD through other means.

5.3 Reasons for Risk Perception

According to the WHO (2014), the EVD is unpredictable since it is transmitted through fluid and contact with an infected person. According to the Conceptual Framework (Figure 2.4), perceived seriousness of the deadly EVD acquired through the media and other in-service training influences respondents’ perceived susceptibility as they learnt how dangerous and fatal the virus can be. This implies that health workers in
the Tema General Hospital who are expected to handle suspected patients during an outbreak had developed high perception of risk.

There are no constant and continuous supplies of PPEs for all health workers and provision of salient equipment are limited. When these items are exhausted, there are no replacements. Majority of the respondents said, when EVD was at its peak in three West African countries, a lot of measures were put in place, which included the provision of PPEs, strict use of gloves, gowns and sanitizers. With the recent drop in reported cases, these supplies have reduced drastically. Previously there were strict orders for clients to wash their hands upon entering the hospital but recently, many people walk in and out of the hospital without being told to wash their hands or use hand sanitizers.

Furthermore, the health workers at the OPD expressed worry of the fact that their unit was the first contact with patients who visit the hospital and that they stand the highest risk of contracting the EVD if a patient who is infected visits. Tema General Hospital is the main government hospital in the metropolis and the referral point for all the patients from different health centres in the metropolis. Some of the interviewees were also of the view that Ghana’s boarders are porous and the incessant and unregulated border movements, could mean that people with the virus could easily enter without the notice of border authorities. This increases the risk of an outbreak in the country. This indicate that people still feel very vulnerable despite the strategies put in place and the severity of the virus has influenced their perception such that, they are really not sure of what will happen, should there be an outbreak in Ghana. The perceived threat of the disease could be the reason for health authorities at the hospital to step up measure to protect the health workers initially. This also led to the strict adherence to the use of
PPEs. Without that, perhaps the health workers would not have discharge their duties.

With the cues to action such as, drop in the reported cases of EVD through media reports and others, the measures were relaxed, with no constant and continuous supply of PPEs. Even though the workers felt vulnerable and needed the protection measure due to its perceived benefits to them, health authorities at the hospital, were perhaps concerned about perceived barrier such as cost EVD,

On the other hand, a few of the health workers believed that the risk of an EVD outbreak is low in Ghana. The reasons for the low risk perception was the construction of the EVD treatment centre, the provision of some PPEs and the training given to the Ebola response team. Again, they felt that enough public education on EVD has been done and countries which had reported cases of EVD, are now recording less cases of the deadly virus. According to a report by Becker and Rosenstock (1984), people who perceive that they are not susceptible to a disease, are not likely to take positive action.

5.4 Adequacy of Training and Education of Health Workers

Minority of the interviewees made up of four key informants including one doctor, one senior nurse, one laboratory attendant and one mortuary attendant proved strongly that they have had several and series of training that have equipped them to tackle the EVD, should there be an outbreak. They expressed that they were placed within the centre and thus the need to be adequately trained to handle cases that may emerge in the future. Some of the training organized focused on relevant themes such as treating EVD patients, giving medication and psychosocial support for the Doctors and
Nurses, taking blood samples for the laboratory attendants, proper burial processes for the mortuary attendants.

Generally, the health workers especially the key informants have had training on using the PPE and other protective gadgets. The orderlies were adequately trained on the effective use of disinfectants to clean spilled fluid including blood in a proper way to avoid contamination.

Some of the health workers expressed satisfaction with the training while some also remarked that the training was not adequate because it was not as compared to what was done in some advanced or developed countries.

5.4.1 Purpose of Training

The method of training was through workshops where the health workers went through simulation exercises. This is so important in countries like Ghana that has not recorded any case but yet has a high risk of EVD outbreaks. Training and development of the health workers on the appropriate procedures to tackling EVD was meant to improve the quality of the workforce in the Tema General Hospital to effectively respond to any EVD case should there be one. With the right training, the key informants in the centre acknowledged that the training has given them the necessary skill to handle future outbreak of EVD. Without the training, the health workers at the Tema General Hospital would have felt inadequate. All the interviewees agreed that the training they received has equipped them with current technologies and apparatus needed to tackle EVD.

Education is for creating awareness where health workers are duly informed about the outbreak, its causes, how it spreads and appropriately directs all cases or suspected
cases to the appropriate place where experts who are well trained can effectively quarantine, handle and give possible medication and treatment. The education campaigns gave all interviewees the opportunity to learn the basic facts about EVD and be ready in case of an outbreak. The training led to self-efficacy, providing confidence to the Ebola response team members to manage Ebola patients without being afraid and reducing their risk perception. Educating health workers is essential since they are in constant contact with people from different backgrounds and countries. Health education leads to improve knowledge, attitude and builds individual capacity that leads to an improvement in the life of people (WHO, 2012).

