

**KNOWLEDGE AND UTILIZATION OF HIV POST EXPOSURE PROPHYLAXIS
AMONG STUDENT NURSES AT NDOLA SCHOOL OF NURSING, NDOLA ZAMBIA**

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**A Dissertation submitted to the University of Zambia in Partial fulfilment of the
requirements for the Degree of Master of Science in Nursing**

THE UNIVERSITY OF ZAMBIA

LUSAKA

DECLARATION

I Monica MapenziLungu, declare that this Dissertation represents my own work and that all the sources quoted have been indicated and acknowledged by means of complete references. I further declare that this Dissertation has not previously been submitted for a degree, diploma or other qualification at this or another University. It has been prepared in accordance with the guidelines for Master of Science in Nursing Dissertation of the University of Zambia

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CERTIFICATE OF APPROVAL

The University of Zambia approves this Dissertation on knowledge and utilization of post exposure prophylaxis among student nurses at Ndola School of Nursing in partial fulfilment for the requirements for award of degree of Master of Science in Nursing.

Examiner's signature.....Date.....

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ABSTRACT

The aim of the study was to determine knowledge and utilization of post exposure prophylaxis (PEP), to assess the relationship between knowledge and utilization of PEP, and also to examine the relationship between other variables and knowledge and utilization of PEP among student nurses at Ndola School of Nursing

This study was conducted among students in all the three (3) academic years. A purposive sampling method was used to select study units and a sample of 118 was selected.

Data were collected using self-administered questionnaires and a focus group discussion guide. Participants for the focus group discussion were also purposely selected from among students who did not participate in answering the self-administered questionnaire. Two focus group discussions were held. Each focus group discussion included six participants four females and two males and the combination of the members was as follows; two from the first years, two from the second years and two from the third years. The total number of participants for all the two focus group discussions was 12.

Epi info version 6 and Epi Data version 3.1 software computer packages were used to analyze data. Chi- square was used to measure associations between dependent variables (knowledge and utilization of PEP) and the independent variables (stigma, religion, level of training, youth friendly services, low risk perception and quality of service). With the confidence interval set at 95%, the P value was used to ascertain the degree of significance by using the decision rule which rejects the null hypothesis if P value is equal or less than that of 0.05. Qualitative data were presented in narrative form and a full report of the focus group discussion was written using participants' own words. Key statements and ideas expressed for each topic of discussion were listed down. Data were categorized and responses from the two focus group discussions were summarized.

Illustrative quotations that emerged from the discussions were selected to illustrate the main ideas.

The total number of respondents was 118 and all were drawn from student nurses at Ndola School of Nursing: There were 32 (27.1%) first year students, 44 (37.2%) second year students, and 41 (43.7%) third year students. The total sample comprised of, 35 (29.7%) males and 87 (70.3%) females.

The findings revealed that 33 (28%) of the respondents had low levels of knowledge about the HIV PEP procedure/ PEP protocol and that 98 (87.5%) of the respondents did not know where the PEP services were offered. Furthermore the study also revealed that 68 (58%) of the respondents had been exposed to blood and body fluids, suggesting that the students were exposed to a high risk of HIV infection. Utilization of PEP services was low as only 27 (40%) of the exposures had been reported to the PEP Unit. The main reasons for not reporting were: 20 (48.8%) of the respondents thought they were not at risk, 14 (34.1%) did not know how and who to report the exposure to and 4 (10%) did not want to do the HIV test. The findings also suggested that the main reason for not using Ndola Central Hospital PEP unit was lack of knowledge on PEP as stated by 31 (34%) respondents. The results of the study also revealed that 100 (85%) of the respondents stated that counselling and testing were supportive measures offered to students who got exposed. The results also showed that 100 (85%) of the respondents stated that the services offered by Ndola central hospital PEP Unit were good. A significant association was found between knowledge of PEP protocol and reporting the exposure, as 72% of the respondents who did not have knowledge on PEP protocol indicated that they did not report the exposure to PEP Unit. This association was statistically significant (Chi-square value 10.81. P value < 0.001).

Key words: knowledge, utilization, HIV post exposure prophylaxis, student nurses

DEDICATION

I dedicate this study to God for giving me the strength and ability to complete my study.

To my husband, **LameckLungu** for his undivided love and encouragement to complete this study successfully and for taking care of the children while I was at school.

To my beloved children, Taonga, Temwani, Chileleko and my niece Chito for their support and prayers, for making my life meaningful and for enduring my absence from home.

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LIST OF ABBREVIATIONS

ART	Antiretroviral therapy
AZT	Zidovudine
CNP	Copperbelt Nursing Polytechnic
GNC	General nursing council
HICC	Health Infection Control Committee
HIV	Human immune virus
IEC	Information education and communication
MOH	Ministry of Health
NAC	National Aids Council
NCH	Ndola Central Hospital
PEP	Post exposure prophylaxis
PMTCT	Prevention of mother to child transmission
TDRC	Tropical Disease Research Centre
UP	Universal Precautions
WHO	World Health Organization
ZDHS	Zambia Demographic Health Survey
3TC	Lamivudine

1.0 INTRODUCTION

1.1 BACKGROUND

Post exposure prophylaxis (PEP) is a short term antiretroviral treatment to reduce the likelihood of HIV infection after potential exposure either occupationally or through sexual intercourse (Cardo 1997).

Post exposure prophylaxis means taking antiretroviral medicine as soon as possible after exposure to HIV so that the exposure will not result in HIV infection. According to UNAIDS (2009), the immediate use of antiretroviral drugs is to prevent sero conversion after exposure to potentially HIV infected blood or body fluids. PEP should begin as soon as possible after exposure to HIV but within 72 hours. The treatment with 2 -3 antiretroviral drugs should continue for 4 weeks.

The World Health Organization (2007) states that PEP after occupational exposure to HIV in health care workers have been used across Europe since 2000. PEP should be started as soon as possible preferably within 2 to 3 hours after exposure. It should be initiated routinely with any triple combination of antiretroviral drugs approved for the treatment of HIV patients; however a two class regime is preferred. The source patient's treatment history should be sought immediately, counselling, psychological support and HIV testing should be performed as baseline.

In Zambia HIV/AIDS has impacted negatively both the public and private sectors in many ways (MOH 2008). The health sector also has been adversely affected by the disease. Many health workers such as doctors, nurses, student nurses, laboratory staff and those in dentistry work are at risk of contracting HIV through accidental occupational exposure (MOH 2008).

HIV transmission in Zambia occurs mainly through heterosexual contact and mother to child transmission.

HIV infection is also acquired through occupational exposures. Health workers are at risk of contracting the disease in workplaces due to the nature of their work (MOH & NAC 2008).

This can occur as a result of accidental occupational exposure such as needle pricks or other sharp instruments, handling of various body fluids and sometimes due to splashes of body fluids, as workers provide health care services to patients in health institutions (MOH 2008).

According to Landovitz (2001), the United States of America Centre for Disease Control (CDC) recommended that all preventive efforts should be made to reduce the risk of occupational exposure to HIV infection and all health workers occupationally exposed to HIV should access PEP services within few hours of exposure preferably within 1 – 2 hours. PEP reduces the rate of HIV infection from workplace exposure by 79% when administered within few hours of exposure.

Within the health sector, PEP should be provided as part of the Comprehensive Universal Precautions package that reduces staff exposure to hazards at work (MOH 2009). The use of antiretroviral drugs for HIV post exposure prophylaxis following occupational exposure to HIV is one of the objectives of work place policy in Zambia's health sector (MOH 2008). According to National Guidelines on Management and Care of HIV People (2008), these factors are associated with increased risk of occupationally acquired HIV infection;

- Deep injury.
- Visible blood on the device that caused the injury.
- Injury with a needle from artery or vein.
- Terminal HIV illness in source patient.

Body fluids and materials that may pose a risk of HIV transmission include: amniotic fluid, cerebrospinal fluid, human breast milk, pericardial fluid, peritoneal fluid, pleural fluid, saliva in association with dentistry, synovial fluid, vaginal secretions, semen and fluid from burns or skin lesions. According to New ART Protocols (MOH 2007), there is no evidence indicating that any specific antiretroviral medication or combination of medication is optimal for use as PEP, however certain agents and combinations are preferred. ART for PEP is given according to Risk Category.

Table 1: **Recommended Antiretroviral Therapy for Post Exposure Prophylaxis**

Risk Category	ART	Duration
No Risk Intact skin	Not recommended	
Medium Risk Invasive injury No Blood visible on needle	Combivir (300mg of AZT and 150mg of 3TC) PO 12 hourly. OR Truvada (200mg of TDF and 300mg of FTC) PO 12 hourly.	28 days
High Risk Large volumes of blood Known HIV infected person Hollow bore needle Deep extensive injury	Combivir (300mg of AZT and 150mg of 3TC) PO 12hourly. OR Truvada (200mg of TDF and 300mg of FTC) PO 12hourly.	28days

Source: New ART Protocols 2007

For patients with Haemoglobin level of less than 10mg /dl Combivir (AZT/3TC) is replaced by Truvada (TDF/FTC).

In 2006, the Zambian health sector recommended procedures to prevent HIV transmission among healthcare workers by formulating the following strategies for the provision of PEP for all health care workers:

- Make PEP available to private and mission hospitals health care workers and victims of sexual violence at all levels of the healthcare systems, including public hospitals.
- Print and distribute current PEP Information, Education and Communication (IEC) materials to all health facilities in appropriate languages.
- Train healthcare providers in the provision of PEP services, including routine counselling and testing.
- Promote development of workplace policies and implementation of workplace programs for health workers in public and private health facilities (MOH & NAC 2009)

1.2 STATEMENT OF THE PROBLEM

Zambia has a population of approximately 12.4 million people and it is estimated to have an HIV prevalence rate of 14.3% in the adult population (ZDHS 2007). The rate of HIV infection in antenatal mothers is 16% (MOH PMTCT 2009).

After an occupational injury, a health care worker runs a risk of infection with HIV. WHO estimates that approximately three million percutaneous exposures occur annually worldwide among 35 million health care workers globally, with over 90% occurring in resource constrained countries such as sub-Saharan African countries (Gupta 2008). Zambia lies within this region and it is for this reason that prevention of HIV infection is of paramount importance in the health care setting.

PEP is the only strategy available to prevent HIV infection to the health workers who have accidental occupational exposures to HIV to prevent new infection (MOH & NAC 2009).

The average risk of HIV transmission after a percutaneous exposure to HIV infected blood in health care settings is approximately 1 per 300 injuries and at least 1 in 1000 after a mucocutaneous exposure (MOH 2008). Although the rate may seem to be low, the risk is significant because the life of the health care worker may be threatened.

According to the General Nursing Council of Zambia (MOH 2007) every student who enrolls in a registered nursing college/school is required to practice to gain skill and competence in different settings and departments of the hospital before being eligible for examinations and certified as Registered nurse. The students are expected to have a clinical experience in the following departments:

- Obstetrics and Gynaecology
- Medicine
- Surgery
- Orthopaedics
- Intensive care Unit
- Dermatology
- Casualty and Out-patient

It is during these clinical experiences when student nurses become exposed to HIV infection because they are expected to assist mothers in labour, give injections, get blood specimens and participate in all procedures done by qualified health care workers.

According to Zambia's HIV Prevention Response and Modes of Transmission Analysis (MOH 2009), the Ministry of Health developed a legal and policy framework which is supportive of the country's HIV response, but none of these policies have addressed prevention of HIV among student nurses.

The PEP policy (in draft form) is concerned with the qualified health care workers only.

It does not embrace the students who are gaining clinical experience in the clinical area where the qualified health workers are (MOH 2006).

In 2002, Zambia through the health sector responded to HIV prevention strategy by ensuring that PEP is made available to health workers who may accidentally be exposed to HIV infection, and many health workers are being trained in the provision of PEP services (MOH 2009).

Ndola Central Hospital is one of the biggest hospitals on the Copperbelt province that offers post exposure prophylaxis and other HIV services 24 hours daily. The hospital started offering post exposure prophylaxis services in 2003. The records obtained from the unit in charge of PEP services showed that very few student nurses have accessed HIV PEP services. Table 2 below shows the number of health workers who reported accidental occupational exposure to HIV infection from 2003 up to April 2010 by cadre.

Table 2: Health Care Workers Who Reported Occupational Exposure to PEP Unit

Year	Doctors	Nurses	Student Nurses	Cleaners	Paramedics	Total
2003	1	1	-	-	-	2
2004	-	5	-	-	-	5
2005	4	5	-	1	-	10
2006	4	3	-	1	1	9
2007	10	10	1	-	-	21
2008	10	10	1	-	-	20
2009	5	13	-	1	1	21
2010	3	3	-	-	-	6
Total	37	50	2	3	2	94

Source: Ndola Central Hospital Infection Prevention Unit.

From the information above, it is evident that very few (2) student nurses accessed the PEP services from the time the hospital started the PEP program. This has prompted the investigator to find out whether the student nurses are aware of PEP services after accidental occupational exposure to HIV.

1.3 FACTORS INFLUENCING AWARENESS AND UTILIZATION OF PEP SERVICES AMONG STUDENT NURSES

Figure 1 shows a conceptual model of factors that influence knowledge and utilization of PEP services. The factors can be classified into two broad categories: socio-cultural and service-related factors. These factors are discussed below:

1.3.1 Social cultural factors

- **Stigma**

Stigma and discrimination involve having negative feelings and attitudes against someone with HIV and AIDS. A person with a high risk of being HIV positive may deny such risk as an individual may not be able to cope with the associated stigma. Stigma keeps people from discussing issues related to HIV/AIDS and seeking care. Fear is derived from lack of knowledge, moral attitude and perceptions about people living with HIV and AIDS. Many health care workers may have knowledge about HIV, but stigma may be a hindrance towards applying that knowledge to their own personal risk assessment (MOH & NAC 2009).

- **Low risk perception**

Some people in Zambia believe that they are not at risk of getting HIV infection even though they experience accidental occupational exposure to HIV. Anarfi (2005) also reported in Ghana that although awareness of HIV transmission was high, this knowledge did not translate into positive attitudes. Low risk perception is often associated with religion and culture.

- **Religion**

Religion has an influence on the risk awareness of HIV and AIDS. Religious and moral beliefs lead some people to believe that having HIV/AIDS is the result of a moral fault such as promiscuity or deviant sex (MOH 2009). It is also observed though documented evidence that some religions further influence some people to believe that if they have faith, God will give them divine health and protection against any kind of disease including HIV/AIDS. Religious leaders however, have also shown that they can influence the belief system to ensure that HIV and AIDS are seen in a more positive light through IEC (UNAIDS 2005).

- **Denial of the risk**

A person at high risk of being HIV positive may deny such risk as the individual is unable to cope with stigma associated with HIV/AIDS (MOH 2009). Denial keeps people from discussing issues related to HIV/AIDS and seeking care.

1.3.2 Service related factors

- **Quality of services**

Quality of services offered includes observation of confidentiality by health care providers. One of the reasons why most people do not use the voluntary counselling and testing services (VCT) is lack of confidentiality by health care workers, stigma and discrimination that follows disclosure of one's status (MOH 2008). According to the Zambia National Guidelines on Management and Care for People Living with HIV and AIDS (MOH & NAC 2008), confidentiality is a key concern of clients. Quality of the services, according to UNAIDS (2007), can act as a barrier to essential HIV prevention messages.

Student nurses may have an accidental occupational exposure to HIV but may not use the counselling services offered by the Hospital if they do not have confidence in the counsellors.

Information obtained from the Infection Prevention Unit revealed that most of the health workers with accidental occupational exposure to HIV infection were demanding a prescription for PEP drugs, avoiding the counselling and testing component of PEP protocol.

- **Long PEP protocols**

According to the New ART Protocol (2007), every health care worker exposed to accidental occupational exposure must follow the PEP protocol which states that:

- Immediately after exposure to HIV infection, the health care worker must report to the in charge or site supervisor.
- Then the source patient and health care provider are offered pre-test counselling if the status of the patient is not known. If the status of the source patient is HIV positive, the health care worker is counselled and the HIV test should be done.
- Post-test counselling is done after the HIV test
If the source patient is HIV positive and the health care worker is negative, he is referred to doctor to get a prescription for ART. The importance of adherence is stressed.
- PEP should not be given to exposed employees who refuse HIV testing or who test positive at the initial test.

- **Inadequate knowledge about the PEP protocol**

Prevention is central to the overall HIV/AIDS control and management strategy that effectively leads to a reversal in the extent and effects of the pandemic (MOH 2009). Van (2007) conducted a study on occupational stress experienced by care givers working in HIV/AIDS care in South Africa. His study revealed that HIV affects every aspect of nursing practice, yet nurses and midwives often have to take on responsibilities for which they are ill-prepared.

Often they qualified before AIDS was on the curriculum and they have not received specialist training in the syndrome since. In many places nurses and midwives are bypassed by public information programmers because their central role in combating the epidemic and their need for specialist knowledge and skills are not recognized. Most educational programs related to HIV have emphasized treatment, care and support in service areas and community, leaving staff in schools of nursing with limited and inadequate knowledge on HIV/AIDS. This in turn meant that sensitization of student nurses on the pandemic was inadequately or poorly done. In addition, PEP information and services are regarded as issues of the service area where students do their clinical experience and thus, teaching staff are often left out whenever there is a workshop for HIV/AIDS related information, because there is less emphasis on HIV prevention in training institution by the Zambian government.

- **Youth friendly services**

Although youth friendly services are available in some health facilities especially the clinics, these services should be in the communities where they can be utilized by the youths living in those communities (MOH & NAC 2009). The majority of the nursing schools in Zambia do not have youth friendly corners where peer education on HIV prevention at workplaces can be tackled by fellow youths, because the National HIV Strategy (2009) stipulates that these services should be in the community while all the schools of nursing are attached to big health institutions and not to the community. These youth friendly services located in the community are the best places for students to discuss issues of HIV prevention among peers and can be good sources of PEP information if they were located within big health institutions for easy accessibility.

- **Reception by health personnel**

According to the reference manual of prevention of mother to child transmission of HIV (MOH 2008), HIV and AIDS patients need a safe and supportive environment which includes the attitude of care givers at all levels.

The care givers should respect the patient's wishes and should be non-judgmental. The counsellor must have attending skills such as showing interest, receptiveness and friendliness. Students would make use of the PEP services if counsellors show attending skills to them.

