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Factors Influencing Health Care Workers' Compliance with Infection Prevention and Control Standard Precautions: A Case Study of Kasama General and Mbala General Hospitals, Northern Province, Zambia

Dr. Given Mbita[1], Prof. Dr. Ernest C. Mutale[2]

[1]Environmental Health Officer, Public Health, MoH
[2]Provincial Health Director, Northern, MoH

ABSTRACT

Introduction: Infection prevention and control Standard Precautions (IPCSPs) are the control measures that apply to all patient care activities at all times, regardless of whether the patient has a suspected or proven disease, in any place where healthcare service is provided. Since health care workers are at risk of acquiring and transmitting hospital acquired infections in the course of delivering the health services, compliance with infection prevention and control standard precautions (IPCSPs) during the provision of health services by health care workers is key in the prevention of hospital acquired infections (HAI).

Objective: The main objective of this study was to investigate and establish factors influencing health care workers' compliance with infection prevention and control standard precautions with the aim of improving compliance with IPC standard precautions so that health care workers are protected from acquiring nosocomial infections during the provision of health services both at Kasama General and Mbala general Hospitals.

Methods: A descriptive case study design of 354 health care workers working both at Kasama General and Mbala general hospitals was conducted using a structured self-administered questionnaire and key informant interview guide. With the confidence level of 95%, margin of error ±5 and known population size for Kasama general hospital (405) and Mbala general hospital (260), sample size standard formula as well as online calculator was used to come up with sample size of the participants. Simple random sampling was used to select the participants and data was analyzed using SPSS version 27.

Results: Out of the 354 participants for both Kasama general and Mbala general hospital, 45.8% were females and 54.2% were males. A large proportion of the participants (85.9%) had obtained diploma certificate. Despite a lower proportion (39%) of health workers being trained in IPC, majority (85.3%) of the participants both at Kasama general and Mbala general hospitals had knowledge on what IPC is and 81.5% were knowledgeable on the basic elements of infection prevention and control standard precautions. 81.1% were knowledgeable on public health importance of poor IPC standard precautions. While 55.4% were performing hand hygiene at all critical times, only 41.5% were washing hands immediately upon reporting for work and when leaving work. 37.3% were using gowns or aprons, 41.4% masks and 35% goggles all the time when attending to patients or when doing procedures which are likely to generate splashes. Poor health care waste management, inadequate number of trained health

care workers in IPC, lack of IPC assessment, lack of monitoring and supervision, inadequate IPC mentorship and technical supportive supervision, non-availability of adequate IPC supplies all the time, inadequate management commitment and support towards IPC and poor staffing level of qualified staff were the major reported factors influencing poor health care workers 'compliance with IPC standard precautions.

Conclusion and Recommendations: Despite high proportion of health care workers having knowledge on IPC both at Kasama general and Mbala general hospitals, majority of them were not trained in IPC. Required infection prevention commodities were not available in good quantities all the time. Poor health care waste management, staff attitude, lack of IPC assessment, inactive IPC committees, inadequate IPC mentorship and technical supportive supervision, inadequate management commitment and support towards IPC and poor staffing level of qualified staff were among the factors influencing health care workers' compliance with IPC standard precautions at both hospitals. Management commitment and support towards IPC is of paramount importance if the IPC programme has to receive adequate funding and make positive impact at both hospitals on compliance with IPC standard precautions by health care workers. Availability of adequate IPC commodities all the time, regular IPC compliance assessment, performance reviews, on-spot technical supportive supervision, capacity building of staff and continuous health education on IPC by hospital management were very critical to enhance positive compliance with IPC standard precautions among health care workers.

Keywords: Compliance, Health Care Workers, Infection Prevention and Control Standard Precautions, Hospital Acquired Infection, Knowledge, IPC Supplies.

CHAPTER ONE: INTRODUCTION

1.0.Introduction

Infection Prevention and Control Standard Precautions (IPCSPs) are the control measures that apply to all patient care activities at all times, regardless of whether the patient has a suspected or proven disease, in any place where healthcare service is provided. These evidence-based practices protect healthcare workers (HCWs) from infection while preventing the spread of infectious agents among patients, visitors, and the environment. The spread of micro-organisms usually results from breaches in compliance with IPC standard precautions, such as inadequate hand hygiene and environmental cleaning, lapses in disinfection and sterilization, and incorrect use of personal protective equipment.
This chapter highlights the background of the study, problem statement, justification of the study, main and specific objectives, research questions, Research hypothesis, significance of the study, scope of the study, Theoretical framework and conceptual framework.

1.1 Background

Infection prevention and control (IPC) play a unique part in patient safety and quality health care delivery. IPC is defined by the World Health Organization (WHO) as a practical, evidence-based approach that prevents patients and healthcare workers from being harmed by avoidable infections (WHO,2016). It is also defined as policies and procedures applied in healthcare delivery settings to control and reduce the risk of the transmission of infections, hence decreasing the infection rate (Habboush Y. et al. 2020). The IPC program's necessity in healthcare facilities is its unique position in preventing healthcare-associated infections (HAIs). Hospital acquired infections (HAI) is a major global safety concern for both patients and healthcare professionals. It is defined as an infection acquired in hospital by a patient who was admitted for a reason other than that infection or an infection that is nosocomially acquired by a patient during the process of care in a hospital or other health-care facility in whom the infection was not present or incubating at the time of admission. This includes infections acquired in the hospital but appearing after discharge, and occupational infections among staff of the facility (WHO, 2011). Healthcare-associated conditions are infections that patients acquire during receiving healthcare services anywhere along the continuum of healthcare settings, including long-term care, home care, and ambulatory care (CDC 2018). Therefore, they are preventable and are considered an indicator of the quality of patient care and patient safety (Collins AS.2008). They are today by far the most common complications among hospitalized patients. HAIs are of significant concern to the healthcare system and a burden to the public health discipline. They are considered an adverse effect, an undesirable outcome, and associated with high morbidity and mortality (CDC 2018). Healthcare-associated infections have been proven to be associated with a prolonged hospital stay, long-term disability, the increased reemergence of drug-resistant microorganisms, the massive financial burden for health systems, and the patients' families. The impact of HAIs is higher in low- and middle-income countries (LMIC) than it is in high-income ones, with a reported prevalence between 5.7 and 19.1% (Vhilar-Compte D., 2017). Studies have shown that though data on HAIs' burden is not limited in Africa, its burden is higher than in high-income countries (Nejad et al., 2011). In Zambia, the prevalence of HAI is still unknown as the IPC program is still at the infancy stage; hence there is no data at national, provincial or district on Hospital Acquired Infection rates and trends.
In every 100 inpatients, 10 are diagnosed with at least 1 HAI in LMIC compared to 7 in developed countries (CDC 2018). Even though the LMIC are most impacted by HAI's, high- income countries are also affected (Stone PW.,2010). The prevalence of these preventable infections in high-income countries is 7.6%, with an estimated 4131,000 patients affected by approximately 45,441,000 episodes of HAIs

yearly in Europe and the USA, an estimated 1.7 million infections 99,000 associated deaths are reported (WHO 2011 & Burke JP.,2003). HAIs financial burden in the high-income countries accounts for €13–24 billion in extra costs per year in Europe and 16 million additional days of hospital stay. In contrast, in the USA, the loss is estimated at between US$28 billion to 45 billion. (Stone PW.,2010 & Arefian H., 2019). An estimated 100,000 cases of HAI were reported in the UK in 2000, and about 5000 related deaths in England. The impact of HAI's was also accounted for $1.4bn yearly in the UK (Mayor. S,2000) The need for infection prevention and control programs in healthcare facilities is borne out of the need to prevent HAI and ensure a safer setting for patients, staff, and visitors and improve the delivery of healthcare services. The history of IPC is dated back to 1847 when the physician Ignaz Semmelweis found out that unclean hands of medical students were associated with a high childbed fever rate (Noakes T.D et al.,2008 and Torriani, F., & Taplitz, R. 2010). A hand hygiene policy was then developed to ensure hand hygiene before delivering care in the obstetric clinic, reducing the mortality rate. In the US, by 1960, the IPC was already established in few hospitals following the Staphylococcus aureus epidemic (Dixon R.E 2011).

Infection prevention and control safe practices at a healthcare facility can be affected by a few factors, including knowledge on IPC, availability of a functional IPC program, availability of IPC guidelines and policies, training of staff and medical students on IPC, availability of personal protective equipment and infrastructure (WHO 2016, Assefa J. et al. 2020). Healthcare workers being the first line of defense when it comes to HAI must be knowledgeable on IPC practices. In studies conducted on the association between IPC practices, the burden of HAI and its associated factors, being knowledgeable on IPC was significantly associated with acceptable self-reported IPC practices (Zenbaba D. et al., 2020). In Zambia, there is inadequate data available on factors influencing health workers' compliance with Infection Prevention and control standard precautions as no study has been conducted in this regard.

The fundamental approach to preventing and controlling the spread of HAI and addressing patient safety and delivering quality healthcare services involves addressing Factors which affects and influence health workers' compliance with infection prevention and control standard precautions.

Healthcare workers (HCWs) are at direct risk of exposure to blood and other body fluids and aerosols during the course of their job. Consequently, they are at risk of infection of-blood borne viruses including hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV), and coronavirus disease of 2019 (Covid-19). Occupational exposure to blood can result from percutaneous (needle stick or other sharps injury) and mucocutaneous injury (splash of blood or other body fluids into the eyes, nose, or mouth), or blood contact with non-intact skin. Needle stick injury (NSI) is the most common form of occupational exposure to blood which results in transmission of blood borne infection (Baker 2013).

World Health Organization (2008), reports that healthcare associated infections have been a menace world over, particularly in institutions where provision of healthcare services takes place. These infections are acquired during the provision of health care services. The World Health Organization (2008) further reports that the global prevalence of hospital acquired infections among the healthcare workers rise by 12% annually and continue to press on a huge burden in public health arena. Despite this worrying trend, relevant literature reports that, compliance with Standard Precautions (a set of guidelines that can protect health care professionals from being exposed to microorganisms) is low among healthcare workers, leading to high rates of exposure to microorganisms among health care workers via several modes (needlesticks, hand contamination with blood, exposure to air-transmitted microorganisms).

The World Health Organization (WHO) estimates that 3 million percutaneous exposures occur annually

among 35 million HCW globally with over 90% occurring in resource constrained countries (WHO, 2005). In Africa Health-care workers suffer two to four needle stick injuries per year on average (Mbaisi et al., 2010).

Different nations and health organizations have come up with various standard Precautions that when complied to, can protect health care professionals from being exposed to healthcare associated infections. Preventing and controlling infection in health care facilities involves two levels of approach, standard precautions and additional (transmission-based) precautions. Standard precautions are taken to reduce the risk of transmitting blood-borne microorganisms and other pathogens from both recognized and unrecognized sources. These precautions are used as a minimum, in the care of all patients in health care facilities and settings, regardless of their diagnoses or presumed infection status.

Standard Precautions guide health care workers (HCWs) to practice regular hand hygiene, use personal protective equipment (PPE) like gloves, masks, eye protection, face shield and gowns when contact with mucus membranes, blood and body fluids of patients is anticipated, correct disposal of sharps and other clinical waste. Since identification of patients infected with different microorganisms cannot be reliably made by medical history and physical examination, the Centre for Disease and Control (CDC) has recommended that standard precautions are used on all patients, regardless of knowledge about their infection status Siegel J.D, et al. (2007).

Measures to prevent the transmission of these infectious microorganisms are therefore a significant component of healthcare delivery at any level (Williamson, et al 2008). For instance, in Cyprus, health care workers are obliged by law (cap 89 (I) / 96) to implement all components of Standard Precautions during their clinical practice and take all the appropriate measures to avoid occupational exposure to pathogens. In addition, employers in Cyprus (including hospital managers) are also obliged by the same law to provide to their employees all the necessary means (e.g. gloves, face masks) for protecting their health. Infection Prevention and Control committee of the Ministry of Health within each hospital, is responsible for training health care workers, and monitor the implementation of Standard Precautions. Compliance with these standard precautions has been shown to reduce the risk of exposure to blood and body fluids. The term "standard precautions" is replacing "universal precautions", as it expands the coverage of universal precautions by recognizing that anybody fluid may contain contagious and harmful microorganisms. The level of practice of universal precautions by Health Care Workers (HCWs) may differ from one type of HCW to another. The differences in knowledge of universal precautions by HCWs may be influenced by their varying type of training.

1.2 Problem Statement

Compliance with infection prevention and control standard precautions (IPCSPs) remains a major challenge in many countries including Zambia. Lack of compliance exposes healthcare workers (HCWs) and patients to a high risk of developing healthcare-associated infections (HAIs). In Zambia, a study done at Ronald Ross general hospital in Mufulira (Katowa P. etal.,2009) found out that Health Care Associated Infections are still a major challenge as demonstrated by the increase in wound infections among patients with caesarean section (30%), indicating the need for compliance. In Zambia according to Mwamungule et al (2015), it was found that white laboratory coats were highly contaminated with Staphylococcus aureus and Klebsiella pneumonia pathogens which exhibited high resistance to most antibiotics. This exposes patients to high risk of developing health care acquired infections, resulting in the avoidable suffering on patients and their families, longer hospital stay, loss of production, permanent disability and death while on the other hand this may result in absenteeism by health care providers, low performance, extra costs on the healthcare system and wider economy. According to the

study conducted at University Teaching Hospital (UTH) by Zambia Centre for Applied Health Research in 2013, 29% of admitted neonates were diagnosed with nosocomial sepsis; very high mortality among neonatal intensive care units. HIV/AIDs in particular is a major threat in the workplace (ILO, 2011). As a consequence of occupational exposure, an estimated 66,000 Hepatitis B, 16,000 Hepatitis C and up to 1,000 HIV infections occur among HCWs each year (Mbaisi et al., 2010). World Health organization (WHO), states that, Health care Associated Infections occur worldwide, irrespective of country's level of development; sadly, in developing countries are 2-20 times higher than those reported in developed countries (WHO, 2010). Furthermore, Infection Control Africa Network, reported that there are issues related to practices by Health Care Providers that continue to fuel transmission of Health Care Associated Infections in Africa; among them are attitude and behaviour (ICAN, 2011).

World Health Organization (2008), reports that healthcare associated infections have been a menace world over, particularly in institutions where provision of healthcare services takes place. These infections are acquired during the provision of health care services. WHO (2008) further reports that the global prevalence of hospital acquired infections among the healthcare workers does rise by 12% annually and continue to press on a huge burden in public health arena. The World Health Organization (WHO) estimates that 3 million percutaneous exposures occur annually among 35 million Health Care Workers globally with over 90% occurring in resource constrained countries (WHO, 2005). In Africa Health-care workers suffer two to four needle stick injuries per year on average (Mbaisi et al., 2010).

Healthcare-associated infections (HAIs) remain a serious unwanted adverse effect increasing morbidity and mortality of hospital patients and increasing healthcare costs (Defez et al., 2008; Liata et al., 2009). Health Acquired Infections (HAIs) increase the cost of healthcare including medications, supplies, diagnostic studies and the length of hospital stay (Pittet and Donaldson, 2006; Siegel et al., 2007). One of the greatest challenges is that infection prevention and control standard precautions are available but not applied (Gammon et al., 2008; Pittet, 2001). Worldwide, it is estimated that almost ten percent (10%) of the hospitalized patients acquire at least one hospital acquired infections (Humphreys et al., 2008). The prevalence of hospital acquired infections in developing countries is between thirty to fifty percent (Habibi et al., 2008). Despite this worrying trend, relevant literature reports that, compliance with Standard Precautions (a set of guidelines that can protect health care professionals from being exposed to microorganisms) is low among healthcare workers, leading to high rates of exposure to microorganisms among health care workers via several modes (needle sticks, hand contamination with blood, exposure to air-transmitted microorganisms).

1.3 Study Justification

Healthcare facilities are places where sick people congregate, creating many opportunities for micro-organisms to spread between patients, visitors and healthcare workers. Medical care is also increasingly complex, with multiple, invasive procedures increasing the risk of developing healthcare acquired infections (HAI). Clever& Omenn (2008), documents that compliance on the part of healthcare workers with standard precautions is recognized as an efficient and effective means to prevent and control health care-associated infections in patients and health workers. Health Care Acquired Infections are preventable through compliance to standard precautions, which many times has been very difficult among Health Care Providers (Gould 2009). This research therefore will bring out the existing factors at the two largest second level hospitals in Northern Province which are influencing the health care workers' compliance with infection prevention standard precautions. The study will also provide recommendations based on the findings to be implemented by institution management to effect, promote and maintain high level of health care workers' compliance with infection prevention standard

precautions. The study will also improve health care workers' knowledge to enable them to adopt Essential Health Actions (EHAs) to comply with Infection prevention standard precautions so as to avoid nosocomial infections. Hence, this study, to evaluate factors influencing health care workers' compliance with infection Prevention Standard Precautions at Kasama General and Mbala General Hospitals.

1.4.0. Study Objectives

1.4.1. Main Objective

To investigate and establish factors influencing health care workers' compliance with IPC standard precautions with the aim of improving compliance with IPC standard precautions so that health care workers are protected from acquiring nosocomial infections during the provision of health services both at Kasama General and Mbala general Hospitals.

1.4.1.2 Specific Objectives

The study will be guided by the following specific objectives;

1. To assess the level of health care workers' knowledge regarding infection control and prevention.
2. To investigate health care workers' attitude and practices to infection prevention and control standard precautions.
3. To assess and establish the management support/commitment to enforcing compliance with Infection Prevention and control standard precautions at the institution.

1.5.0. Research Questions

1.5.1. Main Research Question

What are the factors influencing health care workers' compliance with infection prevention standard precautions during service provision at Kasama General and Mbala General Hospitals?

1.5.2. Specific Research Questions

1. What is the level of health care workers' knowledge regarding infection prevention and standard precautions?
2. What are the health care workers' attitude and practices in compliance with Infection prevention standards?
3. How committed and supportive is the hospital management to implementing infection prevention and control measures?

1.6.0. Research Hypothesis

H1: There are factors that influence health care workers' compliance with infection prevention standard precautions at Kasama General and Mbala General Hospitals.

1.7.0. Significance of the study

This study may be of great help to various stakeholders in both the field of public health, medical health and the academia. To the government, this study may provide a platform upon which policies and programs can be re-designed by policy makers in the health department to help in promoting the implementation and compliance with infection prevention and control standard precautions among the entire health workers' fraternity.

The study may also enlighten the health care workers on the importance of strict adherence and

compliance with infection prevention standard and control standard precautions as this will not only ensure their safety but also promote their productivity and service delivery. Besides, it may also highlight health care providers on the best practices in health services delivery that ensure safety on both the health service provider and the recipient of the services as practiced by other nations which have made significant advancement on compliance.

To the academia, this study may help the academicians to formulate theories which will help in the describing and understanding of factors affecting compliance with infection prevention standard precautions among the health care workers. It may also equip them with the knowledge and information on the various ways in which these factors can be addressed. In view of this, the scholars may be able to come up with academic journals and other literatures materials on infection prevention and control standard precautions and factors affecting compliance.

1.8.0. Scope of the Study

This study will only focus on factors influencing health care workers' compliance with infection prevention and control standard precautions. Geographically, the study will only cover Kasama General and Mbala General Hospitals being the largest and the only second level hospitals in the province. Thematically, the study will only look at the level of health workers' knowledge, attitude and practices regarding infection control, availability of IPC supplies or commodities and exiting administrative and preventive control measures to enable health care workers comply with IPC standard precautions.

1.9.0 Theoretical Framework

This study was guided by the health belief model (HBM). This model explains the relationship between individual's beliefs and health behaviours. This theory has been used as a planning tool for promoting adherence with preventive health behaviours and health care recommendations (Nutbeam & Harris, (2004).

The health belief model (HBM) has six constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. Glanz, et.al, (2008). When health care workers recognize that they are susceptible to the risk of health acquired infections (HAIs) and that they will suffer from serious consequences, they will be interested in complying with infection prevention and control standard precautions (IPCSPs) in order to protect and prevent themselves from acquiring hospital acquired infections. Further, if they receive supportive cues to action such as availability of adequate infection prevention and control supplies or commodities all the time, IPC infrastructure, adequate funding towards infection prevention and control, availability of infection prevention and control policy, standards, guidelines and protocols, regular adequate training, regular IPC performance review meetings, mentorship and technical supervision to build their self-efficacy and the belief that compliance with infection prevention and control standard precautions promotes clean, hygienic and safe working environment and ultimately reduce the risk of getting infected, and that those actions outweigh the costs and barriers, they will be ready to comply.

1.10.0. Conceptual Framework

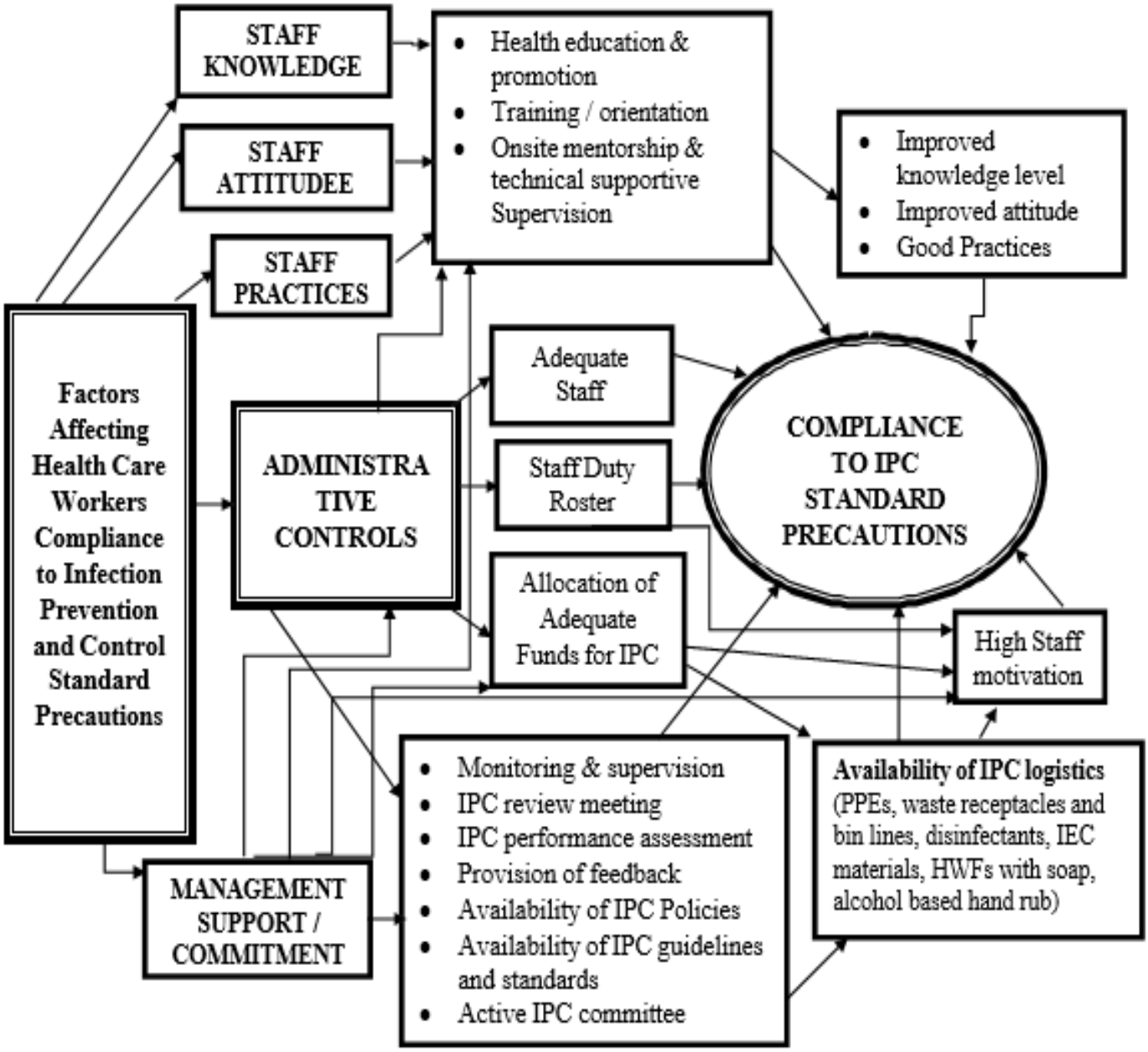


Figure 1: Conceptual Framework for Factors Affecting Health Care Workers compliance with IPC Standard Precaution

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

The Literature review for this study is focused on factors influencing compliance of Health Care Workers' with infection prevention and control standard precautions. For the sake of this study, the literature review has been presented in two (2) categories namely: Infection Prevention and Control (IPC) and Factors Influencing Health Care Workers Compliance with IPC Standard Precautions. The chapter begins by looking at the magnitude of health acquired infection.

2.1. Magnitude of Hospital Acquired Infections

Hospital Acquired Infections (HAI) are a major setback to health care institutions. The prevalence of HAIs varies widely across the globe. Worldwide it is estimated that almost 10% of the hospitalized patients acquire at least one HAI. Data on HAIs in Zambia is currently lacking, but the risk for HAIs is high.

According to WHO Report (2013) on the burden of endemic health care-associated infection worldwide, of every 100 hospitalized patients at any given time, 7 and 10 of them will acquire a HCAI in developed and developing countries, respectively. The increased risk in settings with limited resources is particularly disturbing with an overall frequency of infection as high as 42.7 episodes per 1000 patient-days in developing countries vs 17.0 episodes per 1000 patient-days in industrialized countries. Furthermore, the report highlights that in these high-risk settings, incidence densities of infections associated with the use of invasive devices (central vascular lines, ventilators and urinary catheters) are on average at least three-fold higher in low- and middle-income than in high-income countries.

Percutaneous exposures to blood and body fluids through contaminated needle pricks and sharps are an important occupational hazard for morbidity and mortality from infections with blood- borne pathogens among health care workers. According to WHO (2002), among the 35 million health care workers worldwide, three million experience needle pricks and sharps injuries every year, with a high incidence of these injuries being reported from health care facilities that vary in terms of their level of economic development. Need pricks and sharp injuries pose a considerable risk for the transmission of more than 20 kinds of blood-borne pathogens, such as hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). Yacoub R, et.al, (2010). Exposure due to sharps injury in the workplace accounts for 40% of infections with HBV and HCV and 2-3% of HIV infections among health care workers WHO, (2002).

2.3. Infection Prevention and Control

Infection Prevention and control is a programme, which prevents cross infection between patients, staff and patients; and vice versa. It also aims at promoting the health carers and workers, and thus reduces infection or disease outbreaks and absenteeism as a result of Sickness among nurses and the Hospital workers. Therefore, each health care institution needs an effective Infection Prevention Programme (An infection prevention manual for community and health care institution in developing world, 2004).