The responses of the interviewees showed that the training and education influenced immensely their knowledge. This informed them about the history, causes, signs symptoms and transmission of the EVD.

Despite this positive influence of the training, some health workers still entertained fear and uncertainty, claiming that even though EVD has not been reported in Ghana, the risk of EVD still exist.

5.5 Preparedness towards Management and Prevention of EVD

Institutional preparation towards the EVD is very important in combating the disease in the country. Preparation consists of both staff know-how and availability of resources. Preparation towards Ebola in most West African countries has been minimal due to weak medical system and Ghana is no exception (MSF, 2014).

Ideally, every hospital should have an EVD treatment centre and a quarantine facility. However, this is costly and only few countries can afford to establish EVD
treatment and quarantine centres. These EVD facilities are separated from the rest of the units, wards and patients in the hospital. Therefore, the centre must have specialist trained health workers such as doctors, nurses, laboratory technicians. Also, the centre must have specially trained support staff, such as orderlies and mortuary men to clean the facility and bury the dead respectively.

The outbreak of EVD in other countries within the West African sub-region may require that health centres in Ghana prepare adequately to handle future outbreaks. There is influx of people from different parts of the Metropolis and beyond to seek health care in the Tema General Hospital. Although EVD rate of infection has gone down in the worst affected countries of Liberia, Sierra Leone and Guinea, the availability of adequate facilities and the right system should be put in place to handle and curtail the spread of EVD, should there be an outbreak.

A centre has been created specifically to tackle EVD and to provide standard and procedural treatment for EVD patients. A functional and effective EVD centre must have all the protective clothing, gloves, nose mask, and drugs. There must be the frequent supply of disinfectants for cleaning and sanitizers for clients and workers to use. However, some of the interviewees reported that not all departments or units in the hospital were provided with all these items. This shows that though there might be a well organised and equipped EVD centre, other units in the hospital are without adequate resources and the required preparation to tackle EVD, which poses a risk.

Currently in Ghana, there are only two Ebola centres, one in the northern belt and one in the southern belt which is in the Tema General Hospital. From the studies, it was
noted that in any major outbreak of Ebola, the Ebola treatment centre will not even be able to contain the catchment area of the hospital, not to talk of Accra and consequently the whole southern regions of Ghana. The study noted that PPEs availability was in question since most workers do not know or are not sure if they are available in the hospital. It was also noted that PPEs were not in the wards, not even at the OPD where such cases will usually present itself. All these points to the fact that institutional management and government have not been able to support the system as needed. A report on assessing the socio-economic impacts of EVD in the three affected countries, noted that, health services suffered from inadequate resources, as represented by low salaries for health workers, outdated technologies, poor infrastructure, in adequate medical facilities and equipment, and limited supplies greatly increase the incidence of the disease and death (UNDP, 2014). This shows that though there might be a well organised and equipped EVD centre, other units in the hospital without adequate resources and required preparation towards EVD will be at risk.

Training, improves skill and performance. Staff ability to handle EVD case stems from the degree of training (Oladimeji, et al., 2014). It was noted from the study that, staff preparation at the Tema General Hospital was not enough even after the 2014 outbreak which affected many West African countries. Only a handful of staff (Ebola Team Members) has received in-depth training, but in case of an adversities or an outbreak, it will require the efforts of the whole working staff (including orderlies) to fight the disease. Moreover despite the specific standard and operating procedures, that have been adopted by the hospital management and government, the procedures are flouted by health care givers. Mostly, some of them do this due to lack of information on
the patients and in the heat of emergencies attend to them. Others certainly do not really know what to do in certain circumstances.

The main attitude of most health workers toward the EVD was fear. The rate of infection and the unpredictable mode of transmission is enough to frighten health workers. This extreme fear has led some health care givers to say they will quit their job. Fear on the hand has it positive side because it is enough to stimulate or make a health worker use the appropriate techniques to curtail any danger. That is why preparedness is important for any health institution in Ghana because if all workers are given the appropriate training, the level of fear will be minimal. Since the group of health workers that seem to be confident in fighting the Ebola disease are the Ebola team members because of the necessary training and logistics that have been given to them.

5.6 Work Habits and Infection Prevention

The Conceptual Framework (Figure 2.4) shows that the knowledge of a disease such as EVD must induce health workers to take the maximum precaution. In tackling such a deadly and dangerous virus, ethical considerations should never be compromised. There are protocols that need to be observed in work habits and infection prevention. A staff who is unable to comply with these protocols will have themselves to be blamed.