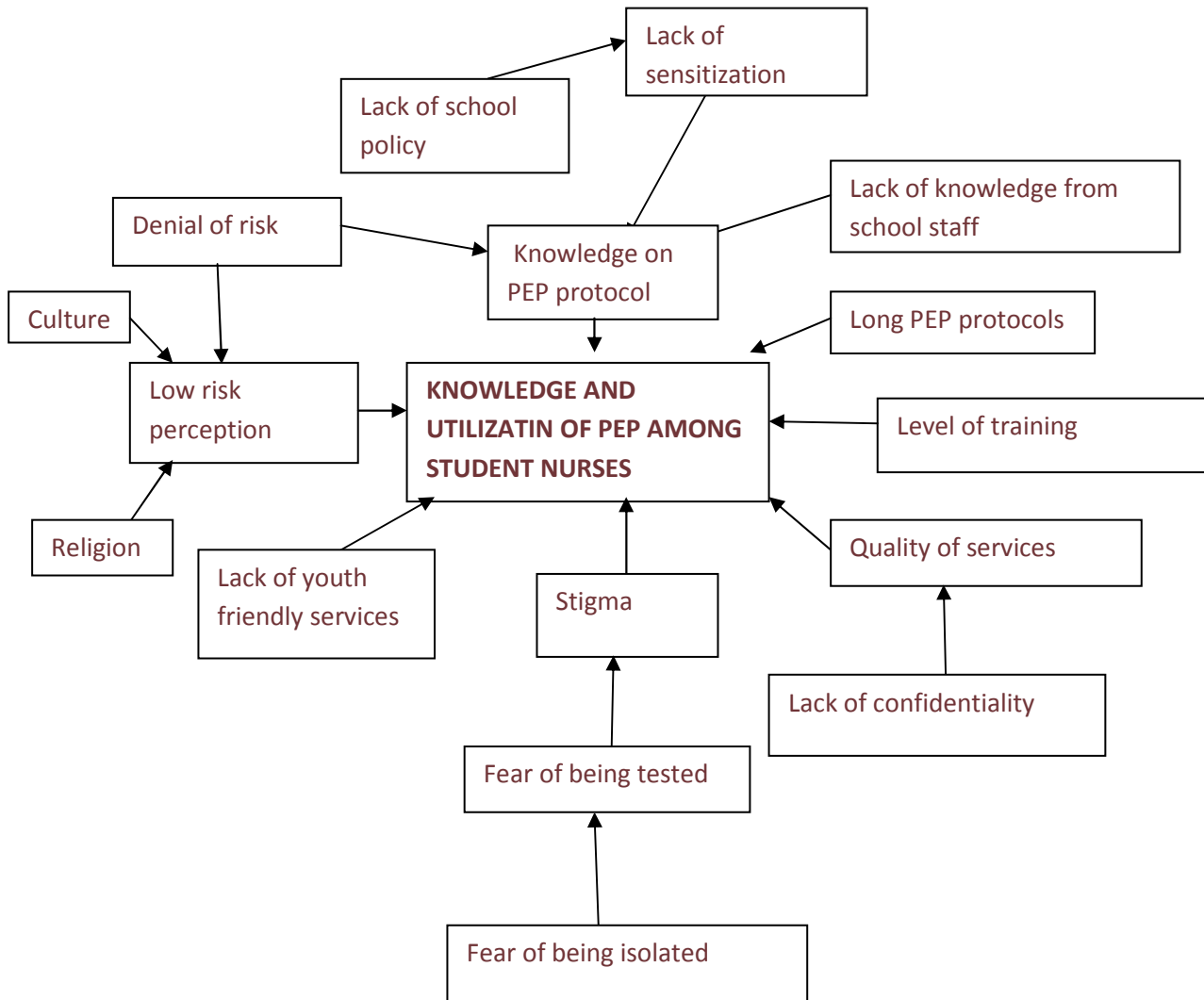
- **Lack of school Policy**

The HIV/AIDS pandemic has adversely affected families, the workplace and the country at large, and in addressing this, the Ministry of Health developed the Workplace Policy with a view to safeguard the lives of the health care workers (MOH 2008). According to some information obtained from the education and communication unit at Ministry of Health, each health institution was expected to translate this policy to suit their setting. Most nursing schools never developed a workplace policy probably because care, testing and support of HIV/AIDS patients was regarded as the responsibility of the clinical/ service area as shown by the National HIV Strategy (2009).

- **Level of training**

The student who has been in training for more than one year is likely to have more knowledge on PEP because of the exposure on the clinical area and to other HIV programs during the clinical experience.

Figure 1: Conceptual Model on Knowledge and Utilization of PEP among Student Nurses



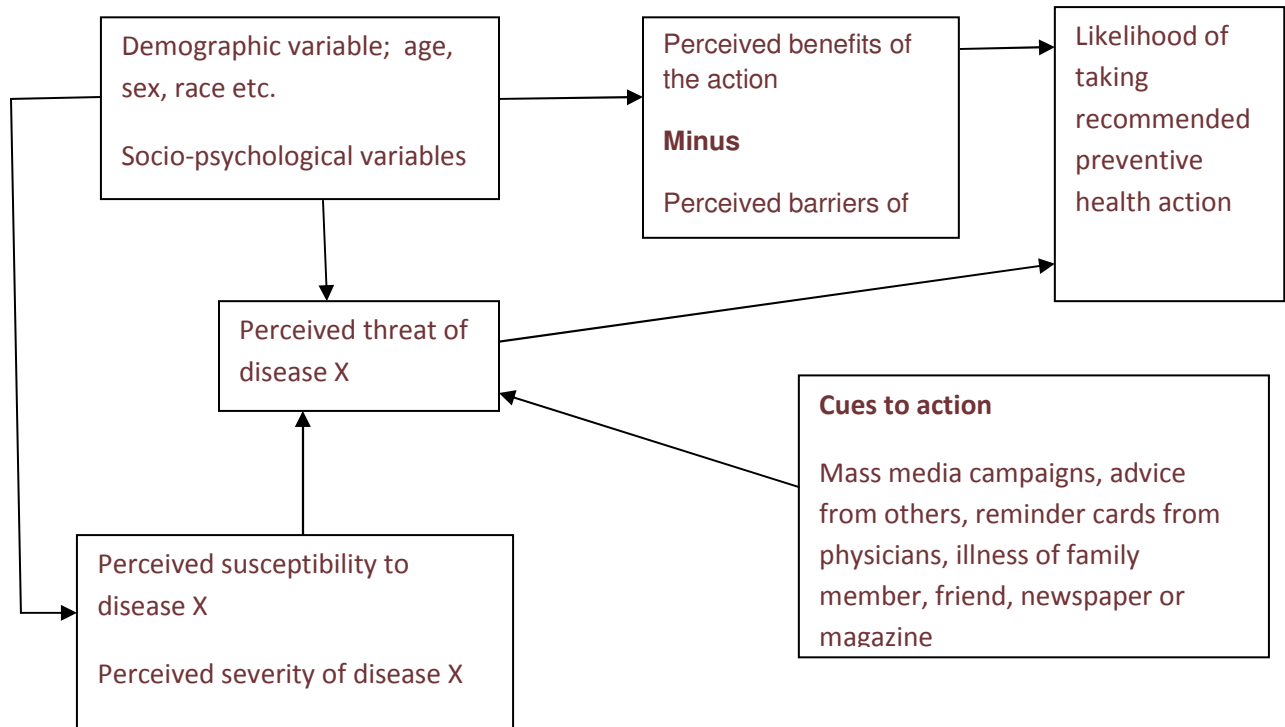
1.5 THEORETICAL FRAMEWORK FOR THE STUDY

The theoretical framework used to guide this study was the Health Belief Model by Becker (1974). The health belief model is useful in explaining health related behaviours. The main components of health belief model are perceived susceptibility, perceive severity, perceived benefits, perceived barrier and cues to action. Perceived susceptibility is the subjective assessment of the risk of contracting an illness or condition. The health belief model postulates that feeling vulnerable to a condition is a motivating factor to take action to prevent the illness. Perceived severity refers to how serious or severe an individual views a condition to be. It is assumed that the more serious a health problem is, the more likely a person will take action against it.

According to the health belief model, the likelihood of taking an action is determined by beliefs that barriers to action are outweighed by the benefits of the action. Perceived benefits refer to the perception that an action will result in a positive outcome or benefit to one's health. Perceived barriers are those costs or impediments that might prevent an individual from undertaking an action or behaviour. Cues to action are those factors that serve to stimulate or prompt health-related behaviours. An individual's cues may be internal or external events.

The model is used to guide this study because the study is trying to understand health behaviours of the students' nurses at Ndola central Hospital. If the student nurses developed the perceptions of susceptibility and severity, they may utilize PEP immediately after exposure to needle stick injuries or body fluids.

Figure 2: Health Belief Model



Source; From Becker, M. 1974 as in Basavanthappa 2007

1.6 JUSTIFICATION OF THE STUDY

Zambia, with an estimated population of 12.4 million, is one of the countries hardest hit with the HIV and AIDS pandemic in the world. The pandemic has affected everyone regardless of sex, age, race or status (MOH & NAC 2008). The country has responded to the HIV pandemic by coming up with a strategy that addresses many issues, notably accelerating the prevention of sexual transmission of HIV through behaviour change, prevention of mother to child transmission of HIV (PMTCT) and providing PEP to exposed health workers (MOH 2009). Many of these strategies, however, do not specifically target student nurses. PEP as a strategy for prevention of HIV infection in health care settings has focused more on qualified health care workers rather than students. No specific guidelines in Zambia were identified for student nurses in the schools of nursing who are at risk of contracting HIV infection by accidental occupational exposure as they offer health care services to patients with HIV and AIDS.

Although PEP was designed for staff, there is need for these services to be extended to student nurses because they are a special group of youths who are exposed to HIV infection through occupational exposure as they are learning nursing procedures and skills. The student nurses enter the nursing workforce when they complete their training, hence PEP will help reduce number of HIV infected nurses in the health sector. In addition no studies were identified that have investigated knowledge and utilization of PEP among student nurses

Because the study focuses on students, the findings can help student nurses to realize the importance of PEP services in the prevention of HIV infection in the clinical area. It is also hoped that information obtained from the study will be used by health care providers, schools of nursing and the General Nursing Council of Zambia (GNC) to identify strategies that will mitigate the impact of HIV and AIDS among student nurses and qualified nurses.

1.7 RESEARCH QUESTIONS

1.7.1. Does the level of knowledge on PEP affect utilization of PEP services by student nurses?

1.7.2. What factors affect PEP utilization by student nurses?

1.8 OBJECTIVES

1.8.1 General Objective

To determine HIV PEP awareness and utilization among student nurses at Ndola School of Nursing.

1.8.2 Specific Objectives

1. To determine the level of knowledge on HIV PEP among student nurses.
2. To determine the level of utilization of PEP services by student nurses.
3. To establish factors associated with utilization of PEP among students.
4. To identify support measures offered to students exposed to blood and body fluids.

1.9 HYPOTHESIS

There is an association between PEP utilization and the following factors:

- knowledge on HIV PEP
- Level of risk perception

1.10 CONCEPTUAL DEFINITION OF TERMS

Post exposure prophylaxis (PEP): Therapeutic measures instituted after the possible accidental exposure to HIV infection such as injuries from sharp instruments and splashes of body fluids (UNAIDS 2009).

PEP knowledge: Having knowledge about PEP, location of PEP services that are offered, PEP protocol (UNAIDS 2009).

PEP utilization: Reporting exposures and accessing the PEP services(UNAIDS 2009).

PEP Protocol: The procedure that is followed to obtain antiretroviral drugs after an accidental occupational exposure to HIV infection (UNAIDS 2009).

Stigma: A process of devaluation of people, either living with or associated with HIV by apportioning blame for their circumstances. It also refers to feelings of disapproval that people have about particular illnesses or ways of behaving (National AIDS Council 2009).

HIV: HIV is the virus that causes AIDS. It destroys the biological human defence system and impairs the body's ability to respond to infections(National AIDS Council 2009).

AIDS: Acquire Immunodeficiency Syndrome (AIDS) is a syndrome of opportunistic diseases which follow the HIV infection. It is an acronym for Acquired Immune Deficiency Syndrome (National AIDS Council 2009).

HIV prevention: Actions taken to minimize the spread of HIV infection (Ministry of Health & General Nursing Council of Zambia 2007).

Risk perception: Being conscious of the fact that one can contract HIV /AIDS (UNAIDS 2009).

Table: 3 VARIABLES AND CUT OFF POINTS

Variables	Cut off points	Indicators
INDEPENDENT VARIABLES		
PEP protocol	Adequate	Scores 5-6 on questions of heard PEP and knows all the steps of protocol
	Inadequate	Scores 1-4 on steps of the protocol
Quality of PEP services	Good	Scores 3-4 on questions of reaction of staff and rating
	Poor	Scores 1-2 on questions of reaction of staff and rating
DEPENDANT VARIABLES		
PEP knowledge	High	Scores 14-20 on question of knowledge
	Low	Scores 1-13 on questions of knowledge
Utilization	High	Scores 15- 17 on questions of utilization
	Low	Scores 1- 14 on questions of utilization

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Introduction

The literature review focuses on HIV PEP knowledge and utilization among student nurses. Sources of reviewed literature include books, articles, policy papers, professional journals and dissertations both published and unpublished.

Several authors have written on many aspects of HIV PEP knowledge and utilization among health care workers. Some of these studies were done in the Western countries and so the findings cannot be generalized to African countries since the prevalence of HIV infections are high in sub-Saharan Africa and Zambia(14.3%) in particular (ZHDS 2007). However, these studies can still be used and can give a rough idea about the importance of HIV occupational post exposure prophylaxis among health care workers and student nurses in particular. The knowledge levels of post exposure prophylaxis from previous conducted studies are at 30% Zhang (2008). The review is aimed at establishing what is already known about the topic and to identify gaps in the existing literature. In this chapter, literature review is arranged globally, regionally and nationally. However, there is little documentation on HIV PEP services in Zambia.

2.2 GLOBAL PERSPECTIVE

According to Puro (2004), in 2001, the European Commission funded a project for standardized management of health care worker occupational exposure to HIV infection in European countries. The following recommendations were made by the nine European countries;

- All preventive efforts should be made to reduce the risk of occupational exposures by development of educational programs, implementation of standard precautions and safer procedures, and the provision of safety devices and personal protective equipment.

- All health care workers should be made aware of how to report an occupational exposure injury.
- The availability of PEP should be publicly advertised so that it is immediately and readily accessible 24 hours per day and initiated as soon as possible following an occupational exposure and should be administered for 4 weeks.
- All health care workers occupationally exposed should receive appropriate counselling and clinical follow up.

Nursing and midwifery students constitute a subgroup of health care providers exposed to occupational risk of HIV infection because of direct contact with blood and body fluids during clinical practice. The occupational risk faced by these students is of serious concern, given their limited experience and proficiency in nursing care skills. Atulomah (2002) carried out a study to determine knowledge, perception and practice with regards to occupational risks of HIV/AIDS in Ibadan, Nigeria. The result showed that out of 479 students, the majority (69%) had poor knowledge of World Health Organization (WHO) recommended universal precaution for preventing HIV transmission among health care workers in the three nursing schools.

Preventable occupational exposures to HIV continue to occur presenting a real risk of HIV infection. Worldwide, nurses and laboratory workers account for 69% of occupationally acquired HIV transmission and 13% have occurred in doctors (Landovitz 2001). In 2005, the United Kingdom Health Protection Agency statistics indicated that there had been 106 documented sero-conversion following occupational exposure to HIV, with a further 238 cases of probable transmission. Every day while caring for patients, nurses are at risk of exposure to blood borne pathogens resulting in infections such as HIV. These exposures, while preventable, are often accepted as being a part of the job (Kohi 1994).

In the United States, needle stick injuries have begun to decrease from an estimated one million to 385,000 per year in 2000. This decline resulted from protections afforded by the Occupational Safety and Health Administration. Reasons for the decline include: elimination of needle recapping and use of safer needle devices, use of sharps collection boxes, use of gloves and personal protective gear, and implementation of universal precautions procedures (Wilburn 2004).

Michael (2006) stated that sero-conversion after percutaneous exposures among United States and European Health Care Workers (HCWs) is estimated at 2.3%. The average rate of sero-conversion after deep injuries is also estimated at 2.3%. However, in countries which are in sub-Saharan Africa and elsewhere with high HIV prevalence and large numbers of unsafe injections, personal risk as well as the share of the HIV epidemic associated with unsafe injections may be more than many experts have supposed.

Another study that was conducted by University of California by Landovitz (2001) revealed that 49 out of 68 health workers became HIV positive after an occupational exposure.

According to the WHO (2009), by December 2006, health care workers in the USA reported 57 occupational HIV infections. Of these, 48 had percutaneous exposure; five, mucocutaneous exposure; two, both percutaneous and mucocutaneous exposure; and in the other two, the route of exposure was unknown. These are cases in which a worker is infected with HIV and has a history of occupational exposure, but did not have a test immediately before and after the possible exposure. A report from international AIDS Society- USA done by Centre for Disease Control and Prevention (CDC), in conjunction with University of California for the period 1985 to 2001 indicated that out of 138 health care workers who had occupational exposure, 57 of them tested HIV positive (Landovitz 2001).

It has been noted by the researcher that there are variations in reported figures of incidences of HIV infection in health care workers in USA and UK by different authors probably due to different setting and tools used to collect data. It should also be noted that, because of the voluntary nature of the reporting system, there might be some under-reporting of cases.

The study conducted by Cardo, Culver and Ciesielski (1997) showed that health-care workers who took AZT (Retrovir) after exposure to HIV reduced the likelihood of sero-conversion by 81%. The exposed health care workers reported the injury to PEP Unit and initiated PEP medication within an average of four hours after exposure. The cases of transmission occurred primarily through percutaneous exposures involving punctures or cuts from sharp objects, mostly by hollow-bore needles. However, transmission also occurred via mucous membrane. Most of these cases of transmission occurred in health workers who routinely have the most direct contact with HIV infected patients or their blood such as nurses, laboratory workers handling specimens and surgeons.

A retrospective review of all exposure injuries affecting members of the operative care line at a single teaching institution in USA between December 2002 and December 2005 was conducted by Bakaeen ,Awad, Albo, Izard and Berger (2006). In this review, sharps injuries accounted for 93% of injuries and were inflicted by suture needles, 50% hollow-bore needles and sharp instruments 34%. Mucocutaneous contamination accounted for 7% of the exposures. Professionals most frequently injured were resident doctors 44%, followed by nurses 29%, students 17% and other healthcare workers 10%.

