

**A STUDY TO DETERMINE THE KNOWLEDGE, ATTITUDE
AND PRACTICE OF MEDICAL DOCTORS ON
INFECTION PREVENTION**

BY

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THE UNIVERSITY OF ZAMBIA
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ZRN (KITWE, 1995)
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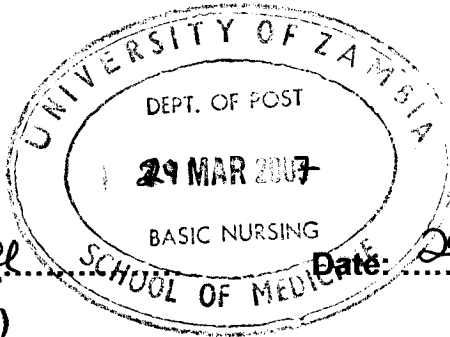
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DECLARATION

I, hereby declare that the work presented in this study for a Bachelor of Science degree in nursing has not been presented either wholly or in part, for any other degree and is not being currently submitted to any other degree.



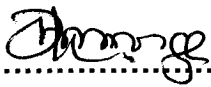
Signed:
(Candidate)

Date: 29/03/07

Approved:
(Supervising Lecturer)

STATEMENT

I, ***Juliet Kasanga munganga***, do hereby certify that this study is entirely the result of my own independent investigations. The various sources to which I am indebted are clearly indicated in the text and reference.

Signed: 

Date: 29/03/07

DEDICATION

To

My late parents Matthews Kasanga and mother Sophia Moomba whose encouragements though post humours continue to inspire all my life endeavours

To

My late elder brother Chiwisa Jackson Kasanga whose departure has made me mature at an early stage.

To

My husband Frank K. Fwapyeka for the love, encouragement and support that has made it possible for me to accomplish my ambitions.

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My sister Clara for looking after my young ones Miriam, Faith and Matthews for the whole period of training

LIST OF ABBREVIATIONS

1.	AIDS	-	Acquired Immune Deficiency Syndrome
2.	CBoH	-	Central Board of Health
3.	CDEs	-	Classified Daily Employees
4.	CSO	-	Central Statistical Office
5.	DHMT	-	District Health Management Team
6.	HAI	-	Hospital Acquired Infection
7.	HZ	-	Herpes Zoster
8.	HIV	-	Human Immune Deficiency Virus
9.	ICT	-	Infection Control Team
10.	ICD	-	Infection Control Doctor
11.	ICC	-	Infection Control Committee
12.	ICN	-	Infection Control Nurse
13.	IS	-	Injection safety
14.	IP	-	Infection Prevention
15.	KCH	-	Kitwe Central Hospital
16.	KANDO	-	Kitwe, Arthur Davison and Ndola hospitals
17.	MOH	-	Ministry of Health
18.	ODA	-	Overseas Development Agencies
19.	WHO	-	World Health Organisation

ABSTRACT

The study was aimed at determining the factors influencing Infection Prevention among the Medical Doctors at Kitwe Central Hospital. The focus was directed at Knowledge, Attitude and Practice of Medical Doctor on Infection Prevention practices. Studies have been done on General Nurses, Midwives and on Daily Classified Employees but no study have been conducted on the Medical Doctors thereby identifying a gap in the Infection Prevention practices.

Literature also revealed that Hospital Acquired Infections are the major causes of morbidity and mortality in the patients admitted to our Health facilities. Infection Prevention was viewed as a worldwide problem. Reference was made to global, Regional and national studies on Infection Prevention obtained from local and international publications.

Background: Infection prevention programme has been promoted as a strategy to reduce nosocomial infections and to minimise adverse social outcomes associated with unexpected expenditure due to patients long staying in the hospital. Infection prevention programme influences the uptake of the programme by all the health workers, but the involvement of Medical Doctors in IP Programme remains a challenge. The researcher investigated the knowledge, attitude and practice of Medical Doctors on Infection Prevention at Kitwe Central Hospital in Kitwe District, Copperbelt province – Zambia.

Method: A cross sectional descriptive study was conducted at Kitwe Central Hospital. The study population included all the medical doctors at KCH. A sample of comprising 50 respondents was selected using simple random method. A self administered questionnaire was used to collect data. Quantitative data was grouped manually and qualitative data was analysed manually using a data master sheet and scientific calculator. Data was presented in the form of frequency tables, pie charts and bar charts. Cross tabulation were used to determine the relationship between variables.

Results: The findings of the study revealed that all the respondents 100% (50) had heard about Infection Prevention. Out of the 100% who had heard of IP, 8% had high knowledge on IP. The study also revealed that 74% of the respondents had negative attitude towards Infection Prevention and 44% of the respondents had poor practices. It is evident from the study that knowledge influences attitude and practice while the attitude influences the practice. In order for one to have a positive attitude on Infection Prevention they require to have adequate knowledge on the topic. Adequate knowledge coupled with positive attitude would result into good IP practices.

The factors hindering good IP practice among the Medical Doctors were inadequate finances, material resources and human resources. There was no factor on its own that contributed to the Medical Doctors' practice towards IP. Therefore there is need for authorities to attend to all the factors in order to acquire the highest set standards in Infection Prevention.

Conclusion: the attitude, knowledge and practice of Medical Doctors at Kitwe Central Hospital was low. Sensitization of Medical Doctors, improvements in the health care system and in the curriculum or training manual for the doctors were identified as possible ways of increasing the knowledge base, improve the practice and attitude of Medical Doctors in Infection Prevention programme.

CHAPTER 1

1.0 INTRODUCTION

1.1 Background information

Zambia is a landlocked country covering an area of 752, 612 square kilometres and consisting about 2.5 % of Africa. It lies between 8 and 18 south latitude and between 20 and 35 east longitude. The country shares borders with the Democratic Republic of Congo and Tanzania in the North, Malawi and Mozambique in the East, Zimbabwe and Botswana in the South, Namibia in the South-west and Angola in the West (CSO, 2002).

For administrative purposes, the country is divided into nine provinces and 73 districts. These are Central, Eastern, Northern, Luapula, North-western, Copperbelt, Lusaka, Southern and Western province. Two of these provinces are predominantly urban and these are Lusaka and Copperbelt province (CSO, 2002)

The country is densely populated along the line of rail especially in Lusaka province where there are about 65 people per square kilometre in comparison to about 5 people per kilometre in North- western province. According to the census report of population and housing of 2000, estimate the country's population and housing of 2000, estimate the country's population at 10, 285, 631 of which 5, 070, 891 (49%) are males and 5, 214, 750 (51%) are females with the growth rate of 2.9 % per year. The fertility rate is 6.0 while life expectancy at birth is 37 years for both males and females (CSO, 2002).

1.1.1 Overview of health care provision

Prior to independence the population was sparsely distributed especially in the rural areas which had no adequate health facilities. The country had poor health service provision which prompted the government to review its health care provision after Independence.

In 1964, following Independence, the Zambian government declared free health services. Health care services focused on curative medicine as opposed to preventive medicine which is community - oriented. Within a few years, the country's population grew very fast and health care standards deteriorated.

In 1991 Zambia embarked on the health reforms in order to address the problem of poor health service delivery in the country. The health reform concept was incorporated in the health policies and strategies (NHPS) of 1992. The major aim was to improve the health status of Zambians by provision of equitable access to cost effective quality health care as close to the family as possible.

The health services were now decentralized and the authority was given to the District Health Boards as a method of implementing the health reforms. Health needs and problems are now being addressed through community involvement in identifying their own health needs and thus finding solutions to their health problems. Community awareness programmes on knowledge of prevention of diseases, diagnosis and treatment have been established through the health centres with the help of community based agents.

The main aim of the health reforms is to decentralize health care provision through quality care. This entails prevention of hospital acquired infections, leading to improving the health of both the clients and the health care providers. This practice was not relegated to the community only but also to the Hospital Management Board who are now inclined to improve the quality of health care provision.

1.1.2 Overview of infection prevention in Zambia

The country has District Health Management Teams (DHMTs) in all the nine provinces. These constitute the District Medical Officers, Information Education and communication, pharmaceutical and Laboratory service practioners. These carry out performance assessments during which they also inspect health facilities in relation to environmental sanitation and Infection Prevention (IP) practices since most hospitals now have IP

programmes in their institutions. So it has become imperative for DHMTs and Hospitals to initiate and support programmes on Infection Prevention in their health institutions.

A number of recent initiatives in Zambia have led to significant steps towards improved Infection Prevention and Injection safety (IS). The poor state of IP practices have been highlighted by a combination of field observations and assessments. Beginning in 2000, the National Post – Abortion Care Task Force began expanding the Post Abortion Care services to all the provincial hospitals in the country, with a strong Infection Prevention component.

The team improved the IP practices in all provincial hospitals by conducting on-site training and strengthening activities, which included the orientation of Provincial Health Offices and the management teams. During the same period, the General Nursing Council revised the nursing curricula and education programs for nurses and midwives and Infection Prevention content was integrated into the basic Nursing Education. (CBoH; 2005-2007)

Central Board of Health established a National Infection Prevention- Working group under the Directorate of the Clinical Care and Diagnostic Services in 2002. The working group reviewed the existing IP practices and developed a strategy for strengthening these practices by developing guidelines which were used for capacity building in all the provincial Hospitals, District Hospitals and health centres.

The current resources available to support this initiative ensured that most Health Care Providers were trained in Infection Prevention. This training included some Medical Doctors at each level of the health care delivery system (CBoH 2005-2007).

Having been empowered with the knowledge on IP, all the health care providers have an important role in the delivery of quality care to the people. The nurses ensure that they carry out correct IP practices like hand washing before and after each procedure and proper disposal of sharps. The doctors

should also ensure proper hand washing, proper gloving when operating and should observe sterility through out the operation. This is very important as both Nurses and Doctors can be sick and thus be potential sources of infections to their patients. Chanda, (1998), study showed the morbidity of nurses at the UTH:

TABLE 1
Morbidity among nurses

DISEASE	NUMBER OF NURSES	PERCENTAGE
Headache	80	36.2
High Blood Pressure	28	12.7
Coughing	26	11.8
Diarrhoea And Vomiting	20	9.0
Malaria	19	8.6
Abdominal Pain	15	6.8
Sore throat	15	6.8
Allergic conditions	15	6.8
Vaginal swelling	03	1.4
TOTAL	221	100

SOURCE; Chanda, (1998).

Headache which is a sign of stress or burnout was the most cause of morbidity among nurses in 1998.

The study revealed that out of the 914 nurses, 221 (25.4%) reported to the occupational health unit due to various ailments. Such studies have never

been done on the doctors even though they do have minor and major ailments just like any other member of the health care team.

Despite all the measures instituted in the health care system, Zambia has experienced significant deficiencies in Infection Prevention due to its limited resources. This has greatly affected its vision of providing effective quality health care as close to the family as possible.

1.1.3 Infection Prevention for quality health service provision at Kitwe Central Hospital (KCH)

Chanda, (2000) noted that, at this time all modern hospitals are expected to develop Infection Prevention programmes in their health care institutions and thus prevent nosocomial infections among the health care workers (nurses, doctors, CDES and Patients inclusive). Kitwe Central Hospital decided to embark on instituting Infection Prevention programs in order to monitor infection rates in the clinical areas

The Hospital has a total number of 75 doctors with different specializations and experiences who work in different departments of the hospital. Most of the doctors have been trained locally on Infection Prevention through the Infection Prevention unit. The training prepares the doctors for the task of preventing Hospital Acquired Infections among the patients, relatives, other health workers and the doctors themselves.

In addition, the doctors in the critical care departments like Operating Theatre and Casualty Department perform major critical care procedures. This role requires them to observe stringent Infection Prevention measures in their practices.

In August, 1993, the Infection Prevention Unit was under the Quality Assurance programmes and it was headed by the Registered Midwife but was engineered and chaired by a Consultant Paediatrician. Since 2003, the unit is headed by the Registered nurse with Enrolled midwifery background.

Currently, it is chaired by the Director Clinical Care services and has 15 members. Since then a lot of sensitization programmes have been instituted.

In the past, a lot of initiatives have been undertaken in order to combat the infection levels at the KCH. These include introduction of accreditation surveys for all the health facilities, workshops and seminar for Doctors, Nurses and Classified Daily employees (CDEs).

In order to improve the quality of care and reduce the incidence of nosocomial infections, KCH has formulated and displayed the stated infection control policies and guidelines clearly on Notice Boards in all clinical areas. All the health workers are expected to adhere to the established guidelines.

The department of Infection Prevention monitors the micro-organisms monthly by swabbing Nursing and Medical care items on a monthly basis. This is done in order to identify the sources of micro organisms in the clinical areas. Table 2 shows the micro-organisms that were isolated in various areas of the hospital:

Table 2

Hospital pathogens in KCH.

HOSPITAL PATHOGEN	PLACES WHERE ISOLATED
<i>Coliform spp</i>	• Caesarean section set • Operating theatre table • Sterile drum • Resuscitation oxygen tube • Suction tubing • Cheatle forceps • Telephone receiver • Cold room • Doctors' stethoscope • General manager's secretary's table • Baby suctioning tube
<i>Staphylococcus aureus</i>	• Cold room • Sterile drum • Cheatle forceps • Chef's apron • Human Resource Manager's secretary's table • Oxygen masks
<i>E coli</i>	• Freezer • Sink • Cold room • Delivery packs • Sterile drum • Chopping board
<i>Klebsiella</i>	• Feeding containers in Special Care Baby Unit. • Baby scale • Manual Vacuum Aspiration table • Cheatle forceps • Executive Director's secretary key board • Porters table
<i>Pseudomonas aeruginosa</i>	• Suction tubes
<i>Proteus species</i>	• Intensity Care Unit
<i>Fungal growth</i>	• Theatre wall
<i>Subtilis isolation</i>	• Drum of gauze

Source: KCH Infection Prevention statistics 2005.

Table 2 shows the bacteria that were isolated from most nursing and medical care items in the critical care department and other hospital environment.

In 1995, Kitwe Central Hospital, Arthur Davison Hospital and Ndola Central Hospital held a three- day workshop to orient key persons from all the three hospitals on Infection Prevention measures. The Infection Prevention Workshop stressed that the implementation of Infection Prevention measures can be very cost effective in the health care delivery. It can also save lives of patients, health care providers including the doctors' lives as Florence Nightingale, the fore-runner of nursing stated that "the Hospital shall do the sick no harm" (Chanda, 1998)

Kitwe Central Hospital has not recorded any death of the Medical Doctors in the past five years as most of the sick doctors are referred to the University Teaching Hospital (UTH). Those who have died are recorded in the UTH institutional statistics.

Chanda, (1998), study on morbidity and mortality among the nurses have not been replicated for doctors. The absence of a similar study does not mean that Doctors do not get sick as sickness is all inclusive.

Due to mortality and morbidity levels among the health providers, Horton, (1995) states that *safe Infection Prevention practices implies that care givers should have an insight into the factors that contribute to Hospital Acquired Infections. This knowledge will help to protect the carers, their clients and the community. The results of Horton's study suggest that doctors' knowledge, attitude and practices towards Infection Prevention should be re-examined so as to adequately prepare them for safe infection prevention practices.*

This has prompted the researcher to conduct this study in order to determine the knowledge, attitude and practice of Medical Doctors towards Infection Prevention. This is because, despite setting of Infection Prevention programmes in the health institutions the rate of Hospital Acquired Infection keeps on increasing as well as morbidity among health care providers.