There are PPEs that are required to be used when attending to patients in a health centre. But for attending to EVD cases stringent adherence to the use of PPEs are necessary. There are several PPEs that are worn to protect health workers from being infected with EVD and this requires the use of basic equipment such as gloves and aprons to avoid first-hand contact in an undetected case. On the other hand, suspected or
confirmed case requires the total covering of the whole body with the use of mask, gowns, boots, gloves and goggles.

Change of gloves is required in attending to different patients. Needles, thermometers and blood pressure kits should not be used on more than one patient. Those that are to be disposed must be done appropriately and others that need to be disinfected also need to be done in a professional way. Cleaning of the hospital must be well done with the use of appropriate equipment and the use of disinfectants to kill germs. Burial procedures concerning EVD must be strictly adhered to. Other body fluids and contaminated surfaces with urine, vomit, blood, and faeces must be immediately cleaned and disinfected. There must be appropriate use of PPEs without having to come into contact with the dead. This implies that hygiene practice is critical to avoiding infections and contamination. According to Lamanna (2004), perceived susceptibility does not always lead to positive behaviours and this was exhibited clearly by some of the interviewees.

Sharing information among work colleagues, will help improve work habits and infection prevention at the hospital. Attending to clients at the hospital is a coordinated task and this requires that all health workers work hand-in-hand to give effective health care delivery. This demands that any member of each unit who do not understand any particular symptom and/or is not conversant with a particular procedure should duly inform and seek advice from the appropriate and well-informed persons. Some of the interviewee reported that sometimes, other colleagues of theirs do not have certain knowledge concerning a particular illness but refuse to make enquiries. This action makes some of the workers abuse the work habits and does not put only themselves in
danger but the whole team working in the hospital. Some of the interviewees expressed the need for co-workers who lack a particular know-how of a case, to consult with others and follow the right protocol.

5.6.1 Putting Systems in Place to Regulate Work Habits

Provision of PPEs, the availability and the constant supply of all the required equipment would compel health workers to adhere to their use. Recently, the uses of the temperature gun instead of the body contact thermometers helped health workers to avoid obvious contacts that can cause infections. There must also be frequent monitoring and assessment of health workers status in relation to the proper use of equipment in such a way as to avoid EVD infection in the hospital.

The health belief model was used to explain the behaviour of health workers that were interviewed to ascertain the perception, attitude and knowledge of health. As indicated by the HBM, the perception of seriousness as deduced from the knowledge acquired from different sources such as the media and through training affected the attitude of the health workers interviewed. The research found that the severity of EVD put fear in health workers that attend to patients in the Tema General Hospital. This is confirmed by the interviewees that there is a higher risk of an outbreak and infection in the hospital despite the effort put by authorities to curtail an outbreak. As noticed from the response of the interviewees, EVD is a deadly/fatal disease with no known proven cure hence the perception is that it is a serious disease with devastating consequences. It is expected of health workers to engage in behaviours that will help prevent them from being affected but there were rather complaints of inadequate supply of gloves, sanitisers
and PPEs for all the departments and units in the hospital. From the model, the perceived seriousness must inform the preparedness of authorities to put up facilities and adequately train all health workers to be effective during an outbreak since they come into contact with a suspected or confirmed case. Health workers interviewed acknowledged that there are several benefits to derive from the use of appropriate and designated PPEs and gadgets. They admit that but for adhering to the use of this equipment, they would be at risk of other deadly diseases. However, with the knowledge of the recent EVD outbreak, health workers are faced with certain inadequacies in the provision of vital equipment and facilities to handle any outbreak.

These inadequacies are known as perceived barriers according to the HBM. There are always barriers despite the severity of a particular disease and efforts must be put to reduce current and future barriers to induce health worker to work effectively. The theory discusses how health workers should pay heed to protective mechanism such as always wearing gloves, using sanitisers and PPEs.

From the theory, it is expected that the knowledge of EVD obtained through training and various levels of education will influence the attitude and perception of health workers. This knowledge also prompts preparedness and good work habits though there are barriers that may minimise the optimisation of preparation to tackle this deadly disease. Some of the health workers were of the view that an EVD occurs uncontrollably and thus no amount of preparation can curtail it. As such, health workers need to fully comply with the work habits that may help to curb the spread of deadly diseases such as EVD. There were several additional dimensions to the HBM that the study incorporated and some of these elements include the educational level, past experiences and skills.
As was supported by the conceptual framework (Figure 2.4), data was collected through the use of interview guides to understand the knowledge, attitude and perception of health workers in the Tema General Hospital as well as their adherence to proper work habits to prevent being affected by the EVD, should it occur in Ghana.
CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Introduction

The key findings of the study are as follows:

1. The knowledge level of health workers about EVD was considerably high.
2. There were mixed attitude of health workers towards EVD.
3. There were also mixed perceptions about EVD among study participants.
4. Some level of preparations have been done to manage EVD at the Tema General Hospital, even though the centre has not been adequately resourced with PPEs.