World Health Organization (WHO) defines Infection Prevention and Control (IPC) as a scientific approach and practical solution designed to prevent harm caused by infection to patients and health workers. It is grounded in infectious diseases, epidemiology, social science and health system strengthening. Infection Prevention and Control (IPC) also refers to evidence-based practices and procedures that, when applied consistently in health care settings, can prevent or reduce the risk of transmission of microorganisms to health care providers, clients, patients, residents and visitors.

Infection prevention and control is required to prevent the transmission of communicable diseases in all health care settings (WHO, 2018). Infection prevention is a critical component of quality health care services, yet it has not been adequately addressed (Infection Prevention Guidelines, Zambia, 2003).

According to Bohmer and Imison (2013), the purpose of infection prevention and control is to reduce the occurrence of infectious diseases that are usually caused by bacteria or viruses and can be spread by human-to-human contact, animal-to-human contact, human contact with an infected surface, airborne transmission through tiny droplets of infectious agents suspended in the air, and finally by such common vehicles as food or water.

Efstathiou, Papastavrou, Raftopoulos, Merkouris (2011) reported that infection control has become a formal discipline in many countries due to the spread of infections in hospitals. This is because there is both the risk of health care providers acquiring infections themselves, and of them passing infections on to patients.

The Zambia Infection Prevention Guidelines first edition was developed in 2003 by the Central Board of Health. The purpose of developing the Infection prevention guidelines was to provide standard guidelines for infection prevention practices applicable at all levels of the health care system in Zambia, which are technically sound and also feasible in the current environment of health care services in Zambia (CBoH, 2003).

2.4. Infection Prevention and Control Standard Precautions

Infection prevention Standard precautions are guidelines recommended by the Centre for Disease Control and Prevention for reducing the risk of transmission of blood-borne and other pathogens in hospitals. The standard precautions synthesize the major features of universal precautions (designed to reduce the risk of transmission of blood borne pathogens) and body substance isolation (designed to reduce the risk of pathogens from moist body substances) and apply to all patients receiving care in hospitals regardless of their diagnosis or presumed infection status. Standard precautions apply to blood, all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain blood. The precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in hospitals CDC, (2010).

Standard Precautions are a set of practices that should be used in the care and treatment of all patients, regardless of whether they are known or suspected to be infected with a transmissible organism (Lemass et al., 2013). According to Lemass et al. (2013), the purpose of Standard Precautions is to break the chain of infection. All people potentially harbour infectious microorganisms. As such, it must be assumed that all blood and body fluids/substances are potentially infectious. Standard precautions are the work practices required to achieve a basic level of infection prevention and control. The use of standard precautions aims to minimize, and where possible, eliminate the risk of transmission of infection, particularly those caused by blood borne viruses (WHO, 2006)

According to CDC (2002) Standard Precautions apply to all patients regardless of their diagnosis or presumed infection status. Standard precautions must be used in the handling of blood (including dried blood), all other body fluids/substances (except sweat), regardless of whether they contain visible blood, non-intact skin and mucous membranes. The elements or components of IPC Standard Precautions include the following practices:

- Hand hygiene at all critical points
- The use of personal protective equipment, which may include gloves, impermeable gowns, plastic aprons, masks, face shields and eye protection
- The safe use and disposal of sharps

- The use of aseptic "non-touch" technique for all invasive procedures, including appropriate use of skin disinfectants
- Reprocessing of reusable instruments and equipment
- Routine environmental cleaning
- Proper waste management
- Respiratory hygiene and cough etiquette
- Appropriate handling of linen.

Standard precautions are meant to reduce the risk of transmission of blood borne and other pathogens from both recognized and unrecognized sources. They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients (WHO, 2006)

The WHO Update (2014) states that the occurrence of fatal infections such as severe acute respiratory syndrome (SARS) and viral haemorrhagic fevers (e.g., Ebola Viral Disease) highlight the serious need for effective infection control practices in health care. Failure to apply infection control measures leads to transmission of infection, and health-care settings can act as amplifiers of disease in the course of outbreaks, with a bearing on both hospital and public health (WHO Update, 2014).

2.5. Factors Influencing Health Care Workers' Compliance with Infection Prevention and Control Standard Precautions

The study conducted by P. Mukwato on compliance with infection prevention guidelines by health care workers at Ronald Ross General Hospital Mufulira District revealed that, factors associated with high compliance were inclusion of Infection Prevention Guidelines in training, high Knowledge of Infection Prevention Guidelines, Hospital Acquired Infections, positive attitude towards Infection Prevention and adequate supplies of Infection Prevention materials (Mukwato P. et al., 2007). This was agreed by the study conducted by Elizabeth on Factors affecting Infection Prevention and Control compliance at St. Dominic Mission Hospital, Ndola Copperbelt, Zambia which revealed that inadequate materials and equipment, workload, shortage of staff and negative attitude were the some of the factors affecting compliance of nurses to infection prevention guidelines (Elizabeth Njovu, 2016). Others were: Overcrowding, inadequate knowledge and finance, also lack of supervision and inadequate departmental meetings on Infection Prevention and Control (Elizabeth Njovu, 2016)

This study was supported by that he study conducted by Hugo Sax on Knowledge of standard and isolation precautions in a large teaching hospital revealed that reasons for noncompliance with guidelines were lack of knowledge, lack of time, forgetfulness, lack of means, negative influence of the equipment on nursing skills, uncomfortable equipment, skin irritation, lack of training conflict between the need to provide care and self-protection and distance to necessary equipment or facility (Hugo Sax et al., 2011).

2.6.Health Care Workers' Knowledge, Attitude and Practices on Infection Prevention and Control

It is known that the triad of knowledge, attitudes and practices in combination governs all aspects of life in human societies, and all three pillars together make up the dynamic system of life itself. These three components can be defined thus: Knowledge is the capacity to acquire, retain and use information; a mixture of comprehension, experience, discernment and skill; Attitudes refer to inclinations to react in a certain way to certain situations; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structures; and Practices mean the application of rules and knowledge that leads to action. Good practice is an art that is linked to the progress of knowledge and technology and is executed in an ethical manner (Kaliyaperumal, Karunamoorthi, 2004). Emerging

diseases like Ebola virus disease (EVD) and Coronavirus disease 2019 (COVID 19) have underlined the need for strengthening IPC with the objective of having resilient healthcare systems, both at the national and facility level.

2.6.1. Health Care Workers' Knowledge on Infection Prevention and Control

According to the Oxford dictionary (2010:827), knowledge is the information, understanding and skills that are gained through education and experience in this case knowledge about infection prevention and control.

It is known that improving knowledge and attitudes of healthcare professionals (HCPs) to infection control standards may influence their compliance with recommended practice (Aboelela et al., 2007). In addition, understanding the knowledge and attitudes can help to target educational strategies in order to improve Health Care Providers' practice considering their perspectives and needs (Askarian et al, 2005, Paudyal et al., 2008). Educating health care providers is a vital strategy for effective infection control (WHO, 2005).

2.6.1.1 Adequate Knowledge

The studies of Mythri, Arun and Kashinath (2015) and Kermode, Jolley, Langham, Thomas, Holmes and Gifford (2005) highlighted that overall knowledge of infection control procedures was good among the health care workers of a government district hospital. Hayeh and Esena (2013) assessed the infection prevention and control (IPC) practices among health workers at Ridge Regional Hospital in Accra (Ghana). The study showed that knowledge in IPC practices among health care workers was moderate 51% (n=204) as availability and access to material for IPC practices at the facility was 58% and overall compliance with IPC guidelines was 54%. Prisca and Dada (2013) also conducted a comparative study on knowledge, attitude, and practice of injection safety among nurses in two hospitals in Ibadan, Nigeria. This comparative study was carried out in two hospitals in Nigeria. The study revealed that respondents' knowledge level was high; 70.4% associated unsafe injection with blood-borne infection, 55.9% had correct information that two handed recapping is not a safe injection practice, 84.4% claimed that contaminated sharps predisposes the community to bio-hazards, and 76.1% had correct information that used syringes and needles should be discarded in a sharp waste box.

2.6.1.2 Inadequate Knowledge

Failure to apply infection control procedures favours the transmission of pathogens, and health- care settings can act as amplifiers of disease during epidemics, with a bearing on both hospital and public health (WHO, 2016). According to WHO (2016), a huge gap exists between the knowledge accumulated over the past decades and implementation of infection control practices. This gap is even deeper in poor-resource settings with devastating consequences. Breaches of infection control measures undermine every advance and investment in health care (WHO, 2016).

Lack of knowledge among Health care workers can increase the rate of the hospital acquired infections. This is supported by a study that was conducted in Zimbabwe by Tirivanhu, Ancia and Petronella (2014) on the barriers of infection prevention and control practices among nurses at the Bindura provincial hospital. The study revealed that the majority of nurses lacked knowledge of infection control principles as only 14 (28%) of 50 nurses had excellent knowledge on infection control. According to Olowookere, Abioye-Kuteyi, Adepoju, Esan, Adeolu, Adeoye, Adepoju and Aderogba (2015), the study in which preparedness of health workers in the control and management of Ebola Viral Disease (EVD) was assessed, the results showed knowledge gap and poor infection control preparedness among respondents.

Valenti and Anarella (2004), conducted a survey on hospital personnel's knowledge about AIDS among the nurses in England. Despite the survey revealing respondents' high knowledge of the disease which appeared to increase with their level of medical education, all respondents were found to have lower scores on the questions concerning infection control precautions.

According to Ojulong, Mitonga and Lipinge (2013), infection control practices are aimed at reducing the incidence of nosocomial infections. Ojulong et al. (2013), evaluated knowledge and attitudes of infection prevention and control among health science students at the University of Namibia. The study revealed that knowledge about infection prevention and control and awareness of its importance among health science students was poor. It was therefore concluded that serious efforts are needed to improve or review curriculum so that health science students'

knowledge on infection prevention and control is imparted early, before they are introduced to the wards (Ojulong et al., 2013).

El-Enein, Younis, Mahdy and Hala (2011) determined the degree to which standard precautions were applied by nurses in a dialysis unit in Stellenbosch University in terms of hand hygiene and use of personal protective equipment. The study reviewed that less than half of the nurses (47.1%) correctly knew that they had to wash their hands before and after caring for a patient. According to Sessa et al. (2011), who assessed the level of knowledge, attitude and practice regarding disinfection procedures among nurses in Italian hospitals. The study indicated that the level of knowledge, particularly of the most common HAIs, was not satisfactory and a small percentage of nurses reported that they appropriately perform the disinfection in their working activity. Therefore, Sessa et al. (2011) recommended HAIs control and training programmes to address shortfalls and to improve knowledge and adherence to procedures and HAIs prophylaxis and management for patient safety and the reduction of HAIs.

Another study was done by Sreedharan et al (2009) on knowledge about standard precautions among university hospital nurses in the United Arab Emirates. This study was conducted to assess the awareness and knowledge of standard precautions among nurses in a university teaching hospital in Ajman, United Arab Emirates. Less than half agreed that standard precautions aimed to protect both health care workers as well as patients (45.9%). The study highlights a need to implement a program to improve knowledge on standard precautions among the nurses and other health workers. However, the studies reviewed only targeted nurses leaving out other important health care workers such as clinicians and paramedics. This study, therefore, does not only targeted nurses but also clinicians and paramedics.

2.6.2. Health Care Workers' Attitude towards Infection Prevention and Control

According to the Oxford dictionary (2010), attitude is the way you think, feel and behave about something, in this case, attitude towards infection prevention and control. Despite the knowledge that dirty hands play a significant role in the spread of health-care related pathogens, and that hand hygiene (HH) decreases the spread of these organisms, health-care worker's adherence with Hand Hygiene is poor (Dixit, Hagtvedt, Reay, Ballermann & Forgie, 2012). Dixit et al. (2012), who explored the attitude and beliefs about hand hygiene among paediatric residents showed that paediatric residents' compliance with Hand Hygiene was influenced by role modeling, balancing hand hygiene with other competing factors and the drive for self-protection and personal cues. According to Lemass et al. (2013), hands of the practicing staff are the most important vehicles of cross-infection. Furthermore, hands of patients can also carry microbes to other body sites, equipment and staff. Hand hygiene is one of the most effective means of preventing nosocomial infections (Lemass et al., 2013). There is now absolute indication that strict adherence to hand hygiene decreases the risk of cross-transmission of infection (Mathur, 2011). In

settings with insufficient financial and human resources, lack of time is an important observed and self-reported barrier to hand hygiene (WaterAid, 2016). Sarani, Balouchi, Masinaeinezhad and Ebrahimitabs (2015) assessed the knowledge, attitude and practices of nurses about Standard Precautions for Hospital-Acquired Infections in Teaching Hospitals. The results showed that 43% of nurses had a poor attitude, 37% had an average attitude and 33% had a good attitude towards standard precautions. Implementation of Standard precautions is vital in the prevention of transmission of infection to patients and staff (Lemass et al., 2013).

Hu, Zhang, Li, Liu, He, Zhu, Wang, Cao and Zhao (2012), examined the knowledge, attitudes and self-reported behaviour and barriers to compliance with the use of personal protective equipment (PPE). The study involved ICU health care workers (HCWs) during pandemic influenza. The study showed that only 55% of Chinese critical care clinicians reported compliance with PPE use during pandemic influenza, putting HCWs and their patients at risk. Both attitudes towards PPE use and perceived organizational norms have been recognized as predictors of compliance. Hand hygiene is the single most important intervention to prevent transmission of infection and should be a quality standard in all health institutions.

2.6.2.1. Negative Attitude towards Infection Prevention and Control

The negative attitude towards infection prevention and control can promote transmission of infection from one point to another. According to Ward (2012), nursing students generally observed a bad approach towards infection prevention and control from qualified staff, besides IPC was considered to be an added job load as different to a central feature of patient safety and excellent care. Surgical operations provide opportunities for the transmission of infection between patients and health-care workers (HCWs) and between patients. This risk may increase
in underdeveloped and developing countries by low compliance with infection control policies and precautions (McGaw, Tennant, Harding, Cawich, and Crandon & Waters, 2012).

2.6.2.2. Positive Attitude towards Infection Prevention and Control

Positive attitude towards infection prevention and control can reduce the rate of Hospital acquired infections. Conducting a study to assess knowledge and attitude of health-care workers (HCWs) and patients on health care associated infections (HAIs) in the central regional hospital in Ghana, Ocran and Tagoe (2014) indicated that attitudinal change is the best means of prevention. The study showed an increase in the number of subjects in each category scoring good and excellent in the post-education questionnaire. Sessa, Giuseppe, Albano and Angelillo (2011) assessed the level of knowledge, attitudes and practices regarding disinfection procedures among nurses in Italian hospitals. The study revealed an extremely positive attitude towards the utility of guidelines and protocols for disinfection procedures.

2.6.3. Health Care Workers Infection Prevention and Control Practices

According to the Oxford dictionary (2010), to practice is to do something regularly as part of your normal behaviour which in this case is infection prevention and control practices. It is, therefore, important that all health workers strictly adhere to infection control guidelines, especially nurses because they spend more time with the patients.

A safe injection is one that does not hurt the recipient, does not render the provider to any preventable risks and does not cause harm to the community when disposed of. Unsafe injection practices can lead to the transmission of blood borne pathogens, with their associated burden of disease (WHO, 2010). Safe injection practices are standard precautions aimed at maintaining basic levels of patient safety and

provider protections. In this regard, Ambulatory Surgical Center (ASC) quality collaboration (2016) states that when safe injection practices are not used, diseases like HIV, hepatitis C virus and hepatitis B virus can be spread from patient to patient when safe injection practices are not used. Instructors and students on education and knowledge, found that there were poor practices, and stated the importance of continuous education to acquire adequate knowledge to aid compliance to Infection Prevention and Control guidelines (Askarian Mehrdad et al., 2009). The low response on washing of hands (50%) when nurses come for work and before leaving work signified noncompliance to Infection Prevention and Control guidelines. According to Zambia Nursing Health Service Professionals (2013), good hand hygiene is the most important practice in reducing transmission of infectious agents as well as health-care associated infections. Respiratory hygiene or cough etiquette has been added to standard infection control precautions due to a recent global influenza pandemic. Furthermore, general good practices include ensuring that occupational immunization and clearance are up to date for all staff. All staff must dispose of clinical waste according to local policy with sharps in assembled sharp container. Furthermore, glove use does not remove the need to comply with hand hygiene. Hands should be washed prior to putting on gloves and hand hygiene should be performed immediately after glove removal.

According to McQuiod-Mason (2012), liability for hospital-acquired infections (HAIs) depends on whether the hospital has introduced best practice infection control measures and has implemented them. Alternatively, will be vicariously liable for negligent or intentional failures by staff to comply with infection control measures implemented (McQuiod-Mason, 2012). Attitude and practices regarding Infection Prevention and Control guidelines among Health Care Providers were still low, revealed by Ajay, after conducting a study on hand hygiene among Health Care Providers. His conclusion was that there was need to address understanding and attitude to Infection Prevention and Control guidelines (Ajay K. et al., 2012).

2.7. Health Care Workers Training on Infection Prevention and Control

Training in infection prevention can influence health care Workers compliance with Infection Prevention and Control standard precautions. The study conducted by Jain Health care providers who trained in infection prevention are more likely to comply with infection prevention guidelines than those who are untrained. Training can help health care providers realize the importance of basic infection control practices such as hand hygiene, standard precautions, post- exposure prophylaxis and cleaning of the hospital environment (Jain et al., 2012). Khan, Shah, and Fatokun (2014) informed that continuing education programmes and short-time training courses about cross infection and infection control procedures are suitable for health care workers, students and assistants to upgrade as well as reinforce the practices. Educating health care providers is a vital strategy for effective infection control (WHO, 2005). This is supported by the study conducted by Tariku Gebre which revealed that Health Care Workers who took training on standard precaution guidelines were more likely to always comply with SPs as compared to non-trained HCWs (Tariku Gebre Haile, et al., 2017). The possible explanation for this finding could be the fact that training on current guidelines could upgrade the knowledge and skill of HCWs in that they would easily understand basic principles, recommendations, and standards of practice and implement them consistently whenever it is essential to do so. Moreover, up-to-date knowledge and skill regarding SPs could also increase the confidence of HCWs in complying with recommended guidelines De Oliveira, Cardoso and Mascarenhas (2009) assessed the knowledge and behaviour of professionals working in ICU related to the adoption of contact precautions for the control of hospital-acquired infections. The researchers suggested the need to implement educational

activities so as to permit a balance between theory and professional practice concerning hospital infection preventive measures aiming to improve knowledge and behaviour (De Oliveira et al., 2009). Sessa, Di Giuseppe, Albano and Angelillo (2011) assessed the level of knowledge, attitudes and practices regarding disinfection procedures among nurses in Italian hospitals. The survey found that the level of knowledge, particularly of the most common hospital-acquired infections, was not satisfactory and a small percentage of nurses reported that they appropriately performed the disinfection in their practical activity. Moreover, the study also revealed an extremely positive attitude towards the utility of guidelines and protocols for disinfections. Sessa et al. (2011) recommended HAIs control education and training programmes to address these shortfalls and to improve knowledge and adherence to procedures and HAI prophylaxis and management as essential strategies for patient safety and reduction of HAIs.

Jain, Mishra, Thakur and Loom ba (2011) performed an assessment of knowledge and practices of 400 health care personnel on hospital infection and control practices. The practices included hand hygiene, standard precautions (SPs), needle stick injury (NSI), Post-exposure prophylaxis (PEP) and environmental cleaning protocols of the hospital. The result showed that the hospital had suboptimal knowledge regarding the SPs with n=220 (55%) and risks associated with NSI with n=128 (32%). However, the implementation of SPs was biased towards HIV positive status of patient. Jain et al., (2011) concluded that the lack of knowledge and practices regarding basic infection control protocols should be improved by way of educational intervention, in the form of formal training of doctors and nurses and reinforcement of the same.

2.8. Infection Prevention and Control Supplies or Commodities

Medical surgical supplies can influence infection prevention practices of health care providers. In situations where there are no wound cleaning antiseptic solutions or sterile gauze swabs the health care provider may not be able to dress the wound as required. Another important infection preventive protocol that must be complied with is the use of gloves. Appropriate use of gloves prior to contact with blood, body fluids, secretions or excretions is important in the fight against postoperative wound infection (CBoH, 2003). Other procedures that need compliance on the part of the Health care providers are personal protective equipment such as masks, sterile drapes, and procedures such as decontamination, sterilization, and waste management.

Tariku Gebre Haile, et al., (2017) in his study on compliance with standard precautions and associated factors among Healthcare Workers revealed that HCWs who did not have readily accessible personal protective equipment were less likely to always comply with infection and prevention control standard precautions as compared with those who had readily accessible personal protective equipment. This finding could be explained by the fact that almost all Standard Precautions require personal protective equipment which needs to be accessible at the point of use. On the other hand, unless a healthcare worker has a favorable attitude towards complying with Standard Precautions, he/she might take the absence of certain modalities and equipment as an advantage not to practice recommended guidelines. Moreover, frequent inaccessibility of personal protective equipment could decrease the motivation of previously energetic staff and could be a reason for noncompliance.

Valanis et al., (2007) investigated the use of protective measures by nurses handling antineoplastic drugs one year after OSHA issued protective guidelines for handling antineoplastic agents. The investigation compared nurses' utilization of protective measures in a variety of work setting and examined the reasons protective measures were not used. The results consistently indicated less use of protective gear when administering the medication to the patient versus mixing the medication. Common reasons given for not using protective equipment or clothing included non-availability, convenience and comfort for

the nurse, belief that no personal hazard existed, and belief that the use of protective gear was inappropriate. Both the study by Valanis et al., (2007) indicated the nurses' belief systems and practical factors in the workplace strongly affect nursing compliance with the use of protective clothing and equipment when handling antineoplastic drugs.

The study conducted by Elizabeth on factors affecting compliance to infection prevention guidelines revealed that inadequate material and equipment was ranked on top as some of the factors affecting health care worker's compliance with Infection Prevention and Control (Elizabeth Njovu, 2016). Samuel has supported this fact in a study done on availability of Infection Prevention and Control logistics, stated that, lack of water, and poor quality of available soaps, lack of funds, over worked staff, reduced motivation and increased the spread of Health Care Associated Infections, and reduced compliance (Samuel et al., 2005). Other studies supported that inadequate equipment, inadequate space, and staff shortage contributes to poor Infection Prevention and Control despite having Infection Prevention and Control guidelines in place (Of et al., 2010).

2.9. Overcrowding

The study conducted by Florence Nightingale, first nurse on record who attempted to prevent infections during her work in the Crimean War, revealed that placing a large number of patients in limited space contributed to spreading of infections, introduced many hygiene protocols to be complied with (Perry, 2007). Overcrowding as a risk factor for Health Care Associated Infections has been confirmed by Hamel, in a retrospective cohort of adult patients, with exposures characterized as total daily roommate exposures and daily unique roommate exposures (Hamel M et al., 2010). Brown and Arshak agreed to the fact that high bed occupancy, low staff- to-patient ratio contributed to spreading of Health Care Associated Infections (Brown, Crawford et al., 2008),and (Velusamy, Arshak et al., 2010) The study conducted by Elizabeth on Factors affecting Compliance to Infection Prevention and Control Guidelines, by Nurses at St. Dominic Mission Hospital, Ndola Copperbelt, Zambia revealed that overcrowding was among other factors affecting compliance to Infection Prevention and Control Guidelines (Elizabeth Njovu, 2016)

2.10. Human Resource

Availability of appropriate human resources at all the levels of health care is a critical factor in ensuring the delivery of efficient and effective essential health services. Inadequate staffing affects timing of procedures and quality of care offered to patient. In some institutions untrained staff are used to carry out procedures such as wound dressing and this may compromise on compliance to protocols or guidelines to be followed. Therefore, it is important that staff carrying out surgical procedures are trained to do so if post-operative wound infection is to be prevented (Johns, 2012). The study conducted by Thizwilondi Ananias Magadze on factors influencing implementation of infection prevention and control measures revealed that workload and shortage of staff are among the factors which affect compliance to Infection Prevention and Control (Thizwilondi Ananias Magadze, 2016). This was supported with a study conducted by Yassi on shortage of staff and workload, indicating that although the gap between the need for Health Care Providers and the supply was experienced globally, the disproportion was huge, that the regions with the greatest need had the fewest providers: sub-Saharan Africa and southeast Asia together had 53% of the global disease burden but only 15% of the world's Health Care Providers. Moreover, the shortage experienced by countries that can least afford was worsened by Health Care Providers' migration to high-income countries, especially in sub-Saharan Africa (Yassi A et al., 2009). WHO had also indicated that 36 out of identified 57 countries with critical

shortages of Health Care Providers were in Africa (WHO, 2010).

2.11. Monitoring and on-sport Technical Supportive Supervision

Supervision can influence health care providers' infection prevention practices. When health care providers are not supervised regularly, they may tend to be complacent and take it easy since no one is seeing their deeds and actions (Jain, 2012). Therefore, supervisors should visit surgical wards regularly and frequently to monitor the nurses' prevention practices in clinical areas. The study conducted by Gebre on compliance with standard precautions and associated factors among Healthcare Workers revealed that Health Care Workers who had more frequent management support towards safety environment in their institution were more likely to always comply with Standard Precautions as compared to those who had less frequent support (Tariku Gebre Haile, et al., 2017). Laxed supervision and inadequate departmental meetings on Infection Prevention and Control were revealed to be among other factors affecting compliance to infection Prevention and control guidelines by the study conducted on Factors affecting Compliance to Infection Prevention and Control guidelines, by Nurses at St. Dominic Mission Hospital, Ndola Copperbelt, Zambia (Elizabeth Njovu, 2016)

2.12. Management Commitment and Support

Study conducted by E. Mandona on Assessment of Knowledge, Attitude and Practice of Infection Prevention Among Health Care Providers in Chibombo District Zambia Administration indicated that for Infection Prevention programmes to succeed there is need for total financial support from management in terms of resource provision. The study indicated that Management should be able to allocate resources to the Infection Prevention department to ensure that all health care providers have adequate materials for practicing Infection Prevention measures. Further, the study recommended that Management should support the implementation of Infection Prevention guidelines and make Infection Prevention a priority so that the workers can comply with the guidelines. Infection prevention commodities and supplies like protective materials and disinfectants should consistently be made available to avoid short falls which could lead to compromising of IP standards (Evason Mandona eta al, 2019). The study conducted by Elizabeth at St. Dominic Mission Hospital, in Ndola district of the Copperbelt, Zambia revealed that inadequate finance was among factors affecting compliance to Infection Prevention and Control (Elizabeth Njovu, 2011). This is in agreement with Robinson who stated that Africa carried 25% of the world's disease burden, yet had only 3% of the world's Health Care Providers and 1% which was close to nothing of the world's economic resources to meet Infection Prevention and Control challenge (Robinson M, 2008).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

A descriptive research design was used since the study aimed at investigating the factors influencing compliance with infection prevention standards among the health care workers.