1.2 STATEMENT OF THE PROBLEM

The researches done in many health care environments throughout the world have shown that approximately 1 in 10 hospital patients will acquire an infection while in hospital. This risk can result in substantial cost to the health care providers and the patients (Coughlan et al 1996)

Florence Nightingale noted that wounded soldiers had an infection rate of 40% and that most of them died from Hospital Acquired Infections rather than from the bullets. This was a very serious problem (Annot 1991).

Ofili and Sogbesan, (2003) noted that Infection Prevention practices were very poor among the students in the University Teaching Hospital in Benin, Nigeria. They, then, recommended that IP be introduced in the Curriculum for student nurses.

Supporting Ofili and Sogbesan finding in Nigeria, the researcher noted that *most Doctors are not observing Infection Prevention practices while carrying out invasive procedures on patients. This is evidenced by their haphazard sharp disposal practices during major ward rounds. This unacceptable IP practices is due to several reasons like inadequate knowledge and poor attitude to Infection Prevention measures.*

This unacceptable practice is also due to the reasons that the IP component *is absent in the doctors' curriculum, as indicated in the Training Reference Book, (2000), of the University of Zambia.* The doctors acquire this knowledge from the clinical area as they work with other health care staff. This makes it *quite difficult for them to adapt to the principles of Infection Prevention and Control as the practice of Infection Prevention is not initiated early during their training as is the case for the nurses.* Despite the number of sensitization *workshops and seminars on Infection Prevention and Control a lot is desired to improve the practices of doctors on Infection Prevention.*

The cause of the Doctors poor IP practices could be because the IP Unit is being headed by the Registered Nurse with Enrolled Midwifery training, so it is not easy for them to take orders from a junior colleague instead of a Medical Doctor.

The effect of poor IP Practice by all health care providers, the doctors inclusive, is increased infection rates as shown in Table 3:

Table 3:

Post operative wound infection in KCH in Surgical wards

years	Post operative wound infections per year.	total number of patient who underwent surgery during the year	% of wound infections
2002	23	1705	5.3
2003	40	1925	8.4
2004	43	2099	8.8
2005	33	2134	7.5

Source; KCH institution health statistical office 2005

This table shows increasing trend of post operative wound infections between 2002 and 2004 and a slight decrease between 2004 and 2005. There is an increased trend in post operative wound infections in the surgical wards of about 2.2% magnitude between 2002 and 2005.

The high incidence of infection prevalence shows that care providers are delivering poor quality of care to the patients.

Table 4 below shows the rate of post operative caesarean section wound infections at KCH from 2002 to 2005:

Table 4: Post operative Caesarean section Wound infection rate at KCH

MONTH	PERCENTAGE OF WOUND INFECTION RATE
JANUARY 2005	3%
APRIL 2005	6.0%
DECEMBER 2005	7.2%

SOURCE; Infection Prevention Statistic Office 2005

This table shows that the increasing trend is also reflected in post Caesarean Section wound infections in 2005. The magnitude stands at 4.2% between January and December 2005 as shown in the table 4 above.

As has already been mentioned the Medical Doctors perform most critical care procedures in the Operating Theatre and casualty department as the figures in table 5 indicate:

Table 5: Critical operations carried out by doctor at KCH

YEAR	MAJOR OPERATIONS	MINOR OPERATIONS	TOTAL
2001	1053	1701	2754
2002	1715	1957	3672
2003	1925	1973	3898
2004	1940	2275	4215
2005	2020	3498	5518
TOTAL	8653	11404	20057

SOURCE: KCH Health Institution office

Table 5 shows that Doctors carried out 20,057 critical operations from 2001 to 2005.

It is, therefore, cardinal that the knowledge, understanding, attitude and practice of doctors in Infection Prevention should be appropriate and based on research findings.

The hospital acquired infections may occur during surgical operations and also while doctors carry out critical care or invasive procedures in clinical areas like Lumbar puncture. If the doctors have inadequate knowledge and experience in Infection Prevention, they may not carry out these procedures aseptically. This will result in increased rates in post operative wound infections in the hospital as illustrated in tables 3 and 4.

Hospital acquired infections affect the patients in several ways, it prolongs their stay in hospitals, affects the income of the family as they will incur opportunity costs for the extra days that their loved ones may spend in the hospital due to hospital acquired infections.

Hospital Acquired Infection affect the health care system as it increases the budget cost on purchase of antibiotics, food and other medical- surgical supplies. Also the period of patient's stay in the hospital is prolonged.

The findings of this study will help KCH Board of Management to make important policy decisions regarding the management of IP Unit at KCH.

In view of all these, the study needs to be done in order to prevent the increasing trend in the post operative wound infections as shown in Tables 3 and 4. This will be done by carrying out this study which seeks to determine the Knowledge, Attitude and Practice as well as the factors which may hinder the Medical Doctors from practising Infection Prevention measures. These factors fall under socio- economical factors, service related factors and disease related factors.

1.3 FACTORS ASSOCIATED WITH KNOWLEDGE, ATTITUDE AND PRACTICE OF MEDICAL DOCTORS ON INFECTION PREVENTION

1.3.1 SOCIO- ECONOMICAL FACTORS

1.3.1.1 Education Level

The doctors are the most highly ranked in the health sector. Their training is arranged in such a way that the nurses should do most of the things for them like gloving them up and gowning them before any surgical procedure is done. This has attributed so much to the incorrect practices as regards to IP.

1.3.1.2 Attitude

These are the factors that make an individual to develop negative or positive attitudes towards Infection Prevention in health care provision. There is this attitude by all health care providers that proper IP practices are relegated to nurses only. This attitude deprives other care professionals from learning from the nurses who are regarded as the champions in proper IP practices.

1.3.1.3 Social Background of the Doctors

It has been noted that the Doctor's family backgrounds affects their interests in IP practices. Those from the opulent backgrounds pick up good IP practices easily in the presence of the supervision of the 'handmaids' while those from humble backgrounds find good IP practices too meticulous for them to cope with.

1.3.1.4 Age of the Doctor

Some of the doctors qualify to the profession at an early age. This has an effect on Infection Prevention as generally some young people, young doctors inclusive tend to portray nonchalant attitude towards serious issues.

1.3.1.5 Peer Pressure from the Other Doctors

Other doctors are easily influenced by their fellow doctors who have negative attitude towards Infection Prevention practices.

1.3.1.6 Sex of the Doctors

It has been noticed that most male doctors do not observe IP practices probably because of work overload.

1.3.2 SERVICE RELATED FACTORS

1.3.2.1 Infection Prevention training modality for doctors

The training on Infection Prevention is carried out by the registered nurse. It should be modelled in such a way that the doctors should be trained by fellow doctors and not the nurse. Professionally and culturally, doctors should be trained by fellow doctors in order to maintain their status.

1.3.2.2 Length of Working Experience

Inadequate experience among the doctors may influence their infection prevention practices. The lesser the number of years of experience, the more irresponsible they become and the more they develop a negative attitude towards Infection Prevention.

1.3.2.3 Resources

At times, the institution does not receive the grant from the government and at times the grant is delayed. This makes it impossible for the health institution to purchase the necessary cleaning materials, protective clothing, gloves and disinfectants and also to carry out in door training of staff on Infection Prevention.

1.3.2.4 Inadequate Supervision of Doctors

The person in charge of Infection Prevention is a Registered Nurse who may also feel intimidated to supervise the doctors who are usually positioned high in the profession. This results in inadequacies in supervising the doctors. These doctors may not follow the guidelines in the absence of supervision and reinforcement by their superiors.

1.3.2.5 Institutional Policy

Lack of institutional policy in the departments hinders the implementation of Infection Prevention. If the institution has the policy in place it will be guided on the formulation of the Infection Prevention guidelines.

1.3.2.6 Work Overload

With the current disease trend in the country, the doctors are equally overwhelmed with a lot of work. One doctor attends to more than fifty patients in a ward. This has affected the IP practices as the doctors have to *manipulate certain procedures in view of finishing the work*. A lot of short cuts in invasive procedures are practised which not in line, with the set minimum standards, are thus leading to compromising quality of care.

1.3.2.7 Inadequate medical care items

Inadequate medical and surgical items like gloves, disinfectants, sterilizing equipment, protective clothing and lack of proper sharp boxes will contribute highly to poor IP practices.

1.3.3 DISEASE RELATED FACTORS.

Some infectious conditions like skin infections (scabies) are easily transmitted from one patient to the other and also to the health providers through poor IP practices.

1.3.3.1 Scabies

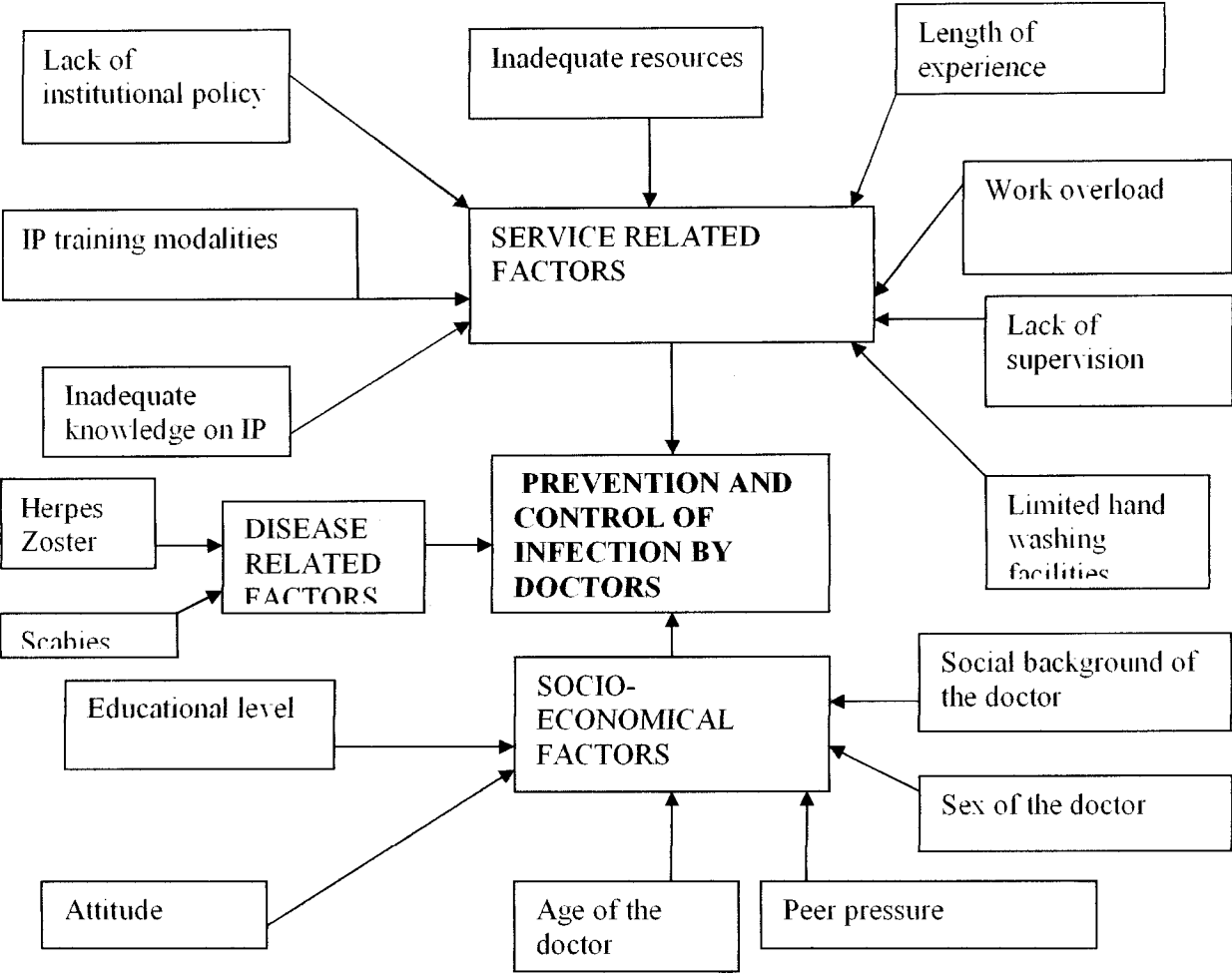
It is a cutaneous infection that results either from close physical contact with an infected person or from contact with contaminated objects of an infected person such as linen and clothing. If the Doctor does not observe IP practices he or she will be the source of transmission of the skin condition to members of staff and other patients (Black, Hawk and Keene 2001).

1.3.3.2 Herpes Zoster (HZ) / Shingles

HZ is an infection caused by the reactivation of the Varicella virus in clients who have had Chicken pox. In the presence of poor IP practices, this infection may be passed on to other clients innocently especially when there are few

protective clothing for use. Therefore, it is important that the Doctor observes stringently the IP practices to prevent transmission of infection to fellow health care providers, clients and to their relatives (Black, Hawk and Keene 2001).

1.4 DIAGRAM OF PROBLEM ANALYSIS



1.5 JUSTIFICATION

The pathogens isolated in different areas of the hospital (as shown in table2) prove the facts that Medical and Nursing care items in the hospital environment are contaminated. Each contaminated Medical and Nursing care equipment can be a potential source of Hospital Acquired Infections, hence the need for Doctors and Nurses to take IP seriously since they use these items while rendering care. Therefore, this study needs to be done in order to improve the IP practices of Doctors and reduce the incidence of Hospital Acquired Infections.

Since the first research study focused on the factors influencing Infection Control at the University Teaching Hospital among Auxiliary workers, second research focused on Nurses practice towards Infection Prevention and last one focused on the knowledge of midwives on Infection Prevention, the researcher finds it logical to carry out a study on knowledge, attitude and practice of Medical Doctors towards Infection Prevention in order to cover the whole spectrum of Health Care Providers in Health Institutions. This will fill in the gaps that have been noted in Infection Prevention Practices.

Secondly, despite the number of Sensitisation Workshops and Seminars on Infection Prevention, Hospital Acquired Infections are still on the increase. This shows that something else needs to be done to lower the infection rates and this will justify that this study be carried out. This has not spared the carers, the doctors in particular. Every client that comes to the hospital passes through the hands of the doctor hence the need for the doctor to have adequate knowledge on matters pertaining to Infection Prevention and Control. These facts have prompted the researcher to conduct a study to determine the knowledge, attitude and practice of doctors towards infection prevention at Kitwe Central Hospital.

Hence this study needs to be carried out in order to create a new body of knowledge which may be used to influence policies like introducing IP into the doctors' curriculum.

1.6 OBJECTIVES OF THE STUDY

An Objective is a summary of what is to be achieved by the study (Ngoma 2006) it is a clear, concise, declarative statement that is expressed in the present tense.

1.6.1 GENERAL OBJECTIVE

To determine the factors that influence Infection Prevention and Control among the Medical Doctors at Kitwe Central Hospital.

1.6.2 SPECIFIC OBJECTIVES

- a. To determine the level of knowledge on Infection Prevention among doctors.
- b. To determine the attitude of the doctors on Infection Prevention and control.
- c. To establish the practices of doctors regarding Infection Prevention and Control.
- d. To identify factors that hinders the doctors from practising Infection Prevention measures.
- e. To identify areas for further research
- f. To make recommendations to relevant authorities

1.7 HYPOTHESES

Hypothesis is the statement that predicts the relationship between one or two variables.

- 1 The more experience the doctors have the better the Infection Prevention practices.
- 2 The poorer the attitude of the Doctor towards work, the poorer the Infection Prevention Practices.

2.8 DEFINITION OF KEY TERMS

Attitude

The feelings doctors have towards Infection Prevention (Hornby et al 2000)

Knowledge

These are the facts, information, skills and understanding that the doctors have gained through learning or experience in infection prevention (Hornby et al, 2000).