This study was set out to identify the level of knowledge (formal and informal) of health workers about EVD. The study also sought to identify the attitude and perception of health workers towards EVD. Other issues explored included the level of preparedness in dealing with EVD should there be a reported case and last but not least the work habits that may influence, positively or negatively towards EVD infection prevention.

Following the analysis of qualitative data from study participants which included Medical Doctors, Physician Assistant, Midwives, General Nurses, Orderlies and Mortuary Attendants, the study made the following findings.

The level of knowledge of health workers about EVD was considerably high. Many health workers interviewed showed understanding about the origin of the disease, the causes of EVD, the critical signs and symptoms of EVD and the mode of transmission. This high level of knowledge was encouraging in view of the fact that health workers are at higher risk of EVD infection because they are among the category of people who will
first come into contact with persons showing signs of the disease. However few of the health workers such as mortuary attendants, erroneously said EVD is an airborne disease.

The study also found mixed attitude of health workers towards EVD. Whilst on the one hand some health workers indicated their readiness to attend to people who may come to the hospital with signs of EVD, on the other hand, other health workers showed negative attitude towards EVD. Some of the health workers indicated resigning from the hospital should there be a confirmed case of Ebola;

There were also mixed perceptions about EVD among study participants. Whilst some believe there is a high risk of EVD outbreak in Ghana, other expressed the view that there is a minimal risk of EVD infection considering the level of education and sensitisation that have been offered across the country;

It was also found that some level of preparations have been done to manage EVD at the Tema General Hospital in the form of the establishment of Ebola Isolation Centre coupled with the formation and training of Ebola Response Team. However, it was further revealed that the centre has not been adequately resourced with PPE to be able to effectively deal with EVD.

6.2 Conclusion

Generally, the health workers in the Tema General Hospital have a fair knowledge about what EVD is, its causes and mode of transmission; its signs and symptoms. The Interviewees responded in a satisfactory way concerning the knowledge
they had acquired through training and other means. The perception of many of the health workers was that, there is a high risk of EVD infection among health workers.

The Tema General hospital with the availability of an EVD treatment centre and ward, is well prepared except that other units and wards away from the EVD treatment centre do not have adequate resources and would have to quickly transfer any suspected cases to the centre for special treatment. This centre has specialist trained health workers which includes doctors, nurses, laboratory technicians, mortuary attendants.

Health workers are very attentive and proactive if there is a suspected or reported case and less alert when there are no obvious reasons especially EVD, to attend to patients who visit the hospital. This implies that early stage EVD cases in the Tema General Hospital may be over looked and making contact with such clients unprotected might lead to infections. The work habits of the health workers are rather questionable and not monitored and this must be addressed.

Even though the country does not have all the necessary facility to handle any major outbreak of EVD, it is important that health workers use their skills well enough in the event of an outbreak because, as one participant stated clearly that, to deal with such sickness, the same techniques used for other infectious diseases are applicable. There is actually nothing new (basic hand wash, use of alcohol rub, barrier nursing, use of PPEs etc.) to these common practices. More over most health care givers in Liberia, Guinea, and Sierra Leone were not trained in the advent of the disease but have tried to manage the disease even though some health workers have lost their lives. Ebola should therefore not bring fear and panic into our health institutions. Even though EVD is a deadly
disease, health care givers should see to it that strict work ethical procedures and protocols are adhered to in their practice to avoid making avoidable mistakes.

6.3 Recommendations

The results and discussion of the study have revealed many issues concerning the knowledge, perception and attitude of health workers. The level of preparedness and adherence to proper work habits was also researched and these provide a platform to give constructive recommendations that can influence policy. The following are research-based recommendations suggested to improve and help health workers in the Tema Metropolis and Ghana in general.

1. Following the revelation that some health staff especially mortuary attendants have wrong knowledge about EVD, there is the need for Ministry of Health and Ghana Health Service to provide basic training on EVD covering all category of staff at hospitals. The specific need of mortuary attendants on infection prevention practices also needs to be addressed.

2. There is also the urgent need for the Ghana Health Service and the Ministry of Health to support the Tema General Hospital with the provision of adequate Personal Protective Equipment and other resources that are required to effectively deal with Ebola should there be an outbreak.

3. The Ghana Health Service should ensure that, all health workers undergo training, at least once every six month in a year, to keep them abreast with up-to-date
information on emerging diseases, technology, equipment requirement and practices. This will contribute to the prevention and eradication of EVD.