3.2 Location of the Study

The study was conducted at Kasama General Hospital in Kasama district and Mbala General Hospital in Mbala district of Northern Province, Zambia. The hospitals are situated in the North of the Country Zambia. Kasama General Hospital is situated within Kasama town with GPS coordinates Longitude 31.1913 and Latitude -10.2196 while Mbala General Hospital is situated 167 km from Kasama the provincial capital city with GPS coordinates of Longitude of 31.3641and Latitude -8.8458.

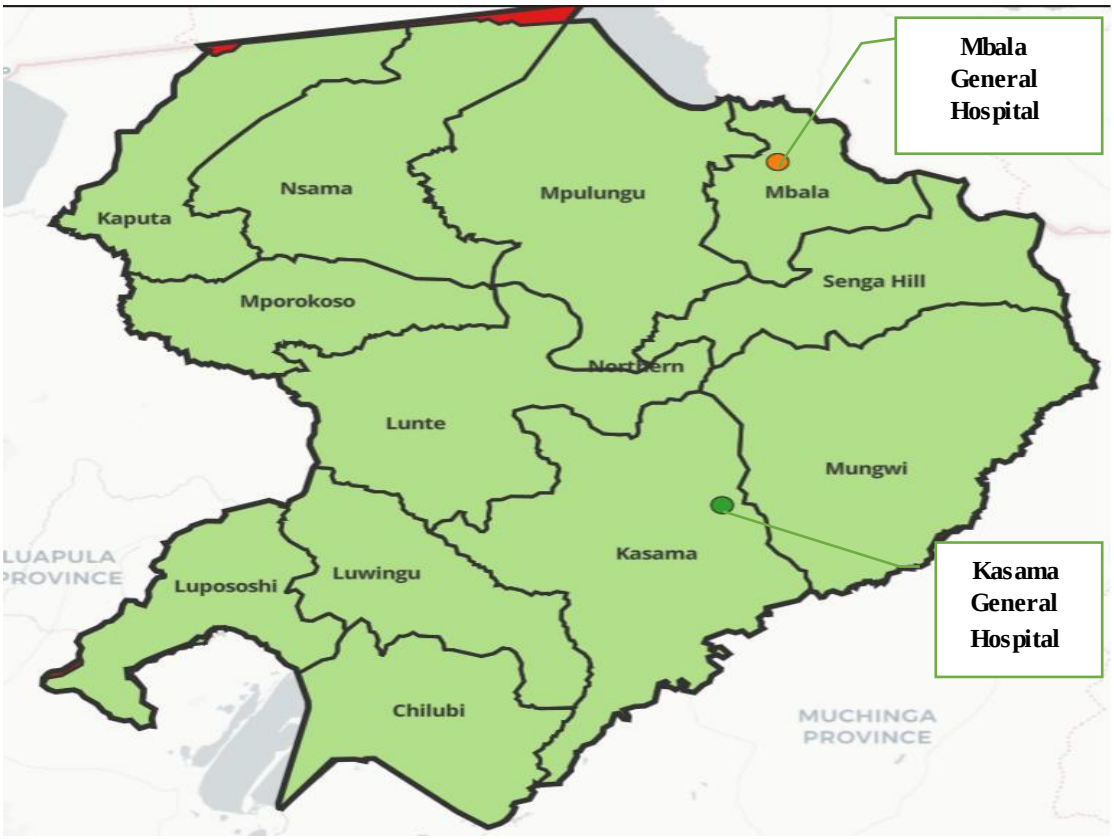


Figure 2: Northern Province Map Showing the Location of Kasama General and Mbala General Hospitals

3.3 Target Population

The target population of the study was qualified health care workers such as clinicians, nurses and paramedics employed at Kasama General and Mbala General Hospitals. At the time of the research, the total number of qualified health workers at Kasama general Hospital was 405 while at Mbala general Hospital was 260. Therefore, the total size population was 665.

3.4.0 Sampling Techniques and Sample Size

3.4.1 Sample size

With the confidence level of 95%, the margin of error of ±5, standard of deviation (0.5) and the known population size for Kasama general hospital(405) and Mbala General Hospital (260), the sample size for Kasama General hospital and Mbala general hospitals was calculated separately using the sample size online calculator as well as the standard formula indicated below.

$$n = N \times \frac{\frac{Z^2 \times P \times (1-P)}{e^2}}{\left[N - 1 + \frac{Z^2 \times P \times (1-P)}{e^2}\right]}$$

n = sample size

N = Population size,

Z = z-score (1.96) for the confidence of 95% p = Standard of deviation (0.5)

e = Margin of error ± (5% or 0.05)

3.4.1.1 Sample size for Kasama General Hospital

$$n = 405 \times \frac{\frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2}}{\left[\mathbf{405} - 1 + \frac{1.96^2 \times 0.5 \times (1-.5)}{0.05^2}\right]}$$

$$n = 405 \times \frac{\frac{3.8416 \times 0.5 \times 0.5}{0.0025}}{\left[\mathbf{404} + \frac{3.8416 \times 0.5 \times 0.5}{0.0025}\right]}$$

$$n = 405 \times \frac{384.16}{404 + 384.16}$$

$$n = 405 \times \frac{384.16}{788.16}$$

n = 405 x 0.487413723101908

n = 197.4025578562728

n = 198

3.4.1.2 Sample size for Mbala General Hospital

$$n = 260 \times \frac{\frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2}}{[260 - 1 + \frac{1.96^2 \times 0.5 \times (1-.5)]}{0.05^2}}$$

$$n = 260 \times \frac{\frac{3.8416 \times 0.5 \times 0.5}{0.0025}}{[259 + \frac{3.8416 \times 0.5 \times 0.5]}{0.0025}}$$

$$n = 260 \times \frac{384.16}{259 + 384.16}$$

$$n = 260 \times \frac{384.16}{643.16}$$

$n = 260 \times 0.0597300827165868$

$n = 155.2982150631258$

n = 156

Therefore, the total sample size for the two general hospitals is: 198+156 = **354**

3.4.2. Sampling Techniques

Simple random sampling was applied to obtain eligible participants. All the eligible participants were selected and those who consented to participate were recruited into the study.

3.5.Study Instruments

Quantitative data was collected using a self-administered semi structured questionnaire while qualitative data was collected using key informant interview guide.

3.6.Inclusion Criteria

- Qualified staff such as Nurses, clinicians, laboratory personnel, radiographers, Pharmacists, Physiotherapists and dentists who are directly involved in attending to patients and have worked for more than six months
- Environmental health technologists who are directly involved in the disinfection of hospital premises, health care waste management and supervision of cleaners who have worked for more than six months.
- Above mentioned cadres willing and consenting to participate in the study.

3.7. Exclusion Criteria

- Unqualified staff such as classified daily employees (CDEs)
- Nonmedical staff such as human resource officer, procurement officer, secretary, medical clerks, medical equipment officers and electricians
- None consenting nurses, clinicians, radiographers, physiotherapists, pharmacists, dentists,

laboratory staff and Environmental Health Technologists
- Staff on leave or on weekly off
- Medical students and nurses on internship program

3.8. Study Variables

Variables are qualities, properties or characteristic or attributes of a person, things or situations that change or vary in a study (Burns & Grove, 2001). This study will consider two main variables which are: The Dependent and Independent variables.

3.8.1. Dependent Variables

A dependent variable is a variable that is used to describe or measure the problem (core problem) under study. This is the outcome variable of interest, the variable that is hypothesized to depend on or to be the cause by another variable (Independent variable), sometimes referred to as the criteria variable according to (Burns & Grove, 2001:168). The dependent variables for this study are:
- Knowledge on infection prevention and control
- Elements or components of Infection prevention and control standard precautions
- Infection Prevention practices.
- Attitudes of health care workers.

2.8.2. Independent Variables

The Independent variable is a variable that is assumed to cause or at least influences the problem. This is a variable that is believed to cause or influence the dependent variable, in experimental research, the manipulated variable, (Burns & Grove, 2001:168). The independent variables for this study are:
- IPC mentorship and technical support
- Training in Infection Prevention and Control
- Availability of Infection Prevention standards, guidelines and protocals
- IPC performance review meetings
- Staff shortage
- Availability of Personal Protective Equipments
- Availability of medical equipments
- Availability of disinfectants
- Hand washing facilities with water and soap
- Monitoring and Supervision
- Demographic data

3.9. Pretesting of Study Instruments

The questionnaire was pretested at Mungwi District Hospital. Ten (10) health care workers were recruited for piloting the study instruments. This enabled the researcher to test the suitability of the data collection tools and therefore allowed the researcher to make necessary corrections. Questionnaires were administered to the respondents with the help of research assistants and interpretation of the response alternatives and queries was carried out to form items that bear the same meaning but are not identical. The researcher also verified if the questions were comprehended the same way by the respondents. In addition, average time taken to complete the questionnaire was noted and the overall pilot test results were discussed with the supervisor and adjustments were made according to the results

of the instruments review and pilot test prior to the production of the final instruments.

3.10. Reliability of Questionnaires

Reliability refers to how consistent a research procedure or instrument is (Bryman, 2008). It therefore means the degree of consistency demonstrated in a study. The researcher maintained a high level of reliability in this study by ensuring that questions in the interview schedule were designed using simple language that is easy to understand by the respondents. This interactive approach to information collection enabled the researcher to elaborate and clarify questions in order to elicit reliable responses.

3.11. Data Collection Techniques and Cleaning

Data was collected using self-administered semi structured questionnaire. These questionnaires were checked for completeness and consistency upon collection. Data was also collected using a focus group discussion (FGD).

3.12. Data Analysis

Statistical Package on Social Science (SPSS) version 27 was used to analyze the quantitative data while qualitative data was analyzed through the use of content analysis techniques such as narratives, explanations and discussions.

3.13. Presentation of Results

The results have been presented in form of tables and bar graphs and a narrative explanation accompanying each form of presentation.

3.14. Ethical Considerations

A written permission to carry out this research was sought from the management both at Kasama General and Mbala General Hospitals. Consent from the study participants was obtained. The research was conducted with much consideration in ensuring subject's anonymity and dignity, hence, participants were allowed not to respond to questions they would feel uncomfortable with and study participants had the right to refuse and withdraw from participating in the research without any explanation and they had the right to ask any question any time. The anonymity of participants was guaranteed by non-disclosure of identification details such as name or address.

3.15. Limitations

The study could have brought more than what is contained in this report. However, this could not have been done due to limited funds, time and other necessary logistical requirements. The study was wholly sponsored by the researcher, hence, insufficient fund impeded the researcher in sourcing for the more relevant materials, literature or information in the process of data collection. The researcher was also simultaneously engaged in this study with other competing professional work. This therefore, cut down on the time devoted for the research work.

CHAPTER FOUR: RESEARCH RESULTS

4.1.Respondents Social Demographic Characteristics

4.1.1. Age of Respondents

Age of respondents			
Age Range	**Kasama GH**	**Mbala GH**	**Total**
21-30 Years	74 (37.4%)	77 (49.4%)	**151 (42.7%)**
31-40 Years	89 (44.9%)	57 (36.5%)	**146 (41.2%)**
41-50 Years	8 (4.0%)	22 (14.1%)	**30 (8.5%)**
51 Years and above	27 (13.6%)	0 (0.0%)	**27 (7.6%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 1: Showing Age of Respondents

As indicated in the table above, out of the 198 total respondents at Kasama General hospital, 37.4% were in the age range of 21-30 years, 44.9% were in the age range of 31-40 years, 45% were in the range of 41-50 years and 13.6% were in the age range of 50 years and above while at Mbala General Hospital, out of the 156 to respondents. 49.4% were in the range of 21-30 years, 36.5% were in the range of 30-40 years and 14.1% were in the range of 41-50 years. Mbala general hospital had zero respondents in the range of 51 years and above. Therefore, out of the 354 total respondents for both Kasama General and Mbala General Hospitals, 42.7% were in the range of 21-30 years, 41.2% were in the range of 31-40 years, 8.5% were in the range of 41-50 years and 7.6% were in the range of 51 years and above.

4.1.2. Sex of Respondents

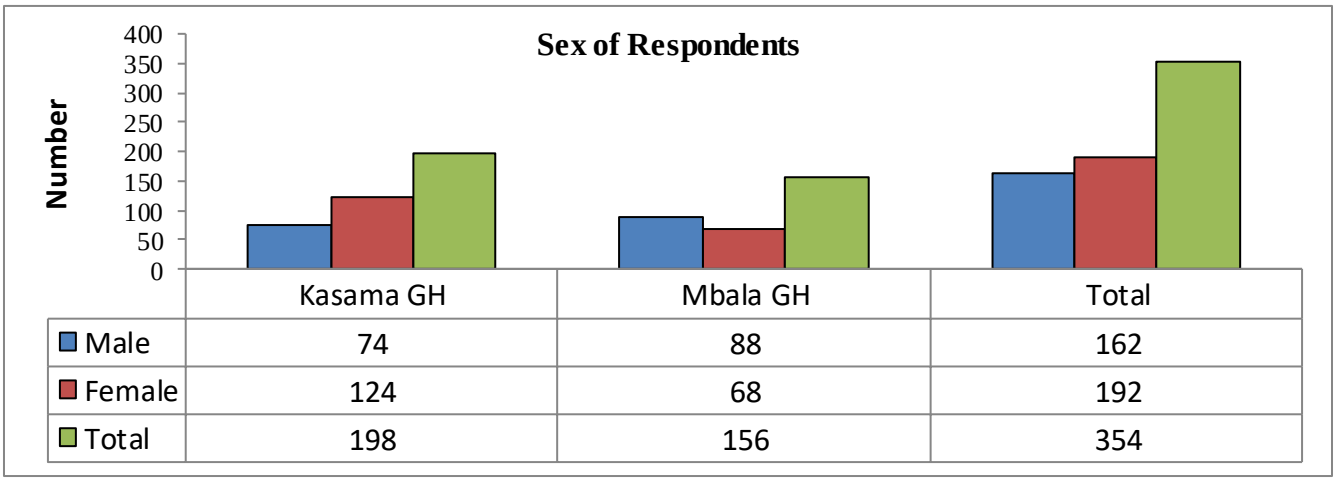


Figure 3: Showing Sex of Respondents

As shown by the diagram above, 74 out of the 198 total respondents at Kasama general hospital were male representing 37.4% and 124 were female representing 62.6% while at Mbala general hospital 88 out of 156 respondents were male representing 56.4% and 68 were female representing 43.6%. Therefore, out the total of 354 respondents for both Kasama general and Mbala general hospitals, 162 were male representing 45.8% and 192 were female representing 54.2%.

4.1.3. Marital Status

Marital Status			
	Kasama GH	**Mbala GH**	**Total**
Single	71 (35.9%)	83 (53.2%)	**154 (43.5%)**
Married	115 (58.1%)	73 (46.8%)	**188 (53.1%)**
Separated	0 (0%)	0 (0%)	**0 (0%)**
Divorced	0 (0%)	0 (0%)	**0 (0%)**
Windowed	12 (6.1%)	0 (0%)	**12 (3.4%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 2: Showing Marital Status of Respondents

As indicated in the table above, out of the 198 total respondents at Kasama general hospital, 35.9% were single, 58.1% were married and 6.1% were windowed while at Mbala general hospital, out of the 156 total respondents, 53.2% were single and 46.8% were married. Kasama general hospital had no respondents who were separated and divorced while Mbala hand no respondents who were separated, divorced and windowed. Therefore, out of the 354 total respondents for both Kasama General and Mbala general hospitals, 43.5% were single, 53.1% were married and 3.4% were windowed.

4.1.4. Education Status of Respondents

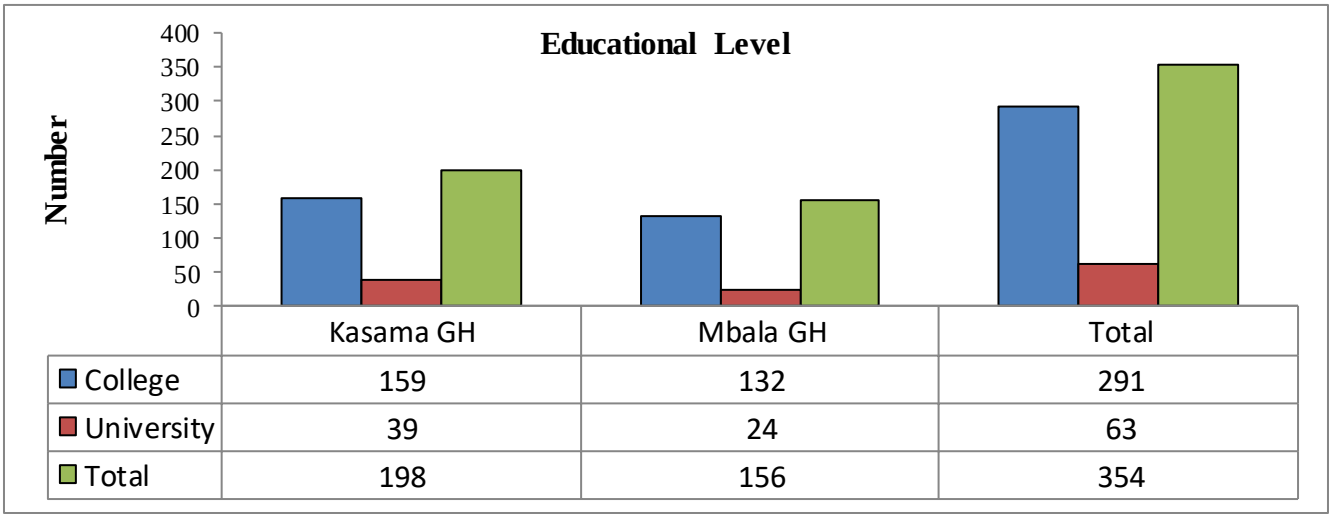


Figure 4: Showing Education Status of the Respondents

As shown by the diagram above, out of the 198 total respondents at Kasama general hospital, 159 reached college level representing 80.3% and 39 were university graduate representing 19.7% while at Mbala general hospital 132 out of the 156 total respondents reached college level representing 84.6% and 24 were university graduate representing 15.4%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 291 attended college education representing 82.2% and 63 were university graduate representing 17.8%.

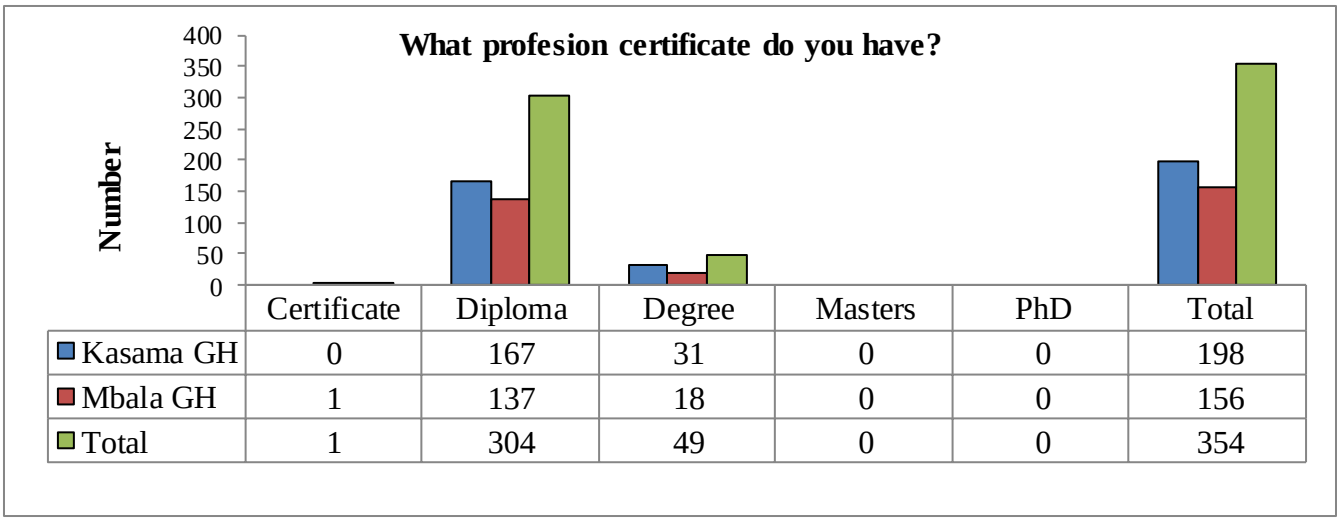
4.1.5. Respondents by Profession

Respondents by Profession			
	Kasama GH	**Mbala GH**	**Total**
Nurse	180 (90.9%)	136 (87.2%)	**316(89.3%)**
Medical Doctor	6 (3%)	4 (2.6%)	**10 (2.8%)**
Clinical Officer	2 (1%)	6 (3.8%)	**8 (2.3%)**
Medical Licentiate	0 (0%)	1 (0.6%)	**1 (0.3%)**
Environmental Health Technologist/Officer	3 (1.5%)	2 (1.3%)	**5 (1.4%)**
Radiographer	3 (1.5%)	4 (2.6%)	**7 (2%)**
Biomedical Officer	4 (2%)	3 (1.9%)	**7 (2%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 3: Showing Respondents by Profession

As indicated in the table above, out of the 198 total respondents at Kasama general Hospital, 90.9% were nurses, 3% were doctors, 1% were clinical officers, 1.5% were Environmental health technologists, 1.5% were radiographers and 2% were biomedical officers while at Mbala general hospital, 87.2% were nurses. 2.6% were medical doctors, 3.8% were clinical officers, 0.6% were medical licentiates, 1.3% were Environmental health technologists, 2.6% were radiographers and 1.9% were biomedical officers. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 89.3% were nurses, 2.8% were medical doctors, 2.3% were clinical officers, o.3% were medical licentiates, 1.4% were environmental health technologists. 2% were radiographers and biomedical officers were also 2%.

4.1.6. Respondents Profession Certificate Obtained



	Certificate	Diploma	Degree	Masters	PhD	Total
Kasama GH	0	167	31	0	0	198
Mbala GH	1	137	18	0	0	156
Total	1	304	49	0	0	354

Figure 5: Showing Respondents Profession Certificate Obtained

As shown by the diagram above, out of the 198 total respondents at Kasama general hospital, 167 obtained diploma certificates representing 84.3% and 31 obtained degree certificates representing 15.7% while at Mbala general hospital, 1 out of the 156 total respondents obtained certificate representing

0.6%, 137 obtained diploma certificates representing 87.8% and 18 obtained degree certificates representing 11.5%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 1 obtained certificate representing 0.3%, 304 obtained diploma certificates representing 85.9% while 49 obtained degree certificates representing 13.8%.

4.1.6. Duration of Service

Duration of Service			
	Kasama GH	**Mbala GH**	**Total**
6-11months	7 (3.5%)	16 (10.3%)	**23 (6.5%)**
1 to 2 years	21 (10.6%)	37 (23.7%)	**58 (16.4%)**
3 to 4 years	28 (14.1%)	43 (27.6%)	**71 (20.1%)**
5 years and above	142 (71.7%	60 (38.5%)	**202 (57.1%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 4: Showing Duration of Service

As indicated in the table above, out of the 198 total respondents at Kasama general hospital, 3.5% were in the range of 6-11 months of service, 10.6% were in the range of 1 to 2 years in service, 14.1% were in the range of 3 to 4 years in service and 71.7% were in the range of 5 years and above in service while at Mbala general hospital, out of the 156 total respondents, 10.3% were in the range of 6-11 months in service, 23.7% were in the range of 1 to 2 years in service, 27.6% were in the range of 3 to 4 years in service and 38.5% were in the range of 5 years and above in service. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 6.5% were in the range of 6 to 11 months in service, 15.4% were in the range of 1 to 2 years in services, 20.1% were in the range of 3 to 4 years in service and 57.1% were in the range of 5 years and above in services.

4.2.KNOWLEDGE AND AWARENESS ON INFECTION PREVENTION AND CONTROL STANDARD PRECAUTIONS

4.2.1 Respondents Who Have Heard About Infection Prevention and Control

Have you heard about infection Prevention and control?			
	Kasama GH	**Mbala GH**	**Total**
Yes	198 (100%)	156 (100%)	**354 (100%)**
No	0	0	**0**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 5: Showing Respondents Who Have Heard About Infection Prevention and Control

As shown in the table above, 100% of the total respondents at Kasama General and Mbala General Hospitals indicated having heard about infection prevention and Control (IPC).

4.2.2. Knowledge on Infection Prevention and Control

What is infection prevention and control?			
Responses	**Kasama GH**	**Mbala GH**	**Total**
Correct	167 (84.3%)	135 (86.5%)	**302 (85.3%)**
Wrong	19 (9.6%)	14 (9%)	**33 (9.3%)**
No Response	12 (6.1%)	7 (4.5%)	**19 (5.4%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Figure 6: Showing Knowledge of Respondents on Infection Prevention and control

As indicated in the table above on knowledge about what infection prevention and control is, out of the 198 total respondents at Kasama general hospital, 84.3% answered correctly, 9.6% answered it wrongly and 6.1% did not provide response while at Mbala general hospital, out of the 156 total respondents, 86.5% answered correctly, 9% answered it wrongly and 4.5% did not provide the response. Therefore, out of the 354 total respondents both for Kasama general and Mbala general hospitals, 78% answered correctly, 16.7% answered it wrongly and 5.4% did not provide response.