In 1995 a study was carried out by Resnic and Noerdlinger on occupational exposure at a New York City Medical Centre of students and house staff members. The results showed that few students and house staff reported their exposures at the time of injury. Out of 650 respondents only 29% of exposed respondents reported an incident.

Reasons for not reporting included: the source thought not to be infectious, perception that the exposure was insignificant, too little time to report, perception that the outcome would not be changed by reporting, perception that the exposure was not an emergency, and not knowing how to report an exposure. These reasons accounted for 83% of the reasons given for not reporting.

Nursing students have a high risk of occupational exposure to blood borne infection because they may have insufficient background knowledge to recognize the level of risk posed by a particular patient and their inexperience with procedural skills and infection control procedures. Talas, Melek and Serpil (2009) conducted a study on occupational exposure to HIV infection among Turkish Nursing students in three nursing schools. The study showed that 49% of the students sustained injuries from hollow-bore needles during their clinical practice, and 65.2% of the injured students were not wearing gloves at time of injury. Only 43.9% reported their injuries to administrators and received medical assistance after needle stick/sharp injuries.

Petrucci, (2009), investigated occupational percutaneous and mucocutaneous exposures in nursing students in Italy. The results showed that 42.5% accidental exposures were reported to have occurred when nursing students were working in medical and surgical wards. It was therefore concluded that during their clinical training, nursing students can encounter a real risk for HIV infection.

Zhang (2008) conducted a study at a Chinese medical university in May 2005. Students in all five academic years who were majoring in clinical medicine, nursing, dentistry, medical technology, pharmacology, acupuncture/massage, and public affairs management were interviewed. The study indicated that 12.6% of the students reported a total of 131 sharps exposures during the previous 12 months. Dental students had the highest incidence rate at 20.6%, followed by medical students (16.0%), nursing students (12.2%), and acupuncture/massage students (5.0%).

Only 30.4% of sharps exposures were reported to a supervisor and the students displayed a general lack of knowledge on occupational exposure standards and PEP.

Smith and Leggat (2005) investigated the prevalence of needle stick injuries among Australian nursing students at the University of Australia. Out of 274 students, only 13.9% reported the needle stick or sharp injury. The researcher concluded that it was important that the principles of infection-control training and reporting of all needle stick and sharps continue to be emphasized throughout undergraduate nursing education.

Nursing students are at risk of contracting blood borne diseases from needle stick injuries and sharps as shown by a study conducted by Cheung, Ching, Shirley and Chang (2010) at Hong Kong University School of Nursing. The study showed that 51 students reported percutaneous occupational exposure injuries to the PEP Unit. The causes of the injuries included giving injections (51.2%), collecting urine specimens (11.6%), removal of urinary catheters (9.3%), and checking blood glucose using glucometers (3.2%). Results of the study showed that nursing students are at high risk of occupational exposure to blood borne pathogens such as HIV because of needle stick injuries. Universal Precautions and in particular infection prevention needed to be emphasized to reduce the occurrence of needle stick injuries among nursing student.

In 2002, Shiao, Mclaws, Huang and Guo (2002) conducted a study to describe the prevalence and characteristics of needle stick injuries and adherence to infection prevention in student nurses in Taiwan. Out of 708 respondents, 61.9% had needle stick injuries and only 14.2% made a formal report to the PEP services Unit. Reasons for not reporting needle stick injuries were that students were not aware of the universal precautions and post exposure prophylaxis. The conclusions of the study were that; Needle stick injuries and non-reporting of needle stick injuries were highly prevalent in nursing students.

Therefore more intensive education programs should be directed at students to increase their awareness of and compliance with Universal Precautions (UP) before commencing their practical work experience.

2.3 REGIONAL PERSPECTIVE

In the literature on AIDS, much attention has been paid to the western health care workers' knowledge and attitudes towards AIDS while little is known of knowledge and attitudes of health care workers of the developing countries. A study that was carried out on the knowledge, attitudes and perceived support of Tanzanian nurses when caring for patients with AIDS, showed that 96% of Tanzanian nurses had satisfactory knowledge about AIDS (Kohi 1994). In Africa, where the HIV prevalence among the hospitalized patients is highest in the world, attention has just been directed recently at protecting health care workers.

In 2002, the Human Science Research Council did an HIV surveillance study on prevalence of HIV among health care in South Africa who reported to PEP unit. The results of sero conversion were; 2% in doctors, 5.7% in allied workers, 13.7% in nurses and 13.8 among student nurses. The same study indicated that the high prevalence of occupational exposure was attributed to failure to use universal precautions and inadequate supplies of protective equipment such as gloves, disposable containers for sharps and running water.

A survey was conducted by Melanie, Nwoga, Iwu, Johnson, Gomwalk and Smith (2009) to assess Health Care Workers' knowledge of universal precautions (UP), their exposure to blood or bodily fluids from needle stick injuries, and the availability and use of protective equipment at three hospitals in and around Abuja, Nigeria. The study sample constituted 90 nurses and midwives. The results of this study indicated that 80% of the health care workers were aware of universal precautions, 50% had needle stick injury (Percutaneous exposure), however only 20% reported the exposure to PEP Unit services.

MaatenNyirenda, Beadsworth and Chitani (2010) conducted a study on PEP for HIV transmission after occupational injuries in Queen Elizabeth Central Hospital, Blantyre, Malawi, from 2003 – 2008.

The study showed that out of the 203 reported occupational injuries, 50.7% of the Health Care Workers were in a training position such as student nurses, medical students and clinical officers. The study also revealed that 33.1% of occupational injuries occurred in Obstetrics and Gynaecology, 18% in Medicine, and 13% in paediatrics departments.

A study to determine the prevalence of accidental injuries and body contaminations among the operating personnel during general surgical operation was conducted by Adesunkanmi, Badmus, and Ogunusi (2003) at Ile Ife Teaching Hospital in Nigeria in 1998. The study showed that the operating physicians sustained 90.3% sharp injuries and 39.4% mucocutaneous splashes of contamination with blood and body fluid while the scrub nurses sustained 9.7% sharp injuries.

Mosweu, Sebitloane, and Moodley (2005) conducted a study on occupational exposure to HIV infection amongst health care workers in the maternity unit at King Edward VIII hospital, Durban, South Africa in 2003. The 114 health workers interviewed included doctors, nurses, student nurses, and supportive staff. The results showed that 54% of these health care workers had an exposure to patients' body fluids and that 21% had sharp injuries. Only 61% of these injuries were reported and only a third of health care workers completed the prescribed course of PEP antiretroviral treatment. The major reasons for not reporting the injury was fear of testing HIV positive.

Nsubuga, and Jaakkola (2005) undertook a needle stick injuries study among nurses in Kampala, Uganda. A total of 526 nurses and midwives were interviewed. The study showed a high rate of needle stick injuries among nurses and midwives working in Uganda.

At least 57% of the nurses and midwives had experienced at least one needle stick injury in the last one year. The strongest predictor for needle stick injuries was lack of training in WHO recommendations for Universal Precautions in infection prevention. Other important risk factors were related to long working hours, working habits, and experience.

2.4 ZAMBIAN PERSPECTIVE

According to Gilks and Wilkinsin (1998), nosocomial HIV transmission is a particular worry for many doctors, medical students, and nurses who seek work experience in low income countries. Firstly, the prevalence of HIV infection among the patients they care for in poor countries is high. Secondly, these health workers are often relatively inexperienced, their technical skills may not be well practiced and hence they are likely to be exposed to blood and other body fluids. Thirdly, many developing countries with a high prevalence of HIV lack the resources to implement universal precautions adequately. Finally, poor or inadequate equipment and facilities are more often encountered and can increase the risks of exposure.

Each year approximately 120 doctors and about 30-40 nurses who are European graduates go to work in developing countries. The author cited an incident that happened in a Zambian district hospital, where in 10 months, five out of eight doctors experienced a needle stick injury while treating a patient infected with HIV. This is equivalent to 0.75 exposures per doctor per year. It was estimated that each surgeon experienced three parenteral exposures each year, and that the risk of acquiring HIV infection through work was 1.5% over five years.

Sharp Injuries have always been a source of great concern in health institutions.

The Health Infection Control Committee (HICC) conducted a snap-survey in 1995 to measure the magnitude of this problem at the University Teaching Hospital, Lusaka. Chanda (1996) stated that the magnitude of sharp injuries was quite high in the institution because 59% of respondents had sustained needle-stick injuries within the year. However there was no formal reporting made to the administration. Injuries were common among those who recapped needles.

2.5 CONCLUSION

From the reviewed literature, it is evident that the level of knowledge and utilization of HIV PEP is high among the western and developed countries. Many studies have been done among different groups of health care workers including student nurses. Within the region, research has been done to determine needle stick injuries and reporting according to WHO recommendations in Universal Precaution especially in Nigeria, Kenya and South Africa. However the investigator did not come across a study that was done on knowledge and utilization of HIV PEP among student nurses in Zambia.

It should also be noted that there are variations in the figures that were reported in different studies reviewed. There could be under reporting by some authors or over reporting. The inconsistency in reporting could be attributed to different methods of data collection, research designs and different settings. However, regardless of the inconsistency in report there are two common issues that are coming out strongly; healthcare workers are at risk of HIV infection through occupational exposure and there is need to implement the standard universal precaution in order to reduce the risk of exposure.

CHAPTER 3

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology comprising the study design, study setting, study population, sample selection, data collection instruments, data collection techniques, ethical consideration, pre-testing, dissemination and utilization of results and limitation of the study.

3.2 STUDY DESIGN

This study adopted mixed methods using both qualitative and quantitative approaches involving self-administered questionnaires and focus group discussions. This was done to enable the researcher to produce a richer and more insightful analysis of knowledge and utilization of PEP among student nurses and increase validity of the study.

An explorative descriptive design was used because little is known about the problem and the study was also cross-sectional because it involved the collection of data at one point in time. The study involved collection and presentation of data about knowledge and utilization of HIV PEP among student nurses in a systematic manner. In addition, it described what exists about the phenomena and also gave a clear picture of the situation. Findings from this study have provided a clear picture on which to base interventions for increasing the knowledge and utilization of PEP services. The study further examined the association between different variables.

3.3 RESEARCH SETTING

The study was done in Ndola, the provincial headquarters for the Copperbelt province of Zambia.

Central Statistics Office (CSO), (2008) report stated that the Copperbelt province of Zambia is one of the regions with HIV prevalence levels above the national average (17%).

The ZDHS (2007) report indicated that 20% of the adult population in urban areas of the Copperbelt is HIV positive as compared to 15% of the rural adult population. From the data mentioned, the HIV and AIDS situation can be said to be on the increase. Ndola district has a population of 418,400 people and has an HIV prevalence rate as high as 25% of those tested in the 15-49 years age group per quarter (District Quarterly Report, 2008). Michelo (2006) conducted surveys in selected communities of Zambia, where Ndola was one of the district selected. The results of the survey showed that HIV prevalence was slightly high (59.2%) in urban as compared to rural areas (57.3%). Health care services for this population are provided by the Ndola Central Hospital, a third level hospital that serves both as a first and second referral hospital for the Copperbelt province. Ndola School of Nursing is situated within Ndola Central Hospital and has a student population of 185. According to the Ndola Central Hospital Action plan (2009), 80% of admissions to the hospital were due to HIV/AIDS related illnesses. These patients were nursed by the student nurses from Ndola School of Nursing, exposing the students to a high risk of HIV infection through accidental occupational exposure. It is for this reason that the investigator chose Ndola school of nursing as a study site with the view of exploring knowledge and utilization of HIV post exposure prophylaxis among student nurses.

3.4 STUDY POPULATION

The target population is the total group of individuals or people or things meeting the designated criteria of interest to the researcher (Basavanthappa 2007). In this study, the study population comprised student nurses who were in training for six months and above at Ndola school of Nursing aged 18-38 years.

3.5 SAMPLE SELECTION

The target population was the student nurses at Ndola School of Nursing. In order to obtain a representative sample of the population selected for the study, the sample was obtained from the target population. A total of 118 students were selected to participate in the study. Purposive sampling was used to select study units.

The researcher gave self-administered questionnaires to the students who were present at the time of data collection. The study units were selected from all the three academic years as shown from the table below.

Table 4: Number of selected study units from each academic year.

Year of study	Total number of students	Selected number of students	Percentage
Third years	65	41	63%
Second years	62	45	72%
First years	68	32	47%

3.5.1 Inclusion criteria

- Only student nurses from Ndola school of nursing were eligible for the study.
- Student nurses who had been in training for 6 months and above at Ndola school of nursing.
- Those who consented to participate in the study.

3.5.2 Exclusion criteria

- All guest students from other schools of nursing.
- Lack of consent
- Not present at the time of data collection

3.6 SAMPLE SIZE

The sample size for quantitative data was calculated using Epi info version 6.0 statistical software. According to Ndola School of Nursing monthly returns, the total number of student nurses who met the eligibility criterion was 185. This constituted the population size.

The expected frequency was derived from the study conducted by Zhang et al, (2008) which revealed that about 30% of the accidental occupational exposures were reported. Therefore the worst acceptable frequency is +/- 5% which is 35% or 25%. At 95% confidence interval, the sample size for quantitative data was calculated as follows;

Population size	= 185
Expected frequency of knowledge/exposure	= 30%
Worst acceptable	= 25%
Confidence Interval	= 95%
n	= 118

With the addition of a 10% non-response rate, the final sample size was adjusted as follows: $10/100(118) = 11.8$. Therefore, the sample that answered the questionnaire was $n = 118 + 12 = 130$.

The sample size was calculated with the help of the Bio- statistician.

In addition two focus group discussions were conducted, each comprising six members who did not participate in answering the self-administered questionnaire. Individuals for the focus group discussion were homogenously selected by purposive sampling method. Data were collected during the 3rd week of December 2010.

Two types of data collection tools were employed in this study and these were self-administered questionnaire and focus group discussion guide.

3.7 Operational definition of terms

3.7.1. PEP Knowledge

In this study, the term PEP knowledge refers to having knowledge on PEP protocol, meaning that the respondents had correct understanding of the steps of the protocol and drugs used for PEP.

3.7.2. Utilization of post exposure prophylaxis.

This means reporting of an exposure and making use of PEP services.

3.8 DATA COLLECTING TOOLS

Two data collecting instruments were used to collect data and these were the self-administered questionnaire and a focus group discussion guide. The instruments are discussed in details below.

3.8.1 Self-administered Questionnaire

The self-administered questionnaire contained open and closed ended questions. It contained three sections; **Section A** had demographic information **Section B** knowledge and **Section C** utilization items.

The respondents were given questionnaires by the researcher and were asked to respond to the questions in the same order and had the same set of options for their response. Closed ended- questions offered respondents a number of alternative replies, from which they had to choose the one that most closely matched their appropriate answer. Each variable was measured and scores were assigned to give its operational definition. For example have you ever heard PEP, (under the knowledge section) meant one could have heard someone talk about PEP or could have read some literature about PEP.

The term meaning of PEP referred to correct understanding of the meaning of PEP. Knowledge on PEP protocol meant understanding the correct steps of the protocol. Reporting of an exposure means utilizing PEP services. (See appendix VI). Open-ended questions were asked to allow participants to respond to questions in their own words. The responses were grouped and a code was assigned to each category. For example the question on recommendations to improve PEP utilization, respondents had various opinion but similar responses were grouped to give a total of eight responses from all respondents.

The advantages of closed ended questions are that they are easier to administer, efficient as respondents can manage to complete more closed-ended questions than open-ended ones within a short period of time. They are also easier to analyse. However the researcher is likely to overlook some important responses, they can also be superficial as they may not reflect required details of an issue and respondents may object to choosing from alternatives that do not reflect their opinions precisely. Open-ended questions allow obtaining richer and fuller information if the respondents are verbally expressive and co-operative.

The disadvantage of open-ended questions is that respondents may be unwilling to compose lengthy written responses and they are difficult to analyse (Polit&Hungler 2001).The disadvantages of the instrument were overcome by ensuring that the questionnaire only had an adequate and relevant number of questions

3.8.2 Focus Group Discussion Guide

Focus group discussion is a method that allows the researcher to examine the points of views of a number of individuals in a group as they share their opinion/concerns about a topic (Dempsey & Dempsey 2000). Two focus group discussions were conducted.

The facilitator guided the members as they talked freely and spontaneously about a certain topic.

The focus group discussion guide consisted of written topics and questions on;

- HIV
- Knowledge of PEP.
- PEP protocol
- Risk perception
- Stigma
- Quality of services at ART clinic

The advantages of a group format are that it is efficient and can generate a lot of dialogue and the researcher obtains the viewpoints of many individuals in a short time. The disadvantage of focus group discussions is that some people are uncomfortable expressing their views or describing their experiences in front of a group (Polit&Hungler 2001).

3.9 VALIDITY

Validity is the degree to which a test or an instrument measures what it is supposed to measure (Polit& Hungler1997). According to Burns and Grove (2005), validity has to do with truth, strength and value.

When an instrument is valid, it truly reflects the concept it is supposed to measure. However, validity varies from one sample to another and from one situation to another. Validity has a number of aspects but in this study only the most basic types of validity were applied and these are:

- **Content validity**

LoBiondo-Wood and Haber (2006), state that the content validity represents the universe of contents, or domain of a given construct. They are also of the view that the universe of content provides the framework and basis for formulating the items that will adequately represent the content.

When an investigator is developing a tool and issues of validity arise, the concern is whether the measurement tool and the items it contains are representative of the content domain that the researcher intends to measure (LoBiondo- Wood & Haber 2006).

Notter and Hott (1999) point out that a better way to test the measuring ability of a research instrument is to establish its validity and this could be derived from the literature, the investigator's personal observations or from consultation with others who are experts on the content involved.

The content of the self- administered questionnaire used in this study were obtained from recent and relevant literature on HIV and AIDS. Further information on the subject was gathered from discussion with experts from the National HIV/AIDS/TB/STIs Council, Ministry of Health, Nurses Association HIV and AIDS and other researchers on HIV and AIDS. The content validity index was not calculated but the experts in HIV and AIDS reviewed the data collecting instrument. Also the researcher used her personal experience gained as a teacher and nurse working with people living with HIV and AIDS. Repeating the content of a question and formulating it in different ways in different parts of questionnaire may increase the truthfulness of answers and honest from respondents particularly on sensitive issues that touch on confidentiality and private issues (such as exposure and HIV testing) on which respondent may have reason to lie to cover up something (Brink 1996).