4. The Ghana Health Service and the Ministry of Health should collaborate with other institutions and international agencies to conduct coordinated research that may lead to Ebola vaccines development or drugs to manage the deadly impact of EVD. This will help to reduce the level of mix attitude and perception of health workers to EVD.
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APPENDIX A

CHRONOLOGY OF EVENTS

Chronology of events during the first outbreak of the Ebola viral outbreak in Zaire (now known as Democratic Republic of Congo)

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>1976</td>
<td></td>
</tr>
<tr>
<td>1 September</td>
<td>Onset of symptoms in first recognized case, Yambuku</td>
</tr>
<tr>
<td>16 September</td>
<td>Dr Ngoy of Bumba reviewed 17 cases concluded it was an unknown disease</td>
</tr>
<tr>
<td>21 September</td>
<td>First message received in Kinshasa about the epidemic</td>
</tr>
<tr>
<td>23 September</td>
<td>Visit by Professor Muyembe (Universite Nationale du Zaire) and Dr Omombo (Service d’Hygiene) from Kinshasa</td>
</tr>
<tr>
<td>25 September</td>
<td>Belgian nursing sister died of hemorrhagic fever in Kinshasa</td>
</tr>
<tr>
<td>30 September</td>
<td>Belgian nursing sister transferred from Yambuku to hospital in Kinshasa</td>
</tr>
<tr>
<td>30 September</td>
<td>Yambuku hospital closed. 11 of 17 staff members dead</td>
</tr>
<tr>
<td>2 October</td>
<td>Visit by Dr Brubwa (UNAZA), Dr Raffer (Mission Medicale Francaise) and Dr Ruppo (Fonds Medical Tropical) from Kinshasa. Specimens collected. They returned on 6 October</td>
</tr>
<tr>
<td>3 October</td>
<td>Bumba Zone quarantined by Minister of Health upon recommendation of second medical mission</td>
</tr>
<tr>
<td>8 October</td>
<td>2nd Belgian nursing sister developed the disease in Kinshasa</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
</tr>
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</tr>
<tr>
<td>12 October</td>
<td>Zairian nurse at Kinshasa hospital developed the disease</td>
</tr>
<tr>
<td>13 October</td>
<td>Virus morphologically similar to Marburg agent isolated in three laboratories overseas</td>
</tr>
<tr>
<td>14 October</td>
<td>New agent shown to be immunologically distinct from Marburg virus 2nd nursing sister died</td>
</tr>
<tr>
<td>16 October</td>
<td>Zairian nurse given Marburg convalescent plasma. Strict patient isolation and quarantine of exposed hospital staff instituted.</td>
</tr>
<tr>
<td>18 October</td>
<td>International Commission formed</td>
</tr>
<tr>
<td>19 October</td>
<td>Survey team sent to Bumba Zone</td>
</tr>
<tr>
<td>20 October</td>
<td>Zairian nurse died of the disease in Kinshasa</td>
</tr>
<tr>
<td>27 October</td>
<td>Survey team reported active cases in at least 8 villages</td>
</tr>
<tr>
<td>30 October</td>
<td>Two mobile teams airlifted to Isiro to search for disease between Sudan and the Bumba Zone. Advance group to Yambuku to search for cases and convalescent patients and to make preliminary ecological survey</td>
</tr>
<tr>
<td>2 November</td>
<td>First unites of convalescent plasma obtained in Kinshasa</td>
</tr>
<tr>
<td>4 November</td>
<td>Recruitment and training of surveillance teams begin in the Bumba Zone</td>
</tr>
<tr>
<td>5 November</td>
<td>Last case of the disease in the region died in village of Bongulu II</td>
</tr>
<tr>
<td>9 November</td>
<td>Widespread village surveillance initiated</td>
</tr>
<tr>
<td>16 November</td>
<td>Clinical, virological and plasmapheresis teams with equipment</td>
</tr>
</tbody>
</table>
arrived in Yambuku. Radio communication Yambuku-Ebonda-Kinshasa established.

13 December Main teams returned to Kinshasa

16 December The emergency officially ended

1977

APPENDIX B

PARTICIPANT INFORMATION SHEET

Topic: Knowledge, Attitude and Perception of health workers towards the Ebola virus disease.

Institutional Affiliation: School of Public Health, College of Health Sciences University of Ghana, Legon.

Background: This study seeks to assess the knowledge, attitude and perception of health workers towards the Ebola virus disease.