Practice

Is the exercise carried out by Medical Doctors regularly in order to do something well e.g. proper hand washing (Hornby et al, 2000).

Infection

Is the entry and development of micro- organisms in human beings (Chanda 2004).

Nosocomial infections

These are Hospital Acquired Infections as result of improper IP practices (Coughlan 1996).

Prevention

These are measures put in place in order to stop the transmission of infection (Coughlan 1996).

2.9 VARIABLES AND CUT-OFF POINTS

DEPENDENT VARIABLES

This is the outcome variable of interest, the variable that is hypothesized to depend on or to be caused by another variable (called the independent variable), sometimes referred to as a criterion variable (Polit and Hungler, 1995)

The **dependent variable** is

The Infection Prevention practices of the Medical Doctors.

INDEPENDENT VARIABLE

This is the variable that is believed to cause or influence the dependent variable, in experimental research, the manipulated variable (Polit and Hungler, 1995).

The **independent variables** are as follows:

- Knowledge
- Attitude
- Age of Doctor
- Peer pressure
- Sex of Doctors
- Infection training modalities for doctors
- Work overload
- Inadequate medical care items and hand washing facilities.
- Inadequate supervision of doctors
- Inadequate resources

TABLE 6; variables and cut off points

Variables	CUT OFF POINTS	INDICATORS	Question Number
IP Practice	Excellent If the doctor follows all the laid down guidelines on IP.	Correct responses to the questions with score 19-27 answers out of 10 questions on practice.	36 to 43
	good If the doctor follows some of the laid down guidelines on IP.	Correct responses to the questions with score 10-18 answers out of 10 questions on practice.	
	poor If the doctor does not follow any of the laid down guidelines on IP.	Correct responses to the question with scores 0-9 answers out of 10 questions.	
	Cut off points	Indicator	Question number
Attitude	Positive If the doctor views IP practices as beneficial and realises the effect of nosocomial infections on the patient, staff and himself.	Correct responses to the questions with score 11 to 27 out of 10 questions on attitude.	26 to 35

	Negative If the doctor does not view IP practices as beneficial and does not release the effect of nosocomial infections on the patients, staff and himself.	Correct responses to the question with score 0 to 10 out of 10 questions on attitude.	
Knowledge	High level When the respondent is able to define Infection Prevention, state the universal precautions	Score of 23-35 correct scores Out of 16 Questions on knowledge.	10 to 25
	Moderate When the respondent is able to define Infection Prevention, state few universal precautions	Score 11-22 correct scores Out of 16 questions on knowledge.	
	Low level When the respondent is not able to define Infection Prevention, state few universal precautions	Score 0-10 correct scores out of 16 questions of the knowledge questions.	

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Introduction

Literature review is a critical summary of research on a topic of interest, often prepared to put a research problem in context or as the basis for an implementation project (Polit and Hungler, 1995).

This review focused on the previous studies conducted to determine the IP practices of Health Care Providers and their perception of IP practices in rendering quality care to the clients. The review revealed that most of the studies on IP practices were conducted in developed countries than in developing countries. This indicates that little attention has been given to improve IP practices in the health care institutions in most of the African countries. However, the available literature still provides the general insight on IP practices and some lessons could be drawn from experiences from other countries.

Infection prevention and control are the measures instituted in all health care facilities in order to prevent and control the transmission of micro- organisms in the Health care institution. These are also measures that have been put in place in order to protect the health care provider, the patients, the visitors and relatives from getting Hospital Acquired Infections (HAI) (Coughlan et al 1996)

Chanda, (2004) states that "Infection is the entry and development of micro-organism in living species"

2.2 Global perspective

Since biblical times, steps have been taken to prevent the spread of infections from people with communicable diseases such as isolation from the population, incarceration and use of disinfecting agents like vinegar. Unfortunately these measures did not always succeed in blocking the route for the spread of infection (Coughlan et al 1996)

Scientifically, the origin of Infection Control is traced as far back as the Florence Nightingale era the founder of modern day nursing. She initiated the need for infection prevention in the health care setting. During the Crimean war, she noted that a lot of soldiers died from the preventable wound infections than the bullets themselves. She instituted the means to prevent Hospital Acquired Infections (HAI) (Chanda, 2004).

The physician record company in the USA reported that Florence Nightingale reduced the mortality rate of wounded men from 40% to an unbelievable 20% through a sanitation policy (Anon, 1970)

Later, in 1855 the Germ Theory was discovered by Pasteur, Lister and Koch. They postulated that people became sick because of the micro-organisms which were responsible for transmitting diseases. Their work led to new techniques in infection control like the aseptic technique and spraying the theatres with carbolic solutions (Gould, 1991)

The aseptic techniques which were discovered in the germ theory are still being practised in hospitals today. The aseptic technique is one of the Infection Prevention measures that are practised during critical procedures by the nurses and the doctors.

Globally, Infection Prevention is recognised as a major component in the *provision of quality health care*. This affects various sectors of health programmes and aims at protecting not only the health providers but also the client and the community. People receiving health and medical care, whether *in a hospital or clinic*, are at risk of becoming infected unless precautions are taken to prevent cross infection. Nosocomial infections are a significant problem throughout the world and are increasing (CBoH 2005-2007).

Noble (1983) was used to determine the extent of spread of infection. It reflected that a person became a carrier of resistant staphylococcus aureus infection as a result of normal visit to relatives in hospital and eventually this person would spread the disease to the community outside the hospital.

The recommendations made in the study were used in teaching of the health workers, maids and porters the measures to prevent spread of infection so that this would contribute to reducing of cross infection outside the hospital environment (Kawanje 1995).

World wide, providers of health care are paying greater attention to managing the risk associated with health care delivery. One such major risk, in acute hospital care, is the development of hospital acquired infections.

In Venna, Dr. Semmelweiss fought against Hospital acquired infections in the obstetric units. He introduced the basic hygiene practices. This reduced the rate of infection in obstetric wards. He observed that hand washing in water containing chlorine dramatically reduced the incidence of puerperal sepsis and since then solutions to control and prevent HAI have been many and varied. However, no solutions are going to be effective unless there is expert training available to health care staff on IP practices. The Problem of HAI will not go away without the commitment and cooperation of everyone involved in the management of Infection Prevention programmes in health care institutions. (Coughlan 1996).

In Exeter UK, Infection Prevention was managed effectively by formulation of the Infection Control Team (ICT). Summers et al (1996), states that, the first IP Team consisted of the Infection Control Doctor (ICD) and the infection Control Nurse (ICN) and was formed by the Director of Public Health Laboratory Dr Moore B in 1959. He began the most effective arrangement in hospitals and the community. He introduced the development of the Infection Control Team and an Infection Control Committee (ICC), which determined the annual Infection Control Programme and monitored its progress.

The Infection Control Team consisted of an Infection Control Doctor, who was usually a Consultant Microbiologist, an infection Control Officer who was often the Infection Control Doctor and an Infection Control Nurse.

The Infection Control Doctor had a number of recognized responsibilities which included:

- Assisting the ICC to define the overall objectives of the Infection Prevention Programme and the action to be taken by the team.
- Formulating and reviewing policies and procedures related to Infection Control
- Planning, implementing and evaluating Infection Prevention and Control measures
- Analysing Infection Prevention data
- Investigating suspected outbreaks of infection
- Educating Health Care staff and individuals about the infection risk, prevention and control measures.

The Infection Control Doctor works in conjunction with the ICN. Literature also revealed that the ICN is primarily a clinician with a high degree of knowledge and skill in specialist field of Infection Control Nursing. The ICN needs to have a balance of professionalism, diplomacy, tact, persuasiveness and approachability to be able to deal effectively with problem solving, multidisciplinary education and sometimes, with resolving conflicts.

Coughlan et al (1996) reported that many national bodies throughout the world have developed recommended standards for managing and practising Infection Control in USA, Australia and the UK. This report further reported that, Worldwide, providers of health care are paying much attention on managing the risk associated with health care delivery. One such major risk, particularly in acute hospital care, is development of nosocomial infections.

Meers et al (1980) report on the National Prevalence Survey which was done in UK in 1993 showed that infection rates in hospitals have changed little since the original National prevalence survey which was conducted in 1980 (Coughlan et al 1996).

2.4 Regional situation of Infection Prevention

Infection Prevention is becoming a more and more important part of our lives, as we hear of more such outbreaks such as the Ebola virus in Africa. The simple act of hand washing remains the single most important practice in the prevention of transmission of organisms from one person to another.

A study was done in **Nigeria** to establish the knowledge and practice of universal precautions among student nurses at University of Benin Teaching Hospital (UBTH). A cross sectional study was conducted from July 1999 to March 2000. The study included all the nurses who were undergoing the basic Nurse Training Programme and who had gone through the clinical experience. The self administered structured questionnaire was used and information collected included demographic data, knowledge of Universal Infection measures or Universal Precautions such as not recapping needles after use or not detaching needles from the syringe after use.

The pre-testing of the questionnaire was done at the State School of Nursing in Central Hospital in Benin City. This is a government school and it also runs a similar Programme with that of UBTH.

Results on recapping of needles

The results of this study on recapping of needles showed that, only 25.4% (33) respondents had current knowledge about universal precautions, 31.5% (41) recapped and detached the needle after use and 46.9 % (61) did not recap needles or detach the needle from the syringe after use (Coughlan et al 1996).

Results on hand washing

On hand washing, the study revealed that Universal Precautions were found to be poor as only 25.4% (33) of them had correct knowledge of Universal Precautions. It was also noted that the final year students were found to be more knowledgeable than the second year students.

The use of gloves

The level of glove compliance among respondents was found to be very high when drawing blood 67.7%, when cleaning blood stained items 82.3% and when handling contaminated linen 78.5%. The level of glove compliance was found to be low.

The recommendations for this study were that the strategy for Universal Precautions should be taught in the School of Nursing, as this will go a very long way in preventing accidental needle stick Injuries in the hospital. Student nurses should also receive instructions on Universal Precautions through hospital sponsored Seminars (Ofili and Sogbesan 2003)

Chanda,(2002), quoting Harries et al (1997) in her study to determine the high prevalence of Tuberculosis among nurses in UTH, reported that 4% (12) out of 310 nurses, developed TB over a 2 year period at a hospital in **Malawi**, a risk that was 40 times more than what it is in the community. This was due to a number of hospitalized TB patients in **Malawi**.

The same trend was noted in **Zimbabwe**, where Proudfoot et al (1981) noted that the number of registered TB patients doubled from the 5, 848 in 1987 to 11,710 in 1991 in Zimbabwe where the case detection rate was 469 / 100 000 population. This trend increased the chances of nurses contracting TB both at work and in the community where the nurses lived (Chanda, 2002).

2.5 National Perspective

Proper Infection Prevention practices which are fundamental to quality of care are essential to protect health care workers, patients and communities, particularly in Zambia, where the prevalence of highly blood borne pathogens like HIV, Hepatitis B and C viruses are very high. The failure to follow proper Infection Prevention practices puts health care workers, patients and the community at tremendous risk (CBoH 2002). These conditions demand that special attention be placed on Infection Prevention strategies and guidelines. In view of fighting infection a lot of strategies and guidelines have been put in place in Zambia

Due to increased HAI or nosocomial infections UTH approached the British Council to sponsor the IP Nursing Officer to undergo training in IP at Manchester University in UK. The trained personnel came and trained a lot of nurses from all over the provinces and districts including Kitwe and Ndola. After all that training, they all started IP programmes at a low key due to inadequate resources.

Overseas Development Agency (ODA) came on the scene to strengthen the IP practices at Kitwe, Arthur Davison and Ndola Hospitals. All these hospitals instituted IP program in their health institution. Again it was not well done due to inadequate resources.

JHPIEGO started spearheading the introduction of IP programmes all over the *Health Institutions (both Public and Private) in the country*. They have produced a National Guideline on IP for use in all Health Institutions. They have also started a Programme on Injection Safety.

Currently, they are working with Europe BD of South Africa to introduce the use of Solo-Med syringes and needles, hub cutters in all health institutions in Zambia. This will improve proper sharp disposal and reduce sharp injuries among the health care providers in Zambia. The pilot study of the above project is going on in Chanyanya, Kafue Mission Hospital, and Nangongwe Maternity Clinic under the Kafue District Health Board.

Chanda (1995) on the role of Operational Research in Needle – Stick Prevention at the University Teaching Hospital in Lusaka, revealed the magnitude of sharp injuries is quite high in the institution. 59% of the interviewees had sustained needle-stick injuries within the year. Injuries were common among those who recapped the needles. 82% (14) out of 18 Doctors and 67% (12) out of 20 nurses who recapped the needles sustained needle-stick injuries. 39% (13) out of 33 Porters and Maids sustained injuries from needles and blades.

Kawanje, (1995) Studied factors associated with Infection Prevention Practices of Classified Daily Employees (CDEs) in UTH. The study revealed that the CDEs were unable to understand and practice IP measures effectively due to their low educational status. The low educational status and poor attitude were responsible for them shunning wearing of protective clothing while carrying out dangerous procedures.

Muchemwa's (1996) study done at Kitwe Central Hospital to examine the practice of Nurses towards IP practices revealed that all the nurses both experienced and inexperienced had some basic understanding of the IP practices. The study also revealed that majority of the experienced nurses' practised correct IP practices more than those who were less experienced. It also revealed that 74% of the respondents had a positive attitude towards IP practices while 26 % had a negative attitude. This study further revealed that out of the 74% respondents with a positive attitude 42% (21) practised the correct IP practices and 32% (16) did not. Out of the 26% (13) respondents with negative attitude 18% (9) practised incorrect IP practices while 8% (4) practiced the correct IP practices. The statistics proved the fact that negative attitude towards work affects the standard of practice which affects quality health care delivery.

Conclusion

Literature that has so far been reviewed indicates that IP practices are most important in the prevention of Hospital Acquired Infection. Inadequate IP practices may lead to spread of infection to the health care providers and to the patients. It has also revealed that every health worker has the responsibility to implement the IP practices in their working environment. The health staff can only implement the IP practices if they have the knowledge and positive attitude towards IP practices.

CHAPTER 3

3.0 RESEARCH METHODOLOGY

The study was aimed at describing the knowledge, attitude and practice of Medical Doctors on Infection Prevention practices at Kitwe Central Hospital planning.

3.1 RESEARCH DESIGN

Polit and Hungler, (1995) defined a research design as the overall plan for addressing a research question, including specifications for enhancing the integrity of the study. It spells out in advance the strategies the investigator will adopt to develop information that is accurate and interpretable.

A descriptive cross sectional study design with both qualitative and quantitative dimensions was used. A descriptive is a broad class of non experimental studies. Its purpose is to observe, describe and document aspects of a situation as it naturally occurs and sometimes to serve as a starting point for the hypothesis generation or theory development. It is commonly used in the field of nursing research (Polit and Hungler 1995). The study described the relationship between the various factors (independent variables) and the knowledge, attitude and practice of Medical Doctors on IP measures (dependent variables). The researcher used a non experimental study because no interventions or manipulations were carried out on both the environment and the respondents.

3.2 THE RESEARCH SETTING

The study was conducted at Kitwe Central Hospital in Kitwe District. The hospital is the third level referral centre in the country with the bed capacity of 600. The hospital has interlocking departments namely Nursing Education, Medicine, Nursing Services and Administration. This study location was *chosen because it gave the researcher access to a cross section of Medical*

Doctors from different training Universities and different professional status and experiences who work at KCH.

Secondly, the location was chosen by the researcher because KCH has a well established Infection Prevention Control unit whose role is to ensure that stringent Infection Prevention measures are followed in the practices of all the health care providers.