- **Face validity**

Face validity means that the instrument appears to measure what it is supposed to measure (Brink 1996). Experts in the field of HIV and AIDS were requested to evaluate the self-administered questionnaire to determine whether the items included in the tools were important ones. Among the experts who reviewed the questionnaire were health research network. The research instrument was also reviewed by the researcher's supervisor.

3.10 RELIABILITY

Reliability is the extent to which the instrument consistently provides the same results (Cliford, Carnwell& Harkin 1997). The researcher did not do pre-test/post-test reliability assessment but pre-testing of the data collecting instrument was done. The other way reliability was increased was by triangulation. Burns and Grove (2005: 726) define triangulation as the use of two or more theories, methods, data sources, investigators or analysis methods in a study. It usually involves combining qualitative and quantitative research methodologies. The purpose of using triangulation was to provide a basis convergence on the truth (Polit&Hungler 1997). In this study for instance, Data from the focus group discussions were compared with data from the self-administered. In addition open-ended questions in the questionnaire provided an opportunity to respondents to add their own ideas thereby bringing out issues not thought of when designing the questionnaire.

3.11 DATA COLLECTION TECHNIQUE

This is a procedure of collecting data or information needed to address a research problem (Polit&Hungler 1999). The investigator used a self-administered questionnaire and a focus group discussion as data collection procedures.

For the questionnaire:

- The purpose of the study was explained to the participants
- Permission was sought from the participants so that they could answer the questionnaire
- Confidentiality was maintained by ensuring that no names were written on the questionnaire, instead numbers were used.

For the focus discussion, the procedure was:

- Two clinical instructors were engaged as research assistants to act as recorder and time keeper respectively. The researcher was the facilitator.
- The researcher and research assistants introduced themselves to the participants. The tape recorder was also shown to the participants and its purpose explained.
- The participants were given chance to introduce themselves.
- The purpose, risks and benefits of the study were explained to the participants
- Confidentiality was assured.
- Permission was then sought from the participants to be involved in the discussion.
- Using the focus guide, the researcher initiated the discussion.
- Each participant was given a chance to express his/her views freely to ensure that every one participates in the discussion.
- The discussion took approximately 40 minutes.

At the end of the discussion, each participant was thanked.

3.12 PRE-TEST

Pre-test is the trial administration of a newly developed instrument to identify flaws or assess time requirements (Polit&Hungler 2001). Pre-testing of the data collecting tools was done using student nurses at Copperbelt Nursing Polytechnic (CNP). This is one of the private schools situated within Ndola town and uses Ndola Central Hospital as a clinical site for the students' clinical experiences. Twelve (12) respondents were selected for the pre-test, which was 10% of the sample. It was assumed that the respondents had the same characteristics with the actual study respondents.

The respondents were selected using purposive sampling at CNP. The purpose of the pre-test was;

- To identify any part of the instrument that was difficult to understand or misinterpreted by the respondent.
- To determine clarity of the instrument.
- To determine whether the sequencing of questions was effective
- To determine acceptability of questions and willingness to respond or answer questions.
- To detect any errors in the questionnaire for the main study.
- To assess the appropriateness and clarity of questions.

The researcher pre-tested the research instrument to determine whether the respondents understood all the questions and the results from the pre-test made the researcher to make the following adjustments to the tool.

- Do you know the place where PEP services are offered? This was replaced by mention the place where PEP services are offered.
- What is your denomination - was replaced by what is your religion?
- State the drugs used in PEP- was replaced by mention the drugs used in PEP.
- Have you ever heard PEP - was replaced by have you ever heard any information about PEP.

3.13 ETHICAL CONSIDERATIONS

Ethics can be defined as a system of moral values that is concerned with the degree to which research procedures adhere to professional, legal and social obligations to the study participants (Polit&Hungler 2001).

Ethical clearance was obtained from the University of Zambia Research Ethics Committee.

Written permission to conduct the study was obtained from the Executive Director Ndola Central Hospital, the Nursing Education Manager Ndola schools of nursing and Principal Tutor.

The purpose and nature of the study was explained to the study participants. Those who declined to participate were reassured that no privileges will be taken away from them. Those who agreed to take part in the study were requested to sign a consent form. Those who participated in the study were not remunerated in any way. The respondents were in the natural setting and hence were not exposed to any physical and emotional danger or harm. Five students declined to participate in the research. Confidentiality and anonymity were maintained to the respondents in that no names appeared on the questionnaires. After the session the investigator put all questionnaires under lock and key.

CHAPTER 4: DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter presents both quantitative data derived from self-administered questionnaires and qualitative data from the focus group discussions. It further describes the processing and analysis of data. Data analysis is defined as the systematic organization and synthesis of research data and testing of the research hypothesis using those data (Polit&Hungler 2001). Data were collected using self-administered questionnaires and a focus group discussion guide. A total of 118 respondents answered the questionnaire and 12 respondents participated in the focus group discussion.

DATA PROCESSING AND ANALYSIS

4.1.1 Quantitative Data

Following data collection the self-administered questionnaires were sorted out and checked for internal consistency, completeness, legibility and accuracy. Closed ended questions were assigned numerical codes for easy entry and analysis using Epi info version 6.4 and Epi data version 3.1 software computer packages. Open ended questions in self-administered questionnaire were processed by reading through the data in entirety to identify and group answers that belong together. This process is known as categorization (Polit&Hungler 2001). The groups were then assigned numerical codes (1, 2, 3, 4..). The codes were then entered and analysed using Epi info. A Chi square test was used to test the association between dependent and independent variables. The dependent variables included knowledge and utilization of PEP. The independent variables included; PEP protocol, stigma, low risk perception, level of training and poor quality of services. The cut off point for statistical significance was set at 5%. Therefore only p value of less than or equal to 0.05 was considered to be statistically significant thereby rejecting the null hypothesis.

4.1.2 Qualitative Data

At the end of each focus group discussion the recorder read the points to focus group members who were asked to clarify them. This was done to check the information for accuracy and consistency. Using participants' own words, the key statements, ideas and attitudes expressed for each topic were categorized. The researcher read through all the data to obtain a general sense of the information and to reflect on its overall meaning.

Content analysis was used to analyse the data. According to Polit and Hungler (2001:339), content analysis refers to "analysis of the content narrative data to identify prominent themes and pattern among themes. In this regard the participants' own words were used to list the key statements and ideas expressed for each topic of discussion. Thereafter answers of the two focus groups were merged. The most useful information that emerged from the discussions was selected to illustrate the main ideas. The findings were then interpreted and a full report of the focus group discussion that reflected the discussion as much as possible was prepared.

Trustworthiness of this study was maintained by using the strategies of credibility, transferability dependability and conformability (Polit&Hungler 2001).Trustworthiness is a term used in the evaluation of qualitative data and was coined by Lincoln and Guba in 1985 (Polit&Hungler 2001). To ensure confidence in the truth of the data collected, (credibility), self-administered questionnaire and focus group discussions were used to collect data (data triangulation and mixed methods to address a research problem). Data analysis was carried out by the principal researcher.

Transferability refers to the extent which the findings can be transferred to other settings (Polit&Hungler, 2001).To enhance transferability of the research results a complete description of the methodology including literature review has been done.

Narratives from the focus group discussions have been included in the analysis to illustrate and substantiate the quantitative data.

Dependability refers to the stability of data over time (Polit&Hungler, 2001).To increase dependability of the qualitative findings, the researcher consulted current literature on the subject. To enhance conformability, the investigator developed a systematic collection of materials and documentation that would allow an independent auditor to come to conclusions about the data. In addition, the researcher's interpretations were scrutinized by the research Supervisor. Conformability refers to the objectivity or neutrality of the data (Polit&Hungler, 2001)

4.2 PRESENTATION OF QUANTITATIVE DATA

The findings of this study were presented according to the sequence of questions and sections of the questionnaire. The findings have been presented in forms of tables, figures and cross tabulations. The tables summarize the findings in meaningful ways thus giving understanding (Varkevisser 1991). The cross tabulations are helpful in showing relationships between variables.

The table under section A represents the demographic characteristics of the respondents, the tables and figures in section B represent the respondents' knowledge on PEP, while those in section C represent the respondents' utilization of the PEP services. The cross tabulations in section D represents the relationship between variables.

SECTION A

Section A consists of the respondents' socio-demographic data which includes age, marital status, religion, year of study and sex. The socio-demographic data has been presented in table 5.

TABLE 5: SOCIO - DEMOGRAPHIC DATA

		frequency	percentages
Age	18-27years	77	65.3%
	28- 40 years	41	34.7%
	Total	118	100%
Marital status	Single	84	71.2%
	Married	30	25.4%
	Divorced	1	0.8%
	Separated	1	0.8%
	Nuns (Catholic sisters)	2	1.7%
	Total	118	100%
Religion	Christian	118	100%
	Total	118	100%
Year of study	First year	32	27.1%
	Second year	45	38.2%
	Third year	41	34.7%
	Total	118	100%
Sex	Males	35	29.7%
	Females	83	70.3%
	Total	118	100%

Majority of the respondents 65.3% (77) were between the ages 18 – 27years, 71.2% (84) were single, all (100%) were Christians and 70.3% were females.

SECTION B: KNOWLEDGE ABOUT POST EXPOSURE PROPHYLAXIS (PEP)

This section comprises the respondents' knowledge on post exposure prophylaxis. Knowledge levels were measured by asking the respondents' questions on whether they had heard any information about HIV PEP, their source of information and the meaning of HIV PEP. The respondents were also asked questions on where PEP services were offered, PEP protocol/procedure of accessing PEP services, : drugs used for PEP, appropriate time for accessing PEP services after an occupational exposure to accidental sharp/needle stick injury or body fluid splashes. The data in this section has been presented in 8 tables and a pie chart. Knowledge levels were classified into two categories namely high knowledge levels with scores of 14-20 and low knowledge levels with scores of 1-13.

TABLE 6: HEARD ANY INFORMATION ABOUT HIV PEP (N =118)

Heard about PEP	Frequency	Percentage
Yes	112	94.9%
No	6	5.1%
Total	118	100%

Table 6 shows that majority 98.3% (112) of the respondents had information about PEP.

TABLE 7: SOURCE OF PEP INFORMATION (N = 118)

Source of information	Frequency	percentage
Media	5	4.2%
Clinical area	106	89.8%
School staff	7	6%
Total	118	100%

Majority 89.2% (106) of the respondents indicated that their source of information on PEP was obtained from the clinical area while only 6% (7) respondents' source of information was from the school staff.

TABLE 8: CORRECT MEANING OF HIV PEP (N= 118)

Meaning of PEP	Frequency	Percentage
Yes	79	67%
No	39	33%
Total	118	100%

Table 8 shows that majority 67% (79) of the respondents knew the meaning of PEP

TABLE 9: THE PLACE WHERE PEP SERVICES ARE OFFERED. (N = 118)

Place for PEP services	Frequency	Percentage
Yes	14	11.9%
No	104	88.1%
Total	118	100%

Table 9 shows that majority of the respondents 88.1% (104) could not mention the place where PEP services were offered within Ndola Central Hospital, while only 11.9% (14) knew the place.

TABLE 10: PEP PROTOCOL/PROCEDURE OF ACCESSING PEP SERVICES (N =118)

PEP procedure	Frequency	Percentage
Yes	33	28%
No	85	72%
Total	118	100%

Majority 72% (85) of the respondents did not know the procedure of accessing PEP services /PEP protocol after an accidental occupational exposure while only 28% (33) knew the PEP protocol.

TABLE 11: DRUGS USED FOR POST EXPOSURE PROPHYLAXIS (N = 118)

Drugs used for PEP	Frequency	Percentage
Yes	13	11%
No	105	89%
Total	118	100%

Table 11 shows that majority 89% (105) respondents indicated that they did not know the drugs that are used for post exposure prophylaxis.

TABLE 12: KNOWLEDGE ABOUT THE APPROPRIATE TIME TO ACCESS PEP SERVICES AFTER EXPOSURE (N = 118)

Period of accessing PEP	Frequency	Percentage
Within 72 hours	87	73.8%
Within 2 hours	22	18.6%
Don't know	9	7.6%
Total	118	100%

Table 12 shows that majority 73.8% (87) of the respondents had knowledge on the appropriate time of accessing PEP after an accidental occupational exposure according to Ministry of Health PEP regulations.

FIGURE 3: EXPOSURE TO ACCIDENTAL SHARP/NEEDLE STICK INJURY OR BODY FLUID SPLASHES (N=118).

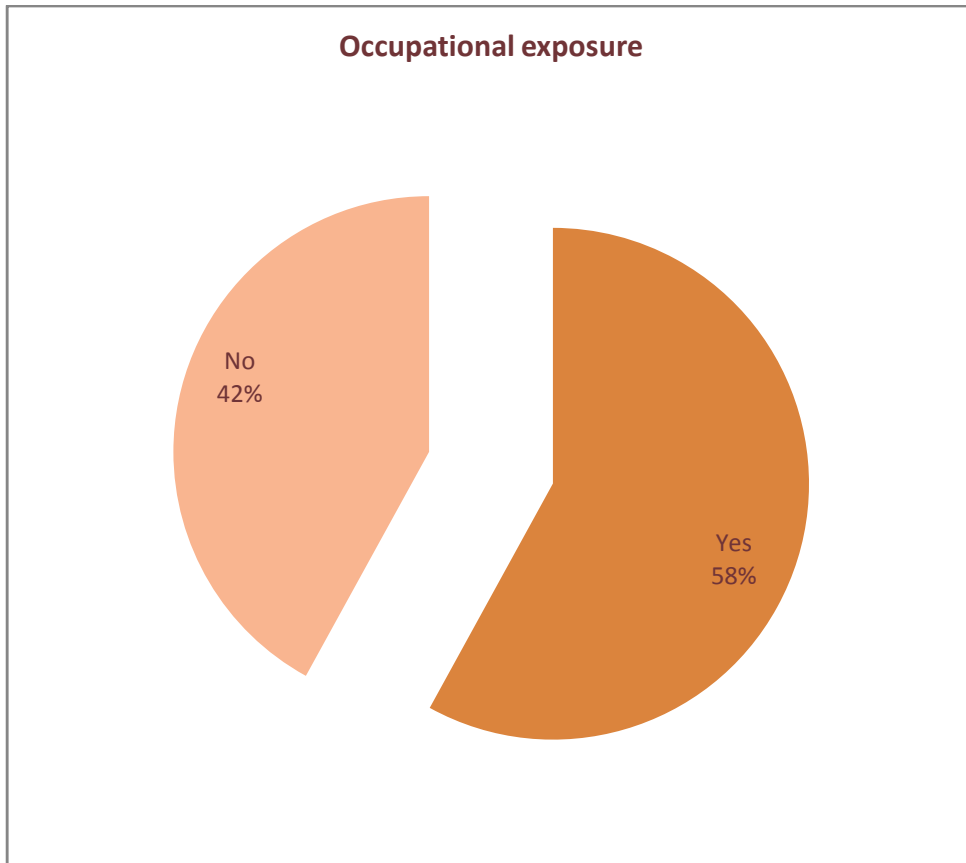


Figure 3 shows that majority 58% (68) respondents had been exposed to accidental sharp/needle stick injury or body fluid splashes.

TABLE 13: KNOWLEDGE OF PEP (N= 118)

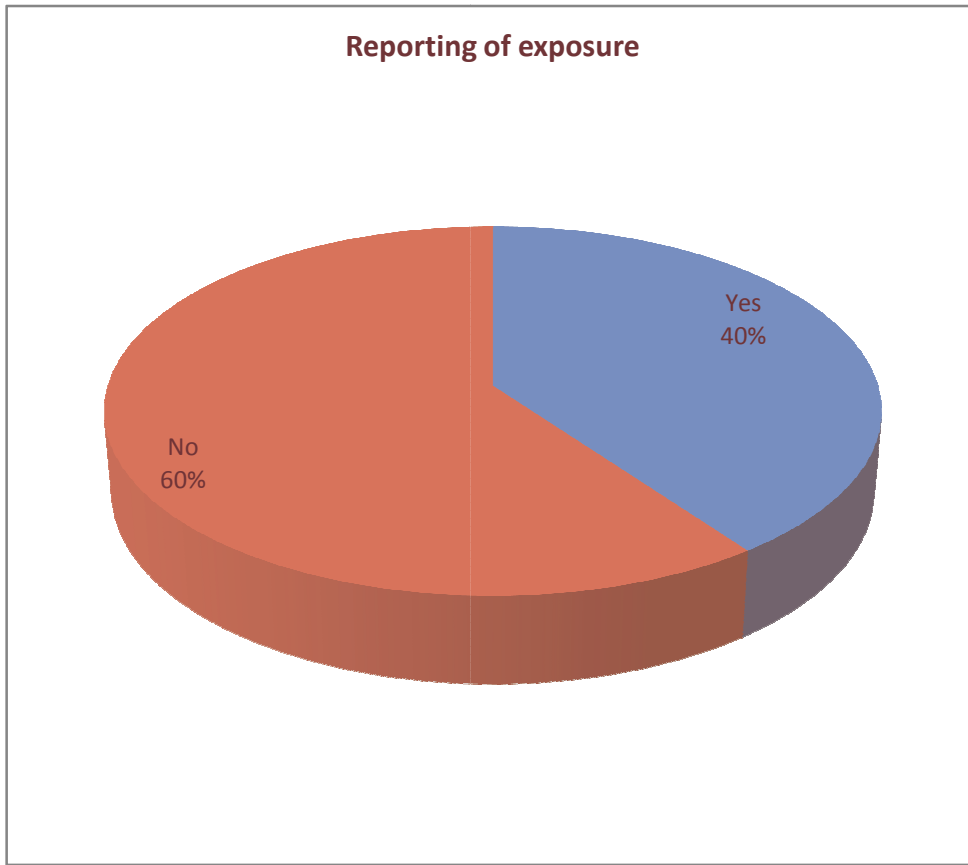
Knowledge of PEP	Correct responses	Wrong responses
Meaning of PEP	79 (67%)	39 (33%)
Place for PEP services	14 (11.9%)	104 (88.1%)
PEP procedure/protocol	33 (28%)	85 (72%)
Drugs used for PEP	13 (11%)	105 (89%)
Period of accessing PEP	87 (73.7%)	31 (26.3%)

Table 13 shows that majority of the respondents did not know the place where PEP services were offered 104 (87.5%), did not know the protocol 85 (72%), and drugs used for PEP 105 (89%)

SECTION C: UTILIZATION OF POST EXPOSURE PROPHYLAXIS.