Personal Introduction:

Wilhelmina k. Appiah is currently a master’s student of the School of Public Health, University of Ghana, Legon. She is conducting a study on the topic: Knowledge, attitude and perception of health workers towards the Ebola virus disease. This study forms part of the requirement for the award of Master of Public health degree and supervised by the School of Public Health, University of Ghana, Legon. The study is for academic purposes only.

Procedure:

An in-depth interview will be conducted using an interview guide. The interview will be tape-recorded with your permission. It is estimated to last for about 45-60 minutes. This tape-recorded interview will be kept until the time the degree has been awarded after which it will be destroyed.
APPENDIX C

INFORMED CONSENT DOCUMENT

Title of Study: “Knowledge, Attitude, Perception of Health Workers towards the Ebola Virus Disease at Tema General Hospital”

Investigator: Wilhelmina Komley Appiah

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The School of Public Health, University of Ghana, is conducting a research in this hospital to assess the knowledge, attitude, and perception of health workers toward the Ebola virus disease. I would like you to participate in this study. Kindly read the consent form before deciding to whether or not to be part of the study.

DESCRIPTION OF PROCEDURES

You are being invited to participate because you are a health worker at this facility. If you agree to participate, you would willingly sign the consent form. The study staff will ask you probing questions on the Ebola virus disease.

RISKS AND BENEFITS

There is no risk in participating in this work. There is no direct benefit. However, information obtained will be used to provide some recommendations to mitigate the impact of Ebola virus disease should it occur in Ghana.

PARTICIPANT RIGHTS

Your participation in the study is voluntary and you may choose to skip any of the questions you feel uncomfortable with or end your participation at any time. If you choose not to participate, it would not affect you in any way.

CONFIDENTIALITY

Participants would be given unique codes for identification. These codes would be tagged to participant’s information and used during data entry. Records identifying participants will be kept confidential to the extent permitted by laws and regulations and would not be made publicly available.

CONTACTS FOR ADDITIONAL INFORMATION
If you have any further questions regarding clarification of the study, you can contact Wilhelmina Komley Appiah on 0205164640/0244954901 Or ERC, administrator Hannah Frimpong on 0243235225 or 0507041223

SUBJECT SIGNATURE

Your signature below indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given time to read the documents and that your questions have been satisfactorily answered. You would receive a copy of the signed and dated written informed consent prior to your participation in the study.

The informed consent has been read to me and I understand all the conditions of this project. All my questions have been answered. I agree to take part in the study.

Signature/thumbprint…………………………

Date ……………………………

If subject is unable to read the form for themselves, a witness must sign here:

I was present when the benefits, risks and procedure were read to the subject. All questions were answered and the subject has agreed to be part of the study.

Signature/thumbprint of witness ………………………………………………………………..

Date ……………………………

Researcher’s signature…………………… Date……………………
APPENDIX D

INTERVIEW GUIDE

KNOWLEDGE, ATTITUDE AND PERCEPTION OF HEALTH WORKERS TOWARDS THE EBOLA VIRUS DISEASE AT TEMAA GENERAL HOSPITAL, GHANA.

Interview Guide for Health Workers (Doctors, Physician Assistant, Midwives, General Nurses, Laboratory Technicians, Orderliness, and Mortuary Attendants)

Greet
Ensure that respondent is comfortable
Introduce myself and the study
Respondents should read, understand, and sign the consent form
Ask for the respondent’s permission to start interview and to record the interview as well.

Knowledge about Ebola Virus Disease
In your opinion can you tell me what you know about Ebola Virus Disease?

Probe

- What causes Ebola Virus Disease?
- How is Ebola Virus Disease transmitted?
- How long does it take an individual who gets the Ebola virus to exhibit signs and symptoms of the disease?
- How does a patient suffering from the Ebola Virus Disease looks like?

What training have you received in preparation towards an outbreak of the Ebola Virus Disease?

Probe

- Was the training adequate?
- Duration of the workshop (days/weeks/months)?
- Areas covered during training (screening, care of Ebola patients, use of Personal Protective Equipment (PPE)?
- Lessons learnt from the training?
- Limitations of the training workshop?

How would you handle a person with ebola?
Probe
- Someone you don’t know?
- A friend?
- A family member?
- A son, daughter, or spouse?

**Attitude towards Ebola Virus Disease**
How would you feel towards a colleague who has been confirmed with Ebola Virus Disease?

*Probe*
- What would be your attitude towards a patient who has been cured of the Ebola Virus Disease?
- How would you feel towards a family member of the patient?

**Perception towards Ebola Virus Disease**
How would you consider the risk level of Ebola Virus Disease among health workers in Ghana?

*Probe*
- Why do you think so?
- What are the risk exposures?

How would you consider the risk level of Ebola Virus Disease among health workers in this facility?