4.2.3. Knowledgeable on IPC Standard Precautions

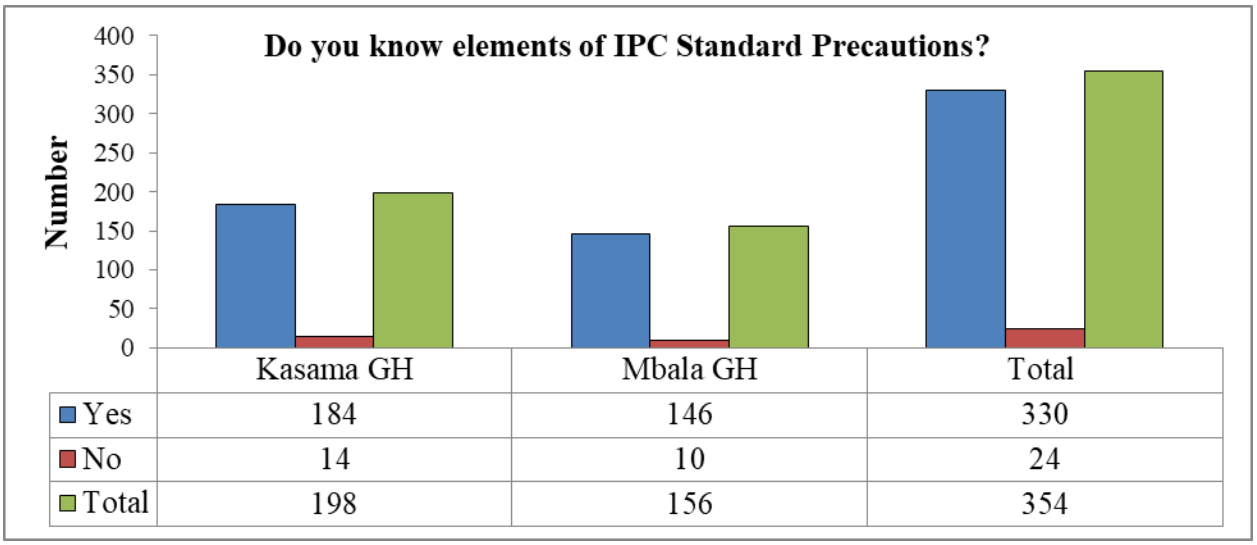


Figure 6: Showing Respondents Knowledgeable on IPC Standard Precautions

As shown by the diagram above on knowledge about IPC standard precautions, out of the 198 total respondents at Kasama general hospital, 184 indicated 'Yes' representing 92.9% and 14 indicated 'No' representing 7.1% while at Mbala general hospital, out of the 156 total respondents, 146 indicated 'Yes' representing 93.6% and 10 indicated 'No' representing 6.4%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 330 indicated 'Yes' representing 93.2% and 24 indicated 'No' representing 6.8%.

4.2.4. Knowledge on Elements /Components of IPC Standard Precautions

If yes you know elements of IPC precautions, list them down			
Responses	**Kasama GH**	**Mbala GH**	**Total**
Correct	146 (79.3%)	124 (84.9%)	**270 (81.5%)**
Wrong	18 (9.8%)	13 (8.9%)	**31 (9.4%)**
No Response	20 (10.9%)	9 (6.2%)	**29 (8.8%)**
Total	**184 (100%)**	**146 (100%)**	**330 (100%)**

Table 7: Showing Knowledge of Respondents on Elements of Standard Precautions

As indicated in the table above, out of the 184 total respondents at Kasama general hospital who indicated to know IPC standard precautions, 79.3% provided correct responses on the components or elements of Infection Prevention Precautions, 9.8% provided wrong responses and 10.9% provided no response while out of the 146 total respondents at Mbala general hospital who indicated to know IPC standard precaution, 84.9% provided correct responses on the components or elements of IPC standard precaution, 8.9% provided wrong responses and 6.2% provided no response. Therefore, out of the 330 total respondents for both Kasama general and Mbala general hospitals who indicated to know IPC standard precautions, 270 provided correct responses representing 81.5%, 31 provided wrong responses representing 9.4% and 29 provided no response representing 8.8%.

4.2.5. Training in Infection Prevention and Control

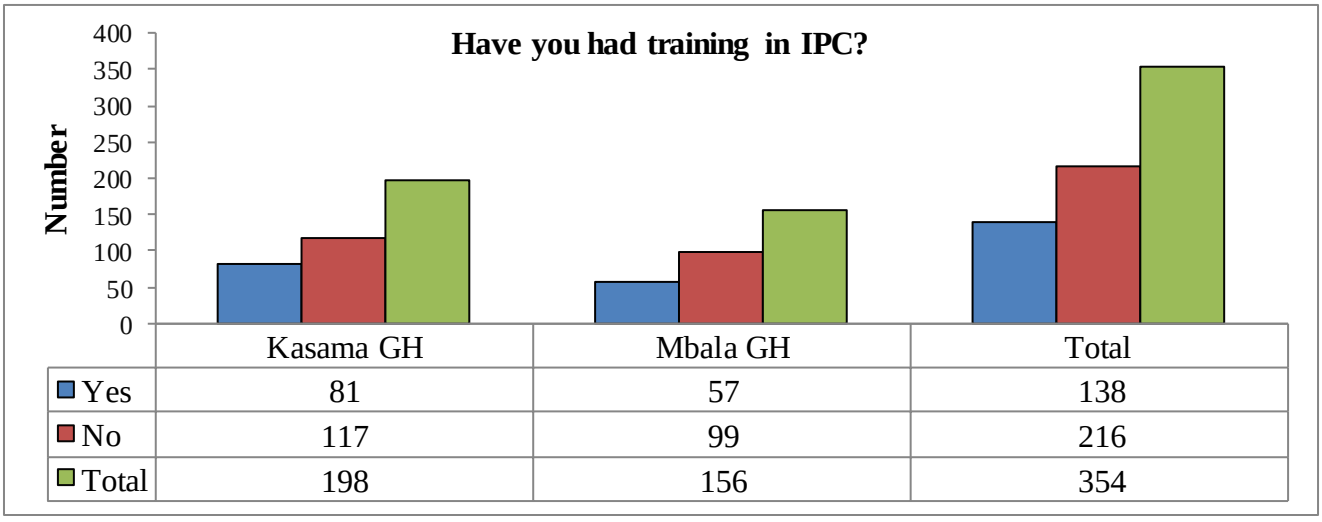


Figure 6: Showing Respondents Trained in Infection Prevention and Control

As shown by the diagram above on whether the participants had a training on Infection Prevention and Control, out of the 198 total respondents at Kasama general hospital, 81 indicated 'Yes' representing 40.9% and 117 indicated "No" representing 59.1% while at Mbala general hospital, out of the 156 total respondents, 57 indicated 'Yes' representing 36.5% and 99 indicated 'No' representing 63.5%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 138 indicated 'Yes' representing 39% and 216 indicated 'No' representing 61%.

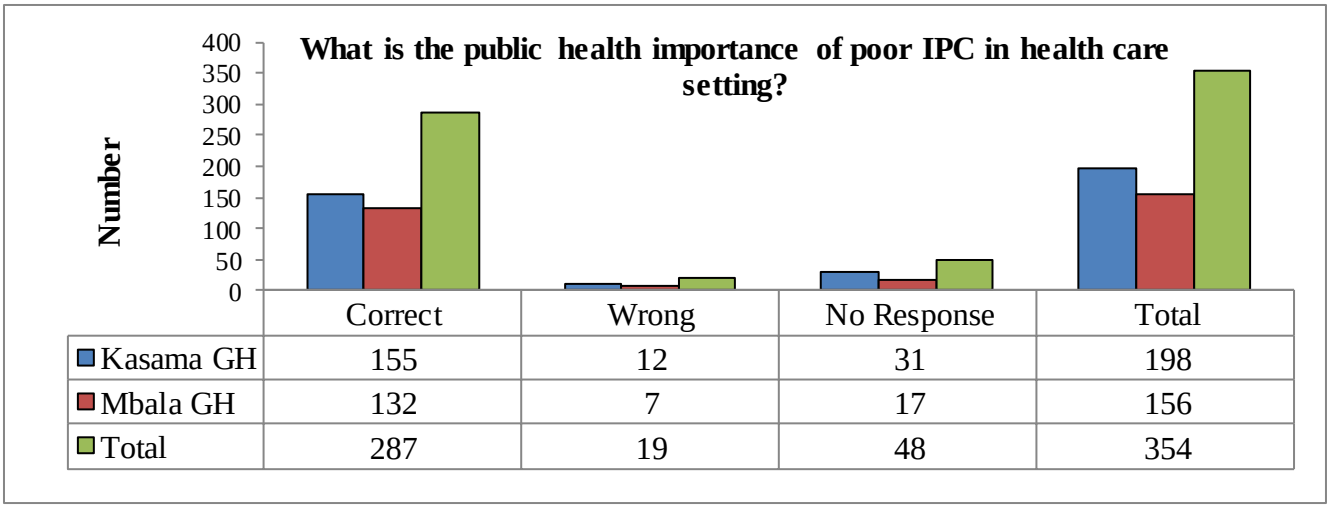
4.2.6. When Training for Health Care Workers was conducted

If yes, when were you trained?			
	Kasama GH	**Mbala GH**	**Total**
1 Week to 11 months ago	20 (24.7%)	12 (21.1%)	**32 (23.2%)**
1 Year to 2 years ago	26 (31.1%)	16 (28.1%)	**42 (30.4%)**
3 Years to 4 years ago	33 (40.7%)	23 (40.4%)	**56 (49.6%)**
5 Years and above	2 (2.5%)	6 (19.5%)	**8 (5.8%)**
Total	**81 (100%)**	**57 (100%)**	**138 (100%)**

Table 8: Showing When Participants Were Trained in IPC

As indicated in the table above, out of the 81 total respondents at Kasama general hospital who indicated to have received a training in IPC, 24.7% indicated to have received training 1 week to 11 months ago, 31.1% indicated to have been trained 1 year to 2 years ago, 40.7% indicated to have been trained 3 years to 4 years ago and 2.5% indicated 5 years and above since they were training in IPC while at Mbala general hospital, out of the 57 total respondents who indicated to have received a training in IPC, 21.1% indicated to have been trained 1 week to 11 months ago, 28.1% indicated to have been trained 1year to 2 years ago, 40.4% indicated to have been trained 3 years to 4 years ago and 19.5% indicated 5 years and above since they were trained in IPC. Therefore, out of the 138 total respondents for both Kasama general and Mbala general hospitals who indicated to have received training in IPC, 23.2% indicated to have been trained 1 week to 11 months ago, 30.4% indicated have been trained 1 year to 2 years ago, 49.6% indicated have been trained 3 years to 4 years ago and 5.8% indicated 5 years and above since they were trained in infection prevention and control.

4.2.7. Knowledge on Public Health Importance of IPC in Health Care Setting



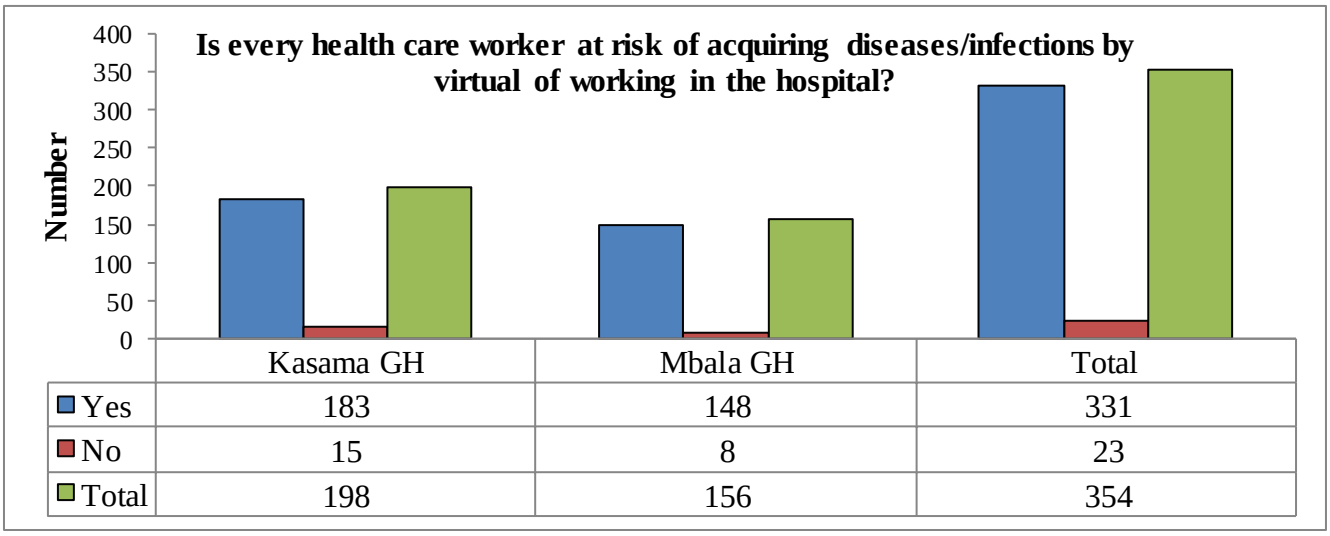
	Correct	Wrong	No Response	Total
Kasama GH	155	12	31	198
Mbala GH	132	7	17	156
Total	287	19	48	354

Figure 7: Showing Knowledge on Public Health Importance of IPC in Health Care Setting

As indicated by the diagram above on public heath importance of poor IPC in health care setting, out of the 198 total respondents at Kasama general hospital, 155 responses were correct representing 78.3%, 12

responses were wrong representing 6.1% were and 31 did not provide responses representing 15.7% while at Mbala general hospital, out of the 156 respondents, 132 responses were correct representing 84.6%, 7 responses were wrong representing 4.5% and 17 did not provide responses representing 10.9%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 287 responses were correct representing 81.1%. 19 responses were wrong representing 5.4% while 48 did not provide responses representing 13.6%

4.2.8. Knowledge on Risk of acquiring diseases/infection



	Kasama GH	Mbala GH	Total
Yes	183	148	331
No	15	8	23
Total	198	156	354

Figure 8: Showing Knowledge on Risk of Acquiring Diseases/Infection

As shown by the diagram above, out of the 198 total respondents at Kasama General Hospital, 183 indicated that every health care worker was at risk of acquiring diseases or infections by virtue of working in the hospital representing 92.8% and 15 indicated that health care workers were not at risk of acquiring diseases or infections by virtual of working in the hospital representing 7.6% while at Mbala general hospital, out of the 156 total respondents, 148 indicated that every health care worker was at risk of acquiring diseases or infections by virtue of working in the hospital representing 94.9% and 8 indicated that health care workers were not at risk of acquiring diseases or infections by virtual of working in the hospital representing 5.1%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 331 indicated that every health care worker was at risk of acquiring diseases or infections by virtue of working in the hospital representing 93.5% while 23 indicated that health care workers were not at risk of acquiring diseases or infections by virtual of working in the hospital representing 6.5%.

4.2.9. Knowledge on how health Care Workers are at Risk

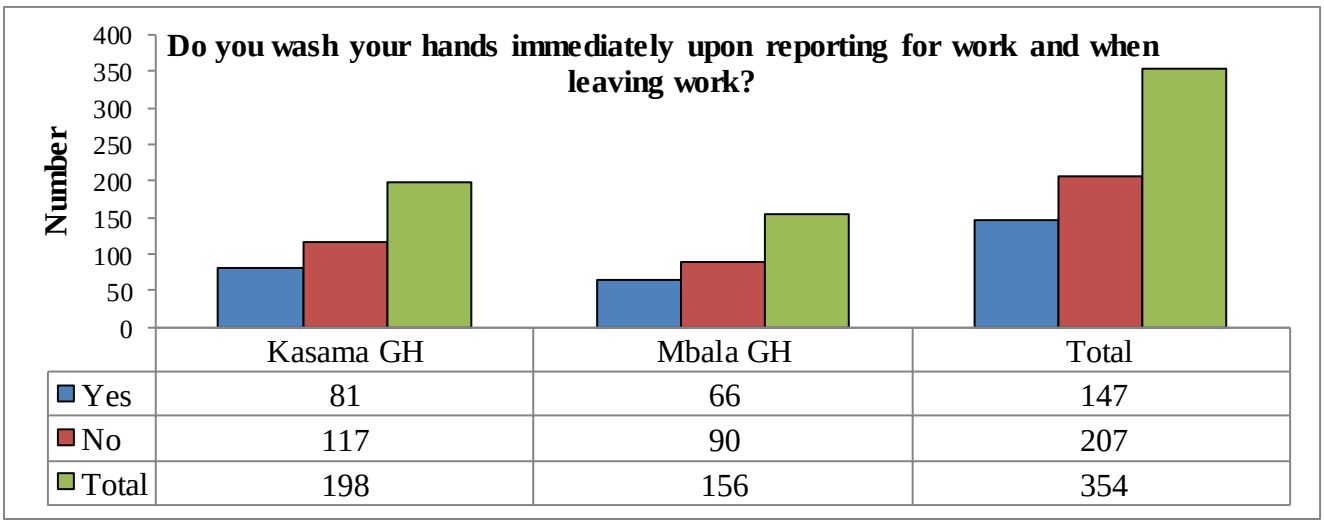
	If yes, how is health care worker at risk?		
Responses	**Kasama GH**	**Mbala GH**	**Total**
Correct	155 (84.7%)	131 (88.5%)	286 (86.4%)
Wrong	12 (6.6%)	7 (4.7%)	19 (5.7%)
No Response	16 (8.7%)	10 (6.8%)	26 (7,9%)
Total	**183 (100%)**	**148 (100%)**	**331 (100%)**

Table 9: Showing Knowledge on How Health Care Workers are at Risk

As shown in the table above, out of the 183 total respondents at Kasama general hospital who indicated that health care workers were at risk of acquiring diseases/infections by virtue of working in the hospital, 84.7% provided correct responses on how the health care worker is at risk, 6.6% provided wrong responses and 8.7% did not provide responses while at Mbala general hospital, out of the 148 respondents who indicated that health care workers were at risk of acquiring diseases/infections by virtue of working in the hospital, 88.5% provided correct responses on how the health care worker is at risk, 4.7% provided wrong responses and 6.8% did not provide responses. Therefore, out of the 331 total respondents for both Kasama general and Mbala general hospitals who indicated that health care workers were at risk of acquiring diseases/infections by virtue of working in the hospital, 86.4% provided correct responses on how the health care worker is at risk, 5.7% provided wrong responses and 7.8% did not provide responses.

4.3.0 HEALTH CARE WORKERS' ATTITUDE AND PRACTICES

4.3.1. Hand Washing Upon Reporting for Work and when Knocking Off



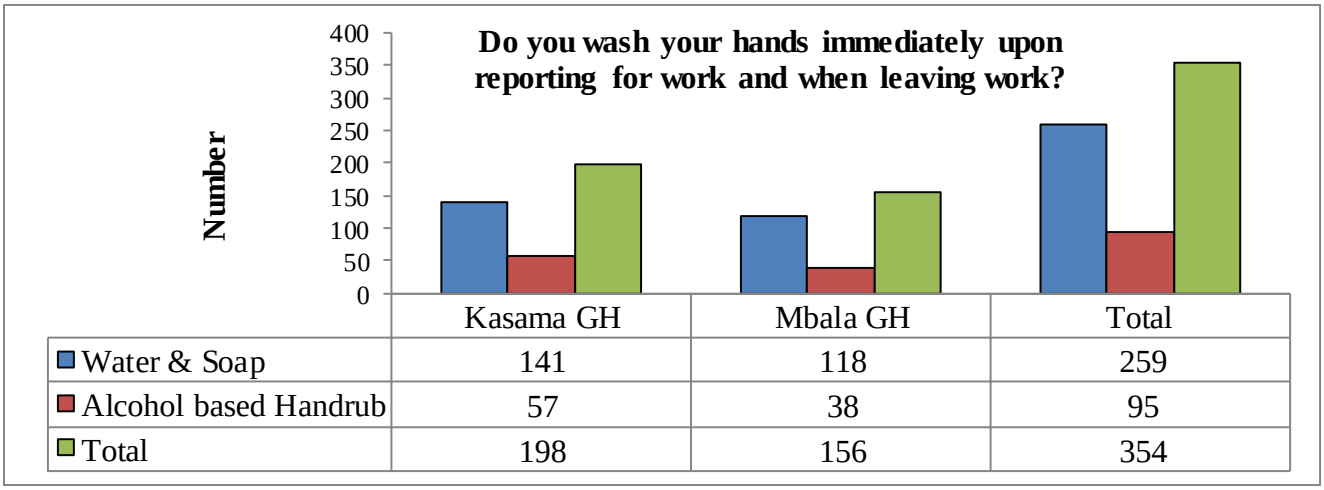
	Kasama GH	Mbala GH	Total
Yes	81	66	147
No	117	90	207
Total	198	156	354

Figure 9: Showing respondents who wash hands immediately upon reporting and when leaving work

As shown by the diagram above on whether health care workers were washing their hands immediately upon reporting for work and when leaving work, out of the 198 total respondents at Kasama general hospital, 81 indicated 'Yes' representing 40.9% and 117 indicated 'No' representing 59.1% while at Mbala general hospital, out of the 156 total respondents, 66 indicated 'Yes' representing 42.3% while

90 indicated 'No' representing 57.7%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 147 indicated 'Yes' representing 41.5% while 207 indicated 'No' representing 58.5%.

4.3.2. What Health Care Workers use for hand Hygiene



	Kasama GH	Mbala GH	Total
Water & Soap	141	118	259
Alcohol based Handrub	57	38	95
Total	198	156	354

Figure 10: Showing what Respondents use for Hand Hygiene

As shown by the graph above, out of the 198 respondents at Kasama general hospital, 141 indicated using water and soap for hand hygiene representing 71.2% and 57 indicated using alcohol based hand rub for hand hygiene representing 28.8% while at Mbala general hospital, out of the 156 total respondents, 118 indicated using water and soap for hand hygiene representing 75.6% while 38 indicated using alcohol based hand rub representing 24.4%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 259 indicated using water and soap representing 73.3% while 95 indicated using alcohol based hand rub representing 26.8%.

4.3.3. How often Health Care Workers Perform Hand hygiene When Providing Health Care Services

How often do you perform hand hygiene when delivering health care services?			
	Kasama GH	**Mbala GH**	**Total**
Before and after contact with each patient	67 (33.8%)	45 (28.8%)	**112 (31.6%)**
Before and after performing any procedure between patients or on the same patient	7 (3.5%)	6 (3.8%)	**13 (3.7%)**
Before putting on gloves and after removing gloves	12 (6.1%)	7 (4.5%)	**19 (5.4%)**
After handling contaminated objects / materials	9 (4.5%)	5 (3.2%)	**14 (4%)**
All the above	103 (52%)	93 (59.6%)	**196 (55.4%)**
None of the above	0 (0%)	0 (0%)	**0 (0%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 10: Showing how often Respondents Perform Hand Hygiene When Delivering Health Care Services

As shown by the table above, out of the 198 total respondents at Kasama general hospital, 33.8% indicated performing hand hygiene before and after contact each patient, 3.5% indicated performing hand hygiene before and after performing any procedure between patients or on the same patient, 6.1%

indicated performing hand hygiene before putting on gloves and after removing gloves, 4.5% indicated performing hand hygiene after handling contaminated objects/materials and 52% indicated performing hand hygiene before and after contact with each patient, before and after performing any procedure between patients or on the same patient, before putting on gloves and after removing gloves as well as after handling contaminated objects/material while at Mbala general hospital, out of the 156 total respondents, 28.8% indicated performing hand hygiene before and after contact with each patient, 3.8% indicated performing hand hygiene before and after performing any procedure between patients or on the same patient, 4.5% indicated performing hand hygiene before putting on gloves and after removing gloves, 3.2% indicated performing hand hygiene after handling contaminated objects/materials while 59.6% indicated performing hand hygiene before and after contact with each patient, before and after performing any procedure between patients or on the same patient, before putting on gloves and after removing gloves as well as after handling contaminated objects/materials. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 31.6% indicated performing hand hygiene before and after contact each patient, 3.7% indicated performing hand hygiene before and after performing any procedure between patients or on the same patient, 5.4% indicated performing hand hygiene before putting on gloves and after removing gloves, 4% indicated performing hand hygiene after handling contaminated objects/materials while 54.4% indicated performing hand hygiene before and after contact with each patient, before and after performing any procedure between patients or on the same patient, before putting on gloves and after removing gloves as well as after handling contaminated objects/material

4.3.4. Utilization of PPEs

4.3.4.1 Usage of Gowns, Masks and goggles/ Face Shield

How often do you use gowns when doing procedures which are likely to generate splashes?			
Utilization of Gowns or Aprons	**Kasama GH**	**Mbala GH**	**Total**
Always	73 (36.9%)	55 (35.3%)	**128 (36.2%)**
Only when gowns or aprons are available	76 (38.4%)	63 (40.4%)	**139 (39.3%**
Some times	33 (16.7%)	28 (17.9%)	**61 (17.2%)**
Rarely	9 (4.5%0	7 (4.5%)	**16 (4.5%)**
I don't use gowns or aprons	7 (3.5%0	3 (1.9%)	**10 (2.8%)**
Total	**198 (100%**	**156 (100%)**	**354 (100%)**
How often do you use masks when attending to patients or when doing procedures which are likely to generate splashes?			
Utilization of Masks	**Kasama GH**	**Mbala GH**	**Total**
Always	99 (50%)	76 (48.7%)	**175 (49.4%)**
Only when masks are available	64 (32.3%)	54 (34.6%)	**118 (33.3%)**
Some times	35 (35%)	26 (15.7%0	**61 (17.3%)**
Rarely	0 (0%)	0 (0%)	**0 (0%)**
I don't use mask	0 (0%)	0 (0%)	**0 (0%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**
How often do you use goggles/face shield when attending to patients or when doing procedures which are likely to generate splashes?			
Utilization of Goggles/Face Shield	**Kasama GH**	**Mbala GH**	**Total**
Always	68 (34.3%)	56 (35.9%	**124 (35%)**

Only when goggles/face shield are available	73 (36.9%)	58 (37.2%)	**131 (37%)**
Some times	31(15.7%)	26 (16.7%)	57 **(16.1%)**
Rarely	14 (7.1%)	7 (4.5%)	**21 (5.9%)**
I don't use goggles or face shield	12 (6.1%)	9 (5.8%)	**21 (5.9%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 11: Showing Utilization of PPEs by Respondents When Performing Procedures Which Are Likely to Generate Splashes

As shown by the table above and in the previous page on the utilization of gowns or aprons, masks and goggles or face shield when performing procedures which are likely to generate splashes, out of the 198 total respondents at Kasama general hospital, 36.9% indicated that they used gowns or aprons always, 38.4% indicated using gowns or aprons only when they are available, 16.7% indicated using gowns or aprons sometimes, 4.5% indicated using gowns or aprons rarely and 3.5% indicated not using gowns or apron at all while at Mbala general hospital, out of the 156 total respondents, 35.3% indicated that they used gowns or aprons always, 40.4% indicated using gowns or aprons only when they are available, 17.9% indicated using gowns or aprons sometimes, 4.5% indicated using gowns or aprons rarely and 1.9% indicated not using gowns or apron at all. Therefore, out of the 354 total respondents both Kasama and Mbala general hospitals, 36.2% indicated that they used gowns or aprons always, 39.3% indicated using gowns or aprons only when they are available, 17.3% indicated using gowns or aprons sometimes, 4.5% indicated using gowns or aprons rarely and 2.8% indicated not using gowns or apron at all.

As regards use of masks, out of 198 respondents at Kasama general hospital, 50% indicated using masks always, 32.3% indicated using masks only when they are available and 35% indicated using masks only sometimes while at Mbala general hospital, out of the 156 total respondents, 48.7% indicated using masks always, 34.6% indicated using masks only when they are available and 15.7% indicated using masks only sometimes. Therefore, out of the 354 total respondents both Kasama and Mbala general hospitals, 49.4% indicated that they used gowns or aprons always, 33.3% indicated using gowns or aprons only when they are available and 17.3% indicated using gowns or aprons sometimes.