Lastly, a lot of initiatives have been undertaken in order to combat the infection levels at KCH. These include the training of all healthcare providers in IP Workshops and Seminars. Thereafter, a study was done in this location to identify the gaps in the IP Practices of nurses but not on the Medical Doctors. This prompted the researcher to choose this location for the study in order to determine the knowledge, attitude and practice of Medical Doctors on IP practices at KCH.

3.3 STUDY POPULATION

A study population refers to the entire number of units under study (whole) (Treece and Treece 1986). In this case my study population were the Medical Doctors at KCH.

3.4 SAMPLING SELECTION

Sampling is a process of selecting a portion of the population to represent the entire population (Polit and Hungler, 1995). A probability sampling method called simple random sampling using the lottery technique was used to select the sample. This method allowed each element in the population an equal independent chance of being selected and therefore left no room for biases.

The researcher obtained the list of all the Medical Doctors at KCH which was the sample frame. Using the simple random sampling method the respondents were picked one by one from the 75 listed doctors until the number of Fifty (50) respondents was attained.

3.5 SAMPLE SIZE

A sample is a subset of a population selected to participate in a research study (Dempsey and Dempsey, 2000). The sample size comprised of 50 Medical Doctors.

3.6 DATA COLLECTION TOOL

Data collection is gathering of information needed to address a research problem (Polit and Hungler, 1995). A structured questionnaire was used to collect data from the respondents.

The structured questionnaire had both open-ended and close-ended questions. The structured questionnaire was divided into 4 sections (A, B, C and D). Section A elicited demographic data, section B elicited information on IP knowledge, Section C measured the attitude of Medical Doctors towards IP practices and section D elicited data on Practices of IP by doctors.

The following are some of the advantages and disadvantages of an interview:

3.6.1 Advantages

If the respondent does not understand one of the questions during the interview he/she may request clarifications.

- ❖ The interview procedure may save time, because he/she does not have to go through the process of returning the instrument.
- ❖ The method is flexible and the interviewer can explore responses and tailor the interview to the situation.
- ❖ The interview allows opportunity to appraise the validity as the interviewer is present to observe what is happening.
- ❖ The interviewer is in a position to observe the respondent's level of understanding. The information can be used when interpreting data.

3.6.2 Disadvantages

- ❖ The interviewee has little or no choice in the date or the place of the interview.
- ❖ It may be difficult to make comparisons of one interviewer's data with another interviewer data unless a rigid procedure is followed at all times.

- ❖ In a large research project there is need to hire interviewers and suitable persons may not be readily available.

3.7 DATA COLLECTION TECHNIQUE

Interviewing technique was used to collect detailed information related to the variables. No research assistant was used for data collection. For the purpose of learning, the researcher had to collect the whole data herself.

Data is the information gathered in a research study (Treece and Treece 1986). Data in this study was collected using a self - administered questionnaire. A self - administered questionnaire refers to a self-report instrument where the respondent writes his or her answers in response to printed questions on the document (Brink 1996). This type of data collecting tool was used because all the respondents were able to read and write.

Data was collected over a period of 15 days and a range of three to five interviews were done per day. After getting consent, the investigator distributed the Questionnaire. At the end, the researcher collected the questionnaire from the respondents. The completed questionnaires were checked to ensure that all were handed over and for completeness. The researcher thanked the respondents for taking part in the study.

3.8 PILOT STUDY

A pilot study is a small-scale version or trial run of the actual study (polit and Hungler 1995). The purpose of the pilot study was to obtain information for improving the questions on the questionnaire. It includes every step expected in the major study.

A pilot study was conducted at UTH, which had similar characteristics as the actual population in which the study was conducted. The pilot study sample constituted 10% of the actual study sample. A sample of 5 Medical Doctors was randomly selected for the pilot study. The main reasons for conducting a pilot study were:

- To detect any errors in the interview schedule for the main study

- To assess the appropriateness and clarity of the questions.
- To test the feasibility, validity and reliability of the questionnaire.

3.9 Validity

Validity is the degree to which an instrument measures what it is intended to measure (Polit and Hungler, 1995).

Validity was maintained by ensuring that all variables under study were covered in the questionnaire. Questions were clearly constructed to avoid ambiguity and were pre-tested. The researcher constructed the questionnaire in English as she was dealing with the literate group. The questionnaire was tested at the University Teaching Hospital (UTH) because UTH had similar characteristics like KCH. This was done in order to ensure that the instrument measured what it was supposed to measure. The supervising lecturer and other experts in the area under study checked the questionnaire.

3.10 Reliability

Reliability is the degree of consistency or dependability with which an instrument measures the attributes it is designed to measure (Polit and Hungler, 1997). The instrument should be able to bring out the accurate information whereby if the same instrument has to be used after some time, it will produce the same responses. The same instrument will be used to collect data from all the respondents and this will help to collect similar data.

3.11 ETHICAL AND CULTURAL CONSIDERATIONS

The researcher obtained written permission to collect data for the pilot and actual study from the UTH Managing Director and KCH Executive Director respectively. Verbal permission was sought from each and every respondent. No respondents were forced to take part in the study. The nature and purpose of the study was thoroughly explained to the respondents so that they were able to make informed decisions. The respondents were assured of anonymity and confidentiality. No names were used on the interview schedule except numbers.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0 INTRODUCTION

Data Analysis is the systematic organization and synthesis of research data and the testing of research hypothesis using data (Polit and Hungler 1999).

Data was collected from respondents using a self administered questionnaire. Fifty (50) respondents participated in the study. A pilot study was conducted at the University Teaching Hospital after which the main study was undertaken at Kitwe Central Hospital.

4.1 Data Processing and Analysis

The interview schedules used were counted to ensure that the correct number was obtained. They were checked for accuracy, completeness and internal consistency. The data was then categorised and tallied on the data master sheet.

A calculator (scientific) was used to analyse the data. Responses from open ended question were categorised and grouped into themes to be used during discussions.

4.2.1 Data Presentation

Data has been presented on frequency tables, pie charts, bar charts and cross tabulations. The tables are suitable because they summarise the findings in meaningful ways, which is easy to understand. The cross tabulations are helpful in showing the relationship between the variables from which meaningful inferences can be drawn. The pie

charts and the bar charts provide a variety of ways in which to present data and thus prevent the monotony of narrative presentations.

4.2.2 BACKGROUND INFORMATION ON RESPONDENTS

TABLE 7: DEMOGRAPHIC DATA (n=50)

VARIABLE	FREQUENCY	RELATIVE (FREQUENCES (%))
AGE		
15 – 24 YEARS	1	2
25 – 34 YEARS	30	60
35 – 44 YEARS	12	24
45 – 49 YEARS	7	14
TOTAL	50	100
SEX		
FEMALE	13	26
MALE	37	74
TOTAL	50	100
MARITAL STATUS		
Never married	17	34
Married	31	62
Divorced	1	2
Separated	1	2
TOTAL	50	100
RELIGION		
Christians	38	76
Moslems	7	14
None	5	10
TOTAL	50	100
RELIGION DOMINATION		
Catholic	16	32
Protestants	19	38

Jehovah's Witness	1	2
SDA	2	4
Moslems	7	14
None	5	10
TOTAL	50	100
NATIONALITY		
Zambian	19	38
Ukraine	5	10
Democratic Rep of Congo	9	8
Others	17	34
TOTAL	50	100
SPECIALITY		
General Practioners	32	64
Surgeon	3	6
Obstetrician	3	6
Paediatrician	4	8
Others	8	16
TOTAL	50	100
YEARS OF EXPERIENCE		
1 - 3	21	42
4 - 6	9	18
7 - 9	4	8
10 Years and Above	16	32
TOTAL	50	100

Table 4 revealed that majority 60% (30) of respondents were aged 25 - 35 years, 24% (12) were aged between 35 and 44 years, 2% (1) were age between 15 and 24 years.

Majority 74% (37) of the respondents were males while 26% (13) were females.

Majority 62% (31) of the respondents were married and 34% (17) were never married (single).

Majority 76 % (38) of the respondents were Christians of which 32% (16) were Catholics,) 38% (19) were Protestants, 2% (1) Jehovah's Witness and 4% (2) were from Seventh Day Adventist. 14% (7) were Moslems whereas 10% (5) did not belong to any religion.

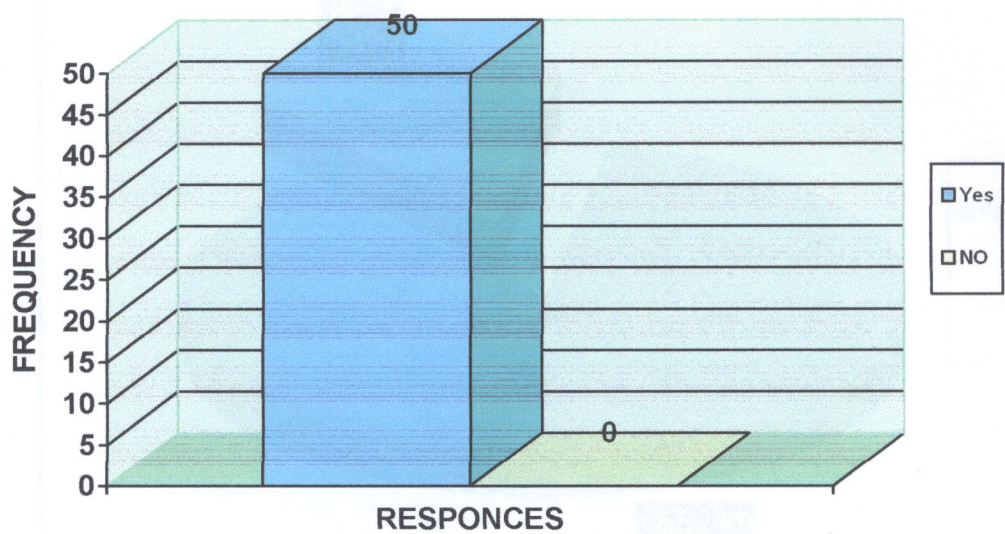
Majority 38% (19) of the respondents were Zambians, 18% (9) were from Democratic Republic of Congo, 10% (5) from Ukraine and 34% (17) from other countries which include Indians, Pakistanis, Russians.

Most 64% (32) of the respondents were General Practitioners 8% (4) were Paediatricians, 6% (3) were Obstetricians and Surgeons.

Majority 42% (21) of the respondents have 1- 3 years experience, 18% (9) have 7 - 9 years experience while 32% (16) have more than 10 years experience in the service.

4.2.2 KNOWLEDGE

FIGURE 2: RESPONDENT’S RESPONSES ON WHETHER THEY HAVE HEARD ABOUT INFECTION PREVENTION (n = 50)



All the 100% (50) respondents had heard about infection Prevention.

TABLE 8: RESPONDENT’S RESPONSE ON THE SOURCE OF INFORMATION

VARIABLE	FREQUENCY	PERCENTAGE (%)
Clinical Area	19	38
Medical School	39	78
Seminar	21	42
Medical Books	16	32

* Multiple responses the total does not add up to 50

Majority 78% (39) of the respondents heard of Infection Prevention from the Medical School whereas 32% (16) read from the Medical Books about Infection Prevention.

Majority 70% (35) of the respondents indicated hand washing as a

FIGURE 3: RESPONDENTS RESPONSES ON KNOWLEDGE ON UNIVERSAL PRECAUTIONS (n = 50)

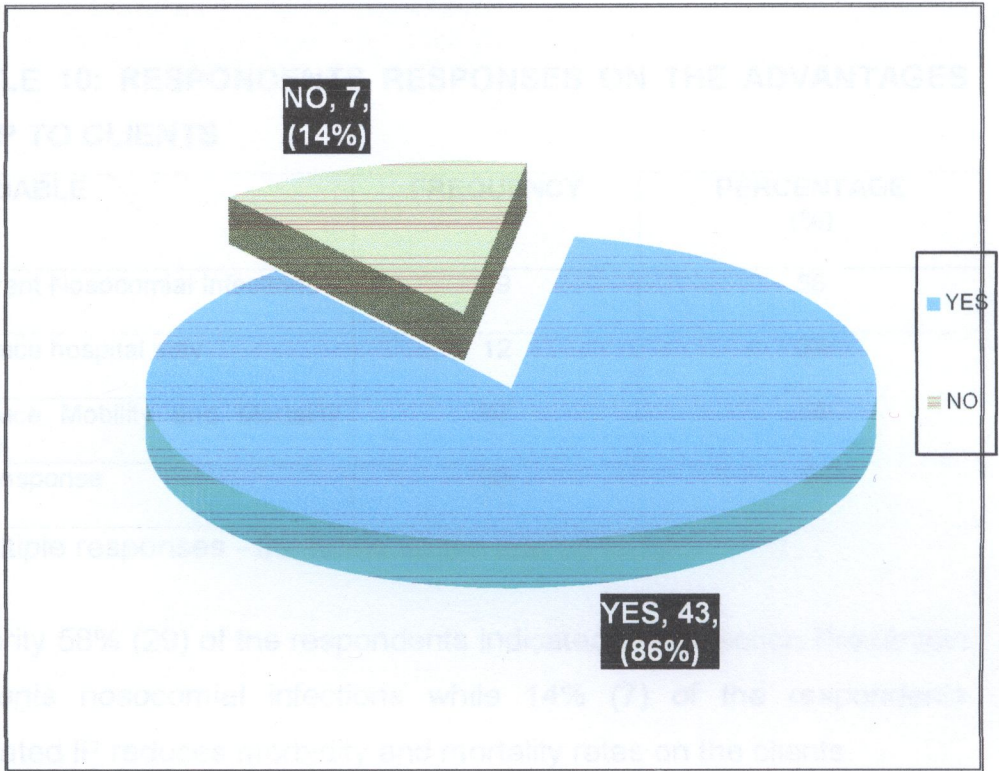


FIGURE 4: RESPONDENTS RESPONSE ON THE DOCTOR WHO

Majority 86 % (43) of the respondents had heard of universal precautions whereas 14% (7) had not heard of the universal precautions.

TABLE 9: RESPONDENTS' RESPONSE ON UNIVERSAL PRECAUTION

VARIABLE	FREQUENCY	PERCENTAGE (%)
Hand washing	35	70
Protective Clothing	16	32
Disposal of waste	05	10
No response	12	24

* Multiple responses – totals do not add up to 50.

Majority 70% (35) of the respondents indicated hand washing as a Universal Precaution in Infection Prevention while 24% (12) did not indicate anything.

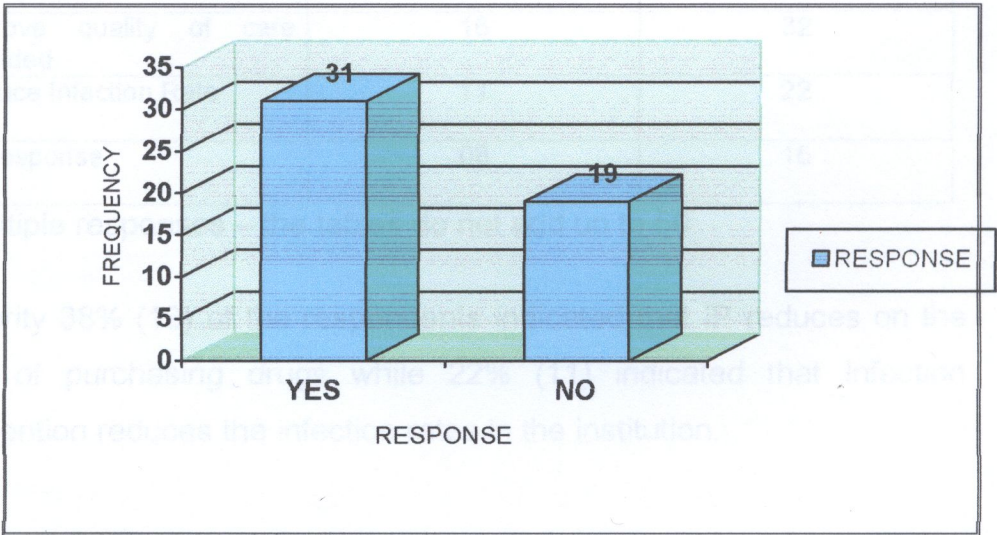
TABLE 10: RESPONDENTS RESPONSES ON THE ADVANTAGES OF IP TO CLIENTS

VARIABLE	FREQUENCY	PERCENTAGE (%)
Prevent Nosocomial Infections	29	58
Reduce hospital stay	12	24
Reduce Mobility and Modality Rate	07	14
No response	05	10

* Multiple responses - the totals do not add up to 50.