Section C presents the respondents' data on utilization of PEP. The information in this section has been presented in the form graphs (4) and pie charts (5). Utilization of PEP was measured by having an exposure and reporting of the exposure and reasons for not reporting.

FIGURE 4: REPORTING OF OCCUPATIONAL EXPOSURES



Of the 68 respondents who had accidental occupational exposure, the majority 60% (41) never reported the exposure to PEP unit. Only 40% (27) occupational exposures were reported.

FIGURE 5: REASONS FOR NOT REPORTING THE OCCUPATIONAL EXPOSURE TO SUPERVISOR (N=41).

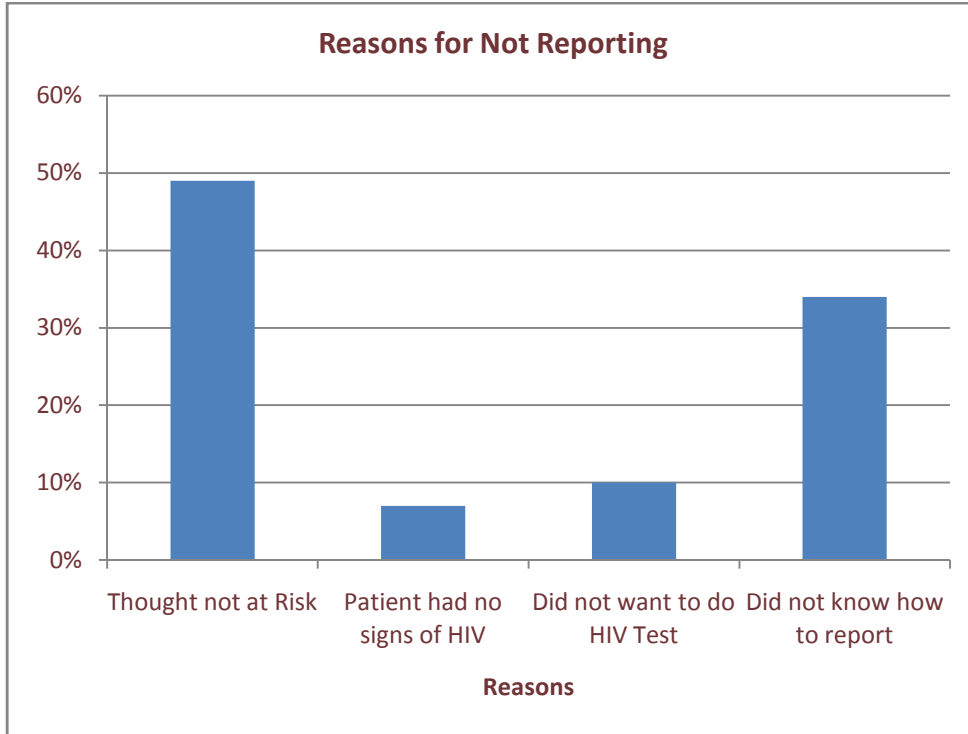


Figure 5 shows the reasons why the 41 respondents did not report the accidental occupational exposure. Majority 48.8% (20) of the respondents stated that the exposure was not reported because they thought that they were not at risk of contracting HIV, while 34.1% (14) stated that they did not report the exposure because they did not know how and who to report to, when the accidental occupational exposure occurred.

FIGURE 6: REACTION OF STAFF AFTER RESPONDENTS' REPORTING OF THE EXPOSURE (N=27)

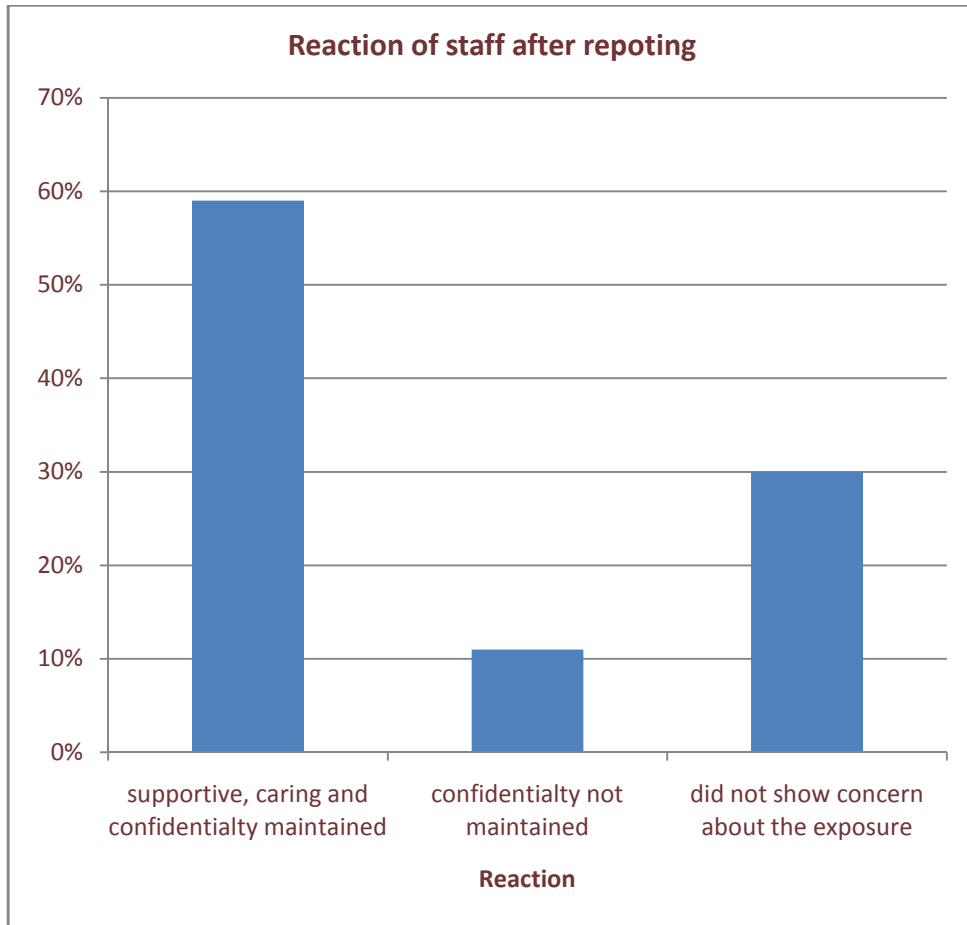


Figure 6 shows the majority 59% (16) stated that the members of staff were supportive, caring and maintained confidentiality after reporting the occupational exposure while 30% (8) stated that the members of staff did not show concern about the respondents' reporting the exposure and 14% (3) stated that confidentiality was not maintained.

FIGURE 7: RATING OF PEP SERVICES AT NDOLA CENTRAL HOSPITAL (N=27)

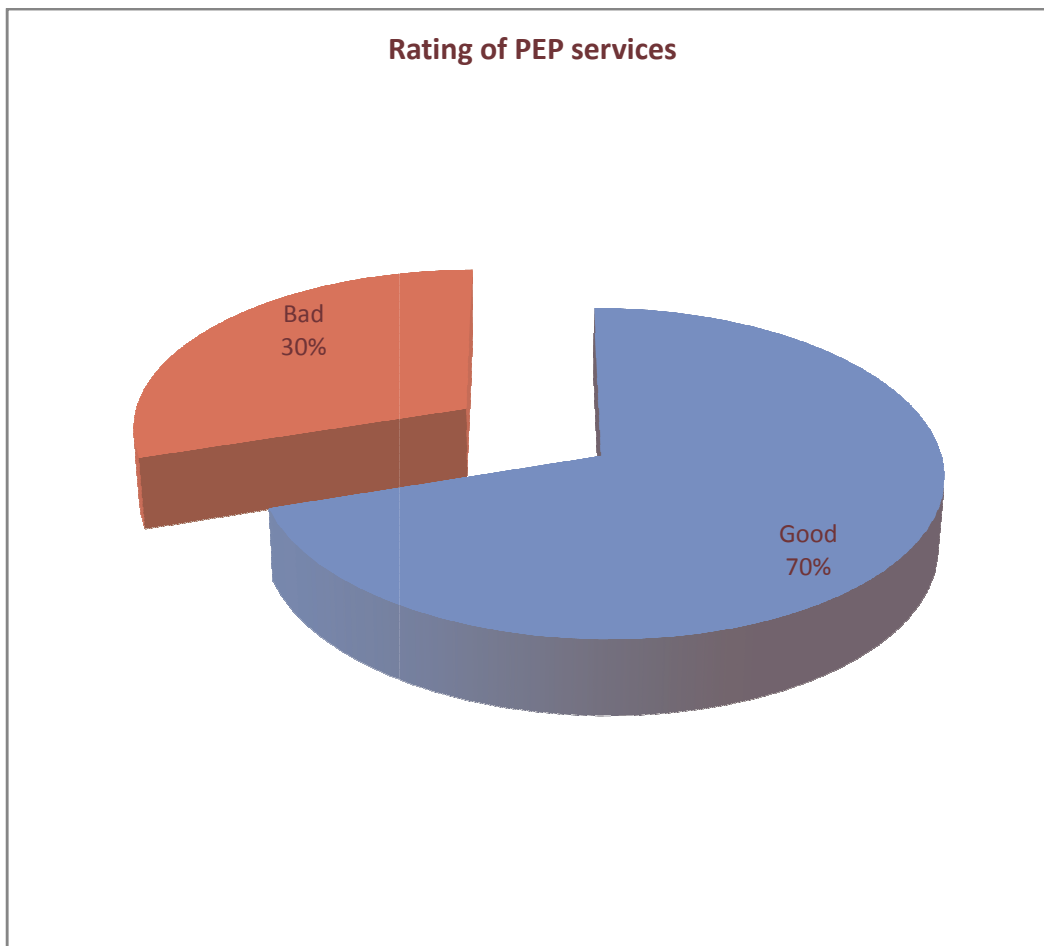


Figure 7 shows that out of 27 respondents who reported the occupational exposure, the majority 70% (19) stated that the PEP services offered at Ndola Central Hospital were good, while 30% (8) stated that the services were bad.

FIGURE 8: STUDENTS' PERCEPTION OF WHETHER ALL STUDENTS WHO HAVE EXPOSURE USE THE PEP SERVICES AT NDOLA CENTRAL HOSPITAL (N=118

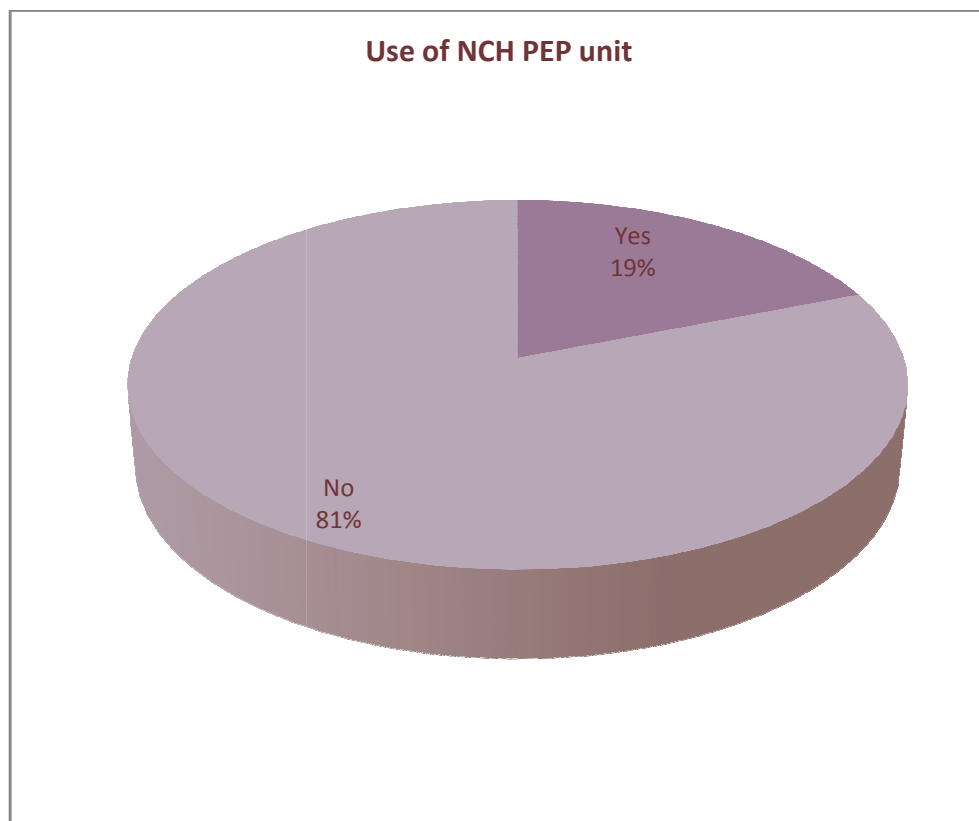
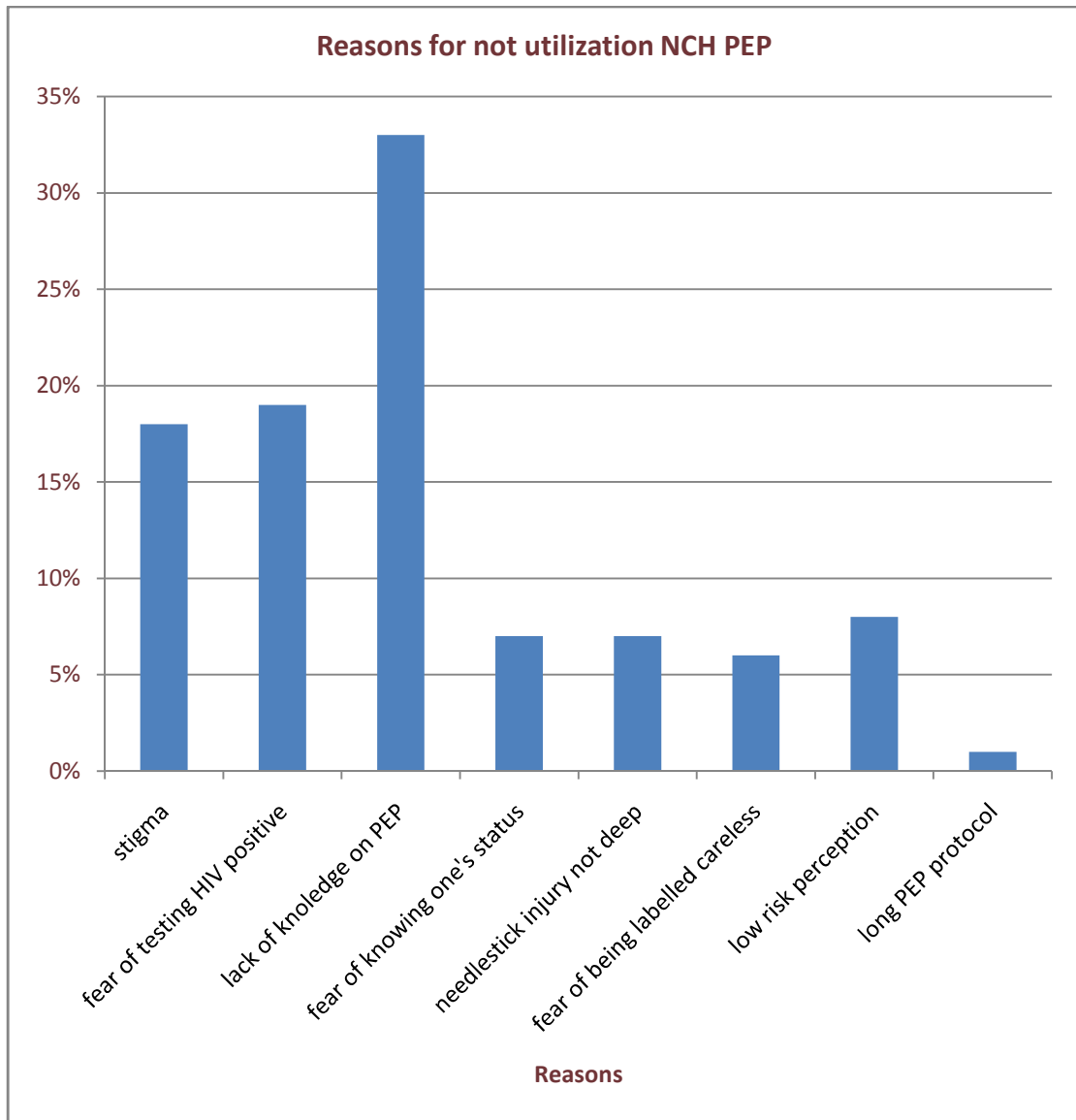


Figure 8 shows that majority 81% (95) of the respondents stated that not all students utilized Ndola Central Hospital PEP unit after an occupational exposure. Only 19% (23) stated that all students exposed to occupational injuries make use of the PEP services

FIGURE 9: REASONS FOR NOT USING NCH PEP UNIT (N=95).



Of the 95 respondents who stated that not every student who got exposed to occupational injury utilize Ndola Central Hospital PEP Unit, majority 33% (31) stated that the reason for not utilizing the PEP unit was lack of knowledge on availability PEP services at the hospital.

FIGURE 10: SOURCE OF PEP SERVICES OTHER THAN NDOLA CENTRAL HOSPITAL (N=118).