As regards use of goggles or face shield, out of 198 respondents at Kasama general hospital, 34.3% indicated using goggles or face shield always, 36.9% indicated using goggles or face shield only when they are available,15.7% indicated using goggles or face shield sometimes, 7.1% indicated using goggles or face shields rarely and 6.1% indicated not using goggles or face shields at all while at Mbala general hospital, out of the 156 total respondents, 35.9% indicated that they used goggles or face shield always, 37.2% indicated using goggles or face shield only when they are available, 16.7% indicated using goggles or face shield sometimes, 4.5% indicated using goggles or face shield rarely while 5.8% indicated not using goggles or face shield at all. Therefore, out of the 354 total respondents both Kasama and Mbala general hospitals, 35% indicated that they used goggles or face shield always, 37% indicated using goggles or face shield only when they are available, 16.1% indicated using goggles or face shield sometimes, 5.9% indicated using goggles or face shield rarely while 5.9% indicated not using goggles or face shield at all.

4.4.Health Care Waste Management

4.4.1 Management of Sharps

How do you manage sharps after using on the patient?			
	Kasama GH	**Mbala GH**	**Total**
The needle and syringe are disposed of immediately after use into a puncture resistant container	148 (74.7%	127 (81.4%)	**275 (77.7%)**
The needle is recapped before disposing of the needle and syringe	0 (0%)	0 (0%)	**0 (0%)**
Syringe and needle are disposed of together with other waste into available waste containers	47 (23.7%)	29 (18.6%)	**76 (21.5%)**
The needle is bent before disposing of the needle and syringe into a puncture resistant container	0 (0%)	0 (0%)	**0 (0%)**
All of the above	3 (1.5%)	0 (0%)	**3 (0.8%)**
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 12: Showing the Management of Sharps after Use on the Patients

As indicated by the table above on how sharps are managed after the use on the patient, out of the 198 total respondents at Kasama General Hospital, 74.7% indicated disposing of needles and syringes immediately after use into a puncture resistant containers, 23.7% indicated disposing of syringe and needle together with other wastes into available waste containers while 1.5% indicated practicing all the four (4) indicated practices when disposing sharps after use on the patients while at Mbala general hospital, out of the 156 total respondents, 81.4% indicated disposing of needles and syringes immediately after use into a puncture resistant containers while 18.6% indicated disposing of syringe and needle together with other wastes into available waste containers. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 77.7% indicated disposing of needles and syringes immediately after use into a puncture resistant containers, 21.5% indicated disposing of syringe and needle together with other wastes into available waste containers while 0.8% indicated practicing all the four (4) indicated practices when disposing sharps after use on the patients.

4.4.2. Management of Health Care Wastes Generated During Provision of Health Care Services

How do you manage health care wastes generated during provision of Health care Services?			
	Kasama GH	**Mbala GH**	**Total**
Wastes are segregated at the generation points and are disposed into available color coded or well labeled containers and taken for incineration	132 (66.7%)	115 (73.7%)	247 (69.8%)
Wastes are disposed into available containers well labeled without segregating and taken for incineration	66 (33.3%)	41 (26.3%)	107 (30.2%)
Total	**198 (100%)**	**156 (100%)**	**354 (100%)**

Table 13: Showing Management of Health Care Wastes Generated During Provision of Health Care Services

As shown by the table above on how health care wastes generated during the provision of health care services are managed, out of the 198 total respondents at Kasama general hospital, 66.7% indicated segregating wastes at the point of generation, disposed into the color coded bins or well labeled containers and transported for incineration and 33.3% indicated disposed wastes into any available well labeled container without being segregated and thereafter incinerated while at Mbala General Hospital, out of the 156 total respondents, 73.7% indicated segregating wastes at the point of generation, disposed into the color coded bins or well labeled containers and transported for incineration while 26.3% indicated disposed wastes into any available well labeled container without being segregated and thereafter incinerated. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 69.8% indicated segregating wastes at the point of generation, disposed into the color coded bins or well labeled containers and transported for incineration while 30.2% indicated disposed wastes into any available well labeled container without being segregated and thereafter incinerated.

4.5.ADMINSTRATIVE CONTROL MEASURES

4.5.1. Staffing Level

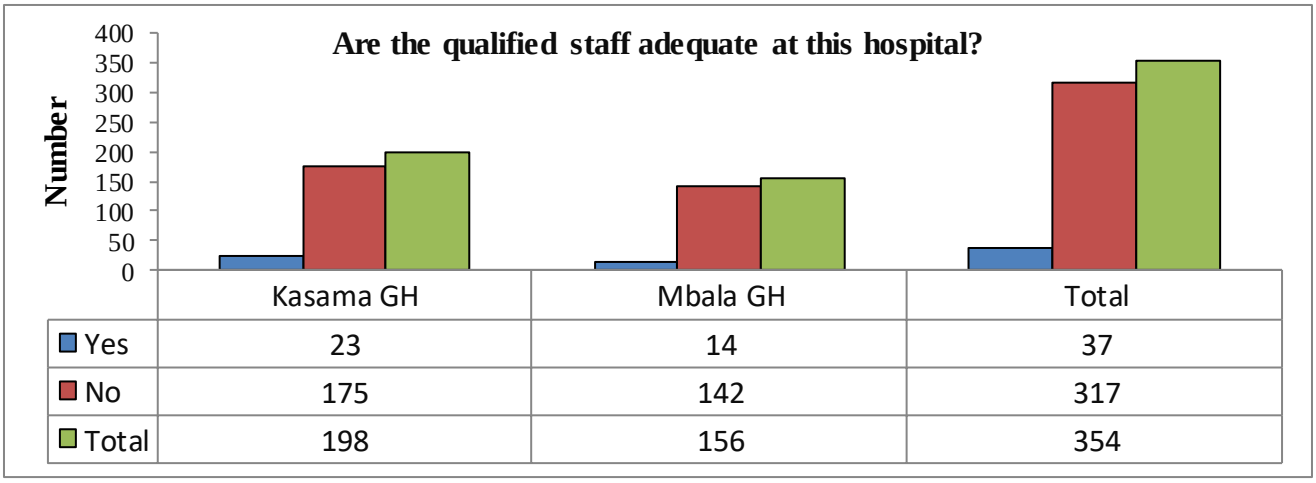
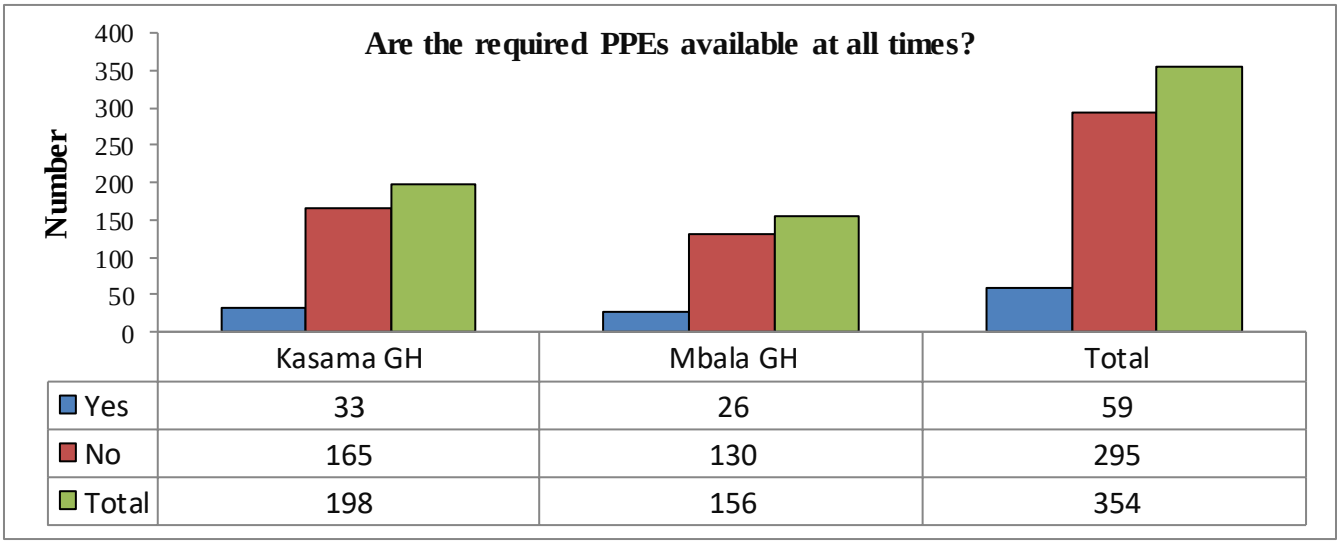


Figure 11: Showing staffing (qualified staff) Level at the Hospital

As shown by the diagram above on whether qualified staff were adequate at the hospital, out of the 198 total respondents at Kasama general hospital, 23 indicated that qualified staff were adequate

representing 11.6% and 175 indicated that qualified staff are not adequate representing 88.4% while at Mbala general hospital, out of the 156 total respondents, 14 indicated that qualified staff were adequate representing 9% while 142 indicated that qualified staff were not adequate representing 91%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 37 indicated that qualified staff were adequate representing 10.5% while 317 indicated that qualified staff were not adequate representing 89.5%.

4.5.2. Availability Personal Protective Equipments

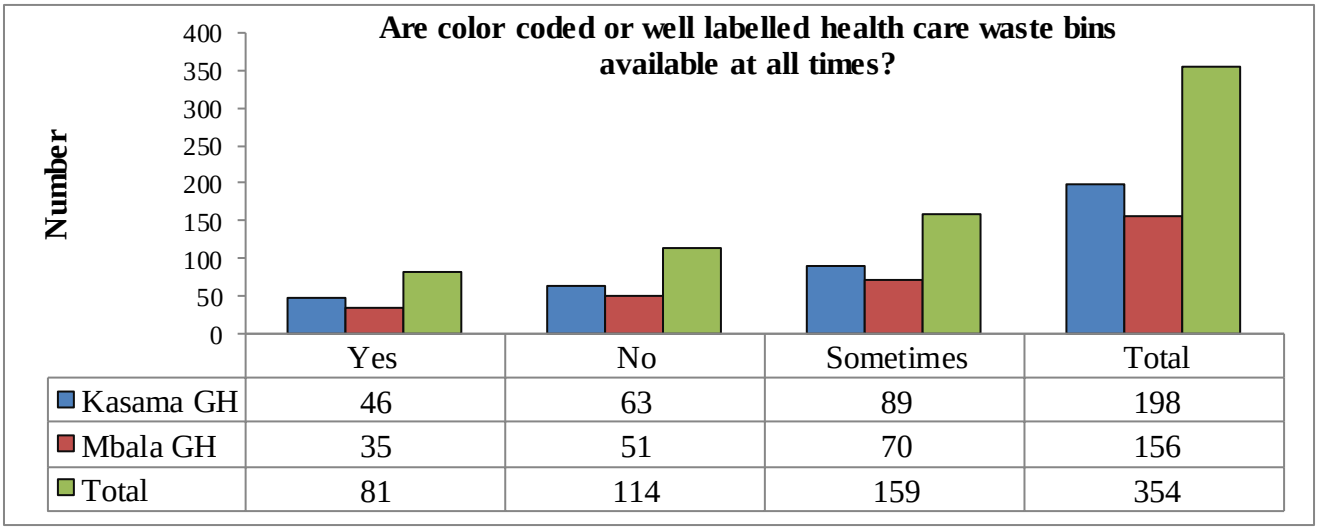


	Kasama GH	Mbala GH	Total
Yes	33	26	59
No	165	130	295
Total	198	156	354

Figure 12: Showing Availability of Personal Protective Equipment

As shown by the diagram above on whether required PPEs were available at all times, out of the 198 total respondents at Kasama general hospital, 33 indicated that required PPEs available at all times presenting 16.7% and 165 indicated that that required PPEs were not available at all times representing 83.3% while at Mbala general hospital, out of the 156 total respondents, 26 indicated that required PPEs available at all times presenting 16.7% while 132 indicated that that required PPEs were not available at all times representing 83.3%. Therefore, out of 354 total respondents for both Kasama general and Mbala general hospitals, 59 indicated that required PPEs were available at all times representing 16.7% while 296 indicated that required PPEs were not available at all times representing 83.3%.

4.5.3. Availability of Color Coded or Well Labelled Health Care Waste Bins

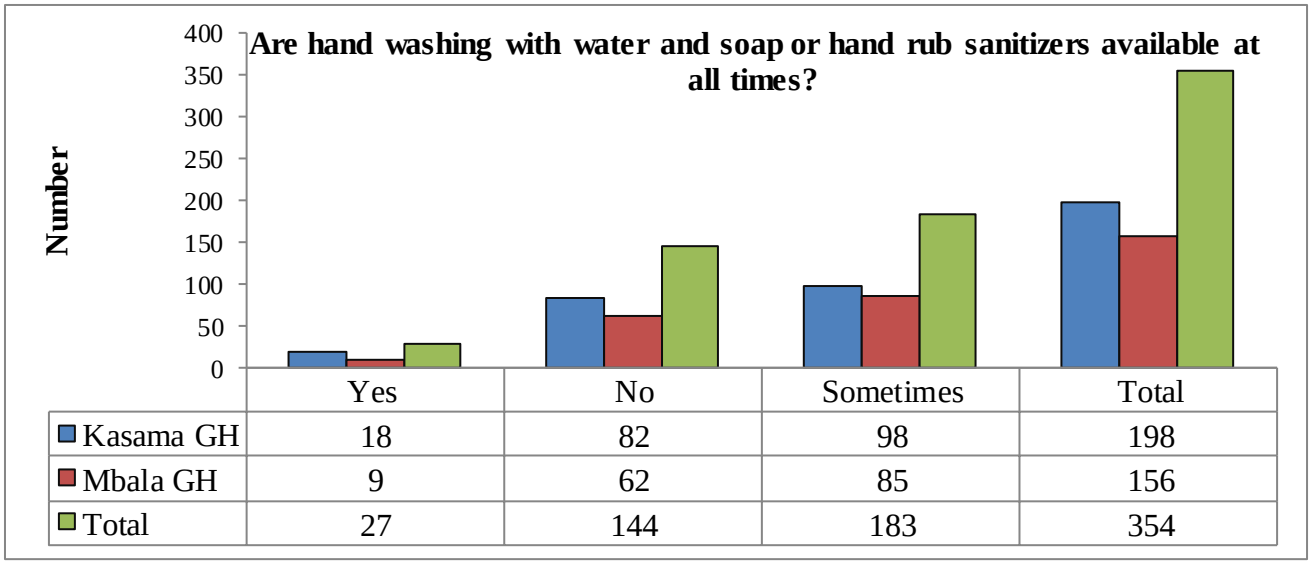


	Yes	No	Sometimes	Total
Kasama GH	46	63	89	198
Mbala GH	35	51	70	156
Total	81	114	159	354

Figure 13: Showing Availability of Color Coded or Well Labelled Health Care Waste Bins

As indicated by the table above, out of 198 total respondents at Kasama for Kasama General hospital, 46 indicated that color coded or well labelled health care waste bins were available at all times representing 23.2%, 63 indicated that color coded or well labelled health care waste bins were not available at all times representing 31.8% and 89 indicated that color coded or well labelled health care wastes bins were available sometimes 44.9% while at Mbala general hospital, out of the 156 total respondents, 35 indicated that color coded or well labelled health care waste bins were available at all times presenting 22.4%, 51 indicated that color coded or well labelled health care waste bins were not available at all times representing 32.7% while 70 indicated that color coded or well labelled health care wastes bins were available sometimes 44.9%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 81 indicated that color coded or well labelled health care waste bins were available at all times representing 22.9%, 114 indicated that color coded or well labelled health care waste bins were not available at all times representing 32.2% while 159 indicated that color coded or well labelled health care wastes bins were available sometimes 44.9%.

4.5.4. Availability of Hand Washing Facilities with Water and Soap or Alcohol Based Hand Rub

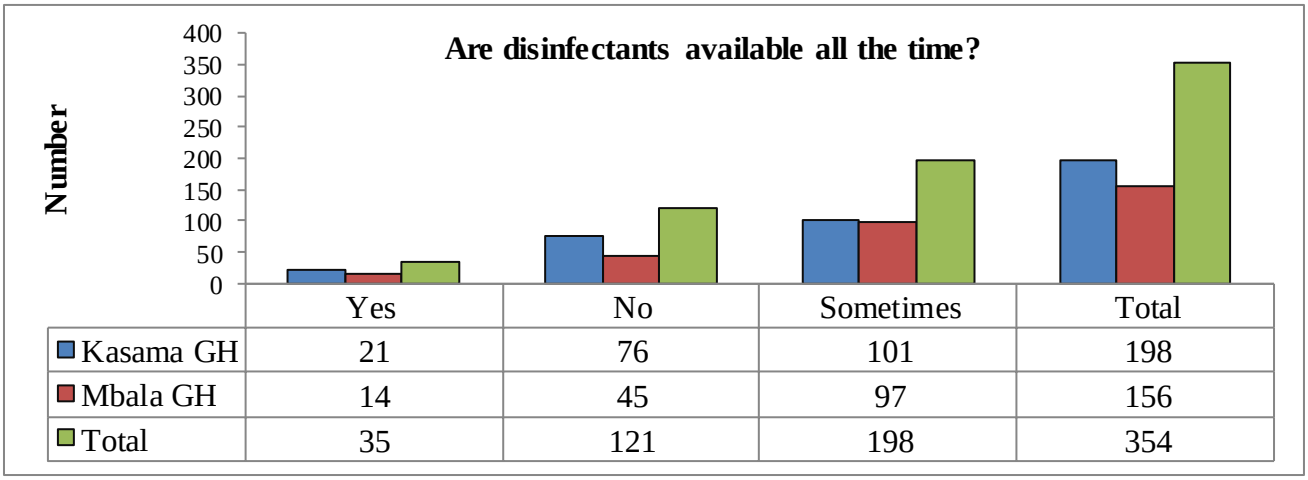


	Yes	No	Sometimes	Total
Kasama GH	18	82	98	198
Mbala GH	9	62	85	156
Total	27	144	183	354

Figure 14: Showing Availability of Hand Washing Facilities with Water and Soap or Hand Sanitizers

As shown by the diagram above on whether hand washing facilities with water and soap or hand sanitizers were available all the time, out of the 198 total respondents at Kasama general hospital, 18 indicated that hand washing with soap or hand rub sanitizers were available at all times representing 9.1%, 82 indicated that they were not available representing 41.4% and 98 indicated that they were available sometimes representing 49.5% while at Mbala general hospital, out of the 156 total respondents, 9 indicated that hand washing with soap or hand rub sanitizers were available at all times representing 5.8%, 62 indicated that they were not available representing 39.7% while 85 indicated that they were available sometimes representing 54.5%. Therefore, out the 354 total respondents for both Kasama general and Mbala general hospitals, 27 indicated that hand washing with soap or hand rub sanitizers were available at all times representing 7.6%, 144 indicated that they were not available representing 40.7% and 183 indicated that they were available sometimes representing 51.7%

4.5.4. Availability of Disinfectants

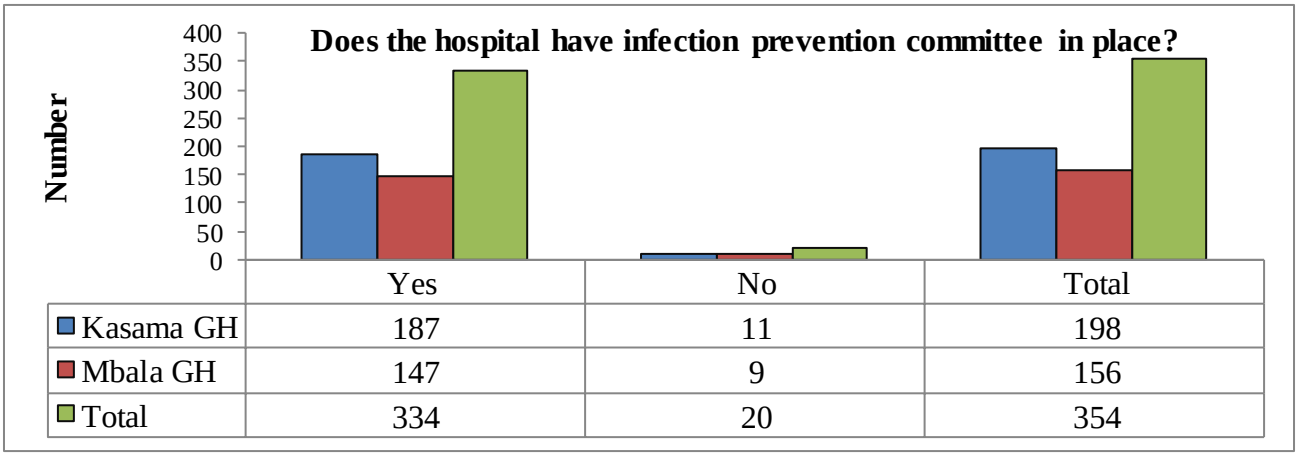


	Yes	No	Sometimes	Total
Kasama GH	21	76	101	198
Mbala GH	14	45	97	156
Total	35	121	198	354

Figure 15: Showing Availability of Disinfectants

As indicated by the diagram above, out of the 198 respondents at Kasama general hospitals, 21 indicated that disinfectants were available at all times representing 10.6%, 76 indicated that disinfectants were not available at all times representing 38.4% and 101 indicated that disinfectants were available sometimes representing 51% while at Mbala general hospital, out of the 156 respondents, 14 indicated that disinfectants were available at all times representing 9%, 45 indicated that disinfectants were not available at all times representing 28.8% while 97 indicated that disinfectants were available sometimes representing 62.2%. Therefore, out of 354 total respondents for both Kasama general and Mbala general hospitals, 35 indicated that disinfectants were available at all times representing 9.9%, 121 indicated that disinfectants were not available at all times representing 34.2% while 198 indicated that disinfectants were available sometimes representing 55.9%.

4.5.6 Availability of Infection Prevention and Control Committee



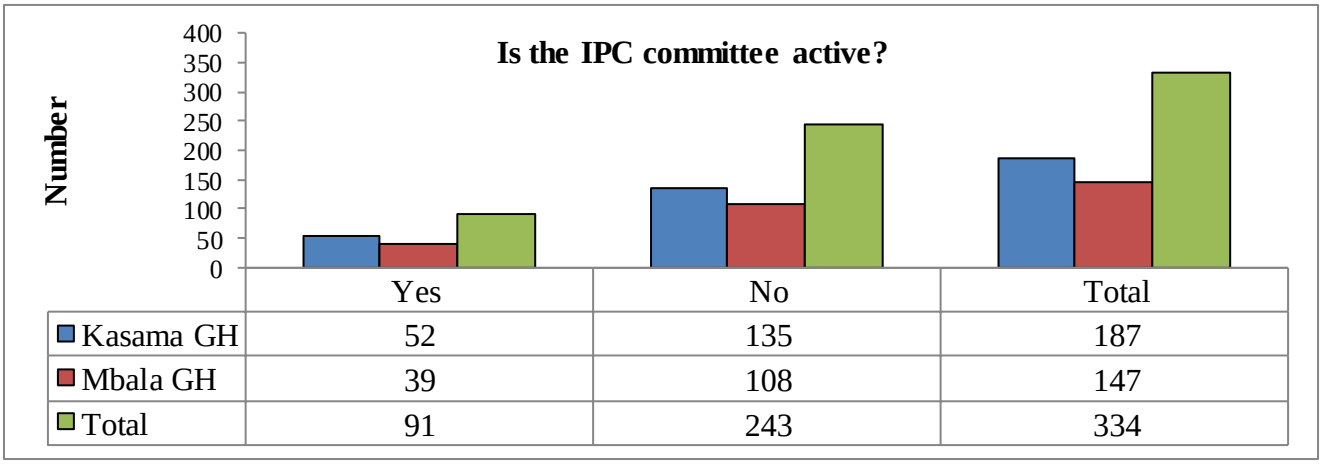
	Yes	No	Total
Kasama GH	187	11	198
Mbala GH	147	9	156
Total	334	20	354

Figure 16: Showing Availability of Infection Prevention and Control Committee

As shown by the figure in the previous page, out of the 198 total respondents at Kasama general hospital, 187 indicated 'Yes' representing 94.4% and 11 indicated 'No' representing 5.6% while at Mbala general hospital, out of the 156 total respondents, 147 indicated 'Yes' representing 94.2% while 32 indicated 'No' representing 5.8%. Therefore, out of the 354 total respondents for both Kasama

general and Mbala general hospitals, 334 indicated 'Yes' representing 94.4% while 20 indicated 'No' representing 5.6%.

4.5.6.1. Activeness of Infection Prevention and Control Committee.

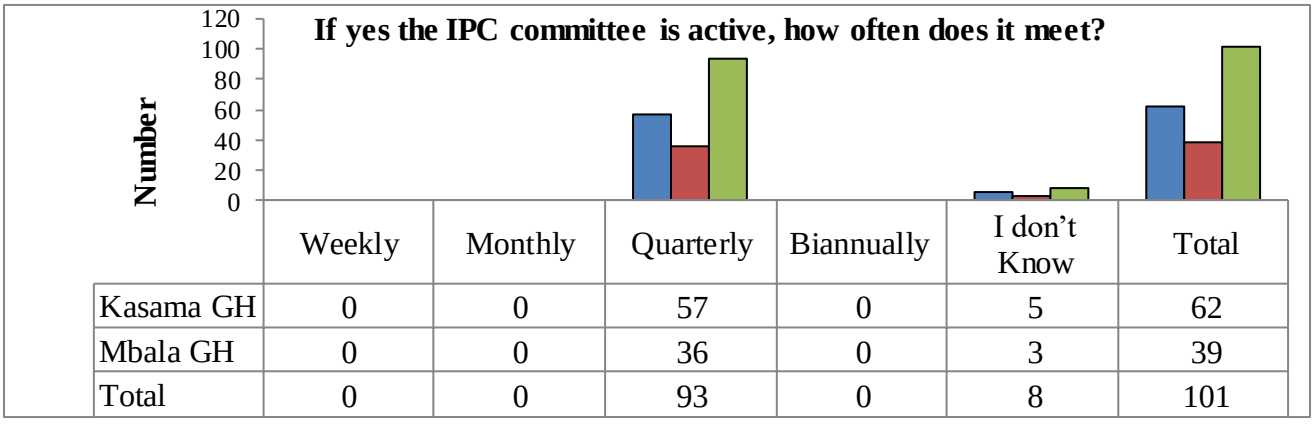


	Yes	No	Total
Kasama GH	52	135	187
Mbala GH	39	108	147
Total	91	243	334

Figure 17: Showing whether the Infection Prevention and Control Committee was Active

As shown by the figure above, out of the 187 total respondents at Kasama general hospital which indicated that the IPC committee was in place, 52 indicated that the committee was active representing 27.8% and 135 indicated that the committee was not active representing 72.2% while at Mbala general hospital, out of the 147 total respondents who indicated that IPC committee was in place, 39 said the committee was active representing 26.5% while 108 indicated that the committee was not active representing 73.5%. Therefore, out of the 334 total respondents for both Kasama general and Mbala general hospitals who had indicated that IPC committee was in place, 91 indicated that the committee was active representing 27.2% while 243 indicated that the committee was not active representing 72.8%.