Majority 58% (29) of the respondents indicated that Infection Prevention prevents nosocomial infections while 14% (7) of the respondents indicated IP reduces morbidity and mortality rates on the clients.

FIGURE 4: RESPONDENTS RESPONSE ON THE DOCTOR WHO INITIATED IP IN THE CLINICAL AREA (n = 50)



Majority 62% (31) of the respondent did not know the Doctor who initiated IP practices in the clinical area, 38% (19) knew the Doctor who initiated IP in the clinical area.

TABLE 11: RESPONDENTS RESPONSE ON THE ADVANTAGES ON THE DOCTOR

VARIABLE	FREQUENCY	PERCENTAGE (%)
Reduce exposure to infection	28	56
Reduce over load	01	02
Reduce risk of needle stick injury	18	36
No response	05	10

* Multiple responses – totals do not add up to 50.

Majority 56% (28) of the respondents indicated that IP would help reduce exposure to infections while 10% (5) indicated none.

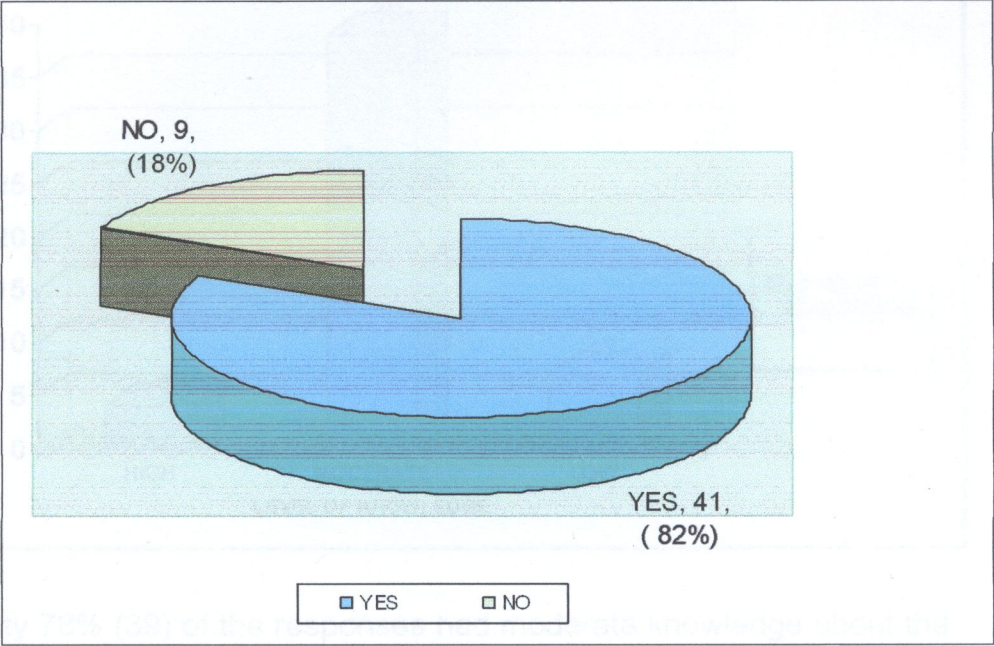
TABLE 12: RESPONDENTS' RESPONSES ON THE ADVANTAGES OF IP ON THE INSTITUTION

VARIABLE	FREQUENCY	PERCENTAGE (%)
Reduce costs of drugs	19	38
Improve quality of care provided	16	32
Reduce Infection Rate	11	22
No response	08	16

* Multiple responses – the tables do not add up to 50.

Majority 38% (19) of the respondents indicated that IP reduces on the cost of purchasing drugs while 22% (11) indicated that Infection Prevention reduces the infection rates in the institution.

FIGURE 5: RESPONDENTS' RESPONSE ON THE PRESENCE OF IP COMMITTEE AT THE HOSPITAL (n = 50)



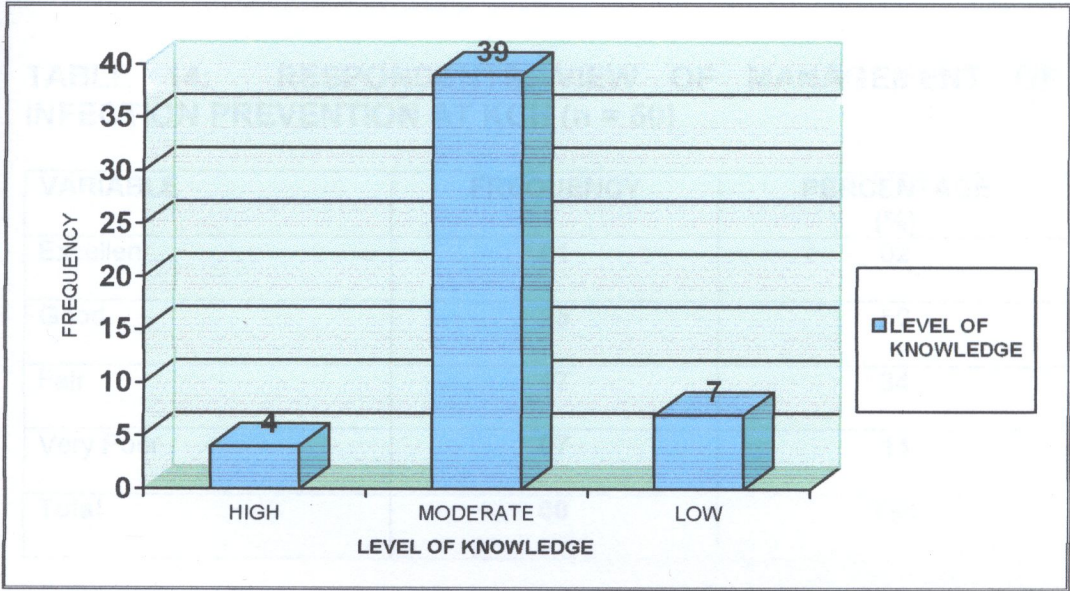
Majority 82% (41) of the respondents had the knowledge about the IP Committee, 18% (9) did not have that knowledge.

Table 13: RESPONDENTS' RESPONSES ON THE CHAIRPERSON OF THE IP COMMITTEE (n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Correct Response	08	16
Incorrect Response	11	22
Do not Know	23	46
Not Applicable	08	16
Total	50	100

Eight (16%) of the respondents gave the correct response while 46% (23) of the respondents indicated that they did not know the chairperson for the committee.

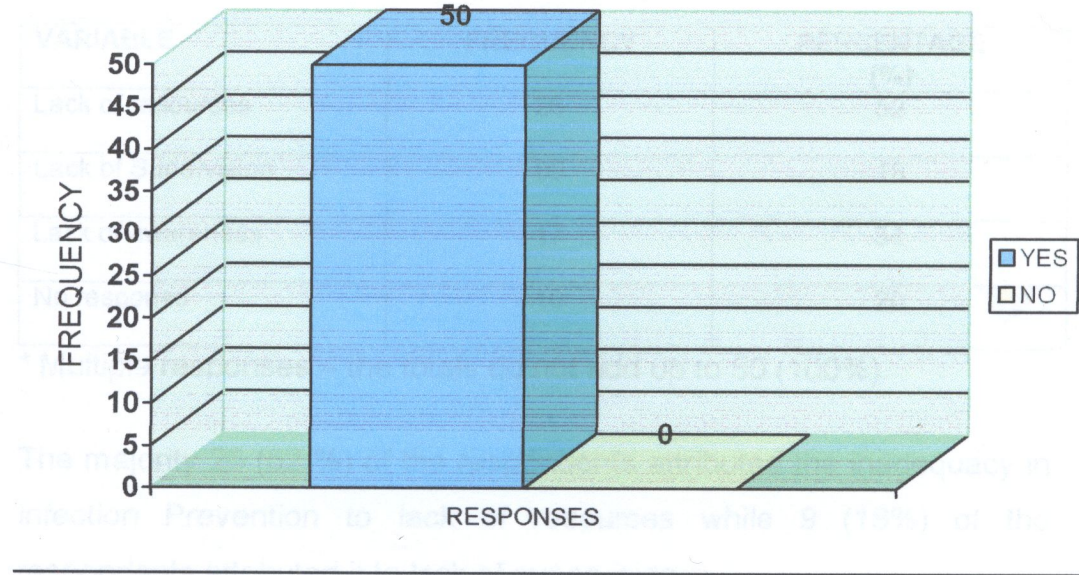
FIGURE 6: DISTRIBUTION OF RESPONDENT'S LEVEL OF KNOWLEDGE ON IP (n = 50)



Majority 78% (39) of the responses had moderate knowledge about the infection prevention while 14% (7) had low level of knowledge on Infection Prevention.

4.2.3 ATTITUDE

FIGURE 7: RESPONDENTS' RESPONSES ON THE IMPORTANCE OF INFECTION PREVENTION (n = 50)



Fifty (100%) of the respondents thought Infection Prevention was important in the clinical Area.

TABLE 14: RESPONDENTS VIEW OF MANAGEMENT OF INFECTION PREVENTION AT KCH (n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Excellent	01	02
Good	25	50
Fair	17	34
Very Poor	07	14
Total	50	100

Majority 50% (25) of the respondents viewed management of Infection Prevention to be good whereas 14% (7) of the respondents rated management of IP to be very poor.

TABLE 15: RESPONDENTS' REASONS FOR THE RESPONSES IN TABLE 12

VARIABLE	FREQUENCY	PERCENTAGE (%)
Lack of resources	26	52
Lack of Supervision	09	18
Lack of awareness	17	34
No response	10	20

* Multiple responses – the totals do not add up to 50 (100%).

The majority 26 (52 %) of the respondents attributed the inadequacy in Infection Prevention to lack of resources while 9 (18%) of the respondents attributed it to lack of supervision.

TABLE 16: RESPONDENTS RESPONSES ON HOW INFECTION CAN BE BETTER ORGANISED AT KCH

VARIABLE	FREQUENCY	PERCENTAGE (%)
Increase awareness IP	34	68
Good supply of materials	14	28
Close Supervision	08	16
No response	04	08

* Multiple responses – the total does not add up to 50.

Majority 68% (34) of the respondents suggested that increased awareness on Infection Prevention would help improve the organisation of Infection Prevention at KCH.

TABLE 17: RESPONDENTS VIEW ON WHETHER THE HOSPITAL SHOULD CONTINUE WITH IP PROGRAMME (n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Yes	50	100
No	0	0
Total	50	100

All the 100% (50) respondents agreed to have the IP Programme at the Hospital

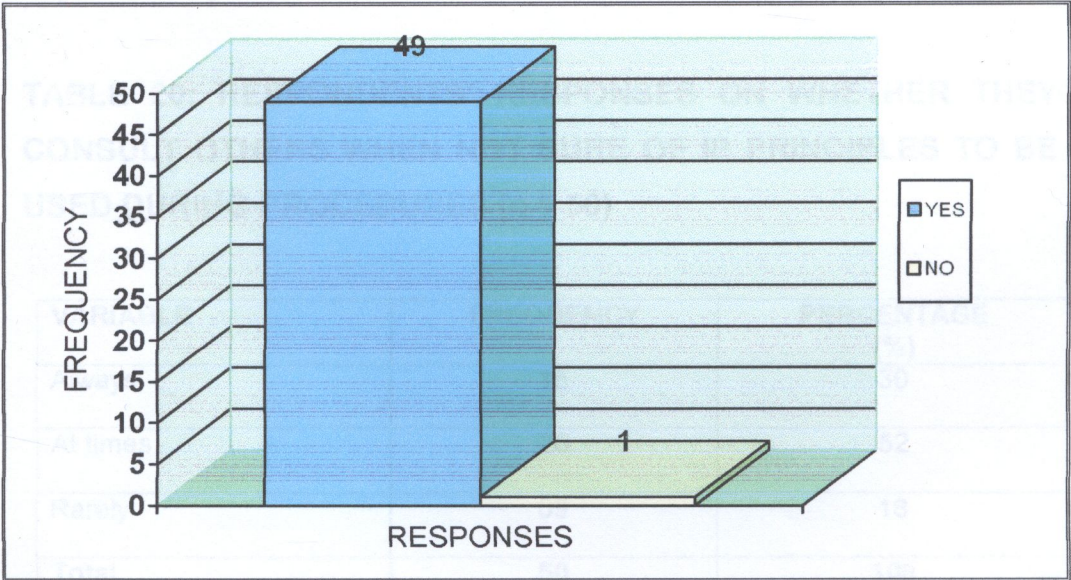
TABLE 18: RESPONDENTS' REASONS FOR CONTINUING THE IP PROGRAMME AT THE HOSPITAL

VARIABLE	FREQUENCY	PERCENTAGE (%)
Reduce on the costs	06	12
Reduce modality rate	31	62
Improve quality of care	18	36
No response	02	04

* Multiple responses total does not add up to 50.

Majority 62% (31) of the respondents gave the reason that IP programme should continue as it helps in reducing the mortality rate in the institution while 36% (18) indicated that IP programme should continue as it helps in improving the quality of care.

FIGURE 8: RESPONDENTS' RESPONSE ON WHETHER THEY HAVE USED IP MEASURES IN PRACTICE (n= 50)



Majority 98% (49) of the respondents have used infection prevention measures in their practice while 2% (1) do not use IP measures in their practice.

TABLE 19: RESPONDENTS’ RESPONSE ON WHOM THEY WOULD BE COMFORTABLE TO SUPERVISE THEM ON IP PRACTICES

VARIABLE	FREQUENCY	PERCENTAGE (%)
Fellow Doctors	23	46
Nurse	10	20
Clinical Officer	06	12
Other (Specialised IP)	20	40

* Multiple responses total does not hold up to 50

Majority 46% (23) of the Doctors would be comfortable to be supervised by their fellow Doctors while 20% (10) would be comfortable to be supervised by a nurse.

TABLE 20: RESPONDENTS’ RESPONSES ON WHETHER THEY CONSULT OTHERS WHEN NOT SURE OF IP PRINCIPLES TO BE USED DURING PROCEDURES (n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Always	15	30
At times	26	52
Rarely	09	18
Total	50	100

Majority 52% (26) of the respondents’ would consult from others at times while 18% (9) of the respondents would rarely consult from others when not sure of IP Practices

TABLE 21: RESPONDENTS' LEVELS OF ATTITUDE
(n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Positive attitude	13	26
Negative attitude	37	74
Total	50	100

Majority 74% (37) of the respondents had negative attitude towards Infection Prevention and 26% (13) has positive attitude towards IP.

4.2.4 PRACTICE

TABLE 22: RESPONDENTS VIEW OF ROLE OF IP IN THE CLINICAL AREA (n = 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Very important	49	98
Moderately important	01	02
Fairly important	00	00
Total	50	100

Majority 98% (49) of the respondents viewed the role of infection prevention to be very important while 2% (1) viewed the role of IP to be fairly important.