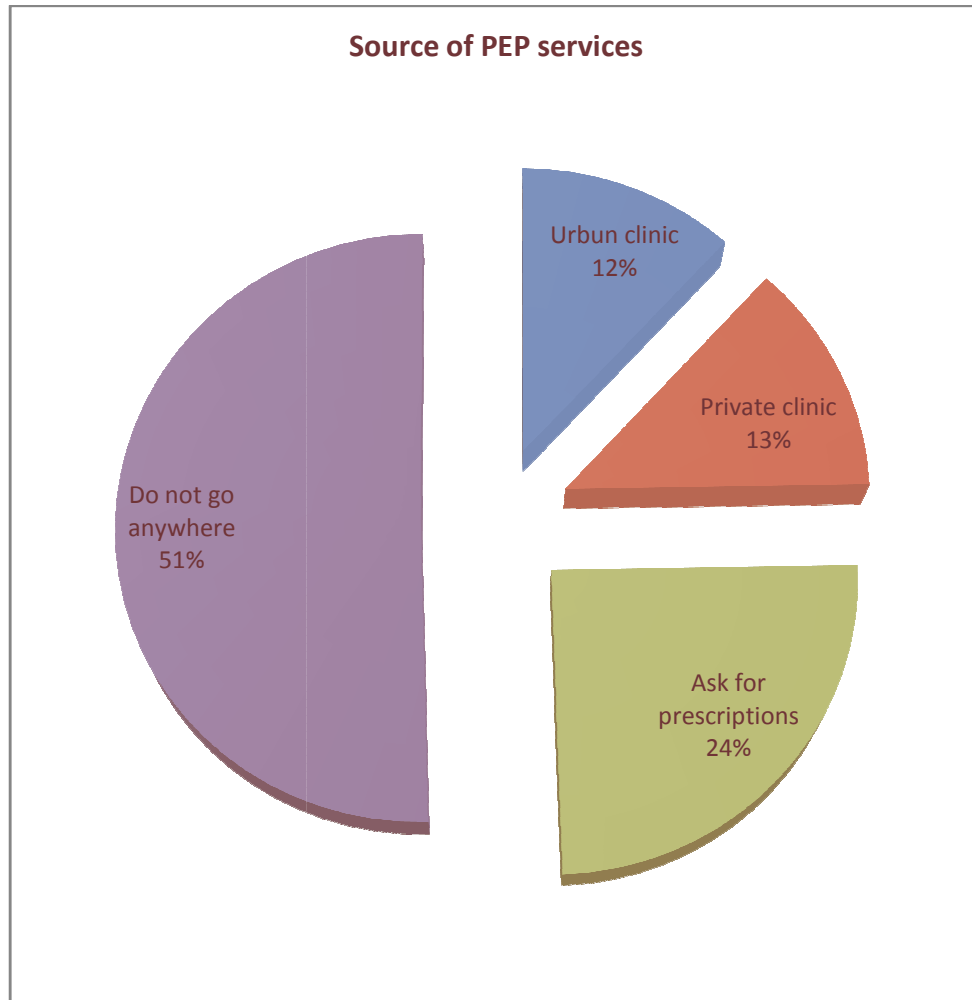
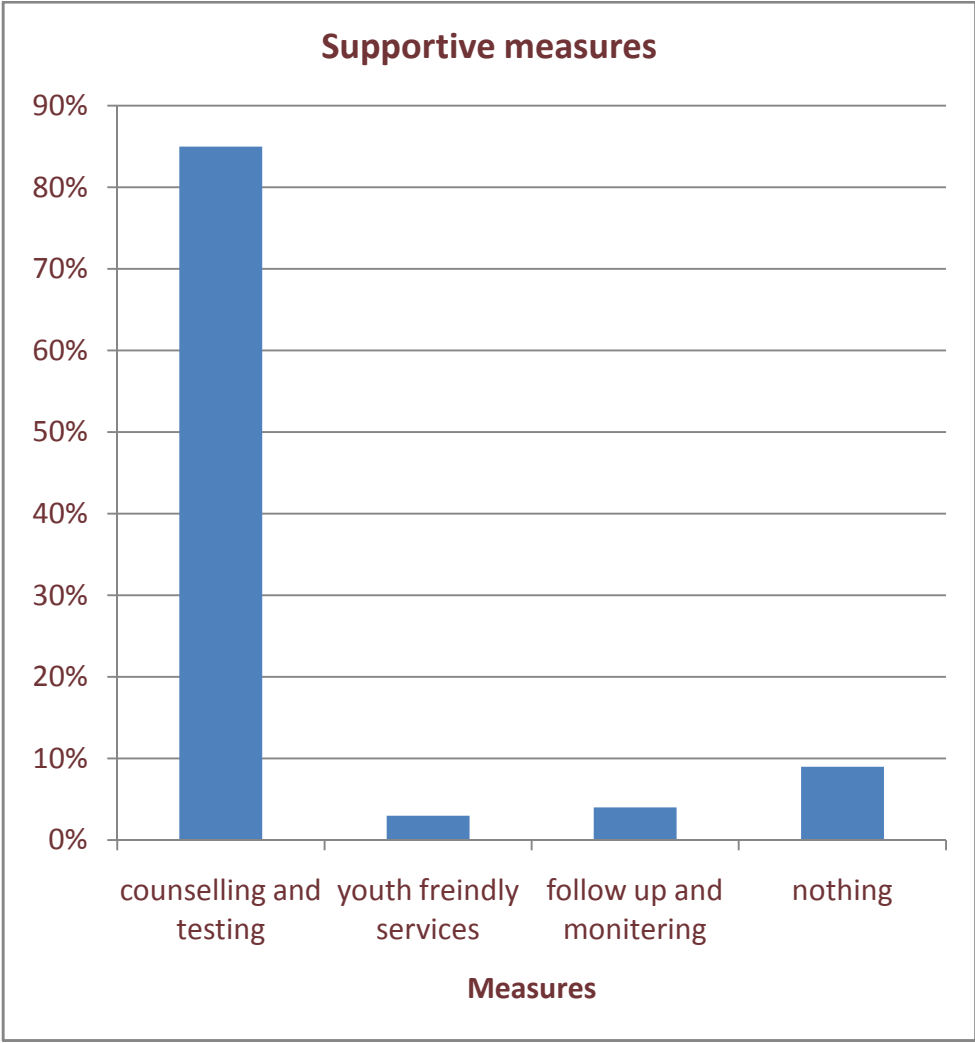


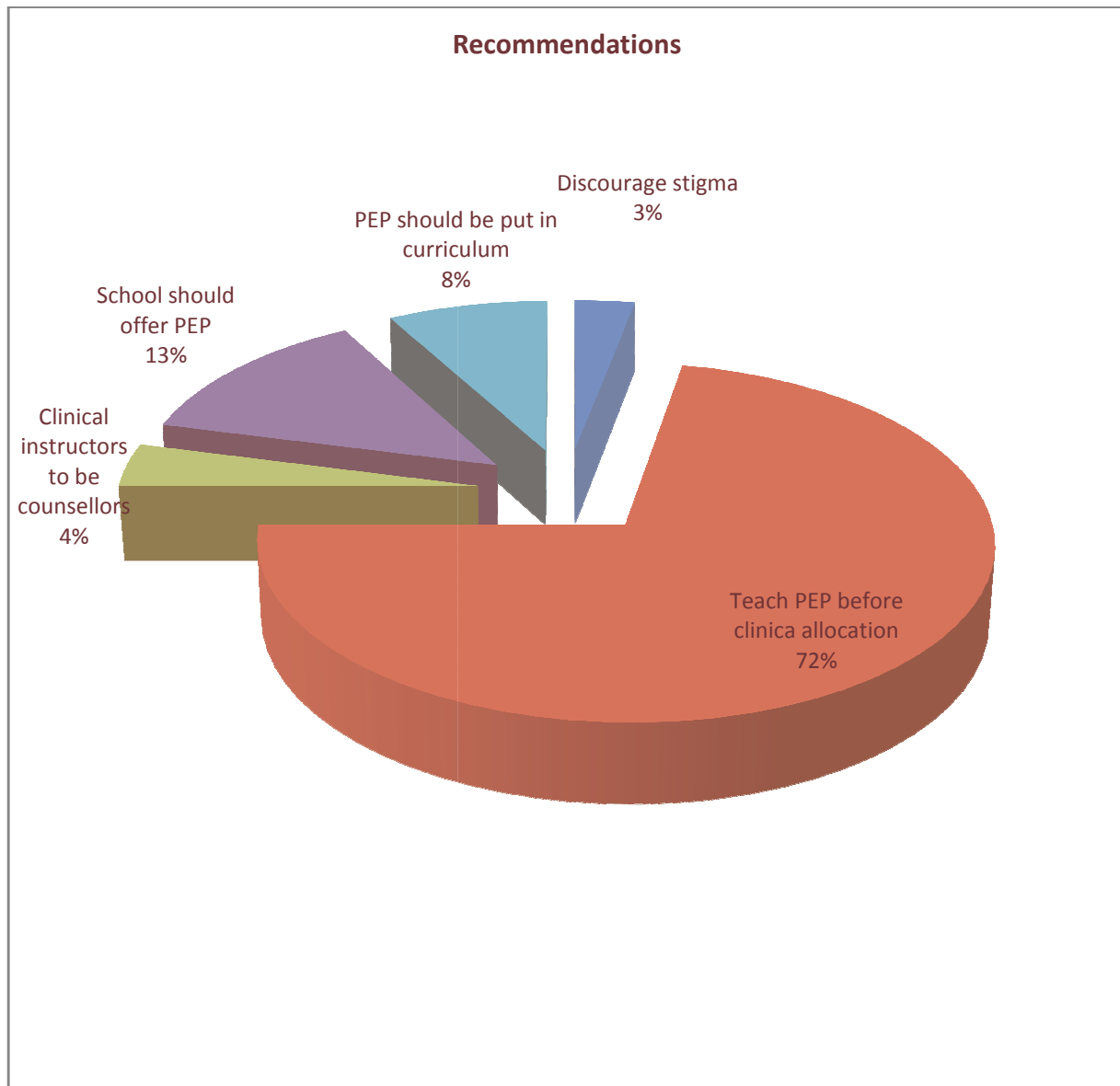
Figure 10 shows that more than half 51% (60) of the respondents stated that students who got exposed to accidental occupational injury did not go anywhere for PEP services apart from Ndola Central Hospital.

FIGURE11: SUPPORTIVE MEASURES OFFERED TO STUDENTS EXPOSED TO BLOOD/BODY FLUIDS (N=118).



Majority 85% (100) of the respondents who got exposed to blood and body fluids were offered counselling and testing as supportive measures while 9% (10) stated that they received nothing.

FIGURE 12: SUGGESTIONS TO IMPROVE PEP UTILIZATION BY STUDENTS (N=118).



Majority 72% (85) of the respondents recommended that post exposure prophylaxis should be taught to students in class by the lecturers before students go for their first clinical experience.

SECTION D

This section comprises of information on the relationships between the dependent and independent variables. The dependent variables are Knowledge and utilization of PEP and the independent variables are demographic data, PEP protocol, stigma, low risk perception, fear of testing HIV positive and poor quality of services.

TABLE 14: ASSOCIATION BETWEEN KNOWLEDGE OF PEP PROCEDURE (PEP PROTOCOL) AND UTILIZATION OF PEP SERVICES (N=68)

PEP protocol	Reporting the exposure		Totals	P value
	Yes	No		
Yes	13 (72%)	5 (28%)	18 (100%)	0.001
No	14 (28%)	36 (72%)	50 (100%)	
Totals	27 (40%)	41 (60%)	68 (100%)	

Table 14 shows the association between PEP protocol and reporting (utilization of PEP) of the occupational exposure. Majority 72% (13) of the respondents who knew the PEP protocol reported the exposure to PEP unit. The opposite is also true; majority 72% (36) of the respondents who had no knowledge on PEP protocol never reported the exposure to PEP unit. Chi-square value 10.81. P value 0.001 (significant).

TABLE 15: ASSOCIATION BETWEEN YEAR OF STUDY AND ACCIDENTAL OCCUPATIONAL EXPOSURE (N=118).

Year of study	Occupational exposure		Totals	P value
	Yes	No		
First year	18 (56%)	14 (44%)	32 (100%)	0.3
Second year	30 (67%)	15 (33%)	45 (100%)	
Third year	20 (49%)	21 (51%)	41 (100%)	
Total	68 (58%)	50 (42%)	118 (100%)	

Out of the 45 second year student nurses, the majority 67% (30) had accidental occupational exposure. Chi square value 3.84. Df was 2. P value 0.3 (not significant), indicating that there was no association between the student's year in the nursing program and occupational exposure.

TABLE 16: ASSOCIATION BETWEEN AGE AND ACCIDENTAL OCCUPATIONAL EXPOSURE (N=118).

Age	Occupational Exposure		Totals	P value
	Yes	No		
18 -27 Years	42 (55%)	35 (45%)	77 (100%)	0.3
28 -38 Years	26 (63%)	15 (37%)	41 (100%)	
Total	68 (58%)	50 (42%)	118 (100%)	

Table 16 shows the association between age and occupational exposure. Out of the 41 respondents who were exposed to accidental occupational exposure Majority 63% (26) were within the age range of 28- 38 years. Chi – square value 0.86. P value 0.3 (not significant).

TABLE 17: ASSOCIATION BETWEEN AGE AND KNOWLEDGE OF THE PEP PROTOCOL (N=118).

Age	Knowledge on PEP protocol		Total	P value
	Yes	No		
18-27 Years	23 (30%)	54 (70%)	77 (100%)	0.5
28-38 Years	10 (24%)	31 (76%)	41 (100%)	
Total	33 (28%)	85 (72%)	118 (100%)	

Out of 41 respondents who did not have knowledge on PEP protocol, majority 76% (31) were within the age range of 28-38 years. Chi-square value 0.40. P value 0.5 (not significant).

TABLE 18: ASSOCIATION BETWEEN FACTORS THAT MAKE STUDENTS FAIL TO USE PEP SERVICES AT NCH AND REPORTING THE EXPOSURE (N=68).

Factors	Reporting the exposure		Total	P value
	Yes	No		
Stigma	13 (46%)	15 (54%)	28 (100)	0.06
Lack of PEP knowledge	3 (14%)	18 (86%)	21 (100)	
Low risk perception	3 (60%)	2 (40%)	5 (100%)	
Fear of testing HIV positive	6 (55%)	5 (45%)	11 (100%)	
Poor quality of services	2 (67%)	1 (33%)	3 (100%)	
Total	27 (40%)	41 (60%)	68 (100%)	

Table 18 shows the association between students' reports of factors that make students fail to utilize PEP services at Ndola Central Hospital and reporting. It indicates that majority 86% (18) of the respondents who never reported the occupational exposure lacked knowledge on post exposure prophylaxis while 54% (15) did not report because of fear of testing HIV positive. Chi-square value 8.98. D f. P value 0.06 (not significant).

TABLE 19: ASSOCIATION BETWEEN YEAR OF STUDY AND CORRECT UNDERSTANDING OF THE MEANING OF PEP (N=118).

Year of study	Meaning of PEP		Total	P value
	Yes	No		
First year	18 (56%)	14 (44%)	32 (100%)	0.4
Second year	31 (69%)	14 (31%)	45 (100%)	
Third year	30 (73%)	11 (27%)	41 (100%)	
Total	79	39	118 (100%)	

Table 19 shows the association between year of study and meaning of PEP. It indicates that majority 73% of the respondents who knew the meaning of PEP were doing their third year of training. Chi- square value 2.78. P value 0.4. (Not significant)

TABLE 20: ASSOCIATION BETWEEN SOURCE OF PEP INFORMATION AND REPORTING THE EXPOSURE (N=68).

Source of PEP information	Reporting the exposure		Total	P value
	Yes	No		
Media	0	4 (100%)	4 (100%)	0.2
Clinical area	24 (43%)	32(57%)	56 (100%)	
School staff	3 (37%)	5 (63%)	8 (100%)	
Total	27 (40%)	41 (60%)	68 (100%)	

Out of the 56 respondents who stated that their source of PEP information was the clinical area, more than half 57% (32) did not report the exposure while 24% (24) reported the exposure. Chi-square value 2.88. P value 0.2. (Not significant)

4.3.1 PRESENTATION OF QUALITATIVE DATA

Data obtained from focus group discussions were summarized in narrative form. The findings were interpreted and quotations that emerged from the discussions were selected to illustrate the main ideas.

4.3.2 FOCUS GROUP DISCUSSIONS

4.3.2.1 Demographic Characteristics of Participants.

All participants had been student nurses at Ndola School of Nursing for more than 6 months and were doing their first and second year of study. Two focus group discussions were conducted and each comprised of in-service (conversion) students and direct entry students. The participants were within the age of 18- 38 years.

Table 21: Demographic Characteristics of Members of Focus Discussion Group 1

	Female	Males	Total
In-service students	3 (50%)	-	3 (50%)
Direct students	1 (16.7%)	2 (33.3%)	3 (50%)
Total	4 (66.7%)	2 (33.3%)	6 (100%)

Table 21 shows that half of the respondents were direct entry students and the other half were in-service students.

Table 22: Demographic Characteristics of Members of Focus Discussion Group 1

	Females	Males	Totals
In-service students	1(16.7%)	1(16.7%)	2 (33.3%)
Direct students	3 (50%)	1 (16.7)	4 (66.7%)
Total	4 (66.7%)	2 (33.3)	6 (100%)

Table 22 shows that many students (66.7%) direct students.

The main themes predetermined for the focus group discussions were;

- Understanding of HIV PEP.
- Description of the PEP protocol.
- Awareness of HIV risk following occupational exposure?
- Accessibility of PEP for students.
- Factors influencing students' utilization of PEP.
- Suggestions for improvement in PEP utilization.

4.3.2.2 Knowledge of Post Exposure Prophylaxis

Participants were asked what they knew about post exposure prophylaxis. Most of them knew what PEP is.

Majority of the respondents stated that it is the administration of Antiretroviral drugs (ARVs) to a health worker after a splash of body fluid or injury. A few participants especially students in the first year direct entry programme stated that they had just heard and seen posters on the wards concerning PEP, but they did not know what prophylaxis mean.

Participant 1 said;

“Post exposure is giving of ARVs after a needle prick or injury from sharp instrument.”

Participant 2 stated;

“Post exposure prophylaxis is the treatment given to someone who had come into contact with HIV infected material though not sure of the duration.”

The 3rd participant said;

“Post exposure prophylaxis is the giving of ARVs to someone injured by a sharp instrument.”

Participant 4 stated;

“In additions to what others have said, post exposure prophylaxis is the treatment given to people exposed to blood and sharps.”

Participant 5 said;

“I have heard about Post exposure prophylaxis but I do not know what it means.”

Participant 6 stated;

*“I have just seen posters on the wards written post exposure prophylaxis, but I do not know what **prophylaxis** means.”*

4.3.2.3 Post Exposure Prophylaxis Protocol.

Participants were asked to explain the post exposure protocol/procedure

Majority 75% (9) out of 12 the participants interviewed in the two focus group discussions stated that they did not know the post exposure prophylaxis protocol.