4.5.6.2.Infection Prevention and Control Committee Meetings



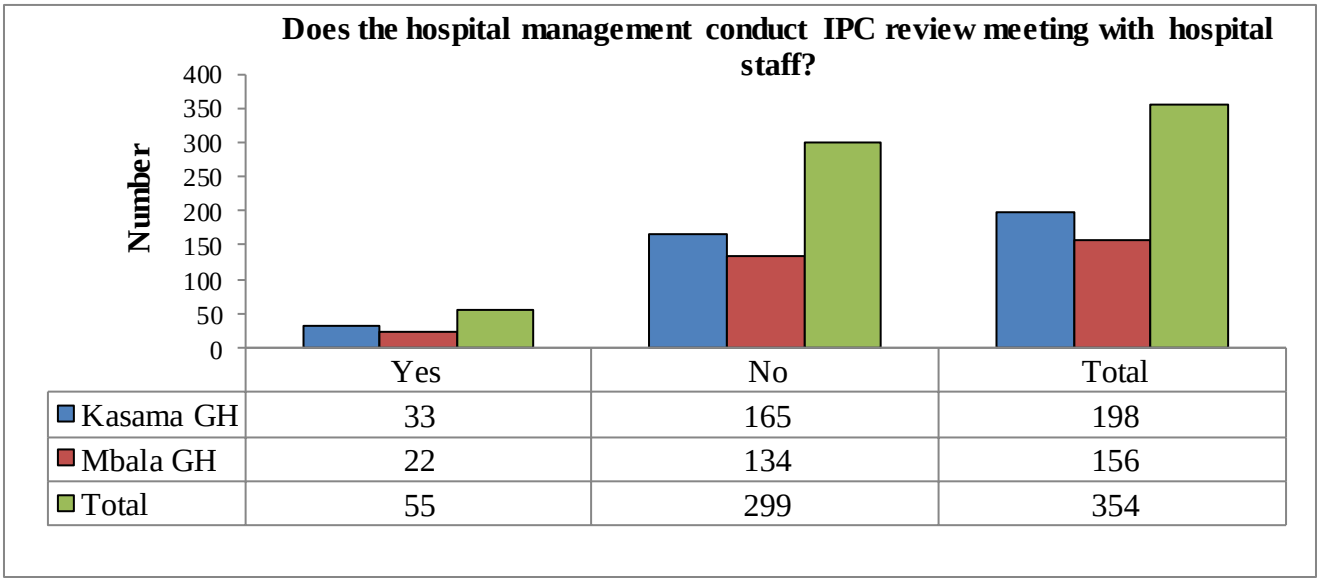
	Weekly	Monthly	Quarterly	Biannually	I don't Know	Total
Kasama GH	0	0	57	0	5	62
Mbala GH	0	0	36	0	3	39
Total	0	0	93	0	8	101

Figure 18: Showing how often the Infection Prevention and Control Committee Conducts meetings

As shown by the figure above on how often does the committee meet, out of the 52 total respondents at Kasama general hospital who said the committee was active, 47 indicated that the committee meet quarterly representing 90.4% and 5 indicated that they did not know how often the committee meets

representing 9.6% while at Mbala general hospital, out of the 39 total respondents who said the committee was active, 36 indicated that the committee meet quarterly representing 92.3% while 3 indicated that they did not know how often the committee meets representing 7.7%. Therefore, out of the 91 total respondents for both Kasama general and Mbala general hospitals who indicated that the committee was active, 83 indicated that the committee meet quarterly representing 91.2% while 8 indicated that they did not know how often the committee meets representing 8.8%.

4.5.7. Infection Prevention and Control Review meeting with Health Care Workers

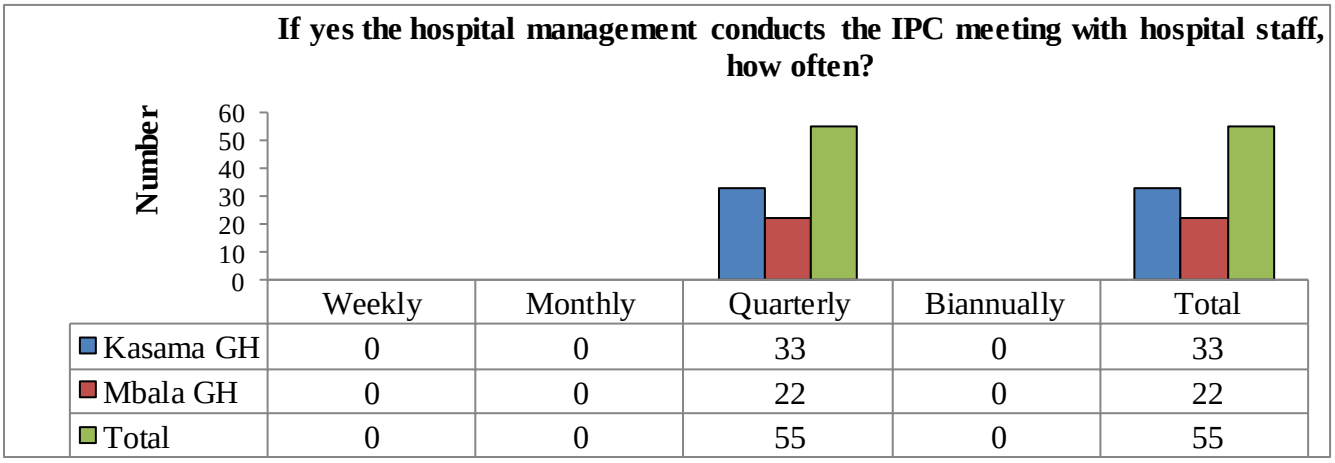


	Yes	No	Total
Kasama GH	33	165	198
Mbala GH	22	134	156
Total	55	299	354

Figure 19: Showing whether hospital management does conduct IPC Meetings with Health Care Workers

As indicated by the diagram above on whether the hospital management conduct IPC meetings with the hospitals, out of the 198 respondents at Kasama general hospital, 33 indicated 'Yes' representing 16.7% and 165 indicated 'No' representing 83.3% while at Mbala general hospital, out of the 156 total respondents, 22 indicated 'Yes' representing 14.1% while 134 indicated 'No' representing 85.9%. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, 55 indicated 'Yes' representing 15.5% while 299 indicated 'No' representing 84.5%.

4.5.7.1.Frequency of IPC meeting Conducted by Hospital Management with Health Care Workers

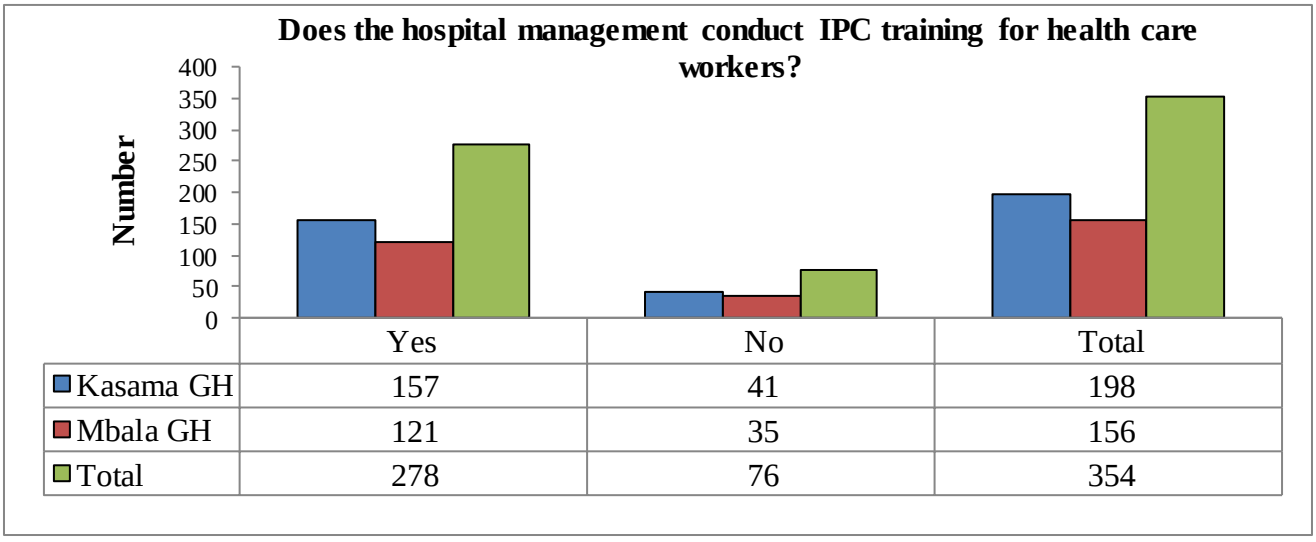


	Weekly	Monthly	Quarterly	Biannually	Total
Kasama GH	0	0	33	0	33
Mbala GH	0	0	22	0	22
Total	0	0	55	0	55

Figure 20: Showing how often IPC Meetings Are Held by Hospital Management with Health Care Workers

As shown by the figure above, all (100%) the respondents at both Kasama general and Mbala general hospitals who indicated that the hospital management conducts the meeting with health hospital staff, reported that the meetings are conducted quarterly.

4.5.9. IPC Training for Health Care Workers

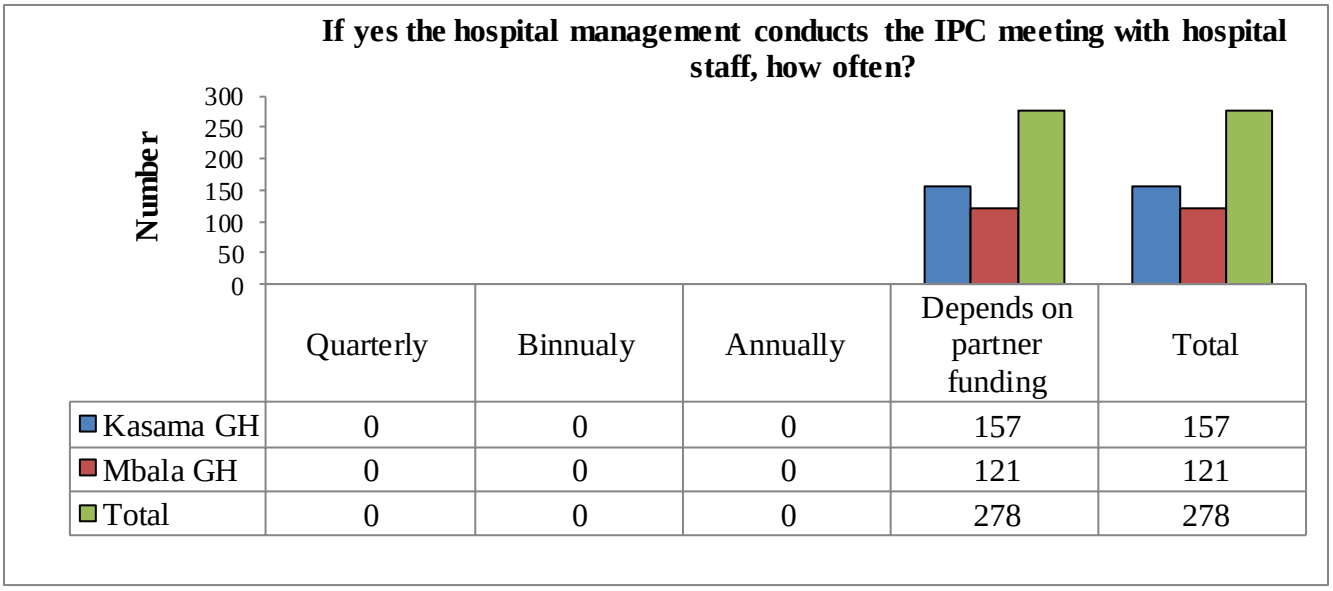


	Yes	No	Total
Kasama GH	157	41	198
Mbala GH	121	35	156
Total	278	76	354

Figure 21: Showing Results of Whether hospital management conduct IPC for healthcare workers

As shown by the figure above on whether the hospital management conduct IPC training for Heath care workers, out of the 198 total respondents at Kasama general hospital, 157 indicated 'Yes' representing 79.3%, and 41 indicated 'No' representing 20.7% while at Mbala general hospital, out of the 156 total respondents, 121 indicated 'Yes' representing 77.6% while 35 indicated 'No' representing 21.5%. Therefore, out of the 354 total respondents both for Kasama general and Mbala general hospitals, 278 indicated 'Yes' representing 78.5% while 76 indicated 'No' representing 21.5%.

4.5.9.1 Frequency of IPC Training Conducted by Hospital Management

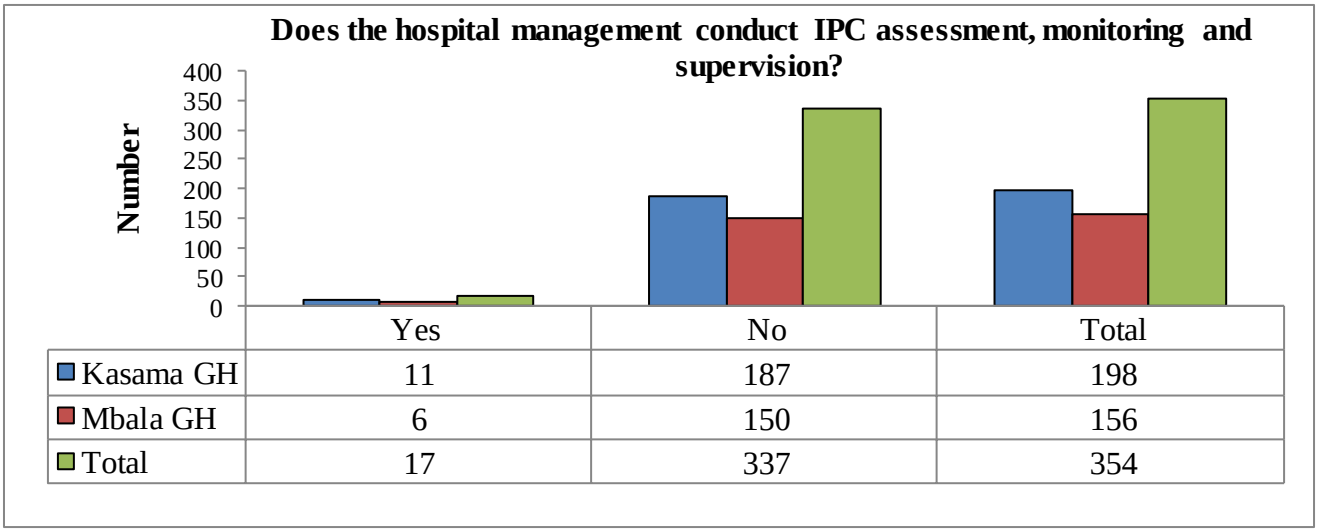


	Quarterly	Binnualy	Annually	Depends on partner funding	Total
Kasama GH	0	0	0	157	157
Mbala GH	0	0	0	121	121
Total	0	0	0	278	278

Figure 22: Showing how often IPC Training for the Health Care Workers is Conducted

As shown by the figure above on how often the IPC trainings for the health care workers were held, all 115 total respondents at Kasama general hospital and 99 at Mbala general Hospital who reported that hospital management conduct IPC training indicated that IPC trainings were dependent on partner supporting the training.

4.5.10. IPC Assessment, Monitoring and Supervision



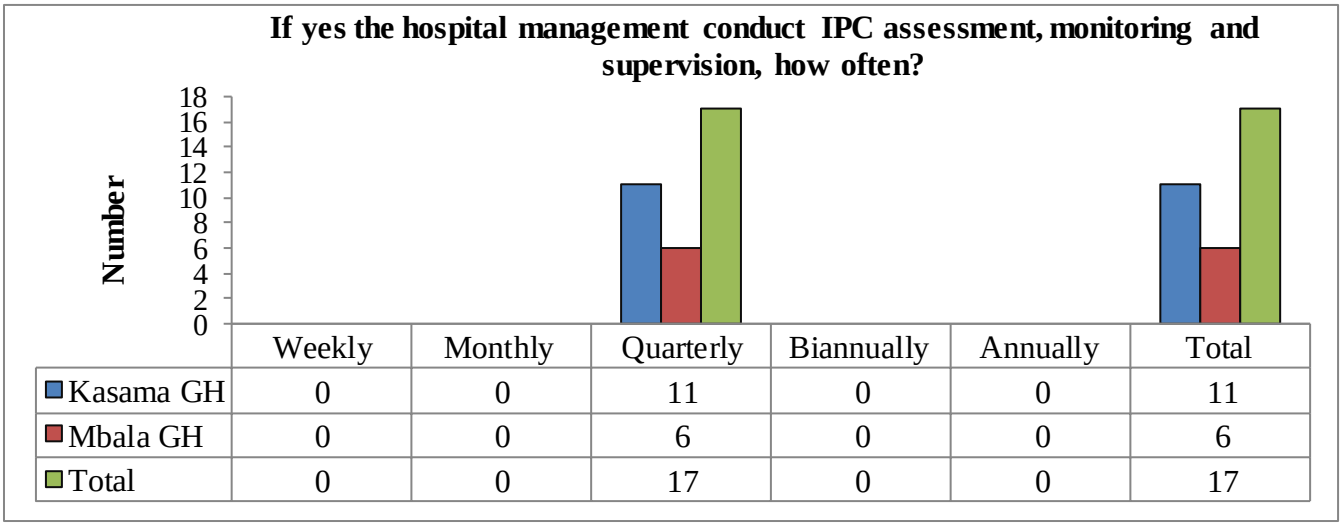
	Yes	No	Total
Kasama GH	11	187	198
Mbala GH	6	150	156
Total	17	337	354

Figure 23: Showing IPC Assessment, Monitoring and Supervision Conducted by Hospital Management

As indicated by the diagram on whether the hospital management was conducting IPC performance assessment, monitoring and supervision, out of the 198 total respondents at Kasama general hospital, 11 indicated 'Yes' representing 5.6% and 187 indicated 'No' representing 94.4% while at Mbala general

hospital, out of the 156 total respondents, 6 indicated 'No' representing 3.8% while 150 indicated 'No' representing 96.2%. Therefore, out of the 354 total respondents both for Kasama general and Mbala general hospitals, 17 indicated 'Yes' representing 4.8% while 337 indicated 'No' representing 85.2%. Frequency of IPC Assessment, Monitoring and Supervision Conducted by Hospital Management.

4.5.10.1. Frequency of IPC Assessment, Monitoring and Supervision Conducted by Hospital Management

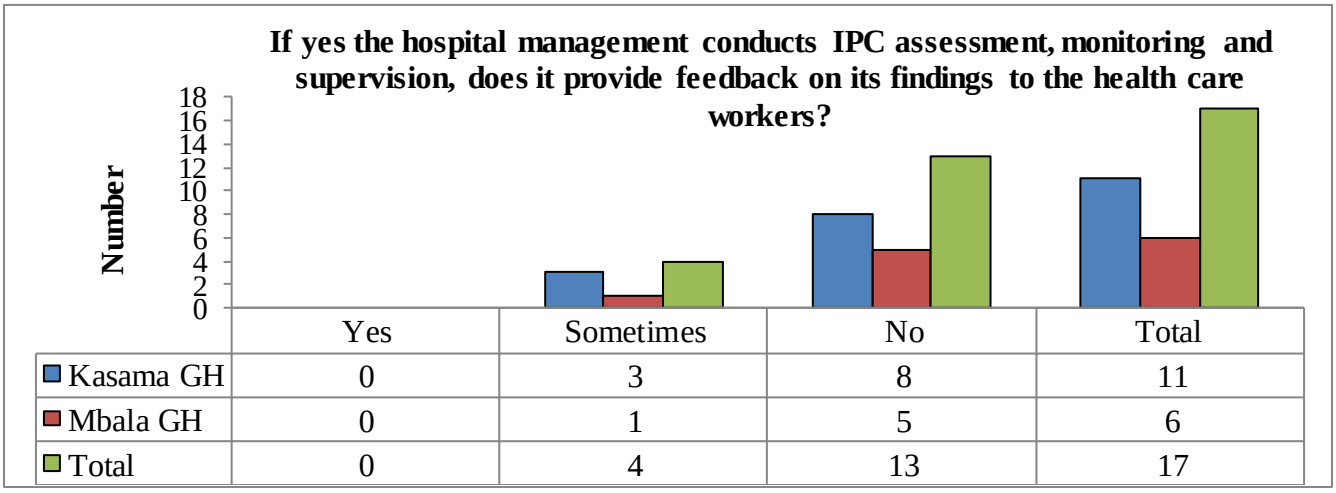


	Weekly	Monthly	Quarterly	Biannually	Annually	Total
Kasama GH	0	0	11	0	0	11
Mbala GH	0	0	6	0	0	6
Total	0	0	17	0	0	17

Figure 24: Showing how often IPC Assessment, Monitoring and Supervision is conducted by Hospital Management

As shown by the diagram above on how often the IPC performance assessment, monitoring and supervision is conducted, all the 11 respondents at Kasama general hospital and 6 at Mbala general hospital who reported that the hospital management was conducting IPC performance, monitoring and supervision indicated that it was conducted quarterly.

4.5.10.2. IPC Assessment, Monitoring and Supervision Feedback

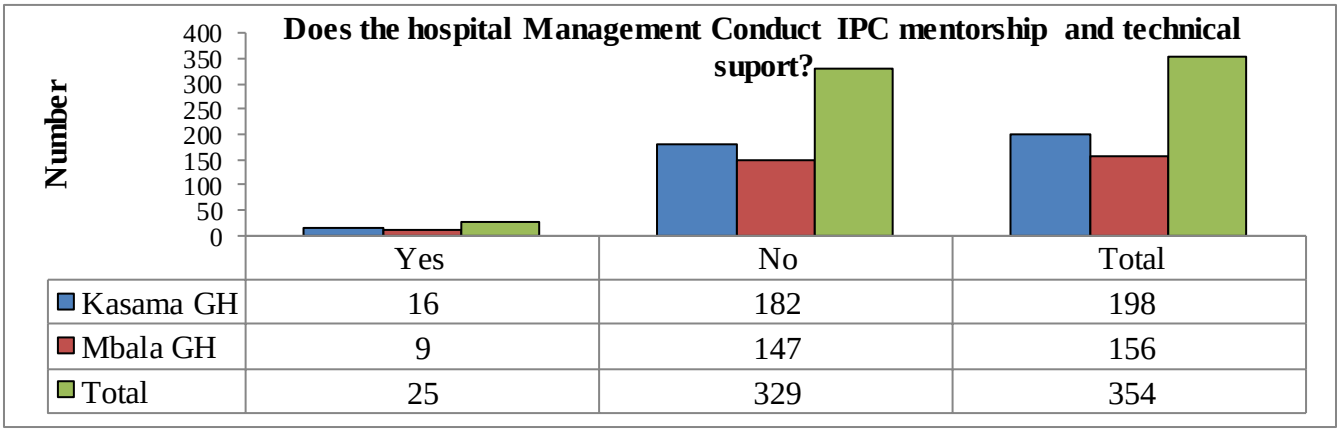


	Yes	Sometimes	No	Total
Kasama GH	0	3	8	11
Mbala GH	0	1	5	6
Total	0	4	13	17

Figure 25: Showing IPC Assessment, Monitoring and Supervision Feedback Provided by Hospital Management

As indicated by the diagram above as whether hospital management was providing feedback to the health care workers on its findings during IPC performance assessment, monitoring and supervision, out of the 11 total respondents at Kasama general hospital who indicated that hospital management was conducting IPC assessment, 3 indicated 'sometimes' representing 27.3% and 8 indicated 'No' representing 72.7% while at Mbala general hospital; out of the 6 total respondents who indicated that hospital management was conducting IPC assessment monitoring and supervision, 1indicated 'Sometimes' representing 16.7% while 5 indicated 'No' representing 83.3%. Therefore, out of the 17 total respondents for both Kasama general and Mbala general hospitals who indicated that hospital management was conducting IPC assessment, 4 indicated 'Sometimes' representing 23.5% while 13 indicated 'No' representing 76.5%.

4.5.11. IPC Mentorship and Technical Support



	Yes	No	Total
Kasama GH	16	182	198
Mbala GH	9	147	156
Total	25	329	354

Figure: 26 Showing IPC Mentorship and technical Support provided by Hospital Management

As shown by the diagram above on whether the hospital administration was conducting IPC mentorship and technical support, out of the 198 total respondents at Kasama general hospital, 16 indicated 'Yes'

representing 8.1% and 182 indicated 'No' representing 91.9% while at Mbala general hospital, out of the 156 total respondents, 9 indicated 'Yes' representing 5.8% while 147 indicated 'No' representing 94.2%. Therefore, out of the 353 total respondents for both Kasama general and Mbala general hospitals, 25 indicated 'Yes' representing 7.1% while 329 indicated 'no' representing 92.9%.