TABLE 23: RESPONDENTS’ GREATEST FEARS IN RELATION TO IP PRACTICE WHILE CARRYING OUT THEIR DUTIES

VARIABLE	FREQUENCY	PERCENTAGE (%)
Need stick injury	23	56
Contracting HIV/AIDS Infection	24	48
None	10	20

* Multiple responses do not add up to 50.

Majority 48% (24) respondents feared to contract HIV/AIDS infection while 46% (23) of the respondents feared to sustain needle stick injuries.

TABLE 24: RESPONDENTS’ RESPONSES ON WHETHER THEY HAVE SUSTAINED NEEDLE STICK INJURIES (n= 50)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Yes	28	56
No	22	44
Total	50	100

Majority 56% (28) of the respondent have sustained needle stick injuries while 44% (22) of the respondents had not sustained needle stick injury.

TABLE 25: RESPONDENTS' ACTION AFTER SUSTAINING NEEDLE STICK INJURY (n = 28)

VARIABLE	FREQUENCY	PERCENTAGE (%)
Took correct action after needle stick injury.	22	79
Did not take correct action after needle stick injury	6	21
Total	28	100

Majority 79% (22) out of the 28 of respondents (See table 25) above who sustained the needle stick injuries took the correct action after needle stick injury while 21% (6) out of 28 respondents did not take the correct action.

TABLE 26: RESPONDENTS' SUGGESTIONS ON HOW TO IMPROVE IP PRACTICE OF DOCTORS AT KCH

VARIABLE	FREQUENCY	PERCENTAGE (%)
Awareness Boards	17	34
Workshop	22	44
Increase funding/staffing	09	18
Strengthen the curriculum	02	04
Close supervision	02	04
Good practice	03	06

* Multiple responses total do not add up to 50.

Majority 44% (22) of the respondents suggested that attending workshops would help improve IP practices among Doctors while

4% (2) of the respondents suggested that strengthening of the curriculum and close supervision would help improve the IP practice among doctors at KCH.

CROSS TABULATIONS

Table 27: RESPONDENTS' LEVEL OF KNOWLEDGE IN RELATION TO AGE

KNOWLEDGE	RESPONDENTS AGE					TOTAL
	15 – 24	25 - 34	35 - 44	45 - 49	TOTAL	%
HIGH	0 (0%)	2 (6.7%)	1 (7.1%)	1 (20%)	4	08
MODERATE	1 (100%)	22 (73.3%)	12 (86.7%)	4 (80%)	39	78
LOW	0 (0%)	6 (20%)	1 (7.1%)	0 (0%)	07	14
TOTAL	1 (2%)	30 (60%)	14 (28%)	05 (10%)	50	100%

Table 28 shows that 73.3% (22) out of 30 respondents aged 25 – 34 years had moderate knowledge on Infection Prevention, 20% (6) out of 30 respondents in the same age group had low knowledge on Infection Prevention while 20% (1) out of 5 respondents aged 45 – 49 years had high knowledge on Infection Prevention and none of the respondents 0% (0) had low knowledge in the same age group.

Table 28: RESPONDENTS' LEVEL OF KNOWLEDGE IN RELATION TO EXPERIENCE

KNOWLEDGE	YEARS OF EXPERIENCE				TOTAL
	1 – 3 Years	4 – 6 Years	7 – 9 Years	10 Years above	
HIGH	2 (8%)	1 (16.7%)	0 (0%)	1 (6.7%)	4 (8%)
MODERATE	17 (71%)	4 (66.7%)	5 (100%)	13 (86.7%)	39 (78%)
LOW	5 (21%)	1 (16.7%)	0 (0%)	1 (6.7%)	7 (14%)
TOTAL	24 (48%)	6 (12%)	5 (10%)	15 (30%)	50 (100%)

The table 29 shows that 8% (2) out of 24 respondents who had 1 -3 years experience had high knowledge on Infection Prevention while 21% (5) out of 24 respondents of the same years of experience had low knowledge on Infection Prevention. 86.7% (13) out of 15 respondents with 10 years experience had moderate knowledge while 6.7% (1) of the same experience had low knowledge on infection prevention.

TABLE 29: RESPONDENTS' LEVEL OF KNOWLEDGE IN RELATION TO SEX

KNOWLEDGE	SEX		TOTAL %
	MALE	FEMALE	
HIGH	4 (10.8%)	0 (0%)	4 (8%)
MODERATE	29 (78.4%)	10 (76.9%)	39 (78%)
LOW	4 (10.8%)	3 (23.1%)	7 (14%)
Total	37 (74%)	13 (26%)	50 (100%)

The table shows that 78.4% (29) out of 37 male respondents had moderate knowledge and 10.8% (4) out of 37 male respondents had

low knowledge while 76.9% (10) out of 13 female respondents had moderate knowledge and 23.1% (3) out of 13 female respondents had low knowledge.

TABLE 30: RESPONDENTS' LEVEL OF KNOWLEDGE IN RELATION TO NATIONALITY

KNOWLEDGE	NATIONALITY			TOTAL %
	Zambian	Non Zambian	TOTAL	
HIGH	2 (10 %)	2 (6.7%)	4	8
MODERATE	17 (85%)	22 (73.3%)	39	78
LOW	1 (5%)	6 (20%)	7	14
Total	20(40%)	30(60%)	50	100%

Table 31 shows that 73.3% (22) out of 30 respondents who are non Zambian had moderate knowledge on Infection Prevention while 20% (6) out of 30 respondents who are non Zambian Doctors had low knowledge. 5% (1) of the respondent who is Zambian had low knowledge about Infection Prevention.

TABLE31: RESPONDENTS LEVEL OF KNOWLEDGE IN RELATION TO THE SOURCE OF KNOWLEDGE

KNOWLEDGE	SOURCE OF INFORMATION				TOTAL
	Clinical area	Medical school	seminar	Medical books	
HIGH	2 (10.5%)	4 (10.3%)	1 (4.8%)	1 (6.2%)	8
MODERATE	14 (73.7%)	30 (76.9%)	17 (80.9%)	12 (75%)	73
LOW	3 (15.8%)	5 (12.8 %)	3 (14.3%)	3 (18.8%)	14
TOTAL	19	39	21	16	95

* Multiple responses total does not add up to 50

Majority 80.9% (17) out of 21 respondents whose source of information was seminars had moderate level of knowledge and 14.3% (3) out of 21 respondents in the same group had low knowledge on IP. 12.8% (5) out of 39 respondents with low knowledge had the Medical school as their source of information.

TABLE 32: RESPONDENTS' ATTITUDE IN RELATION TO THE YEAR OF EXPERIENCE

ATTITUDE	YEARS OF EXPERIENCE				TOTAL
	1 – 3 Years	4 – 6 Years	7 – 9 Years	10 Years above	
Positive	3 (14.3%)	2 (22.2%)	20 (50%)	6 (37.5%)	13 (26%)
Negative	18 (85.7%)	7 (77.8%)	2 (50%)	10 (62.5%)	37 (74%)
TOTAL	21 (42%)	9 (18%)	4 (8 %)	16 (32%)	50 (100%)

Table 33 shows 85.7% (18) out of 21 respondents with experience ranging between 1 to 3 years had negative attitude towards Infection Prevention while 50% (2) out of 4 respondents with experience ranging between 7- 9 years had negative attitude towards Infection Prevention.

TABLE 33: RESPONDENTS' ATTITUDE IN RELATION TO KNOWLEDGE ON IP

ATTITUDE	KNOWLEDGE			TOTAL
	High	Moderate	Low	
Positive	2 (50%)	10 (26 %)	1 (14.3%)	13 (26%)
Negative	2 (50%)	29 (74%)	6 (85.7%)	37 (74%)
TOTAL	4 (8%)	39 (78%)	7 (14%)	50 (100%)

The table shows that 50% (2) out of 7 respondents with high level of knowledge on Infection Prevention had a positive attitude toward Infection Prevention while 85.7% (6) out of 7 respondents who had low knowledge on Infection Prevention had negative attitude towards Infection Prevention.

TABLE 34; RESPONDENTS' ATTITUDE IN RELATION TO PRACTICE

ATTITUDE	PRACTICE			TOTAL
	Excellent	Good	Poor	
Positive	0 (0%)	10 (35.7%)	3 (13.6%)	13 (26%)
Negative	0 (0%)	18 (64.3%)	19 (86.4%)	37 (74%)
TOTAL	0 (0%)	28 (56%)	22 (44%0	50 (100%)

Table 35 shows that 35.7% (10) out of 28 respondents who had positive attitude had good IP practice and 13.6% (3) out of 22 respondents who had

positive attitude had poor IP practices while 64.3% (18) out of 28 respondents who had negative attitude had good IP practices and 86.4% (19) out of 22 respondents with negative attitude had poor IP practices. This proves the earlier assumption that stated that the poorer the attitude of the doctor towards work, the poorer the Infection Prevention practises. Therefore, this study has failed to reject this hypothesis as it has been proved to be true.

TABLE 35; RESPONDENTS’ PRACTICE IN RELATION TO KNOWLEDGE

PRACTICE	KNOWLEDGE			TOTAL
	High	Moderate	Low	
Excellent	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Good	3 (75%)	23 (59%)	2 (28.6%)	28 (56%)
Poor	1 (25%)	16 (41%)	5 (71.4%)	22 (44%)
TOTAL	4 (8%)	39 (78%)	7 (14%)	50 (100%)

Table 36 shows that 59% (23) out of 39 respondents with good IP practice had moderate knowledge on IP and 28.6% (2) out of 7 respondents with good IP practices had low knowledge on IP while 71.4% (5) out of 7 respondents with poor IP practices had low knowledge on Infection Prevention.

TABLE 36; RESPONDENTS’ IP PRACTICE IN RELATION TO YEARS OF EXPERINCE

PRACTICE	Years of experience				TOTAL
	1-3 Yrs	4-6 Yrs	7-9 Yrs	10 Yrs above	
Excellent	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Good	10 (47.6%)	4 (44.4%)	2 (50%)	12 (75%)	28 (56%)
Poor	11 (52.4%)	5 (55.6%)	2 (50%)	4 (25%)	22 (44%)

Table 37 shows that 75% (12) out of 16 respondents with 10 years experience and above had good IP practices and 25% (4) out 16 respondents with the same years of experience had poor IP practices. 52.3% (11) out of 21 respondents with experience ranging from 1 – 3 years had poor IP practices. The findings support the hypothesis which states that the more experience the Medical Doctors have, the better the Infection Prevention practises.

CHAPTER FIVE

5.0 DISCUSSION ON FINDINGS.

The discussion of finding is based on data collected from a sample of fifty (50) respondents. The respondents were Medical Doctors at Kitwe Central Hospital. The general objective of the study was to determine the factors that influence Infection Prevention and Control among the Medical Doctors at Kitwe Central Hospital. The findings generally revealed that most of the respondents had a moderate knowledge on Infection Prevention.

5.1 DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

The sample included Medical Doctors aged between 15 and 49 years old. The majority 60% of the respondents were aged between 25 – 34 years; 14% of the respondents were aged between 45 – 49 years and 2% were aged between 15 – 24 years (Table 4). This shows that there were more young Medical Doctors than older doctors at Kitwe Central Hospital. This also could be due to the fact that most of the senior doctors have left the hospital for greener pastures.

The majority 62% of the respondents were married, 34% were never married and 2% were separated and divorced respectively (Table 4). This signifies the strong entrenched Zambian Culture among the Medical Doctors that regards marriage. This also shows that is accepted as normal in Zambian society. The divorced respondents were few because divorce is not accepted socially in Zambia. 34% of the respondents were single because they were still trying to settle after long years of training.

Majority 76% of the respondents were Christians, 14% of the respondents were Moslems while 10% of the respondents were none believers. Out of 76% of the respondents who were Christians, 38% were Protestants, 32% were Catholics, 4% were from the Seventh Day Adventist Church and 2% belonged to the Jehovah's Witness Organisation. The majority of the doctors were Christians because Zambia is pre-dominantly a Christian Nation. Taking care of patients is a noble career which requires someone to have some spiritual conscious at all times.

The demographic data further revealed that 38% of the Medical Doctors were Zambians, 18% were from Democratic Republic of Congo, 10% of the respondents were from Ukraine and 34% of the respondents were from other countries which included Bangladesh, India, Russia and Nigeria. This signifies the fact that Health Care is a matter of International concern and it cuts across boundaries. It also signifies the facts that Zambia is a friendly and receptive nation. It could also be due to brain drain that has seen our Doctors leaving the hospital to other foreign countries or private sector within the country. In order to combat the crisis in the reduced number of Doctors, most of the foreign doctors come in as volunteers to cushion the shortage.

Majority 64% of the respondents were General Practitioners (Table 4). This indicates that most of the Medical Doctors are not specialised. The reduction in the number of specialised Doctors may also lead to high incidences of infection rate and mortality rates in the institution because as the doctors specialise their practising experience increases.

The study revealed that 42% of the respondents had experience ranging from 1-3 years (see table 4). This was due to the fact that most

of the Doctors in this category were intern doctors and others had just completed their internship and were waiting to be posted.

5.2 DISCUSSION OF VARIABLES

5.2.1. Knowledge about Infection Prevention

Knowledge is one factor that contributes to the Doctors practice towards Infection Prevention. The knowledge about Infection Prevention helps the doctors to reduce the risks of contracting infections as they carry out their duties in the hospital. The finding of the study revealed that all the respondents 100% had heard of IP (see Figure 1 page 40). This indicated that the Medical Doctors had some basic knowledge on IP practices.

The study further revealed that these respondents who had heard of IP practise had different sources of information on IP practices (see Table 5). Table 29 further shows that 78% of the respondents who had heard of IP indicated the School of Medicine as the source of information. 10.3% out of 39 respondents with the Medical School as a source of information had high knowledge on IP, 76.9% had moderate knowledge on IP and 12.8% had low knowledge on IP practices.

The study further indicated that 73.7% out of 19 respondents who had the clinical area as a source of information had moderate knowledge on IP, 14.3% of the respondents out of 19 had low knowledge on IP. This signifies the importance of strengthening the IP component both in the clinical area and in the school curriculum in order to improve the IP practices among the Medical Doctors.

It is further shown in Table 6 that all the respondents who had heard about IP, 44% defined the IP as the reduction of infection and 6% of the respondents did not manage to define IP. This entails the need for

continuous sensitisation of Medical Doctors on IP measures in order to keep them abreast with concepts and new information on IP since medicine is dynamic.

This study also revealed that 86% of the respondents had heard of Universal Precaution (see Figure 2). Table 7 further shows the responses that were given on the Universal Precaution. Seventy (70%) of the respondents indicated Hand washing as a Universal Precaution, 32% of the respondents indicated the use of protective clothing as the Universal precaution. This correlates with the CBoH 2003 which states that hand hygiene and the use of protective gloves, whether in the operating room for surgery or in house keeping for handling contaminated materials are key components in minimising the spread of disease and in maintaining an infection free environment.

Furthermore Tietjen et al (2003) quoting Boyce and Pittet (2002) states that failure to perform appropriate hygiene is considered to be the leading cause of nosocomial (Healthy Facility Acquired) infections and the spread of multi resistant micro-organisms and has been recognised as a significant contributor to outbreak.

Figure 3 shows that majority 62% out of 50 respondents who have heard of IP were ignorant of the medical Doctor who initiated the IP practices in the clinical area while 38% of the respondents knew the doctor who initiated IP practices in the clinical area. This still indicates the need to continue with the sensitisation programmes on IP.