One of the participant said *“I have never seen it and I was not taught”*

Only 25% (3) participants were able to explain the PEP

Three participants identified the following steps that should be taken after one has been exposed to injury or splash of body fluid:

- *Report to the supervisor.*
- *Get pre-test counselling and go for HIV test, source patient is given pre-test counselling, if the status is not known then HIV test is done.*
- *After the test, post- test counselling is done then results are disclosed.*
- *If the HIV test of the health worker is negative and the patient is positive the health worker is given post exposure drugs for 28 days.*
- *If the health worker is HIV positive he/she is referred to ART (Antiretroviral Therapy) clinic for more investigations and for consideration of HAART (Highly Active Antiretroviral Therapy).*
- *Post exposure drugs should not be given to any client who refuses to do HIV test.*

•

4.3.2.4 Acquiring of HIV Infection on the Clinical Area

The participants were asked to explain how HIV infection is acquired in the clinical area.

Participant 1 said;

“One can get HIV infection if he pricks himself when withdrawing blood from an HIV positive patient”.

Another participant said;

“You can acquire HIV infection when attending to bleeding patients if you have a cut, for example in labour ward.”

One participant said;

“One can get HIV infection when changing fluid bag if there is blood in the giving set.”

Few participants stated;

“One can get HIV infection when handling sharp instruments.”

Another participant said;

“A health care worker can get HIV infection on the clinical area because of inadequate information and skill on how to protect oneself when carrying out procedures.”

4.3.2.5 Risk awareness of HIV infection

Participants were also asked “Do you think you are at risk of contracting HIV infection during your clinical experience and why.”?

All the participants agreed that they were at risk of getting HIV infection.

Participant 1 said;

“Yes we are at risk of contracting HIV infection because as students we are learning how to give injections”

Participant 2 stated;

“We are at risk of HIV infection because most of the times we touch patients’ linen which has body fluids and most of the times we are in contact with blood especially in labour ward.”

Another participant responded;

“Yes we are at risk because many times we work without gloves and there is a shortage of cleaning materials.”

Few participants said;

We are at risk because we are learning to do procedures. Our job involves handling of sharp instrument like Cannula and needles.”

One participant said;

As students, we are at risk of HIV infection because we are in the process of learning, we are not competent in most of the procedures and we are trying to acquire skills and moreover we do not know the HIV status of every patient we care for.”

4.3.2.6 Reporting and Accessing Post Exposure Prophylaxis

The participants were asked “do you think every student with an accidental occupational injury reports to post exposure Unit at Ndola Central Hospital”?

The majority 67% (8) of the respondents stated that not all exposures are reported to Ndola Central Hospital PEP Unit, while 33% (4) stated that they did not know whether every exposure was reported.

Participants were also asked what factors could influence students’ accessing or not accessing PEP services.

Participant 1 said;

“Being HIV negative and without occupational injury. If one knows that she is negative then there is no need to go for post exposure prophylaxis.”

Some participants said;

“If student nurses had enough knowledge/information on post exposure prophylaxis, all those who had accidental exposures would definitely visit the PEP Unit.”

Other participants answered;

“Lack of knowledge on post exposure prophylaxis is one of the factors for lack of utilization of services by many students. Majority of the students do not know how to access PEP services and do not know where to start from. For example majority of us here do not even know where PEP Unit is found within Ndola Central Hospital.”

Few participants stated that;

“Stigma is another factor which hinders students from accessing PEP services. This stigma can be from fellow students, school staff and oneself.”

One participant said;

“Fear of knowing ones status is one of the factors that make students fail to utilize PEP services, especially that of being HIV positive.”

Another participant remarked;

“Long PEP protocol can also contribute lack of utilization of PEP services.”

Two participants said;

“Fear of side effects of ARVs can also make people not utilize PEP services”

Some participants stated;

“Lack of support from school staff is contributing to inadequate utilization of PEP services. The school staff has a condemning and castigating attitude towards HIV issues.”

The participants were further asked, where do those students who get exposed to blood/ body fluids and injured by sharp instruments go for PEP services?

All the participants stated that those students who get accidental occupational exposure do not go anywhere for PEP services.

Participant 1 said;

“They do not go anywhere; they just stay after all reporting does not change one’s status. Only God can know whether the virus has entered into the body or not.”

Participant 2 said;

“They do not go anywhere, reporting is not an emergence, one can report when she/ he thinks is right. What is important is giving services to the patient.”

Some participants stated;

“They do not go anywhere because they do not see the need for reporting.”

4.3.2.7 Suggestions for improvement

The participants were asked “what should be done to improve utilization of post exposure prophylaxis services among student nurses who get exposed to blood and body fluids?”

The participants felt that since the accidental exposures occur on the clinical area, the clinical instructors should teach post exposure prophylaxis to students.

They should work together with the qualified staff on the wards.

The participants also felt that the school of nursing should facilitate the formation of a student committee including students from each year of study (academic year). The committee members should be trained in HIV counselling and testing and should offer consultations to fellow students. This will encourage peer counselling and support which is a very effective way of dealing HIV issues.

The participants also emphasized that PEP should be taught in class by the lecturers before students go for their first clinical experience. This will assist students to know what to do if an accidental exposure occurred.

Others further suggested that the school staff should change their attitude of castigating and blaming students who get exposed to blood and body fluids. This hinders students from inquiring about issues of HIV.

The participants also suggested that PEP should appear in the curriculum as a subject not as HIV/AIDS because this is too broad.

CHAPTER 5: DISCUSSION OF FINDINGS

5.1 Introduction

The main objective of the study was to determine HIV PEP knowledge and utilization among student nurses at Ndola School of Nursing. Data were collected using self-administered questionnaire and focus group discussion guide.

5.2 SOCIAL DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Table 5 shows the socio-demographic characteristics of the study population. Among the 118 respondents who answered the self-administered questionnaire, the majority 65.3% (77) were within the age range of 18-27 years and 34.7% (41) were within the age range of 28-38 years. This could mean that most of the respondents were direct entry students, hence had inadequate information on HIV issues and PEP because they were entering the school of nursing as school leavers as compared to the respondents in the age range of 28-38 years who were more likely to be conversion students and could have a wider knowledge on HIV/AIDS issues and could have heard about PEP from their previous work places. This assumption is consistent with that of Noerdlinger and Resnic (1995) who found that students in the first and second academic years had inadequate knowledge (29%) on Universal Precautions and PEP.

5.3 KNOWLEDGE ON POST EXPOSURE PROPHYLAXIS (PEP)

The study findings show that the majority 94.9% (112) of the respondents had information about PEP (Table 6). Many 89.2% (100) of the respondents stated that their source of information for PEP were the clinical area and the media (Table 7). These findings are supported by the Zambia National HIV strategy (2009) which emphasizes treatment, care and support on the service area (clinical area). According to the 2007 ZDHS results compiled by CSO (2008), information obtained from the media and health facilities is considered most reliable as it is communicated by individuals who have received training in HIV.

It is also important to note that Ministry of Health workplace policy (2008) is in agreement that PEP information and services are regarded as issues of the clinical area where students have their clinical experience. However the opposite could also be true, that the school staff had inadequate knowledge on post exposure prophylaxis to pass on to their students. As shown by Table 8, only 6.3% (7) of the respondents stated that their source of information were the school staff. "You can only give what you have", goes an old saying. Since the school staff could have had inadequate knowledge on post exposure prophylaxis, it meant that sensitization of students on this subject matter was not done or poorly done. This assumption is supported by the works of Van (2007) who found that although HIV/AIDS affects every aspect of nursing practice, nurses and midwives often had to take on responsibilities for which they were ill-prepared. Often they qualified before HIV/AIDS and PEP were in the curriculum and they had not received specialist training on the syndrome since. Van (2007) also reported that, in many places nurses and midwives are bypassed by public information programs because their central role in combating the epidemic and their need for specialist knowledge and skill are not recognised.

Among the 94.9% (112) respondents who stated that they had heard about information PEP (Table 6), 70.5% (79) knew the correct meaning of post exposure prophylaxis (Table 8). However, 87.5% (98) according to Table 9 did not know the place where post exposure prophylaxis services were offered and (85) 72% (Table 10) did not know the PEP protocol/procedure for accessing PEP and 89% (105) of the respondents did not know the drugs used in post exposure prophylaxis (Table 11). This could mean that although the respondents had heard about post exposure prophylaxis and knew that it concerned them, they did not take keen interest or desire to know more about this preventive measure against HIV infection during their clinical experience.

This finding is similar to that of Anarif (2005) in Ghana who reported that although awareness of HIV infection was high among health care workers, this knowledge did not translate into positive attitude for the health care workers to apply the knowledge to their own lives.

One of the contributing factors to such kind of attitude could have been low risk perception (49%) as shown in figure 5. This assumption is supported by the Ministry of Health report on Zambia's response to HIV/AIDS (MOH 2009). The report stated that some people believed that they were not at risk of getting HIV infection. It may also mean that the manner in which the information on PEP was being disseminated was not conducive to allow for proper assimilation by the students and to compel them to take action after an accidental exposure since Zambia is experiencing manpower crisis and nurses and other health workers are being overworked. This assumption is in agreement with an article of the Post Newspaper No. 4227 of Wednesday May, 14 (2008); which reported that "Inadequate human resource affects health service delivery". The country is experiencing shortage of nurses leading to substandard health care services. The post newspaper quoted the Zambia Medical Association President at that time, Dr SwebbyMacha who reported that shortage of nurses had made it difficult to perform to the expected standards as perceived by the community. He went on to say that the perception of inefficiency by the community was as a result of high patient load and thus shown by inadequate counselling skills, failure to observe privacy when attending to patients and lack of concern and support for clients.

It is noteworthy that 72% (85) of the respondents did not know the post exposure prophylaxis protocol or procedure of accessing PEP services after an occupational exposure (Table 10). These findings are also similar to those of the focus group discussion which revealed that 75% of the respondents did not know the PEP protocol as stated by some participants "*I don't know post exposure prophylaxis protocol, I have never seen it and was not taught*".

These study findings are similar to the study results of Atulomah (2002) in his study on knowledge and practice with regards to occupational risks among nursing students. His study revealed that 69% of the respondents had poor knowledge of WHO recommended Universal Precautions and PEP for the transmission of HIV transmission among health care workers.

5.4 UTILIZATION OF POST EXPOSURE PROPHYLAXIS.

More than half 58% (68) of the respondents had been exposed to accidental sharp/needle stick injury or body fluid splashes (figure 3). This means that, the risk of HIV infection among student nurses is high. These findings are supported by the results of the focus group discussions, where all the respondents agreed that they were at risk of contracting HIV infection because of the nature of their work as stated by some participants, *“we are at risk of contracting HIV infection because we are learning to do procedures. Our job involves handling of sharp instruments like cannulas and needles when giving injection”*. Majority of the respondents stated that at time gloves and soap for hand washing are in short supply. Similar findings were reported by Gilks and Wilkinson (1998), who stated that many developing countries with high prevalence of HIV infection, lack the resources to implement universal precaution adequately. These findings are also similar to the results of an HIV surveillance study that was conducted by the Human Science Research Council of South Africa in 2002. The Council reported that 13.8% of sero conversion was among student nurses and 13.7% in qualified nurses. The high prevalence of HIV infection was attributed to lack of knowledge on Universal precaution/ PEP and inadequate supplies of protective equipment such as gloves, disposable containers for sharps, soap and water.

The results of the study revealed that only 40% of the exposures were reported (figure 4) posing a high risk of acquiring HIV infection. Wan, Biao, Cai and Miao (2010), in China also reported similar findings that 51% of the nursing students reported an occupational exposure when giving injections.

The report indicated that nursing students are at high risk of HIV infection during their clinical practice, therefore more intensive educational programs should be directed towards increasing their awareness and compliance to universal precaution before commencing their practical work.

The study results are also in agreement with the works of Petucci, Alvaro, Cicolin and Lancia (2009), who reported that student nurses in Italy were really at risk of HIV infection, as 42.5% occupational exposure were reported to have occurred during the clinical practice.

Smith and Leggat (2005) had similar findings in their study on prevalence of needle stick injuries among Australian nursing students. They reported that 86.1% of exposures were not reported, posing a great risk of HIV infection among students. Talas (2009), in Turkey found similar results where 49% of nursing students were reported to have sustained injuries from hollow bore needles. He also agreed that nursing students have a high risk of occupational exposure to HIV infection because they have insufficient background knowledge to recognise the level of risk posed by any particular patient.

The study results also revealed that 60% (41) of the respondents did not report the accidental exposure to Post Exposure PPEP Unit (Figure 4). The reasons for not reporting included; the respondent thought was not at risk of contracting HIV infection, patient did not have signs of HIV, did not want to do HIV test and did not know how and who to report to. During the focus group discussions, respondents brought out similar reasons for not reporting occupational exposures such as; lack of knowledge on post exposure prophylaxis services, stigmatization, fear of being HIV positive, reporting does not change anything after all the virus might have already entered the body and some respondents stated that reporting was not an emergency.

From the above results, it could be assumed that even though the respondents were aware that they were at risk of HIV infection, they did not apply the risk awareness assessment to their personal lives to compel them to take an action of reporting every exposure.

One possible reason could be denial of the risk. This assumption is consistent with the findings of Ministry of Health (2009) report which states that, a person at high risk of being HIV positive may deny such a risk as the individual is unable to cope with associated stigma. Anarif (2005) also found similar results; his study showed that although awareness of HIV infection was high, this knowledge was not applied to individual lives to bring out positive attitudes and health seeking behaviours. Noerdlinger and Resnic (1995) in New York City found similar findings in their study on occupational exposure; they reported that 71% of exposed respondents never reported their exposure. The reasons for not reporting included; source thought not to be infectious, too little time to report, outcome unchanged by reporting, the exposure was not an emergency and not knowing how to report an exposure. These results accounted for 83% of the reasons given for not reporting. Shiao et al (2002) also discovered that reporting of occupational injuries by exposed students was below average in Taiwan. The report showed high prevalence (61.9%) of needle stick injuries and only 14.2% of these injuries were reported to PEP service Unit.

The study findings showed that majority 81% (95) of the respondents stated that not every student reported the accidental occupational exposure to PEP unit (Figure 8). The reasons for not reporting to Ndola Central Hospital PEP Unit (Figure 9) were; lack of knowledge on PEP 33%, fear of testing HIV positive 19% and stigma 18%. More than half 51% (60) of the respondents stated that the students who get accidental occupational exposures do not have any other sources for PEP services apart from Ndola Central Hospital (Figure 10).

These sentiments are in agreement with what was said during the focus group discussions, where all 100% (12) of the participants stated that student nurses do not go anywhere for PEP services apart from Ndola Central Hospital as remarked by one participant, *“those students who get accidental exposure do not go anywhere, they just stay after all reporting does not change one’s status. Only God can know whether the virus has entered the body or not”*.

5.5 FACTORS INFLUENCING PEP SERVICES UTILIZATION

The study also revealed that Many 34% (40) respondents stated that stigma contributes to lack of utilization of PEP services (figure 5). The other factors included: lack of knowledge on post exposure prophylaxis services 32% (38) and fear of testing HIV positive 24.5% (29). These findings were also reported by Mosweu, Sebitloane and Moodley (2005) in South Africa. Their report stated that 31% of the exposures were not reported because of fear of testing HIV positive and inadequate knowledge on reporting procedure.

These responses are in agreement with the sentiments of some participants in the focus group discussion. Some participants stated that majority of the students did not know how to access PEP services, while others said some students feared to test HIV positive. This was expressed in the following statements: *“Lack of knowledge on PEP services is one of the factors that contribute to lack of utilization of PEP unit by many students. Majority of the students do not know how to access PEP services and do not know where PEP Unit is found within Ndola Central Hospital”*

“Fear of knowing one’s status is another factor that makes students fail to utilize PEP services, especially that of being HIV positive”.

“Stigma is another factor which hinders students from accessing PEP services. This can come from fellow students, school staff and oneself.”

MOH & NAC (2008) report confirms these findings. The report stated that many health care workers may have knowledge about HIV, but stigma may be a hindrance towards applying that knowledge to their own personal risk assessment. Furthermore the report stated that fear is derived from lack of knowledge, moral attitude and perceptions about people living with HIV and AIDS.

Van (2007) reported similar findings in South Africa where the respondents stated that they preferred to live with uncertainty of their HIV status than seek counselling and testing because of the issues surrounding HIV such as stigma.

It is noteworthy that majority 85% (100) of the respondents stated that the student nurses who got exposed to blood and body fluids received counselling and testing as supportive measures (Figure 12). These findings are supported by MOH PMTCT manual (2009) which states that counsellors must have attending skills such as receptiveness, friendliness show respect and be non-judgemental.

Many 70% (19) of the respondents stated that the services offered by Ndola Central Hospital PEP Unit were good (Figure 6). More than half 59% (16) of the respondents stated that the reaction of the staff at PEP Unit was good. The staffs were supportive, caring and maintained confidentiality after reporting the accidental exposure (Figure 6). However during the focus group discussion some participants said that the attitude of school staff was not good, they labelled students who get needle stick injuries as being careless. This was expressed in the remarks of some participants:” *Lack of support from school staff is contributing to inadequate utilization of PEP services. The school has a condemning and castigating attitude toward HIV issues*”. MOH (2008) also reported similar findings that lack of counselling skill and judgemental attitude among some health care workers, lead to underutilization of HIV centres.

5.6 LIMITATION OF THE STUDY

The following are the limitations of the study;

- The sample comprised of student nurses from Ndola School of Nursing and this makes it difficult to generalise the findings to other settings and entire country.
- Inadequate literature on Post Exposure Prophylaxis in Zambia.
- Content validity index was not calculated to measure the validity of the instrument for data collection and the data collection instrument was not subjected to reliability assessment.
- The use of clinical instructors as timekeeper and recorder could have inhibited the student from speaking freely.

5.7 IMPLICATION TO NURSING

PEP is one of the integral interventions to prevent new HIV infections among nurses and student nurse. The study showed that 94% of the student nurses had heard about PEP and 70% could state the correct meaning of PEP. This is a positive aspect. However there were some deficiencies as only 28% knew the PEP protocol or the procedure for accessing PEP services. It means a large number of students did not know what do after an exposure has occurred because they lacked knowledge on preventive measure of HIV during the clinical experience.

5.7.1 IMPLICATION ON NURSING EDUCATION

The study finding show that more than half (58%) of the student nurses had accidental occupational exposure to blood and body fluids. The majority of these exposures were not reported and the main reason for not reporting was lack of knowledge on PEP. This implies that there is need to empower the teaching staff with knowledge on HIV/AIDS and PEP in particular, so that they can impart this knowledge on students.

There should be continuing education to the teaching staff on HIV/AIDS issues. PEP and HIV should be integrated in the curriculum. One of the recommendations was that PEP should be included in the curriculum as a subject. The school management and General Nursing Council of Zambia (GNC) should consider this when revising the curriculum and PEP should be taught before students go for their first clinical experience. Ministry of Health should work together with GNC to formulate post exposure prophylaxis policy for students.