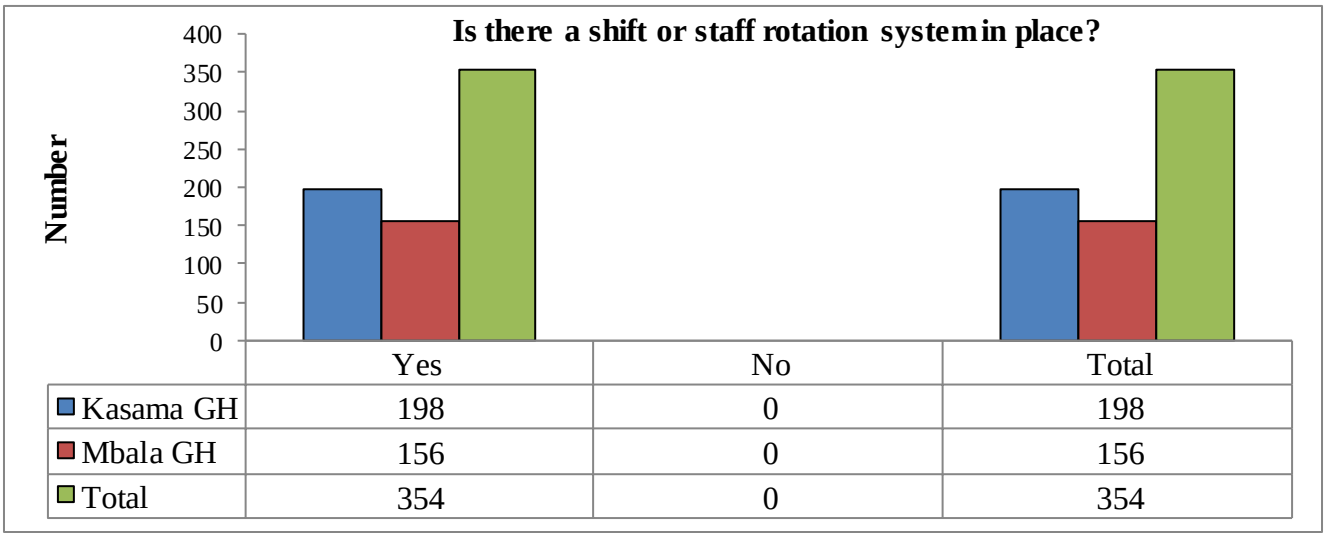
4.5.12. How often the IPC mentorship and technical Support is conducted

If yes the hospital management conduct IPC mentorship and technical support, how often?			
Responses	**Kasama GH**	**Mbala GH**	**Total**
Monthly	0	0	**0**
Quarterly	7 (43.8%)	4 (44.4%)	**11 (44%)**
Biannually	5 (31.3%)	3 (33.3%)	**8 (32%)**
Annually	0	0	**0**
I don't know	4 (25%)	2 (22.2%)	**6 (24%)**
Total	**16 (100%)**	**9 (100%)**	**25 (100%)**

Table 14: Showing how often the mentorship and technical support is conducted

As shown in the table above, out of the 16 total respondents at Kasama general hospital who had reported that hospital management conducts IPC mentorship and technical support, 43,8% indicated that IPC mentorship and technical support is conducted quarterly,31.3%indicated that it is done biannually and 25% did not know how often mentorship and technical support is done by hospital management while at Mbala general hospital, out of the 9 total respondents who had reported that hospital management conducts IPC mentorship and technical support, 44.4% indicated that IPC mentorship and technical support is conducted quarterly,33.3%indicated that it is done biannually and 22.2% did not know how often mentorship and technical support is done by hospital management. Therefore, out of the 25 total respondents at both Kasama general and Mbala general hospitals who had reported that hospital management conducts IPC mentorship and technical support, 44% indicated that IPC mentorship and technical support is conducted quarterly, 32%indicated that it is done biannually and 24% did not know how often mentorship and technical support is done by hospital management.

4.5.12. Health Care Workers Work Shift /Staff Rotation System

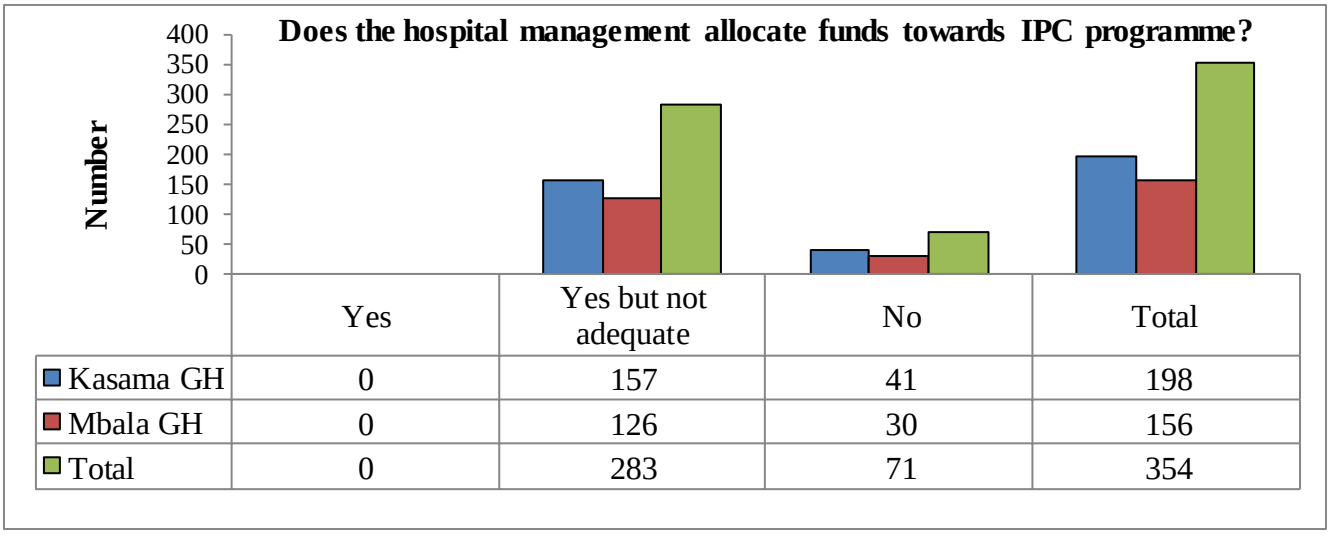


	Yes	No	Total
Kasama GH	198	0	198
Mbala GH	156	0	156
Total	354	0	354

Figure 27: Showing whether work shift or Staff Rotation schedule is in place

As shown by the figure above on whether work shift or staff rotation schedule was in place, all respondents at both Kasama (198) and Mbala general (156) hospitals indicated that work shift or staff rotation schedule was in place.

4.5.12. Allocation of Funds towards Infection Prevention and Control



	Yes	Yes but not adequate	No	Total
Kasama GH	0	157	41	198
Mbala GH	0	126	30	156
Total	0	283	71	354

Table 28: Showing Allocation of Funds towards Infection Prevention and Control

As shown by the diagram above on the allocation of funds towards IPC activities by the hospital management, out of the 198 total respondents at Kasama general Hospital, 157 indicated 'Yes, but not adequate' representing 79.3% and 41 indicated 'No' representing 20.7% while at Mbala general hospital, out of the 156 total respondents, 126 indicated 'Yes but not adequate' representing 80.8% while 30 indicated 'No' representing 19.2%. Therefore, out of the 354 total respondents for both

Kasama general and Mbala general hospitals, 283 indicated 'Yes but not adequate' representing 79.9% while 71 indicated 'No' representing 20.1%.

6.0 KEY INFORMANT INTERVIEWS

Fifteen (15) informant interviews at Kasama general Hospital and 15 at Mbala general hospital were conducted involving departmental heads or in-charges and their deputies. Respondents were numbered using leters and numbers. Respondents at Kasama general hospital were numbered using KR 1 (Kasama respondent 1) up to KR 15 while respondents at Mbala general hospital were numbered using MR 1 (Mbala respondent 1) up to MR 15. The key informant interviews were conducted on the following six (6) key discussion points:

1. What can you say about staffing level of qualified health care workers at this hospital?
2. What are the benefits of complying with Infection prevention and control Standard Precautions?
3. What drives (motivators or drivers) your compliance with Infection Prevention and control standard precautions
4. What are the barriers or situations that would hinder health care workers from complying with infection prevention standard precautions?
5. What challenges do health care workers face when providing health services which result in them not complying with infection prevention standard precautions
6. What do you think should be done or put in place in order to promote and sustain compliance with infection prevention standard precautions?

1.1.Staffing level of qualified health care workers at two (2) hospitals

The responses from respondents both at Kasama general and Mbala general hospitals were: MR 11 said "this hospital is very much understaffed". MR 15 Said "this hospital is in serious need of qualified staff especially nurses and doctors". This was also said by MR 3, MR 7, KR 11 and KR 13. MR 12 said "staffing level is a big challenge at this hospital". This was also said by MR 1, MR 10, KR 6, KR 4, and KR 41. KR 2 said "the issue of staffing level requires immediate attention". MR 6 said "hospital management needs to address the problem of staff shortage at this hospital". KR 11 said "the problem of staff shortage at this hospital needs to be addressed quickly". This was also said by KR 3, MR 9, MR 4 and MR 7.

1.2.Benefits of complying with Infection Prevention and Control Standard Precautions

The responses from respondents both at Kasama general and Mbala general hospitals on benefits of complying with infection prevention and control standard precautions were; KR 3 said "Infection prevention standard precautions help everyone working in the hospital from acquiring infections". This was also said by MR 3, MR 14, KR 6, KR 3 and KR 9. MR 1 said, "Infection prevention standard precautions promote safety for health care workers and patients". This was also said by MR 11, MR 7 and KR 5. KR 10 said "compliance with infection prevention standard precautions promote good quality health care services". KR 9 said "compliance to IPC standard precautions enhances staff working

morale at the place of work because they help to maintain clean and hygienic working environment." MR 6 said "compliance with IPC standard precautions prevents or help reduce exposure to infections." MR 11 said "compliance with IPC standard precaution helps create conducive safe working environment". This was also said by MR 4, KR 13 and KR 7. MR 5 said "compliance with IPC standard precautions reduce on hospital cost". This was also said by MR 11 and KR 3. KR 13 said "compliance with IPC standard precaution reduces health care workers' absenteeism and enhances patients and health care workers' safety. MR 3 said "compliance with IPC standard precautions reduces patients' hospital stay".

6.2.Drivers or Motivators of Complying with Infection Prevention Standard Precautions

On what drives or motivates health care workers' compliance with infection prevention and control standard precautions the responses from respondents both at Kasama general and Mbala general hospitals were; MR 1 said "availability IPC commodities or supplies". This was also said by MR 2, MR 6, KR 5, KR 7 and KR 3. MR 13 said "to prevent myself and other from getting infections". MR 8 said "to safe guide my life from contracting diseases". KR 9 said "to avoid spread of infections". KR 3 said "patients trust". KR 1 said "Promote safe working environment". KR 2 said, "I comply with IPC standard precautions because iam afraid of acquiring infections". This was also said by MR 4. MR 7 said "professional ethics". MR 9 said "being accountable". KR 5 said "duty of care". This was also said by KR 1 and KR 10. KR 12 said "patients' safety as well as my own safety". This was also said by MR 4, MR 15, KR 7 and KR 2. MR 11 said "continuous quality improvement". KR 15 said "to stop spread of infection". KR 7 said "personal safety". MR 12 said "peer influence". KR 6 said "because aim at high risk of acquiring infections". MR 10 said "to protect myself and the patient". KR 11 said "for the wellbeing of the patients and workmates". MR 6 said "because it keeps me safe at my work place". This was also said by MR 15, and MR 14.

6.3.Barriers or Situations That Would Hinder Health Care Workers from Complying with Infection Prevention Standard Precautions

On barriers or situations that would hinder health care workers from complying with infection prevention and control standard precautions, the responses from respondents both at Kasama general and Mbala general hospitals were: MR 3 said "shortage of staff resulting in increased workload". This was also said by MR 6, MR 7, KR 4, KR 8, and KR 11. MR 6 said "inadequate trained staff in IPC". This was also said by MR 1, MR 9, KR 5, KR 11, KR 10 and KR 3. MR 12 said "lack of IPC review meetings". MR 9 said "lack of mentorship and on-pot technical supportive supervision". MR 5 said "lack consistent IPC performance assessment" MR 15 said "lack of feedback on IPC performance assessment spelling out action points of what should be done". This was also said by MR 2, KR 14 and KR 6. KR 9 Said "lack of adequate time due high staff work load". MR 15 said "the hospital has no IPC polices, standards and guidelines to enable the management enforce IPC standard precautions". This was also said by KR 2 and KR 11. KR 3 said "inadequate qualified staff. This was also said by MR 4, MR 1 and KR 13. KR 7 said "lack of IPC supplies or commodities". This was also said by MR 3, MR 7, and KR 1. KR 10 said "negative staff attitude and practices". This also said by KR 1, MR 3 and MR 15. KR

12 said "lack of knowledge". This was also said by KR 6, KR 2 and MR 12. KR 1 said, "Inadequate training in IPC for health care workers" This was also said by KR 7, MR 6 and MR 11. KR 3 said "lack of adequate funds for IPC activities such as procurement of PPEs, disinfectants, soap, etc. are some of the reasons hindering health care workers from complying with IPC standard precautions". KR 5 said lack of regular training of staff on IPC is one of the barriers or situations hindering compliance with IPC standard precautions as the hospital keeps on receiving new health care workers". This was also said by KR 15, MR 7 and MR 11. MR 7 said "IPC committee is not active to compel the hospital management provide all the required IPC supplies". MR 4 said "lack of bin liners and stock outs of disinfectants like chlorine". K10 said "ignorance on IPC, staff complacency and poor attitude". KR 14 said "lack of management commitment and support to IPC". MR 11 said "patient factor e.g. uncooperative patient".

6.4.Challenges Health care workers face when providing health services which result in them not complying with infection prevention standard precautions

The responses from the respondents both at Kasama general and Mbala general hospitals On challenges faced by health care workers were; MR1 said "I think most of health care workers at this hospital are not trained on infection prevention and control. "KR 4 said "lack of adequate IPC commodities such as gloves, gowns, goggles, face shield, aprons, gumboots, disinfectants and soap". This was also said by KR 11, KR 6, MR 2, MR 9 and MR 14. KR 1 said "Inadequate training in IPC for health care workers" This was also said by KR 7, MR 6 and MR 11. KR 7 said stock out of bin liners and poor waste management". KR 15 said "inadequate funding due to lack of management commitment". This was also said by KR 7, MR 3 and MR 11. KR 5 said inadequate staff resulting in too many patients being attended by one staff". MR 8 said "high workload and stress". MR 3 said "inconsistent supply of IPC commodities". MR 5 said "lack of funding towards IPC". KR 6 "inadequate trained staff as IPC training at this hospital is dependent on partners." MR 11 said "stock outs of PPEs". MR 14 "Inadequate knowledge on IPC". This was also said by KR 10 and KR 3. MR 2 said inadequate health care wastes bins". MR 12 said "poor water supply". This was also said by MR 1, MR 6 and KR 2. MR 7 said lack of IPC posters, standards and guidelines". This was also said by MR 3, KR 4 and KR 10. KR 14 said lack of management commitment and support towards IPC". MR 3 said "inadequate number of health care workers trained in IPC". KR 9 said "most of the new staff are not trained in IPC, they are just using the knowledge they acquired from school". MR 5 said "inadequate number of health care workers trained in IPC". KR 11 said "some health workers have knowledge gap on implementing certain elements or components of IPC standard precautions." KR10 said "trainings of health care workers in health care workers on IPC are not regularly conducted at this hospital."

6.5.What should be done or put in place in order to promote and sustain compliance with infection prevention standard precautions?

On what should be done or put in place in order to promote and sustain compliance with infection prevention and control standard precautions, the responses from the respondents both at Kasama general and Mbala general Hospitals were; KR13 said "hospital management should be committed to implementing IPC by adequately funding the programme". This was also said by KR 3, MR 6 and MR

1. KR 3 said "government should ensure that the hospital has adequate trained staff to address the issue of high workload because high workload due to shortage of staff results in the staff having stress hence leading to none compliance with IPC standard precautions". KR 11 said "IPC polices, standards and guidelines should be available in all the departments of the hospital". This was also said by KR 8, KR 1, MR 3 and MR 15. KR 1 said "all required IPC supplies, policies, standards, guidelines and protocols should available in every hospital department". KR 10 said "hospital management should be conducting IPC training of health care workers regularly in all the departments and not just depend on partners". KR 11 said "IPC training should be intensified by hospital management should stop depending on partners support to conduct IPC training because it has not helped the hospital as the hospital has more staff who are not trained in IPC". KR 15 said "hospital management together with IPC committee members should be conducting quarterly IPC performance assessment, monthly monitoring and supervision and thereafter, provide the feedback of the findings to the health care workers". KR 6 said hospital management should be awarding outstanding departments in compliance with IPC standards". MR 13 said "quarterly IPC mentorship and technical support to be conducted to health care workers by IPC committee and hospital management because this will build capacity and improve knowledge level of health care workers on IPC". MR 6 said "color coded or well labeled waste bins with bin liners should be available all the time as they are always out of stock. MR 9 said "IPC committee should be active and it should make sure that all the required IPC supplies are available". MR 4 said "IPC committee should compel the management to allocate adequate funds towards IPC activities". MR 15 said "IPC refresher training should be conducted biannually". MR 11 said on-spot supervisory visit and technical support should be conducted by hospital management and IPC committee monthly". MR 3 said "schedules of IPC review Meetings, IPC committee meeting, IPC performance assessment and trainings should be put in place by hospital management. MR 2 said "every hospital department should have designated IPC focal point person to work hand in hand with departmental head or in-charge to ensure all the required IPC supplies and everything needed is in place for that particular department".

CHAPTER FIVE: DISCUSSION

5.0. Introduction

Standard precautions are a set of basic infection prevention practices intended to prevent transmission of infectious diseases from one person to another. Because it is not always known if a person has an infectious disease or not, standard precautions should be applied to every person all the time to ensure that transmission of diseases do not occur. They are used to maintain an aseptic field to prevent cross contamination and cross infection between health care providers and patients and in between patients (Siegel & Rhinehart, 2007). This chapter presents a discussion of the study findings as presented in the preceding chapter. It will focus on characteristics of participants, knowledge of participants on infection prevention standard precautions, health care workers' attitude and practices, administrative controls and management commitment or support to IPC, motivating factors for complying to IPC standard precaution and challenges or situations hindering health care workers from complying to infection prevention and control standard precautions.

5.1.0. SOCIAL DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS

5.1.1. Age of the Respondents

The findings of this study show that majority (44.9%) of the respondents at Kasama general hospital were in the age range of 31-40 years and the least (4%) was in the range of 41-50 years while at Mbala general hospital the majority (49.4%) of the respondents were in the range of 21- 30 years and the least (14.1%) of the respondents were in the range of 41-50 years. Mbala general hospital had zero respondents in the range of 51 years and above. Therefore, a higher proportion (42.7%) of the total respondents for both Kasama General and Mbala General Hospitals were in the age range of 42.7% while the least (7.6%) was in the age range of 51 years and above.

A higher proportion of the respondents at Kasama general hospital (44.9%) and Mbala general hospital (49.4%) was in the age range of 21-30 years and a least proportion (4%) at Kasama general hospital was in the range of 41-50 years while at Mbala general hospital a least proportion (14.1%) was in the range of 41-50 years. Therefore, out of the 354 total respondents for both Kasama general and Kasama general hospitals, a higher proportion (42.7%) was in the range of 21-30 years and a least proportion (7.6%) was in the range of 51 years and above.

5.1.2. Sex of the Respondents

The findings of this study show a higher proportion (62.6%) at Kasama general hospital were female while at Mbala general hospital a higher proportion (56.4%) were male. Therefore, out the 354 total respondents at both Kasama general and Mbala general hospitals, a higher proportion (54.2%) were female and a lower proportion (45.8%) were male. Therefore, out the 354 total respondents at both Kasama general and Mbala general hospitals, a higher proportion (54.2%) were female and a lower proportion (45.8%) were male.

5.1.3. Marital Status

The findings of this study show that a higher proportion (58.1%) of the respondent at Kasama general hospital were married, 35.9% were single and 6.1% were windowed while at Mbala general hospital,

53.2% were single while 46.8% were married. Therefore, at both Kasama general and Mbala general hospitals, a higher proportion (53.1%) of the respondents were married, 43.5% were single while 3.4% were windowed.

5.1.4. Education Level

The findings of this study reveal that 80.3% and 84.6% of the total respondents at Kasama general and Mbala general hospitals respectively attended college education while 19.7% were university graduate for Kasama general hospital and 15.4% were university graduates at Mbala general hospital. Therefore, a higher proportion (82.2%) of the respondents at both Kasama general and Mbala general hospitals attended college education while 17.8% were university graduates.

5.1.5 Respondents by Profession

This study reveals that majority of the respondents where nurses at both Kasama general and Mbala general hospitals while a least of the respondents were clinical officers at Kasama general hospital and medical licentiates at Mbala general hospital. 90.9% of respondents at Kasama general hospital and 87.2% at Mbala general hospital were nurses and a least proportion (1%) were clinical officers for Kasama general hospital while for Mbala general hospital a least proportion (0.6%) were medical licentiates. Therefore, out of the 354 total respondents for both Kasama general and Mbala general hospitals, a higher proportion (89.3%) of respondents were nurses, while a least proportion (0.3%) were medical licentiates.

5.1.5. Profession Certificate Obtained by Respondents

The findings of this reveal that that a higher proportion (84.3%) of the total respondents at Kasama general hospital and 87.8% at Mbala general hospital had diploma certificates followed by 15.7% and 11.5% of the total respondents at Kasama general hospital and Mbala general hospital had degree certificates respectively. A least proportion (0.6%) of the total respondents at Mbala general obtain a certificate. Therefore, a higher proportion (85.9%) out of 354 total respondents at both Kasama general and Mbala general hospitals obtained diploma certificates and a least proportion (0.3%) obtained a certificate.

5.2.DURATION BY SERVICE

On duration of health care workers by service, this study reveals that majority (71.7%) of the respondents at Kasama general hospital was in the range of 5 years and above in service and a least proportion (3.5%) was in the range of 6-11 months in service while at Mbala general hospital, a higher proportion (38.5%) of the respondents was in the range of 5 years and above in service while a least proportion (10.3%) was in the range of 6-11moths in service. Therefore, a higher proportion (57.1%) of the respondents at both Kasama and general and Mbala general hospitals was therefore in the range of 5 years and above in service while a least proportion (6.5%) was in the range of 6-11 months in service.

5.3.KNOWLEDGE ON INFECTION PREVENTION AND CONTROL STANDARD PRECAUTIONS

Muller et al. (2006) defined the word "knowledge" as an understanding of or information about a subject that we get by experience or study either known by a person or people generally. In this study it was found despite inadequate number of health care workers trained in IPC, health care workers were knowledgeable on IPC, elements or components of IPC standard precautions, Public health importance of poor IPC in health care setting and how the health care worker was at risk on acquiring infections or diseases by the virtual of working in the hospital. All (100%) the participants at both Kasama general and Mbala general hospital had heard about infection prevention and control and a higher proportion (84.3%) at Kasama general hospital and 86.5% at Mbala general hospital was able to explain what infection prevention and control is. Therefore, Majority (85.3%) of the total respondents at both Kasama general and Mbala was able to explain what infection prevention and control is. When asked whether they knew about elements or components of IPC Standard Precautions, 92.9% and 93.6% indicated to be aware of the elements of IPC Standard Precautions at Kasama general and Mbala general hospital respectively. Therefore, majority (93.2%) of the total respondents at both Kasama general and Mbala general hospitals indicated to be aware of elements of IPC standard precautions. However, when asked to state or list down the elements of IPC standard precautions, 79.3% out of the total respondents who indicated to be aware of the IPC standard precautions at Kasama general hospital answered correctly while at Mbala general hospital, 84.9% out of respondents who indicated to be aware of the IPC standard precautions answered correctly on the elements of infection prevention standard precautions which includes hand hygiene at all critical points, proper waste disposal, proper use of personal protective equipments, proper handling and disposal of sharps, the use of aseptic "non-touch" technique for all invasive procedures including appropriate use of skin disinfectants, reprocessing of reusable instruments and equipment, routine environmental cleaning, proper waste management, respiratory hygiene and cough etiquette, appropriate handling of linen patient placement and coughing etiquette. Therefore, a higher proportion (81.5%) of the total respondents at both Kasama general and Mbala general were knowledgeable on elements of IPC standard precautions.

As regards knowledge on the public health importance of poor infection prevention and control in health care setting, this study reveals that 78.3% out of the total respondents at Kasama general hospital were knowledgeable on the public health importance of poor infection prevention and control in health care setting while at Mbala general hospital, 84.6% of the total respondents were knowledgeable on the public health importance of poor infection prevention and control in health care setting on. Therefore, 81.1% of the total respondents at both Kasama general and Mbala general hospitals were knowledgeable on the public health importance of poor infection prevention and control in health care setting. As regards knowledge on risk on acquiring diseases or infection by virtual of working in the hospital, 92.8% of the total respondents at Kasama general hospital and 94.9% of the total respondents at Mbala general hospital were aware that health care workers were at risk. Therefore, at both Kasama general and Mbala general hospitals, 93.5% of the total respondents were aware that health care workers were at risk. When asked how health care workers were at risk, 84.7% of the total respondents at Kasama general hospital who were aware on how health care workers were at risk of

contracting diseases or infection were knowledgeable and provided correct responses while at Mbala general hospital, 88.5% of the total respondents were knowledgeable on how health care worker was at risk. Therefore, 86.4% of the total respondents at both Kasama general and Mbala general hospitals were knowledgeable on how health care workers were at risk of contracting diseases or acquiring infections by the virtual of working in the hospital. When asked why majority of health care workers were knowledgeable in IPC despite inadequate number of health care workers trained in IPC by hospital management, it was reported that the health care workers were using knowledge they acquired from school.

5.4.0. HEALTH CARE WORKERS' PRACTICES

5.4.1. Hand Hygiene

Practicing hand hygiene, which includes the use of alcohol-based hand rub (ABHR) or hand washing with water and soap, is a simple yet effective way to prevent the spread of pathogens and infections in healthcare settings.

In this study, it was found that 40.9% of the total respondents at Kasama general hospital and 42.3% of the total respondents at Mbala general hospital were practicing hand hygiene upon reporting for work and when leaving work. Therefore, a proportion of 41.5% of the total respondents at both Kasama general and Mbala general hospitals were practicing hand hygiene upon reporting for work and when leaving work. The findings of this study is consistent with the study done at St. Dominic Mission Hospital, Ndola Copperbelt, Zambia by Njovu, E. (2016) titled "*Factors affecting Compliance to Infection Prevention and Control guidelines by Nurses"* which revealed a low response (50%) on hand washing when nurses came for work and before leaving work signifying noncompliance to Infection Prevention and Control guidelines.

When asked what they use when practicing hand hygiene, 71.2% at Kasama general hospital and 75.6% at Mbala general hospital reported that they used soap and water while 28.8% and 24.4% for Kasama general hospital and Mbala general hospital respectively indicated that they used alcohol based hand rub. Therefore, 73.3% of the total respondents at both Kasama general and Mbala general hospitals reported that they used soap and water while 26.8% indicated that they were using alcohol based hand rub for hand hygiene.