Figure 4 further shows that 82% of the respondents had knowledge about the existence of the IP committee at KCH while 18% of the respondents did not know of the existence of the IP committee. This shows some reluctance in the executing of the duties by the IP

committee and it could also be attributed to the attitude of the Medical Doctors which demonstrated lack of interest in IP.

This study also revealed that out of the 82% respondents who had the knowledge of the IP committee, 16% of the respondents gave the correct response of who the chairperson for the committee was (Table 11), 22% of the respondents gave the wrong response while 46% of the respondents did not know the chairperson for the committee. This poses a challenge on the committee to make itself known to all the workers. The committee members are there on paper though only the IP nurse is very active in Matters concerning IP at the institution.

It has also been revealed from this study that 78% of Medical Doctors had moderate knowledge on IP, 16% of the respondents had high knowledge on IP while 14% of the respondents had low knowledge on IP. Traditionally Medical Doctors are considered to be very knowledgeable in the medical field. This study has shown that Medical Doctors have only basic knowledge on IP.

5. 2. 2 ATTITUDE TOWARDS INFECTION PREVENTION

Attitude is another factor contributing to the Medical Doctors' practice towards Infection Prevention. The study revealed that majority 74 % out of 50 respondents had negative attitude towards IP practices while 26% of the respondents had positive attitude towards IP practices. This is in contrast to Muchemwa's (1996) findings which showed that majority of nurses 74% had a positive attitude towards IP practices while 26% had a negative attitude towards IP practice. This shows that the IP committee needs to focus their IP training programme on Medical Doctors while efforts need to be made to include the IP in the medical curriculum.

Table 31 shows that out of 74% respondents with negative attitude, 50% out of 4 respondents had high knowledge on IP, 74% out 39 respondents had moderate knowledge on IP while 85.7% out of 7 respondents had low knowledge.

The table further showed that 26% out of 39 respondents with positive attitude had moderate knowledge while 14.3% out of 7 respondents had low knowledge. This indicated the fact that the Medical Doctor's attitude affected their knowledge either in the positive or negative way. Furthermore negative attitude may also lead to loss of the little knowledge that one had on Infection Prevention.

The study further revealed that out of the 13 respondent with positive attitude 35.7% of the respondent demonstrated good practise and 13.6% of the respondents had poor practise. 86.4% of the respondents with negative attitude had poor IP practise while 64.3% had good IP practices. This finding correlates with the findings of the study done by Muchemwa (1996) which indicated that the respondents with a positive attitude practised correct Infection Control measures and those with negative attitude practised incorrect Infection Control Practices. Emmerson (1970) postulated that negative attitude towards work influenced the standard of practice

The researcher observed that some Medical Doctors did not want to be reminded on some of the IP principles during their routine ward round. Some of the doctors pretended to be following the IP principles as they were working. This indicated the type of attitude that prevailed among the Doctors

5.2.3 PRACTICE

The study revealed that 56% of the respondents had sustained needle stick injuries and 44% had not sustained needle stick injuries (see Table 21).

Furthermore table 23 revealed that out of 28 respondents who had sustained needle stick injuries 44% carried out the correct action while 12% of the respondents did not know what to do.

5.2.3.1 Hand washing

The researcher observed the Medical Doctors during routine ward rounds and at the end of minor and major operations in the Operating Theatre. The researcher observed that the Medical Doctors in the wards never washed their hands before and after attending to each patient despite the hand washing basins being in each cubical. The observer also noted that some Medical Doctors in the Operating Theatre were seen walking round and writing patient notes with glove powder on their hands which indicated that they did not wash their hands after surgery.

5.2.3.2 Use of protective clothing

The researcher observed that all the doctors used protective clothing. Those in the wards had coats while those in the Operating Theatre had gowns. The researcher observed that one coat was used in the contagious areas and also in non contagious areas. The Medical Doctors entered the Administrative offices with the same coats. This could have been one of the reasons why some of micro- organisms were found on the Secretary's table (see table 2).

The researcher also observed that gloves were in short supply in the institution. This resulted in the use of one pair to examine a number of patients. To minimise on the waste of scarce resource, the same gloves used to examine the patient were also used when writing the patients notes in the file and were further used on another patient. This indicated that all the files were contaminated with micro- organisms and posed a danger to other health workers who handled them with bare hands. Some Doctors were observed sucking their pens which they handled with contaminated gloves posing them more at risk of contracting infections.

5.2.3.3 Disposal of sharps

The researcher observed that all the treatment rooms had well labelled sharp boxes. The observer noted that the Round Trolleys in some wards had no provision or a receiver for discarding sharp before finally discarding them in sharp boxes. This resulted in some of Medical Doctors moving with used needles from the patient's compartment to treatment room where the sharp boxes are stationed. This exposes them to high risks of pricking themselves or pricking other members of staff on their way to the treatment room.

5.2.3.4 Supervision

The health worker who supervises the other medical staff on IP measures is a Registered Nurse. The study revealed that medical Doctors would like to be supervised by their fellow Medical Doctors where IP is concerned. 46% of the doctors would like to be supervised by their fellow doctor while 40% of the respondent would like to be supervised by others who are specialised in Infection Prevention. This could be one of the factors affecting the practice of Medical Doctors as the infection Prevention department is currently supervised by the Registered nurse.

5.2.3.5 Material resources

Majority 52% of the respondent indicated that lack of resources affected the IP practises (see Table 13). The researcher also observed that JIK was not adequate. The gloves were in short supply which compromised the practice of the Doctor. The washing bays in the wards had no hand washing soap. All these affected the practice of Medical Doctors in terms of IP.

5.4 EXPERIENCE

Sixteen respondents who had 10 years experience, 75% of them had good IP practices while 25% had poor IP practices (see table 34 page 59). This is in line with Muchemwa (1996), who stated that majority 52.5% out of 40 nurses with above 2 years experience practised correct IP measure while 60% out of 10 nurses with less than 2 years experience practised the incorrect IP measures. This finding is in line with Reeves and Geeddes (1982), who stated that there is need for experience in carrying out effective hygienic

practices. Usually clinical accidents like needle stick injuries fall on to inexperienced persons.

5.5. SUGGESTIONS TO IMPROVE THE MEDICAL DOCTORS PRACTISE TOWARDS INFECTION PREVENTION.

The Medical Doctors suggested different ways of improving IP practices at KCH. 44% of the respondents suggested the need to have Workshops on IP, 34% of the respondents suggested to have notice boards where all the IP policies, guide lines could be stuck for every doctor to see and read in the doctors call rooms. 18% of the respondents suggested to have increased staffing level and funding to the institution in order to meet the requirement for the IP programme (See Table 24).

5.6 IMPLICATIONS ON THE HEALTH CARE SYSTEM

5.6.1 Medical practice

All the patients that access the medical care in the hospital pass through the hands of the Medical Doctor. The care given to the patients need to be adequate and efficient in order to have better results. This implies that the *medical doctor need to adequately prepare and also need to practise correct IP measures according to the set standards to prevent spreading infection from one patient to another, to relatives and also themselves. This will help to reduce the hospital stay and infection rates, reduce the number of needle stick injuries among medical staff and will in turn help to create a safe working environment.*

5.6.2 The Hospital Administration

The shortage of Medical Doctors may have an effect on the provision of proper IP practices. One Medical Doctor can not manage to review 50 patients in a ward and be able to practise correct IP measures. Once the Doctors are employed, the hospital management has the duty to ensure that these doctors are maintained and retained in the institution. Lack of motivation may lead to these doctors leaving for greener pastures.

The hospital management needs to support the IP programme financially. This can be achieved by creating a cost centre for IP. In this IP cost centre all the necessary IP equipment and materials can be purchased like protective clothing, bin liners and sharp boxes just to mention a few.

5.6.3 Medical School

Despite the fact that Medical Doctors are taught and trained on IP at the medical school they still expressed low knowledge, negative attitude and poor IP practise. Adequate knowledge, attitude and practice on IP require to be inculcated in the Medical Doctors while at the Medical School. This can only be achieved through strengthening of the component of IP in the training reference manual for medical students at the University. Currently the researcher noted that this component was not there in the reference handbook for medical studies.

5.6.4 Medical Research

Infection Prevention is an important factor in the care of patients by Medical Doctors. No research has been done on IP on Medical Doctors in Zambia. The practice of doctors on IP can not be improved without evidence based knowledge through conducting research. With the findings of this research, much attention should be given to Medical Doctors to ensure that they will have adequate IP knowledge necessary to provide the care to the clients and their relatives. Therefore, more researches are encouraged to be done on Medical Doctors and other care providers in order to improve the quality of IP practises provided in the health sector.

5.6.5 Partnership

There is need for the institution to partner with other Non- Governmental Organisations like JHIEGO in order to assist them in training of Medical Doctors on IP measures as these are the pioneers of IP in the country. These NGOs may also help to supplement on the inadequate efforts by the government.

5.6.6 Education

The study has revealed challenges to the health care system at KCH. The Medical Doctors are professionally considered to be more knowledgeable in all the spheres of medicine and practice. This study has shown contradicting results as only 8 % of the Medical Doctors had high knowledge in IP. This has an effect on the care that is being provided on to the clients. Therefore, there is greater need to intensify the training of Medical Doctors on IP in order to update their knowledge which will in turn help to improve their practice and attitude.

5.7 CONCLUSION

The study sought to determine the Knowledge, Attitude and Practice of Medical Doctors on IP at KCH. Fifty (50) Medical Doctors were interviewed using structured interview schedule. The sample was drawn from Medical, Surgical, Paediatrics, Obstetrics and Operating Theatre.

The study revealed that knowledge, attitude and practice were not the only factors that affected the IP practices among the doctors. Factors like training modality for doctors, length of experience, human and material resources, supervision, institution policies, and work overload contributed to either correct or incorrect IP practices among doctors. It is therefore important to have all these factors attended to in order to improve the IP practise of Medical Doctors.

CHAPTER SIX

6.0 RECOMMENDATIONS

This study intends to suggest some changes in the existing IP programme. These changes require the identification of officers holding the key positions at the hospital and Ministry of Health.

6.1 To the Government

- The government through the Ministry of Health as the policy making body should ensure that the IP policies are adhered to by the health facilities through IP evaluation tours.
- There is need to increase the grants to the institution in order to purchase the necessary equipment and materials required in order prevent infection.
- The government need to identify stakeholder who are specialising in IP programme to supplement there inadequate in terms of training staff and purchasing of supplies.
- There is need to increase the funding of research programme to allow more researches to be done on Infection Prevention as this will help to improve the quality of care provided to the clients.
- There is need for the MOH to identify some registered Pharmaceuticals company to supply the IP materials just like Medical stores supplies the institutions with Medical- Surgical necessities.

6.2 To the Hospital Management

- The consultant microbiologist (or a biomedical scientist) should be the chairperson for hospital infection Prevention Committee. This is because the microbiologist studies bacteria, viruses, fungi, parasites and other micro-organisms. The microbiologist not only diagnoses

the diseases by identifying the organisms, but also investigates the source and the mode of spread.

- There is need to increase the staffing levels in the IP unit. A Medical Doctor may too be allocated to the unit who will be referred to as an Infection Control Doctor. This Doctor will work hand in hand with the Infection Control Nurses. Two or more nurses should be allocated to the IP unit in order to achieve the set standards.
- The Hospital Management should consider reallocating the IP Unit from the School of Nursing into the main hospital for the members of staff to access it easily in case of any emergency injuries sustained by members of staff. At the moment the office is hidden in the school and most of the staff do not know it.
- Management should positively support the IP programme by ensuring that funds for planned activities are released to unit in good time.
- The non Zambian are not knowledgeable on IP so there is need to make deliberate compulsory orientation of all the new doctors and other health staff posted to the institution to undergo a compulsory orientation on IP as this will help them get familiar to IP programme of the institution.

6.3 Infection Prevention Unit

- The hospital should establish an effective and fully functional IP secretariat within the hospital known to the whole hospital workers.
- The Infection Prevention secretariat should ensure that the offices for the Head of Departments are supplied with IP guidelines and any other literature on IP. The guidelines should be extended to the

Doctors' on call room which will save as reminders as the doctors see them all the time.

6.4 Medical Doctors

- IP knowledge for Doctors can best be achieved by conducting Workshops, Seminars and through the Internet on various subjects on IP.
- Medical Doctors should support and accept the knowledge that they acquire from the person currently running the IP programme as there is not one who is specialised in this area at the moment at KCH.

6.7 LIMITATIONS

- Time allocated in which to carry out the research was not adequate as the researcher had other courses to do alongside with research.
- The funding from sponsor for the research was not adequate thus the researcher had to collect data from a smaller sample of 50 respondents.
- Since this was an academic exercise, the sample was limited to 50 respondents. Otherwise with adequate funding and time the researcher would have captured a larger sample thus the results of the study would have been generalised.
- It was not easy to find time to interview doctors as they were also busy with their work schedule.

6.8 DISSEMINATION OF FINDINGS

Dissemination of findings entails the measures that would be undertaken to make known to the relevant authorities and study subjects what the study has measured. The findings of this study will be disseminated by presenting summaries of research findings to Kitwe Central Hospital with the necessary recommendations on Knowledge, Attitude and Practice of Medical Doctors on IP. The researcher will arrange for a presentation of

the research findings in the Management meeting to all the top management and other departmental heads.

Four copies of the final report will be printed, bound and submitted to the Department of Post Basic nursing, the Medical library, the Ministry of Health as sponsors and a copy to the investigator. Attempts will be made to disseminate the findings of the study at any conference for public consumption and action.

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THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

QUESTIONNAIRE NUMBER

TOPIC:

A STUDY TO DETERMINE THE KNOWLEDGE, ATTITUDE AND PRACTICE OF MEDICAL DOCTORS ON INFECTION PREVENTION

City / District: _____

Date of Interview: _____

INSTRUCTIONS

1. Introduce yourself to the interviewee.
2. Explain the purpose of the interview.
3. Get verbal consent from the interviewee.
4. Assure the interviewee of confidentiality and anonymity.
5. Do not write the name of the respondent on the schedule to ensure anonymity
6. Write the appropriate responses in the appropriate boxes provided.
7. Write the responses in the space provided for open ended questions.

1. SECTION A: DEMOGRAPHIC DATA

How old were you on your last birthday?

- a. 15 – 24 years
- b. 25 - 34 years
- c. 35 – 44 years
- d. 45 – 49 years

--

2. Sex

- a. male
- b. female

--

3. What is your marital status?

- a. Never married
- b. Married
- c. Divorced
- d. Widowed
- e. Separated

--

4. What is your religious denomination?

- a. None
- b. Catholic
- c. Protestant
- d. Jehovah's Witness
- e. Other (specify) _____

--

5. When did you qualify as medical doctor?

Year/month/date

				/			/		
--	--	--	--	---	--	--	---	--	--

--

6. How many years have you been practising as a qualified Medical Doctor?

- a. 1 – 3 years
- b. 4 – 6 years
- c. 7 – 9 years
- d. Over 10 years

--

7. What is your specialty?

- a. General practitioner
- b. Surgeon
- c. Obstetrician
- d. Paediatrician
- e. Other (specify) _____

--

8. What is your Nationality? _____

--

9. Where did you train as Medical Doctor?

- a. Zambia
- b. South Africa
- c. Democratic Republic of Congo
- d. Others specify _____

--

SECTION B: KNOWLEDGE

10. Have you ever heard of Infection Prevention?

- a. Yes
- b. No

--

11. If yes, where did you hear about the Infection Prevention?

- a. Clinical area
- b. Medical school
- c. Seminars
- d. Medical books

--

12. What is Infection Prevention?

- a. Elimination of infection
- b. Reduction of infection
- c. Control of infection
- d. Others (specify) _____

--

13. Define Infection Prevention in your own words

--

14. Do you know any Universal Infection Precaution measures?

- a. Yes
- b. No

--

15. If yes, list two (2) Universal IP measures you know _____

--

16. Do you know any Doctor who initiated IP practices in the
Clinical area?

- a. Yes
- b. No

--

17. If yes, what is her / his name?

--

--

18. what are the advantages of Infection Prevention to your clients?