*Probe*
- Why do you think so?
- What are the risk exposures?
- What has been done to cover these risks or what needs to be done?

. Do you personally feel at risk of Ebola?

*Probe*
- Why do you think so?
- What are the risk exposures?
- What has been done to cover these risks or what needs to be done?

**Preparedness towards Ebola Virus Disease**
What are some of the measures that have been put in place by your health facility to deal with Ebola since the recent Ebola outbreak?
Probe
- Has Ebola treatment center been established?
- Is the supply of personal protective equipment adequate?
- Are there drugs for Ebola treatment?
- Availability of other facilities (eg. safety box for disposing items used on Ebola patients)
- What other form of support will this hospital offer to Ebola patient and family members besides drugs?
- What information dissemination strategies does the hospital have for staff and the general public
Does the measures put in place by the hospital give you the confidence and security to manage Ebola cases brought to the hospital?

Probe
- Find out the fears of the respondent?
- What gives you confidence? (if any)
- What would you like to be done differently from what is existing?
. Do you have Ebola preparedness/response plan? (if yes, request for a copy)

Work habits that may contribute to Ebola infection
What practices do health workers engage in which may contribute to Ebola infection?

Probe
- Practices in the hospital, wards, home
- Practices on hand hygiene, hand shaking, hugging
What Infection Prevention control practices do you know?

Probe
- Find out knowledge of standard procedures for handling Ebola cases at health facilities?
- Are there measures to check violation and what are the sanctions?
- What needs to be done to prevent Ebola infection among health workers?
CURRICULUM VITAE

Name : Wilhelmina Naa Komley Appiah

Date of Birth : 21st April, 1965

Nationality : Ghanaian

Marital Status : Married with 3 children

Address : Box CT 5197, Accra

Telephone : 0244954901/0205164640

E-mail : naakkomm@yahoo.com

Educational Qualifications

October, 2011 Master of Arts (MA) Religions - University of Ghana, Legon

May, 2002 Bachelor of Arts (BA) Social Work with Sociology - University of Ghana, Legon

November, 1991 Registered Midwife – Midwifery Training School - Korle-Bu

February, 1989 State Registered Nurse – Nursing Training College – Korle-Bu
Other Trainings Attended

Cardio Pulmonary Resuscitation (CPR) /BLS/ First aid training – 7/01/2013 - West Africa Rescue Association (WARA)

Community-based Health & Planning Services (CHPS) – 1/10/2012 -11/10/2012 – GHS/ National Malaria Control Program

Post- partum family planning – 13/08/2012 – Focus Health Region, Ghana

Smaradt reader training – 17/07/2012 –25/07/2012 - GHS/MOH

Logistics management - 11/07/2012 -5/07/2012 – Focus Health Region

Training on new vaccines (PCV/ROTARIX) -18/04/2012 – Expanded Immunization Program

Long lasting insecticidal – 28/03/12 -30/03/2012 – National Malaria Control Program

Leadership development - 12/03/2012 -14/03/2012- GHS

Measles (2nd Dose) immunization – 08/02/2012 – GHS/MOH

Training on data management – 29/03/2011 - National Malaria Control Program

Malaria in pregnancy – 09/11/2010 – GHS

Infant and young child feeding counseling – 20/09/2010 – Focus Health Region

Community-based Health & Planning Services (CHPS) – 12/09/2010 -18/09/2010 - Focus Health Region
Influenza surveillance - 11/04/2010 – GHS / Malaria Research Unit

Regenerative Health and Nutrition – 28/03/2010- 30/03/2010 – Regional Health Directorate

First Aid Training – 23/09/09, 30/09/09, - West Africa Rescue Association (WARA)

Assessment of cost effectiveness of introduction of Rapid Diagnostic in DW – 14/08/09 – GHS


Refresher Training for Midwives & Community Health Nurses on IPT – 15/06/09 – GHS

RDT Training for clinical staffs and Laboratory technicians – 11/06/09 – GHS/Malaria Control Programme


IPT/Malaria in Pregnancy /Communication focused ANC – 14 – 15 May 2009 – HIRD

Dissemination of survey results on socio-cultural factors to late Antenatal Care (ANC) - 8/05/09-HIRD

Review/Reinvestigation meeting on the implementation of sub-district action plan on Malaria, Breastfeeding and Complementary feeding and family planning – 30 April 2009 – GHS

Budgeting and Planning Workshop – 11 March 2009 - District Health Management Team, (GHS)

TB/HIV management, care and control – 13/01/2009 – Minis try of Health (MOH)/GHS

Stigma Reduction and Discrimination related to HIV/AIDS – 28th October, 2008 -GHS