On how often health care workers were performing hand hygiene when delivering health care services, this study reveals that 52% of the total respondents at Kasama general hospital and 59.6% of the total respondents at Mbala general hospital were practicing hand hygiene at all critical times (Before and after performing any procedure between patients or on the same patient, before putting on gloves and after removing gloves and after handling contaminated objects/ materials). 3.5% at Kasama general hospital and 3.8% at Mbala general hospital were practicing hand hygiene before and after performing any procedure between patients or on the same patient and after handling contaminated objects/ materials. 33.8% at Kasama general hospital and 28.8% at Mbala general hospital were practicing hand hygiene before and after contact with each patient, 6.1% at Kasama general hospital and 4.55 for Mbala general hospital were only practicing hand hygiene before putting on gloves and after removing gloves while 4.5% at Kasama general hospital and 3.2% at Mbala general hospital were only practicing hand hygiene after handling contaminated objects or materials. Therefor this study reveals that 55.4% of the total

respondents at both Kasama general and Mbala general were practicing hand hygiene at all critical times

5.4.2. Utilization of Personal Protective Equipments

On the utilization of PPEs such as gowns, masks and goggles when doing procedures which are likely to generate splashes, this study found that 36.9% of the total respondent at Kasama general hospital and 35.3% at Mbala general hospital were using gowns or aprons always, 38.4% of the total respondents at Kasama general hospital and 40.4% at Mbala general hospital were using gowns or aprons only when they were available while16.7% of the total respondents at Kasama general hospital and 17.9% at Mbala general hospital were using gowns or aprons sometimes, 4.5% of the total respondents at Kasama general and Mbala general hospitals were using gowns or aprons rarely while 3.5% of the total respondents at Kasama general hospital and 1.9% at Mbala general hospital were not using gowns or aprons. On the use of masks, this study reveals that 50% of the respondents at Kasama general hospital and 48.7% at Mbala general hospital were using masks always, 32.3% at Kasama general hospital and 36.6% for Mbala general hospital were using masks only when they were available while 35% at Kasama general hospital and 15.7% at Mbala general hospital were using masks only sometimes. On the use of goggles, this study reveals that 34.3% of the respondents at Kasama general hospital and 35.9% at Mbala general hospital were using goggles always, 36.9% at Kasama general hospital and 37.2% at Mbala general hospital were using goggles only when they were available, 15.7% of the total respondents at Kasama general and 16.7% at Mbala general hospital were using goggles only sometimes, 7.1% of the total respondents at Kasama general and 4.5% at Mbala general hospital were using goggles rarely while 6.1% of the total respondents at Kasama general hospital and 5.8% at Mbala general hospital were not using goggles.

This study therefore found that a lower proportion of health care workers at both Kasama general and Mbala general hospitals were using gowns or aprons (36.2%), mask (49.4%) and goggles (35%) always whenever they were providing health services. These findings are consistent with the findings of a study done by Jain & Dogra (2012) which indicated that less than half of the participants used caps, masks, and gowns as part of maximal barrier precautions. Poor staff attitude was found to be a contributing factor for none utilization of PPEs by some staff at both Kasama general and Mbala general hospitals. For example, this study found that out of the 354 total respondents for at both Kasama general and Mbala general hospitals, 17.3% were using gowns sometimes, 4% were using gowns rarely while 3.4% were not using gowns. When it comes to utilization of masks, 17.3% were using masks sometimes when performing procedures which were likely to generate splashes. On the utilization of goggles, 16.1% were using goggles sometimes, 5.9% were using goggles rarely while 5.9% were not using goggles when performing procedures that were likely to generate splashes. The findings of this study is in consistency with a study done by Kermode et.al, (2005) in India which revealed that less than half (40%) of the HCW wore eye protection when providing health services.

None availability of adequate PPEs all the time also contributed to health care workers not using PPEs always. This is because the results of this study found that out of the 354 total participants at both Kasama general and Mbala general hospitals, 39.3% were using gown, 33.3% were using masks while 37% were using goggles when they were available.

5.4.3. Management of Health Care Wastes Generated during Provision of health Care Services

Sound health care waste management is of paramount importance in the prevention of nosocomial infections. It is required that health care wastes are segregated at the point of generation by disposing them into color coded bins with plastic liners or well labeled health care receptacles or containers according to category of the waste. This study has found that management of health care wastes generated during the provision of health services at Kasama general hospital is not as good as at Mbala general hospital. This is because only 74.7% of the total health care workers at Kasama general hospital were disposing needles and syringes immediately after use into a puncture resistant container while 81.4% at Mbala general hospital were disposing needles and syringes immediately after use into a puncture resistant container. 23.7% and 18.6% of health workers were disposing syringes and needles together with other wastes into available waste containers at Kasama general hospital and Mbala general hospital respectively while 0.8% of the total respondents at Kasama general hospital were practicing all the health care waste management practices (the needle and syringe are disposed of immediately after use into a puncture resistant container, the needle is recapped before disposing of the needle and syringe, syringe and needle are disposed of together with other waste into available waste containers, the needle is bent before disposing of the needle and syringe into a puncture resistant container).

Overly, the findings of this study has revealed that the management of health care wastes generated during the provision of health care services at the both hospitals is not very good. This is because 21.5% out of the 354 total respondents at both Kasama general and Mbala general hospitals were disposing syringes and needles together with other wastes into available waste containers. This study has also revealed that health care waste management is still a challenge at both hospitals. This is because only 66.7% of the total respondents at Kasama general hospital and 73.7% at Mbala general hospital were segregating wastes at the generation points and disposed into available color coded or well labeled containers and taken for incineration while 33.3% at Kasama general hospital and 26.3% at Mbala general hospital were disposing wastes into available containers well labeled without segregating and taken for incineration. At both Kasama general and Mbala general hospitals, out of the 354 total respondents, 69.8% were segregating wastes at the point of generation and disposed into available color coded or well labeled containers and thereafter transport them for incineration while 30.2% were disposing wastes into available containers well labeled without segregating and taken for incineration.

5.5.0. ADMINISTRATIVE CONTROL MEASURES

5.4.1. Staffing Level at the Hospital

Availability of adequate qualified staff at any health care setting is critical in the management and control of nosocomial infections. The Health Care Worker is responsible for ensuring resident/client safety by adhering to Standard Precautions. This study found that both general hospitals were under staffed. 88.4% of the total respondents at Kasama general hospital and 91% at Mbala general hospital reported that qualified staff were not adequate. Majority (89.5%) of the respondents at both Kasama general and Mbala general hospitals reported that the qualified staffs were not adequate. This is supported by the following responses from the respondents during key informant interviews on challenges health care workers face when providing health services which result in them not complying

with infection prevention and control standard precautions: MR 11 said *"This hospital is very much understaffed."* MR 15 *Said "this hospital is in serious need of qualified staff especially nurses and doctors."* KR said *"staffing level is a big challenge at this hospital."* KR 2 said *"the issues of staffing level requires immediate attention".* MR 6 said *"hospital management needs to address the problem of staff shortage at this hospital".* KR said *"the problem of staff shortage at this hospital needs to be addressed quickly".* A significant proportion of nurses working in maternity ward felt there is need for management to deploy more nurse midwives to labour ward especially now that they are experiencing increase in the numbers of pregnant women accessing maternity services with the introduction of free maternity services in public hospitals in order to facilitate provision of safe and quality nursing and midwifery care. These findings are supported by those of a study done by Hersey et al (2004) which revealed that excessive patient care responsibilities did not allow health care workers sufficient time for them to always follow standard precautions. This was confirmed by the Hospital administrator and the Human Resource Management Officer who said that the shortage of qualified staff at the hospital was worsened by transfers of qualified staff to other health institutions such as nursing schools, provincial health office and district hospitals.

5.4.2. Availability of IPC Logistics (Materials, Equipments and Funds)

Inadequate logistics for IPC ranked on top as one of the factors affecting health care workers' compliance with Infection Prevention and Control Standard Precautions. This is consistent with the study conducted at St. Dominic Mission Hospital, Ndola Copperbelt, Zambia by Njovu, E. (2016) which ranked inadequate materials and equipments on top as one of the factor affecting compliance to IPC. Samuel has supported this fact in a study done on availability of Infection Prevention and Control logistics, stated that, lack of water, and poor quality of available soaps, lack of funds, over worked staff, reduced motivation increased the spread of Health Care Associated Infections, and reduced compliance (Samuel et al., 2005).

In this study, a lower proportion (16.7%) of the 354 total participants at both Kasama general and Mbala general hospitals reported that required PPEs were available all the time. This may be an indication why some health care workers were only using gown or aprons (38.1%), masks (33.3%) and goggles (37%) when they were available at both hospitals. This is supported by the following responses from the respondents during key informant interview on barriers or situations that would hinder health care workers from complying with infection prevention standard precautions: KR 7 said *"lack of IPC supplies or commodities"*. This was also said by MR 3, MR 7, and KR 1. KR 3 said *"lack of adequate funds for IPC activities such as procurement of PPEs, disinfectants, soap, etc. are some of the reasons hindering health care workers from complying with IPC standard precautions".* MR 11 said *"stock outs of PPEs".* MR 4 said *"lack of bin liners and stock outs of disinfectants like chlorine".* The following are also responses from respondents during key informant interview on challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 4 said *"lack of adequate IPC commodities such as gloves, gowns, goggles, face shield, aprons, gumboots, disinfectants and soap"*. KR 7 said *"stock out of bin liners and poor waste management".* KR 15 said *"inadequate funding due to lack of management commitment".* MR 5 said *"lack of funding towards IPC".* KR 14 said *"lack of management support on IPC".*

A lower proportion (23.2%) of the respondents at Kasama general hospital and 22.4% at Mbala general hospital reported that color coded or well labeled health care waste bins were always available. For both Mbala general and Kasama general hospital, 22.9% of the 354 total respondents reported that color coded or well labeled health care waste bins were always available. A lower proportion (9.1%) of the total participants at Kasama general hospital and 5.8% at Mbala general hospital reported that hand washing facilities with soap and water or alcohol based hand rub were available all the time. Therefore, this study reveals that availability of the color coded or well labeled health care waste bins all the time was a challenge. 7.6% of the 354 total respondents at both Kasama general and Mbala general hospitals reported that color coded or well labeled health care waste bins were always available. This is supported by the following responses from the respondents during key informant interview on barriers or situations that would hinder health care workers from complying with infection prevention standard precautions and on challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 7 said *"stock out of bin liners and poor waste management"*. MR 4 said *"lack of bin liners and stock outs of disinfectants like chlorine*".

This study also found that required disinfectants were not available at all times. As revealed by the findings, a lower proportion (10.6%) of the total participants at Kasama general hospital and 9% at Mbala general Hospital indicated that disinfectants were available all the time. A lower proportion (9.9%) of the total participants for both Kasama general and Mbala general hospitals indicated that color coded disinfectants were available all the time. This is supported by the responses from the following respondents on challenges Health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 4 said *"lack of adequate IPC commodities such as gloves, gowns, goggles, face shield, aprons, gumboots, disinfectants and soap"*. This was also said by KR 11, KR 6, MR 2, MR 9 and MR 14.

In this study, majority (79.3%) of the respondents at Kasama general hospital and 80.8% at Mbala general hospital indicated that management does not allocate adequate funds towards IPC. This may be why all the required PPEs and disinfectants were not available all the time in all the departments affecting the health care workers' compliance with IPC standard precautions. This is supported by the following responses from the respondents on challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 14 said *"lack of management commitment and support to IPC"*. KR 15 said *"inadequate funding due to lack of management commitment"*. MR 5 said *"lack of funding towards IPC"*. The finding of this study is in consistent with the study conducted in Ndola, Copperbelt, Zambia by Njovu, E. (2016) which revealed that inadequate finance was among factors affecting compliance to Infection Prevention and Control. The findings of this study is also in agreement with Robinson who stated that Africa carried 25% of the world's disease burden, yet had only 3% of the world's Health Care Providers and 1% which was close to nothing of the world's economic resources to meet Infection Prevention and Control challenge (Robinson M, 2008).

5.4.3. Training on Infection Prevention and Control

Training in IPC is key in ensuring that Health Care Workers are empowered with knowledge and skills on IPC standard precautions to prevent, halt and manage nosocomial infections in health care setting like Kasama general and Mbala general hospitals. According to Klopper and Mellish (2011), education is a form of learning in which the knowledge, skills, values, beliefs of people are transferred from one generation to next through training, teaching and research, whereas training is a task-oriented process aiming to produce a skilled, knowledgeable, useful and willing worker.

This study has revealed that despite 79.3% of the total respondents at Kasama general hospital and 77.6% at Mbala general hospital reporting that hospital management conducts IPC trainings, a lower proportion (40.9%) of the health care workers at Kasama general hospital and 36.5% at Mbala general hospital were trained in IPC. At both Kasama general and Mbala general hospitals, Majority (61%) of the health care workers were not trained. This is supported by the following responses from the respondents during key informant interviews on challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 1 said, *"Inadequate training in IPC for health care workers"* This was also said by KR 7, MR 6 and MR 11. KR 5 *said "lack of regular training of staff on IPC is one of the barriers or situations hindering compliance with IPC standard precautions as the hospital keeps on receiving new health care workers"*. This was also said by KR 15, MR 7 and MR 11. MR 3 said "*inadequate number of health care workers trained in IPC*". MR 9 said *"lack of mentorship and on-pot technical supportive supervision"*

The findings of this study are different from the findings of the study conducted in Nairobi, Kenya by Moyo, G.M. (2013) which revealed that 60% of the participants were trained on infection prevention and control while 40% were not trained.

This study has also found that although hospital management conducts IPC training, the trainings are not consistently conducted to cover all the qualified staff available as they are dependent on partners supporting the programme. Despite 79.3% of the respondents at Kasama general hospital and 77.6% at Mbala general hospital indicting that training was conducted by the hospital management, when asked how often the trainings were conducted, all (100%) the respondents who indicated that the hospital management conducts IPC training reported that the trainings were dependent on partners supporting the programme. This tells why a lower proportion (40.9%) of the health care workers at Kasama general hospital and 36.5% at Mbala general hospitals were not trained. This is evidenced by the following direct quotations from the respondents during informant interviews conducted on challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions:

- *KR 1 "Inadequate training in IPC for health care workers" This was also said by KR 7, MR 6 and MR 11*
- *MR 5 "inadequate number of health care workers trained in IPC".*
- *MR1"I think most of health care workers at this hospital are not trained on infection prevention and control."*
- *KR10"Trainings of health care workers on IPC are not regularly conducted at this hospital."*
- *KR 6 "Inadequate trained staff as IPC training at this hospital is dependent on partners."*

- *KR 9 "Most of the new staff are not trained in IPC, they are just using the knowledge they acquired from school."*
- *KR11 "Some health workers have knowledge gap on implementing certain elements or components of IPC standard precautions."*

The above quotes are supported by Amoran and Onwube (2013) who have reported that having workers with inadequate training influences the implementation and health care workers' compliance to Infection Prevention and Control Standard Precautions. From their study they found that health workers who have been trained on infection control principles are more likely to implement the IPC measures and comply with IPC standard precautions than those that are not trained, however, they also emphasize that behaviour played a bigger role than knowledge.

The study done by Guembe et al. (2010) finds that the educational gap with regard to waste management results in poor segregation of waste. They suggested that all personnel must be trained on waste segregation and disposal. They suggested that policies must be implemented and have to be known by every staff member.

Participants articulated that inadequate training and education on infection prevention and control measures play a role in the compliance with IPC standard precautions. They reiterated that the training must be sustained by retraining the trained personnel since there is always new information about infection prevention and control.

In support of the above, a study done by Bohmer and Imison (2013) emphasizes that retraining of existing staff will assist with staff retention and the sustainability of the quality of the programme. Furthermore, they agreed that employees and management will take note of the infection prevention and control measures through the quality improvement programmes and with the evaluation of the training needs.

The Occupational Health and Safety Act (No. 36 of 2010) articulates that it is the duty of the employer to provide information, training and supervision regarding the safety of the worker.

The act also highlights that employees be made aware of such risky and hazardous working areas. Furthermore, the act emphasizes that it is the employee's duty to adhere to safety standard practices. According to the act, the employee must have information with regard to infection prevention and control measures due to the high-risk factor.

On when the 39.6% of the respondents trained who indicated to have been trained on IPC, the study reveals that the majority (49.6%) were trained 3 years to 4 years ago followed by 30.4% who were trained 1 year to 2 years ago from the date of the administration of the research questionnaire.

The researcher is of the view that based on the participants' assertions, inadequate training and education of staff, availability of IPC supplies or commodities and management commitment and support towards IPC has influenced the health care workers' compliance with infection prevention standard precautions at both hospitals. The effect of the inadequate of training must be addressed to improve compliance with infection prevention and control standard precautions. Bohmer et al. (2013) found that trained personnel are more likely to participate in implementing the infection prevention and control measures, less likely to face difficulties and more likely to use interactive, as compared to those who do not receive training. Therefore, a training and development strategy to facilitate health care

workers' compliance with infection prevention standards must be developed at this hospital.

5.4.4. Infection Prevention and Control Committee

The findings of this study reveals that both Kasama General and Mbala general hospitals had infection prevention committee in place but not active. A higher proportion (94.4%) of the respondents for Kasama general hospital and 94.2% for Mbala general hospital reported that Infection Prevention and Control Committee were in place. However, a lower proportion (27.8%) of the total respondents at Kasama general hospital and 26.5% at Mbala general hospital who indicated that IPC committee was in place reported that the IPC committee was active. At both Kasama general and Mbala general hospitals, a lower proportion (27.2%) of the respondents reported that the committee was active. This was found to be true when IPC committees at the both hospitals failed to avail the minutes of the meeting for the period of two quarters of 2024.

5.4.5. IPC Performance Review Meetings

IPC performance review meetings are very importance as they enable the hospital management, IPC committee and the staff to see and appreciate where the hospital is doing well and where it is not doing well so that the management together with health workers can come up with action points or plan of action to improve where there gaps so that compliance to IPC standard precautions is improved at the hospital. On whether the hospital management conducts IPC review meeting with the hospital staff, a higher proportion (83.3%) of the respondents at Kasama general hospital and 85.9% at Mbala general hospital reported that the hospital management was not conducting IPC performance review meetings with hospital staff. The findings of this study reveal that a higher proportion (84.5%) of the total respondents for both Kasama general and Mbala general reported that hospital management was not conducting IPC performance review meetings with health care workers.

5.4.6. IPC Assessment, Monitoring and Supervision

IPC assessment, monitoring and supervision is very important. This is because it enables the management team to know the performance rate in IPC and also know the existing gaps in the implementation of IPC so that interventions are put in place to address the existing gaps and improve compliance to IPC standard precautions. In this study, it was found that the hospital management does not conduct IPC assessment, monitoring and supervision. A higher proportion (94.4%) of the respondents at Kasama general hospital and 96.2% at Mbala general hospital reported that IPC assessment, monitoring and supervision was not conducted by the hospital management. 85.2% of the total respondents for both Kasama general and Mbala general hospitals reported that the hospital management was not conducting IPC assessment, monitoring and supervision while only 4.8% % of the total respondents said that IPC assessment, monitoring and supervision was conducted by the hospital management quarterly. However, when reports of the IPC assessment, monitoring and supervision were requested as the means of verification, the management failed to produce the reports.

5.4.7. Provision of Feedback on IPC Assessment, Monitoring and Supervision Findings

Provision of feedback to the workers on the findings of every assessment, monitoring and supervision is very cardinal as it will enable the workers know how the institution and specific departments were performing in the specific programme area and what is expected of them to improve the performance. The findings of this study reveal that provision of feedback to health care workers was not done. Even the few (4.8%) respondents at both Kasama general and Mbala general hospitals who indicated that the management was conducting IPC monitoring and supervision, a higher proportion (76.5%) reported that feedback was not provided while 23.5% reported that feedback was provided sometimes. Hence the health care workers could not know what was expected of them as regards compliance to Infection Prevention and control Standard Precautions.

5.4.8. IPC Mentorship and Technical Support

For the success of every programme, mentorship and technical support is one of the key activities which should be conducted. This is because it improves capacity of workers in every programme area. The findings of this study reveal that management at both hospitals does not conduct IPC mentorship and technical support to health care workers within the hospital. Majority (91.9%) of the total respondents at Kasama general hospital and 94.2% at Mbala general reported that hospital IPC mentorship and technical support was not conducted by the hospital management and IPC committee. For both Kasama general and Mbala general hospitals, a higher proportion (92.9%) of the 354 total respondents for both Kasama general and Mbala general hospitals reported that IPC mentorship, monitoring and supervision was conducted. This is supported by the following responses from the respondents during key informant interviews on barriers or situations that would hinder health care workers from complying with infection prevention standard precautions: MR 9 said *"lack of mentorship and on-pot technical supportive supervision"*.

5.4.9. Staff Rotation System/ Health Care Workers Work Shifts

In the health care system, shift work is considered necessary and indispensable to ensure continuity of care in hospitals and residential facilities. Rotating and scheduling are the main characteristics of the shift work and health care workers especially nurses are largely locked into schedules that provide 24 hours' care and include night shift work. This study found that Work shifts for health care workers was in place and all (100%) respondents at both Kasama and Mbala general hospitals indicated that staff working shift system was in place. This system was key as it allowed health care workers to have time to rest and recuperate. Hence, enables the health care workers to comply with infection prevention and control standard precautions. The system also acts as a way to motivate health care workers.

5.4.10. Allocation of Funds to IPC Programme

The findings of this study reveal that the management does not allocate adequate funds towards IPC programmes. Majority (79.3%) of the respondents at Kasama general hospital and 80.8% at Mbala general hospital reported that management does not allocate adequate funds towards IPC while 20.7% and 19.2% of the total respondents for Kasama general hospital and Mbala general hospital reported that management was not allocating funds towards IPC. A high proportion (79.9%) of the 354 total

respondents for both Kasama general and Mbala general Hospitals reported that hospital management was not allocating adequate funds towards IPC while 20.1% reported that management was not allocating funds towards IPC. This may be why required PPEs and disinfectants were not available all the time in all the departments. This is supported by the following responses from the respondents during key informant interviews challenges health care workers face when providing health services which result in them not complying with infection prevention standard precautions: KR 15 *said "inadequate funding due to lack of management commitment".* This was also said by KR 7, MR 3 and MR 11. MR 5 *said "lack of funding towards IPC".* KR 3 said *"lack of adequate funds for IPC activities such as procurement of PPEs, disinfectants, soap, etc. are some of the reasons hindering health care workers from complying with IPC standard precautions".*

CHAPTER SIX: CONCLUSION

The findings of this study reveal that qualified health care workers at the both hospitals were not adequate. A higher proportion (81.4%) of the health care workers reported that health workers were not adequate. Despite a higher proportion (100%) of health care workers being aware on Infection prevention and control at both Kasama general and Mbala general hospitals only 75.8% at Kasama general hospital and 80.8% at Mbala general hospital were knowledgeable on what infection prevention and control is. Therefore, 78% of the 354 total respondents for both Kasama general and Mbala general hospitals were knowledgeable on what Infection prevention and control is. 93.2% had basic knowledge on elements or components of infection prevention and control standard precautions while 81.1% were knowledgeable on public health importance of Infection Prevention and Control. Majority (93.5%) of the health workers at both Kasama general and Mbala general hospitals were aware that health care workers were at risk of contracting or acquiring diseases by virtual of working in the hospital and 86.4% where knowledgeable on how the health care workers were at risk of acquiring infections/diseases by virtual of working in the hospital.

This study has also revealed that there is poor utilization of PPEs such as gowns or aprons, masks and goggles or eye protector by health care workers. A lower proportion of health care workers were using gowns (37.3%), mask (49.45) and goggles (35%) always when they are performing procedures likely to generate splashes. There is also a revelation by this study that 55.4% health care workers were practicing hand hygiene at all critical times while 41.5% were washing hands immediately upon reporting and when leaving work. While 77.7% of health care workers were disposing needles and syringes immediately after use into a puncture resistant container, 69.8% of the health care workers were segregating wastes at the generation points before transporting them for incineration.

The study findings suggest that some of the factors influencing none compliance with Infection Prevention and Control Standard Precautions by health care workers at both hospitals were low staffing level of qualified HCWs, inadequate and inconsistency supply of infection prevention and control supplies or commodities by hospital management, inadequate staff trained in IPC due to dependency on the partners, lack of IPC assessment, lack of monitoring and supervision by hospital management, inadequate funding towards IPC programme, lack of IPC policy, guidelines and standards, lack of IPC performance review meetings, inadequate IPC mentorship and on-spot technical supportive supervision by the hospital management, inadequate management commitment and support towards IPC and negative staff attitude and practices.

To improve the compliance of health care workers with IPC standard precautions, the researcher suggests that the interventions such as training of health care workers in IPC standard precautions, provision of adequate required IPC commodities/supplies all the time in all the departments, proper health care waste management, availability of IPC policy documents, standards and guidelines, availability of hand washing facilities with water and soap and alcohol based hand rub, monitoring and regular on-spot technical supportive supervision of HCWs, IPC performance assessment, provision of feedback to HCWs on the findings of IPC performance assessment and holding IPC review meetings are very important. The participants acknowledged the value of compliance to IPC Standard Precautions as a means for protection against exposure to nosocomial infections.

CHAPTER SEVEN: RECOMMENDATIONS

To improve health care workers' compliance with infection prevention and control standard precautions, below are researcher's recommendations based on the findings of the study:

- Hospital management at both hospitals should ensure that IPC review meetings are conducted quarterly with the hospital staff.
- Information Education and Communication (IEC) material such as posters, leaflets, brochures on Infection prevention and Control Standard Precautions should be available and distributed to all the section/departments and stack on walls in strategic places at both hospitals.
- Hospital management at both hospitals should train adequate number of qualified health care workers in IPC standard precautions and training of staff in IPC should not be dependent on partners supporting the programme but should be hospital management team responsibility.
- IPC committee in collaboration with hospital management team should develop an IPC induction program for all newly posted nurses in order to standardize performance.
- Hospital Management at both hospitals should ensure that IPC trainings and orientations are conducted to all health care workers regularly.
- Hospital management and IPC committee at both hospitals should conduct quarterly IPC performance assessment to ascertain the levels of adherence to IPC standard precautions and provide feedback to health care workers on the findings of the IPC performance assessment with actionable recommendations to address the gaps.
- The hospital management at both hospitals should ensure that on-spot mentorship and technical support on IPC is conducted preferably monthly.
- Hospital management at both hospitals should ensure that adequate essential IPC supplies and equipments are procured to ensure consistent availability in order to reinforce compliance with infection prevention and control standard precautions.
- Hospital management at both hospitals should ensure that the hospital is adequately staffed with qualified staff.
- The hospital management at both hospitals should ensure that IPC committee is active and all members know their roles and responsibilities.
- Hospital Management at both hospitals should come up with IPC action plan and allocate adequate funds to IPC programme.
- Hospital management at both hospitals should ensure that IPC policy, standards and guidelines are available and distributed to all the departments and easily accessible.
- Hospital management at both hospitals should ensure that health care workers are oriented in IPC policy, standards and guidelines.
- The hospital management at both hospitals should ensure that the schedule of IPC assessment, IPC committee meeting, IPC performance review meeting, IPC orientation meetings and on-spot technical supportive supervision is in place

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