--

19. What are advantages of Infection Prevention to yourself?

20. What are the advantages of Infection Prevention to the Institution?

21. Do you know if there is an Infection Prevention Committee at your Hospital?

- a. Yes
- b. No

22a. If yes, who is the chairperson of the Committee?

b. Who runs the Infection prevention Programme on behalf of the committee in the hospital? (Indicate position)

23. Do you know of the needle stick protocol in the clinical areas?

- a. Yes
- b. No

24. If yes, state what it says

25. Is the Infection Prevention included in your training curriculum
in the Medical School?

- a. Yes
- b. No

--

SECTION C: ATTITUDE

26. If no to question 25 above, state what you think about the
absence of Infection Prevention in your curriculum?

--

27. Do you think that Infection Prevention is important in the clinical
area?

- a. Yes
- b. No

--

28. As a Doctor, what do you think about the management of Infection
Prevention in this Hospital?

- a. Excellent
- b. Good
- c. fair
- d. very poor

--

29. Give reasons for your answer in question 28

--

30. State how the Infection Prevention Programme can be better organised at KCH

31. Do you think the Hospital should continue with the Infection Prevention program?

a. Yes

b. No

32. Give reasons for your answer

33. Have you ever used Infection Prevention measures?

a. Yes

b. No

34. As a doctor, whom would you be comfortable with to supervise you on Infection Prevention practices?

a. Fellow doctor

b. Nurse

c. Clinical officer

d. Other (specify) _____

35. Do you consult from others when you are not sure of which Infection Prevention principles to use before carrying out the procedure?

- a. Always
- b. At times
- c. Rarely

--

SECTION D: PRACTICE

36. As a doctor, grade the role of Infection Prevention in the clinical area.

- a. very important
- b. moderately important
- c. fairly important
- d. not important

--

37. As a doctor, I observe the infection prevention measures

- a. Very strictly
- b. Always
- c. sometimes
- d. rarely

--

38. Are there Infection Prevention guidelines on the walls for all the Health Care providers to see in your ward?

- a. Yes
- b. No

--

39. State what your greatest fear is, in relation to Infection Prevention as you perform your duties in the ward

--

40. Have you ever sustained a needle stick injury in your practice?

a. Yes

b. No

--

41. If yes, what did you do after sustaining the needle stick injury?

--

42. The needle stick injuries can be avoided by

a. recapping needles to protect the CDEs

b. not recapping needles

c. dispose sharps in the sharp boxes

d. others specify) _____

--

43. In your own opinion what do you think should be done in order to improve the practice of doctors on infection prevention?

--

THANK YOU FOR ANSWERING THE QUESTIONS.

APPENDIX 2

MARKING KEY FOR THE STUDY VARIABLES

SECTION B: KNOWLEDGE

Question number	question	answer	score
10.	Have you ever heard of Infection Prevention?	Yes	1
11	If yes, where did you hear about the Infection Prevention?	a. clinical area b. medical school c. seminars d. medical books	4(1mark for each response)
12.	What is Infection Prevention?	a. Elimination of infection b. Reduction of infection c. Control of infection d. Stop the spread of infection	4
13	Define Infection Prevention in your own words	These are measures that are put in place in order to stop the transmission of micro-organisms in human beings.	2
14	Do you know any Universal Infection Precaution measures?	Yes	1
15.	If yes, list two (2) Universal IP measures you know	a. Hand washing b. Disposal of waste c. Sterilization	3
16.	Do you know any Doctor who initiated IP	Yes	1

	practices in the Clinical area?		
17.	If yes, what is his or her name?	Dr. Semmelweiss- who introduced hand washing in the clinical practice	1
18	what are the advantages of Infection Prevention to your clients?	a. Prevents nosocomial infections b. Reduces hospital stay c. Reduces the mortality and morbidity rates	3
19	What are advantages of Infection Prevention to yourself	a. Prevent infection b. Reduce the workload as flow of patients will reduce. c. Reduce chances of injury (needle stick injuries)	3
20.	What are the advantages of Infection Prevention to the Institution?	a. Reduce on the cost of purchasing medical and surgical supplies b. Helps to decongest the hospital c. Helps improve the quality of care provided d. Helps render the hospital a safe	4

		working environment	
21	Do you know if there is an Infection Prevention Committee at your Hospital?	Yes	1
22a	If yes, who is the chairperson of the Committee?	Director Clinical Service (Dr .A. Mutiti)	1
22b.	Who runs the Infection prevention Programme on behalf of the committee in the hospital? (Indicate position)	Infection Prevention Officer (Ms. D. Mtonga)	1
23.	Do you know of the needle stick protocol in the clinical areas?	Yes	1
24.	If yes, state what it says		1
25.	Is the Infection Prevention included in your training curriculum in the Medical School?	no	1
total			32

Key

High knowledge 23 – 32

Moderate knowledge 11 – 22

Low knowledge 0 - 10

SECTION C: ATTITUDE

26.	If no to question 25 above, state what you think about the absence of Infection Prevention in your curriculum?	Include or strengthen the IP content	1
27.	Do you think that Infection Prevention is important in the clinical area?	yes	1
28.	As a Doctor, what do you think about the management of Infection Prevention in this Hospital?	a. Excellent b. Good c. fair	3 2 1
29.	Give reasons for your answer in question 28	a. have all the necessary material and human resource b. have inadequate resources c. inadequate supervision d. lack of awareness on IP	4
30.	State how the Infection Prevention Programme can be better organised at KCH	a. Increasing funding to KCH b. Increasing staffing levels at KCH c. Continuous supply of medical- surgical supplies d. Close supervision of	4

		all the staff	
31	Do you think the Hospital should continue with the Infection Prevention program?	yes	1
32.	Give reasons for your answer	a. Reduce on the cost of purchasing medical - surgical supplies b. Helps to decongest the hospital. c. Helps improve the quality of care provided d. Helps render the hospital a safe working environment.	4
33.	Have you ever used Infection Prevention measures	yes	1
34	As a doctor, whom would you be comfortable with to supervise you on Infection Prevention practices?	a. Fellow doctor b. Nurse c. Clinical officer d. Any one specialised in infection prevention	4
35	Do you consult from others when you are not sure of which Infection Prevention principles to use before carrying out the procedure?	a. always b. at times	2 1
TOTAL			27

Key: Positive Attitude 11-27

Negative Attitude 0 - 10

SECTION D: PRACTICE

36	As a doctor, grade the role of Infection Prevention in the clinical area	a. Very important b. Moderately important c. Fairly important d. Not important	3 2 1 0
37.	As a doctor, I observe the infection prevention measures	a. very strictly b. always c. sometimes d. rarely	3 2 1 0
38	Are there Infection Prevention guidelines on the walls for all the Health Care providers to see in your ward?	yes	1
39.	State what your greatest fear is, in relation to Infection Prevention as you perform your duties in the ward	a. Needle stick injury b. Contracting infection	1 1
40.	Have you ever sustained a needle stick injury in your practice?	yes	1
41.	If yes, what did you do after sustaining the needle stick injury?	a. Squeezed the area b. Reported to IP officer for counseling c. Commenced on PEP	1 1 1

42.	The needle stick injuries can be avoided by	a. not recapping the needles b. dispose sharps in the sharp box	1 1
43.	In your own opinion what do you think should be done in order to improve the practice of doctors on infection prevention?	a. increase awareness of staff on IP b. have workshops on IP c. Increasing the staffing level in the IP department. d. Strengthen the curriculum on IP e. Close supervision of all staff on IP practices f. Promotion of good practice and hygiene.	1 1 1 1 1 1
Total			27

Key

Excellent practice 19 – 27

Good practice 10 – 18

Poor practice 0 - 9

APPENDIX 3: WORK PLAN

	TASK TO BE PERFORMED	DATE	PERSONNEL	PERSONS/ DAY
1	Literature review	Continuous	Researcher and research supervisor	
2.	Finalizing research proposal	April to August, 2006	Researcher and research supervisor	
3.	Data collection tool	August, 2006	Researcher and researcher supervisor	
4.	Pilot study	22 nd August, 2006	researcher	1 day
5.	Data analysis pilot	23 rd to 24 th August, 2006	Researcher	2 day
6.	Amendment tool	25 th August, 2006	Researcher	1 day
7.	Data collection Actual study	August 2006 to Sept, 2006	Researcher	14 days
8	Data analysis	October, 2006	Researcher and research assistant	30 days
9.	Report writing	October 2006 to Dec, 2006	Researcher and research supervisor	60days
10	Draft report	December 2006 to January, 2007	Researcher and research supervisor	35 days
11.	Finalize of report	January 2007 to March, 2007	Researcher and research supervisor	35 days
12.	Monitoring and evaluation	April 2006 to March 2007	Researcher and research supervisor	
13.	Dissemination of results	March 2007	researcher	14 days

APPENDIX 4: STUDY BUDGET

BUDGET CATEGORY	UNIT	UNIT COST (K)	QTY	TOTAL (K)
Stationery				
(a) Duplicating Paper	Ream	25,000.00	4	100,000.00
(b) Pens	Box	20,000.00	1	20,000.00
(c) Pencil	Each	500.00	4	2,000.00
(d) Rubber	Each	1,000.00	4	4,000.00
(e) Note books	Each	500.00	2	1,000.00
(f) Tipex	Box	8,000.00	2	16,000.00
(g) Staplers	Each	20,000.00	2	40,000.00
(h) Box of Staples	Box	5,000.00	1	5,000.00
(i) Files	Each	15,000.00	2	30,000.00
(j) Scientific calculator	Each	60,000.00	1	60,000.00
(k) Flip chart	Each	45,000.00	1	45,000.00
(l) Markers	Each	3,000.00	4	12,000.00
Subtotal				335,000.00
Personnel				
(a) Lunch Allowance				
(i) Researcher	Days	50,000.00	10	500,000.00
(b) Transport	Days	20,000.00	10	200,000.00
Subtotal				700,000.00
Secretarial Services				
(a) Diskettes	Each	3,000.00	10	30,000.00
(b) Bag for stationery	Each	35,000.00	1	35,000.00
(c) Questionnaire typing	Pages	3,000.00	9	27,000.00
(d) Questionnaire photocopying	Pages	300.00	500	150,000.00
(e) Research Report Writing	Pages	3,000.00	100	300,000.00
(f) Research Report photocopying	Pages	300.00	500	150,000.00
(g) Typing and binding Proposal	Each	350,000.00	1	350,000.00
(h) Binding Report	Each	75,000.00	5	375,000.00
Subtotal				1,417,000.00
Hall Hire for dissemination	Each	250,000.00	1	250,000.00
LCD Hire dissemination	Each	150,000.00	1	150,000.00
Stationery		500,000.00	1	500,000.00
Refreshments	Each	20,000.00	60	1,200,000.00
Subtotal				2,100,000.00
Total				4,552,000.00
Contingency 10%				455,200.00
GRAND TOTAL				5,007,200.00

APPENDIX 5

JUSTIFICATION OF BUDGET

Stationery

The reams of paper were used for drafting the research proposal, questionnaires, draft research reports and printing the final reports.

The diskettes were used for storage of data. The pens and pencils were used for writing while the correction fluid and eraser were used for correcting any mistakes. The spirals and transparencies were used for binding the research proposals and the draft research reports. The flip chart was used for drawing up the data master sheets as well as dissemination of information.

Secretarial Services

Secretarial services were used for Typing, printing and photocopying the research proposal and the research report with the appendices. Binding of the research proposal and research report was done.

Field Expenses

Lunch allowance was needed to be paid to the investigator while collecting the data. 10% of the total budget is for the unseen circumstances and for possible inflation. Transport allowance was required because the investigator was far from the hospital.

APPENDIX 6: GANTT CHART

TASK PERFORMED	RESPONSIBLE PERSON	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR
Finalize research proposal	Researcher	↔			↔							
Literature review	Researcher		↔								↔	
Pilot study	Researcher				↔↔							
Data collection	Researcher				↔↔	↔						
Data analysis	Researcher						↔↔					
Report writing	Researcher							↔↔				
Submission of draft report	Researcher								↔↔			
Submission of research report	Researcher									↔↔		
Dissemination of results	Researcher											↔
Monitoring and evaluation	Researcher	↔										↔

UNIVERSITY OF ZAMBIA

School of Medicine
Department of Post Basic Nursing
P.O. BOX, 50110
LUSAKA.

17th August, 2006.

The Managing Director,
UTH Board of Management,
P.O Box RWI
LUSAKA

UFS: The Head of Department
University of Zambia
School of Medicine
Post Basic Nursing Department
Box 50110
LUSAKA

Dear Sir,

Re: PERMISSION TO CONDUCT A PILOT STUDY

I am a fourth year student pursuing a degree in Nursing at the University of Zambia, School of Medicine.

In partial fulfilment of this programme, I have to carry out a pilot study before I can conduct a major research at Kitwe Central Hospital. I am, therefore, asking for permission to use G Block and E Block for my pilot study.

My research topic is "**A study to determine the knowledge, practice and attitude of Medical Doctors on Infection Prevention**". The target population is the Medical doctors who will be required to answer the structured Interview questionnaire. I will have a sample of 5 medical doctors.

Thanking you in advance.

Yours faithfully,



Juliet Kasanga Munganga

UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF POST BASIC NURSING

P.O. BOX, 50110

LUSAKA.

17TH AUGUST, 2006.

The Executive Director

Kitwe Central Hospital

P.O. Box 20969

KITWE.

UFS: The Head of Department

University of Zambia

School of Medicine

Post Basic Nursing Department

Box 50110

LUSAKA



Dear Sir/Madam,

Re: **PERMISSION TO CONDUCT A RESEARCH STUDY**

I am a fourth year student at the School of Medicine, University of Zambia. As part of the course requirement, I have to carry out a research study in my area of interest. I, therefore, request for permission to carry out my study at your institution.

My research topic is "**A study to determine knowledge, attitude and practice of Medical Doctors on Infection Prevention at Kitwe Central Hospital**".

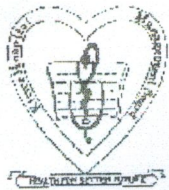
I intend to carry out the exercise on the 3rd September, 2006.

Thanking you in advance.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Juliet Kasanga Munganga'.

Juliet Kasanga Munganga.



Kitwe Central Hospital

P. O. BOX 20969
KITWE
ZAMBIA

Tel: 224927,224365,228604

Fax: 228604

E-mail: kehmb@zamtel.zm

All correspondence to be addressed to "The Executive Director"

Our Ref:
Your Ref:

29th August 2006

Ms. Juliet Kasanga Munganga
University of Zambia
School of Medicine
Department of Post Basic Nursing
P. O. Box 50110
LUSAKA

Dear Madam

PERMISSION TO CONDUCT A RESEARCH STUDY

We refer to your letter dated 17th August 2006 in which you requested for permission to carry out a study at our institution.

We hereby inform you that the permission has been granted.

Yours faithfully
KITWE CENTRAL HOSPITAL

Dr. Anthony Mutiti
Acting Director of Clinical Services
For/EXECUTIVE DIRECTOR