IPPD Training – 20th - 21st October, 2008 – Ghana Health Service/Ministry of Health

PPM, DOT, TB paradigm shift (New treatment regime) 11- 13 October 2008 – Global Fund

Know Your Status Training – 23rd September 2008 - Ghana Health Service (GHS)

Employment Records

Date: September, 2008 – Date

Employer: Ghana Health Service, District Health Administration, Dodowa

Position: Social Worker/Principal Nursing Officer / Community-based Health & Planning

Services (CHPS) & In-Service – Coordinator
Experience:

- Maintaining and updating human resource data base of all health staff in Dangme West District throughout the year
- Carryout training needs assessment / Organizing in-service training for staff in the district
- Offering counselling to staff, patients with social problems within the district
- Linking staff and patients to resource systems for assistance
- Coordinate /manage the Community-based Health & Planning Services (CHPS) program within the Dangme West District. CHPS is a set of strategies aimed at bringing health services to the level of the household and communities. It seeks to empower and mobilize households and communities to improve their health. It focuses on the promotion of the health status of individuals, prevention of diseases and identification and effective management of diseases in the communities and households
- Organize trainings and capacity building activities for various CHPS zones.
- Carryout / promote health education within the CHPS zones.
- Compiling data for analysis on CHPS activities within the Dangme West District.
- Writing of reports

Date: May, 2003 – August, 2005

Employer: Ghana Health Service, La General Hospital

Position: Social Worker/Senior Nursing Officer
Experience:

- Seeing to the welfare of In and Out patients during their treatment period
- Conducting social enquiry into the social and personal background of some patients
- Assist patients who cannot pay their medical bills or afford treatment
- Counselling services for individuals or/and with their families
- Help health workers who have domestic problems through counselling
- Trace patients who abscond from the ward while receiving treatment
- Prepare quarterly reports
- Reconciling clients with strained relationships with their relatives through counselling
- Follow-ups on clients discharged
- Giving Health talks e.g. personal hygiene, breastfeeding, diets, diarrhoea, etc
- Counselling patients who refuse to accept medical treatment due to cultural or religious beliefs
- Follow-up patients relations to settle medical bills
- Assisting clients to write undertakings if they cannot afford full payment bills
- Arranging for blood from Korle-bu for emergency cases

Date: September 2002 – April 2003
Employer: Ghana Health Service, Ridge Hospital
Position: Housemanship, Social Worker/Nursing Officer
Experience:

- Counseling services for individuals or and with their families
- Helping clients to write undertaking
- Conducting social enquiry into the social and personal background of patients
- Attending monthly mortality meetings
- Going on ward rounds with medical and surgical team
- Help abandoned babies by trying to send them to orphanages or children’s home
- Trace patients who abscond from the ward while receiving treatment
- Reconciling clients with strained relationships with their relatives through counseling
- Follow-up on clients dis charged
- Allaying the fears of patients on preparation for surgery
- Counseling patients who refuse to accept medical treatment due to cultural or religious beliefs

Date: January 1992 – September 1999

Employer: Ghana Health Service, Ridge Hospital

Position: Staff Nurse Midwife

Experience:

- Maternal / Child health services
- Family planning services
- Health talks
- Pre/Post operation preparation of patients
- Bed making, bed baths, oral hygiene of patients, dressing of surgical wound
- Administering drugs, care of hypertensive/diabetic patients
- Checking and monitoring vital signs, feeding very ill patients
- Treating pressure areas
- Reassuring and counselling patients
- Report writing

Date: May 1990 – November 1990
Employer: Ghana Health Service, Princess Marie Louise Hospital
Position: Staff Nurse
Experience:
- Caring and nursing Kishiokor and marasmic babies
- Other child health care nursing

Date: February 1990 – May 1990
Employer: Ghana Health Service, Accra Psychiatric Hospital
Position: Staff Nurse
Experience:
• Psychiatric nursing
• Other experiences in the field of psychiatric nursing

Date: November 1989 – February 1990
Employer: Ghana Health Service, Kaneshie Polyclinic
Position: Staff Nurse
Experience:
• Giving immunization and health talks
• Ante natal and Post natal counseling
• General nursing

Date: April 1989 – November 1989
Employer: Ghana Health Service, Korle-bu Teaching Hospital
Position: Staff Nurse
Experience:
• Pre/Post operation preparation of patients
• Bed making, bed bath, oral hygiene of patients dressing of wounds
• Administering drugs, care of hypertensive /diabetic patients
• Checking and monitoring vital signs, feeding very ill patients
• Treating pressure areas
• Reassuring and counseling patients
• Report writing
<table>
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<tr>
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Signature: Wilhelmina Komley Appiah (Mrs.)

Date