5.7.2 NURSING PRACTICE

The study revealed that more than half of the respondents stated that the attitude of the staff at PEP services Unit was good. They were supportive, caring and maintained confidentiality. This is a positive aspect. The nurses should therefore be reflecting on the impact of their attitudes, towards counselling and testing of exposed students. This could be done individually or as a group such as clinical meetings.

5.7.3 NURSING ADMINISTRATION

The school management and the service area should encourage the students to use PEP services and ensure that PEP services are offered to students just like the other health care workers. They should also ensure that students observe infection prevention practices in the clinical areas. Regular supervision of students in the clinical area will ensure adherence to infection prevention protocols by the students.

5.7.4 NURSING RESEARCH

Research on post exposure prophylaxis among student nurses and other health care workers has been done globally and regionally. However there is limited research conducted in Zambia on health care workers, worse still nothing was done on student nurses.

Therefore nurse researchers should utilize these findings as a foundation for further research in order to motivate the students utilize PEP services and consequently reduce new HIV infection and contribute to the development of the country.

5.8 CONCLUSIONS AND RECOMMENDATIONS

5.8.1 CONCLUSIONS ACCORDING TO STATED RESEARCH OBJECTIVES

The study was carried out to determine knowledge and utilization of post exposure prophylaxis among student nurses. The study revealed that there was a low level of knowledge on post exposure prophylaxis.

Although majority of the students had information about PEP, few students had knowledge on PEP protocol or the procedure for accessing PEP.

The level of utilization of PEP services was also low. Majority of the students who were exposed to blood and body fluids could not report the exposure to PEP Unit. The major factors for low utilization were; lack of knowledge on PEP, fear of testing HIV positive and stigma.

If the student nurses had perceived susceptibility to HIV infection in their clinical experience and perceived severity of HIV/AIDS disease which could occur in their lives, after an exposure, they would have made use of PEP services provided by the hospital. Iriyam, Nakahara, Masamine and Susumu (2006) in their study entitled AIDS health beliefs and intentions conducted on Nepalese students reported that perceived susceptibility and perceived severity are very important in HIV and AIDS prevention. Their study showed that perceived severity enhanced prevention intention.

This shows that there is need for strong emphasis on this subscale of the Health Belief Model in the educational strategies of HIV prevention as it might be of help in increasing HIV and AIDS awareness and lead utilization of PEP.

5.8.2 RECOMMENDATIONS

The following are recommendations for increasing knowledge and utilization of post exposure prophylaxis among student nurses;

- The Ministry of Health and the General Council of Zambia should formulate a PEP policy for student nurses to guide them as they gain clinical experience.
- The General Nursing Council of Zambia and the school management should ensure that PEP appears in the school curriculum as topic not just as HIV/AIDS.
- The lecturers at the school of nursing must teach PEP before the students go for their first clinical experience.
- The school of nursing should facilitate the formation of student committee that will offer peer counselling and testing to fellow students.

5.8.3 RECOMMENDATIONS FOR FURTHER RESEARCH

- There is a need for the study to be duplicated in other geographical areas to enable generalisation of the results.
- A similar study should be done among qualified health care workers so as to identify awareness of PEP and plan intervention that will promote knowledge and utilization of PEP services.

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APPENDICES

Appendix I

PARTICIPANT INFORMATION SHEET

KNOWLEDGE AND UTILIZATION OF HIV POST EXPOSURE PROPHYLAXIS AMONG STUDENT NURSES AT NDOLA SCHOOL OF NURSING.

I, **Monica MapenziLungu**; a student of Masters of Science in Nursing at the University of Zambia is kindly requesting for your participation in the research study mentioned above, because it is important to assess the knowledge and utilization of HIV post exposure prophylaxis among students. Before you decide whether or not to participate in this study, I would like to explain to you the purpose of the study, any risks or benefits and what is expected of you. Your participation in this study is entirely voluntary. You are under no obligation to participate; you may choose to participate or not to participate. If you decline to participate, no privileges will be taken away from you. If you agree to participate, you will be asked to sign this consent in front of the researcher. Agreement to participate will not result in any immediate benefits.

PURPOSE OF THE STUDY

The study will determine the levels of knowledge and utilization of HIV post exposure prophylaxis among student nurses. This is important as the information obtained will help Ndola School of Nursing and the Ministry of Health to take measures in controlling the spread of HIV and AIDS due accidental exposures in training institutions and workplace.

PROCEDURE

The study involves a structured self-administered questionnaire.

After signing the consent form, will proceed to answer the questions and write your responses on the space provided.

RISKS AND DISCOMFORTS

There is no risk involved in this research though part of your time will be utilized to answer some questions.

BENEFITS

There is no direct benefit to you by participating in this study, but the information which will be obtained will help the policy makers to take measures to curb the spread of HIV and AIDS in schools of nursing. No monetary favours will be given in exchange for information obtained.

CONFIDENTIALITY

Your research records and any information you will give will be confidential to the extent permitted by law. You will be identified by a number, and personal information will not be released without your written permission except when required by law. The Ministry of Health, the University of Zambia Research Ethics Committee or the School of Medicine may review your records again but this will be done with confidentiality.

WITHDRAW

If you feel like withdrawing from the participating in the study you free to do so without giving an explanation and no privileges will be taken away from you.

INFORMED CONSENT FORM

The purpose of this study has been explained to me and I understand the purpose, the benefits, risks and discomforts and confidentiality of the study. I further understand that:

If I agree to take part in this study, **I can withdraw at any time without having to give an explanation** and that taking part in this study is purely voluntary.

I _____ (Names) agree to take part in this study.

Signed: _____ Date: _____
(Participant)

Signed: _____ Date: _____
(Researcher)

PERSONS TO CONTACT FOR PROBLEMS OR QUESTIONS

1. Monica MapenziLungu. University of Zambia. Department of Nursing Sciences. P.O. Box 50110, Lusaka. Cell: 0966 601868.
2. Mrs C. Ngoma, University of Zambia, Department of Nursing sciences. P.O. Box 50110, Lusaka. Phone no. 0211252453.
3. The chairman, Research Ethics Committee, University of Zambia. P.O. Box 50110, Lusaka. Phone no. 260- 1- 256067

APPENDIX II: BUDGET

BUDGET CATEGORY	UNIT COST (ZMK)	QUANTITY	TOTAL
1. STATIONERY			
a) Flash Disc	500,000.00	x1	500,000.00
b) Bond paper	40,000.00	x10	400,000.00
c) Pens	1,000.00	x5	5,000.00
d) Pencils	500.00	x5	1,000.00
e) Rubbers	1,000.00	x	1,000.00
f) Note book	8,000.00	x1	8,000.00
g) Correction fluid	10,000.00	x1	15,000.00
h) Bag for questionnaires	300,000.00	x1	300,000.00
i) Stapler	150,000.00	x1	150,000.00
j) Staples	10,000.00	x1 Box	10,000.00
SUBTOTAL			1,390,000.00
2. PERSONNEL			
a) Lunch allowance			
Principal researcher	50,000.00	x1 x 10 days	500,000.00
Research assistant	50,000.00	x2 x 2 days	200,000.00
b) Transport allowance			
Principal Researcher	50,000.00	x1 x 10 days	500,000.00
Research Assistant	50,000.00	x2 x 2 days	500,000.00
SUBTOTAL			1,700,000.00
3. SERVICES			
a) Ethics committee	250,000.00	1	250,000.00
b) Data entry	1000,000.00	1	1000,000.00
c) Data analysis	2,500,000.00	1	2,500,000.00
d) Toner cartridge for proposal & report	1,000,000.00	3	3,000,000.00
	1000,000.00		1000,000.00

e) Secretarial services	200,000.00	5 copies	1,000,000.00
f) Binding			
SUBTOTAL			8,750,000.00
TOTAL			11,840,000.00
CONTIGENCY FUND10%			1840,000.00
GRAND TOTAL			13,024,000.00

JUSTIFICATION FOR THE BUDGET

STATIONERY

The 10 reams of bond paper will be used for the research proposal development and the final report. Paper will also be required to make extra copies of the proposal for submission to the Research Ethics committee and the board of graduate studies. The bag for questionnaires is for the researcher to ensure that they are kept safe. The flash disc is for copying, storage and safe keeping of research data. Other accessories such as pens, pencils rubbers, stapler and staple and note books are required for the routine collection of research data.

PERSONNEL

Data collection will be conducted throughout the day as such the researcher will need transport and lunch allowance. The research has been allocated 5 days to allow adequate time for administration of questionnaire as some of the students might be on nights off.

SECRETARIAL SERVICES

Funds for typing services and binding of the proposal and report will be need. The charge for buying of toner cartridge implies that researcher has her own printer to enable her to make print outs to cut down on the cost of photocopying.

The researcher will need five copies of the proposal to submit to Post Graduate Research Committee for dissertation and dissemination.

CONTIGENCY

Contingency fund which is 10% of the budget is required for any extra costs due to inflation and for any eventualities.

Appendix III
Research Project Management
Gantt chart

Task to be performed	Responsible person	Sept 2010	Oct 2010	Nov 2010	Dec 2010	Jan 2011	Feb 2011	Mar 2011	Apr 2011	May 2011
Finalize research proposal	Principal investigator (PI)									
Approval by supervisors	Mrs Ngoma Dr Maimbolwa									
Presentation to grand forum	PI									
Approval by research ethics com.	Ethics committee									
Developing questionnaire	PI									
Data collection	PI									
Data analysis	PI and statistician									
Report writing	PI									
Submit report to supervisor	PI									
Rewrite final report	PI									

**THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
DEPARTMENT OF NURSING SCIENCES**

SELF ADMINISTED QUESTIONNAIRE FOR STUDENT NURSES

TOPIC:

**KNOWLEDGE AND UTILIZATION OF HIV POST EXPOSURE
PROPHYLAXIS AMONG STUDENT NURSES AT NDOLA
SCHOOL OF
NURSING.**

DATE _____

PLACE _____

QUESTIONNAIRE NUMBER: _____

INSTRUCTIONS FOR THE RESPONDENT

1. Answer all the questions in the questionnaire.
2. Do not write your name on the questionnaire
3. Tick the most appropriate response to the question or write your answer on the space provided.

SECTION A: DEMOGRAPHIC DATA

1. Age at last birthday

1. 18-27 year []

2. 28-38 years []

2. Marital status

1. Single []

2. Married []

3. Divorced []

4. Separated []

5. Widowed []

3. What is your religion?

1. Christian []

2. Moslem []

3. Hindu []

4. Buddhist []

5. others (specify) _____

3 What is your year of study?

1. First year []

2. Second year []

3. Third year []

5. What is your sex?

1. Male []

2. Female []

SECTION B: KNOWLEDGE OF HIV POST EXPOSURE PROPHYLAXIS (PEP).

6. Have you heard any information about Post Exposure Prophylaxis (PEP)?

- 1. Yes []
- 2. No []

7. If your answer is yes to question 6, which is your source of PEP information?

(Tick most appropriated answer)

- 1. Media []
- 2. Clinical area []
- 3. School staff []
- 4. Others_____ []

8. What is the meaning of Post Exposure Prophylaxis?

9. Mention the place where PEP services are offered within Ndola Central Hospital?

10. What is the procedure of accessing PEP services after an accidental occupational exposure?

(Tick the appropriate responses)

- 1. Report to supervisor immediately. []
- 2. Offer counselling and testing to source patient and exposed health care worker. []
- 3. If source patient is HIV positive, the health care worker is tested. []
- 4. If health care worker is HIV negative then he is given a prescription to collect ARV drugs. []
- 5. If health care worker is positive don't give PEP but refer to ART clinic.

11. Mention the drugs that are used for Post Exposure Prophylaxis?

12. In the clinical area what procedure puts you more at risk of contracting HIV infection as a student nurse? (Tick most appropriate answer)

1. Giving injections and handling of body fluids []

2. Bed making []

3. Assisting and talking to patients

13. According to post exposure regulations when should a health care worker access PEP services after an accidental occupational exposure?

(Tick one correct answer).

1. within 72 hours. []

2. within 36 hours. []

3. Don't know. []

14. Have you been exposed to accidental sharp/needle stick injury or body fluid splashes?

(Tick one correct answer)

1. Yes []

2. No []

SECTION C UTILIZATION OF PEP

15. If you have been exposed to accidental injury/body fluid splash, did you report the exposure to the supervisor?

(Tick one appropriate answer)

1. Yes []

2. No []

16. If you did not report the exposure, what was the reason for not reporting?

(Tick appropriate answer)

1. Thought not at risk of contracting HIV infection. []

2. Patient did not have signs of HIV. []

3. Did not want to do HIV test. []

4. Did not know how and who to report to. []

5 others (specify) _____

17. If you reported the exposure, how was the reaction of the health care worker who counselled you?

(Tick most appropriate answer)

1. Supportive caring and Maintained confidentiality. []

2. Confidentiality was not maintained []

3. Did not show concern about my accidental exposure. []

4. Others (specify) _____

18. How can you rate the services offered by PEP unit?

1. Good []

2. Bad []

19. Do you think every student nurse report accidental exposure to sharp and body fluids to the PEP unit at Ndola Central Hospital?

1. Yes []

2. No []

20. If your answer is No to question 19, what do you think is the reason for not reporting?

21. Where do you think student nurses get the PEP services from?

1. Urban clinics []
2. Private clinics []
3. Ask for prescriptions from doctors []
4. Do not go anywhere []

22. What are the factors that make student nurses fail to utilize the PEP services?

1. Stigma []
2. Lack of knowledge on PEP []
3. Low risk perception []
4. Fear of testing HIV positive. []
5. Religion []
6. Poor quality of services. []

23. What supportive measures are offered to student nurses who get exposed to blood and body fluids?

1. Counselling and testing []
2. Youth friendly services []
3. Follow up and monitoring. []
4. Others (specify) _____

24. What do you think should be done by the school to improve PEP utilization by student nurses?

APPENDIX V

FOCUS GROUP DISCUSSION GUIDE FOR STUDENT NURSES

Number of informants _____

Composition of informants _____

Language used during interview _____

Date: _____ Duration: _____

Place: _____

INSTRUCTIONS

1. Welcome the participants.
2. Introduce yourself and the recorder to the group. Ask the participants to introduce themselves.
3. Get verbal consent from the group to continue with the discussion.
4. Explain the purpose of the discussion.
5. Assure the group of confidentiality.
6. Give warm up questions to set the climate.

QUESTIONS

HIV Post exposure Prophylaxis (PEP)

1. What is HIV Post Exposure Prophylaxis?
2. Can you explain the PEP protocol?
3. How is HIV infection acquired in the clinical area?
4. Do you think student nurses are at risk of HIV infection during their clinical experience? Explain why you think so.
5. Are there any factors that can influence student nurses' accessing PEP services? If so explain how these can affect utilization of PEP services.
6. What should be done to improve PEP knowledge and utilization among student nurses?

APPENDIX VI

MARKING KEY FOR STUDY VARIABLES

SECTION B KNOWLEDGE ON POST EXPOSURE PROPHYLAXIS			
Question number	Question	Possible answers	Maximum score
6	Have you heard any information about PEP?	Yes -1 No - 1	1 1
7	If yes, what was the source of your information?	Health personnel - 2 school staff -1 media - 1	2 1 1
8	What is the meaning of PEP?	ARVs given to a health care worker after an exposure to blood and body fluids- 1	1
9	Mention the place where PEP services are offered within the hospital?	Day/night superintendent's office -1	1
10	What is the procedure of accessing PEP?	Report to supervisor -1 Offer counselling and testing to Health worker -1. If source patient is HIV positive health worker is tested 1. If health worker is HIV negative give ARVs for 28 days -1. If health worker is HIV positive PEP should not be given, refer HCW to ART clinic 1.	5

11	Mention the drugs that are used for PEP?	Combivir(AZT/3TC)-1 Truvada (TDF/FTC) -1	2
13	In the clinical area, what procedure puts you more at risk of contracting HIV infection?	Giving injections and handling body fluids	2

14	According to PEP regulations when should a HCW access PEP services after an exposure	Within 72 hours-2	2
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SECTION C UTILIZATION OF PEP SERVICES

16	If you were exposed to an occupational exposure, did you report to the supervisor	Yes -1. No -1	1 1
17	If you did not report, what was the reason for not reporting?	Thought not at risk of contracting HIV -1. Patient did not have signs of HIV 1. Did not want to do HIV test-1. Did not know how to report -1.	1 1 1 1
18	If you reported the exposure, how was the reaction of the HCW who counselled you?	Supportive caring and maintained confidentiality-1 Confidentiality not maintained-0 Did not show concern-0	2

	How can you rate the services by PEP unit?	Good- 1. Bad -1.	1 1
20	Do you think every student nurse uses report accidental occupational exposure to PEP Unit at Ndola Central Hospital?	Yes -1 No - 1	1 1

21	If your answer is no to question no. 20, what do you think is the reason for not reporting?	Stigma -1 Fear of testing HIV positive -1 Lack of knowledge on PEP -1 Low risk perception -1 Fear of being labelled careless -1 Long PEP protocol -1	1 1 1 1 1 1
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- Low knowledge on PEP 1 – 13
- High knowledge on PEP 14 – 20

Section C Utilization of PEP

- Low Utilization 1 – 13
- High Utilization 15 – 17

Because of the great importance attached to PEP in the prevention of occupational exposures to HIV infection, a respondent who did not have correct understanding of the steps of the protocol and did not know the drugs was considered as having low knowledge. And any respondent who had an exposure but never reported to PEP unit was considered under low utilization of PEP.

**Appendix VII
Letters**

University of Zambia
School of Medicine
Department of Nursing Sciences
P O BOX 50110
Lusaka

The head of department
Department of nursing sciences
School of medicine (UNZA)
Lusaka

The Nursing Education Manager
Ndola Schools of Nursing and Midwifery
P/A
Ndola

Dear Madam,

RE: REQUEST TO CONDUCT RESEARCH ON STUDENT NURSES.

I'm a student doing Master of Science in Nursing at the University of Zambia and would like to carry out a research on **knowledge and utilization of HIV post exposure prophylaxis** among student nurses at Ndola school of Nursing.

The method of data collection is self-administered questionnaire and focus group discussion. Therefore, I am asking for permission to conduct my research study at your institution.

Your favourable response will be highly appreciated.

Yours faithful

Monica Mapenzi Lungu.