

**Determinants of Post Exposure Prophylaxis Uptake Following Occupational Exposure to  
HIV in Matabeleland South Province, 2018**

Tendai Chipendo (R108781N)

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College of Health Sciences  
Department of Community Medicine  
University of Zimbabwe  
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## Declaration

I, Tendai Chipendo hereby certify that this dissertation is my original work and has been prepared in accordance with the guidelines of the Master of Public Health Program, University of Zimbabwe. I further attest that this work has not been submitted, in part or in full, for any other degree at any university and/or any publication.

Signature\_\_\_\_\_Date\_\_\_\_\_

I, having supervised and read this dissertation, I am satisfied that this is the original work of the author in whose name it is being presented. I confirm that the work has been completed satisfactorily for presentation in the examination.

Name of Academic Supervisor\_\_\_\_\_

Signature\_\_\_\_\_Date\_\_\_\_\_

Professor. M. Tshimanga

Chairman of the Department of Community Medicine, University of Zimbabwe

Signature\_\_\_\_\_Date\_\_\_\_\_

Dr. J. January

## Abstract

**Title:** Determinants of Post Exposure Prophylaxis Uptake Following Occupational Exposure to HIV in Matabeleland South Province, 2018

**Background:** Occupational exposures to blood borne infections such as HIV represent a major risk factor for health care workers. Post-exposure prophylaxis reduces the likelihood of HIV infection after potential exposure and can reduce the risk of HIV infection by over 80%. In Matabeleland South Province, a preliminary review showed a low uptake of PEP among health care workers. A study to determine the factors associated with uptake of PEP among HIV exposed health workers was carried out in Matabeleland South Province.

**Methods:** An unmatched 1:1 case-control study was conducted. A case was defined as a health care worker in Matabeleland South Province who was occupationally exposed to HIV in 2018 and did not commence on HIV PEP. A control was a health care worker in Matabeleland South Province, occupationally exposed to HIV in 2018, and commenced on HIV PEP. An interviewer-administered questionnaire was used to collect data from 186 study participants. Epi. Info™ 7.2.2.6 was used to generate frequencies, medians and proportions and to explore associations between exposures and PEP uptake.

**Results:** A total of 93 cases and 93 controls were recruited into the study. Females constituted 51% of the study participants. Forty-seven (51%) of the 93 health workers who took PEP had good knowledge on PEP compared to 23% who did not take PEP. Having a history of previously occupational exposures (aOR=2.62, 95% CI 1.29-5.33), having a perceived risk of HIV infection at the workplace (aOR=0.28, 95% CI 0.14-0.54) and having been trained on PEP (aOR=0.42, 95% CI 0.22-0.81) were independent factors associated with uptake of PEP. Twenty-one (36%) of the 58 health workers who did not complete the PEP course highlighted side effects of the medication as the major reason for non-completion of PEP.

**Conclusion:** The study revealed significant knowledge gaps regarding PEP among those who did not take PEP. Health workers' perception of the risk of HIV acquisition at the workplace and training of health care workers on PEP play an important role in uptake of PEP services. Side effects of PEP contribute to non-adherence to the medication. Having a health system that offers a comprehensive package of counselling, follow up and accessible PEP services may increase uptake of PEP services.

**Key Words:** Post Exposure Prophylaxis, Occupational Exposure, Health care worker, Matabeleland South Province

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University of Zimbabwe

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## Acronyms

ARV	Antiretroviral
ART	Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HCW	Health Care Worker
IPC	Infection Prevention and Control
JREC	Joint Research Ethics Committee
MCRZ	Zimbabwe Medical Research Council
MoHCC	Ministry of Health and Child Care
NSI	Needle stick injury
OR	Odds Ratio
PEP	Post Exposure Prophylaxis
PMD	Provincial Medical Directorate
WHO	World Health Organization

## **Glossary of terms**

**Health-care worker:** A person (e.g. nurse, physician, dentist, student, public safety worker, emergency response personnel, general hand, first-aid provider) whose activities involve contact with patients or with blood or other body fluids from patients.

**HIV exposed - Health Care worker:** Health care workers who have any percutaneous injury or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that are infected with HIV occurring at the workplace.

**Needle stick injury:** The penetration of the skin by a needle or other sharp object (such as a syringe, scalpel or broken glass), which has been in contact with blood, tissue or other body fluids before the exposure.

**Occupational exposure/injury:** Any percutaneous injury (e.g. a needle stick prick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g. exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious occurring at the workplace.

**Post Exposure Prophylaxis:** Short-term antiretroviral treatment to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse



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# **CHAPTER 1**

## **1.0 Introduction**

### **1.1 Human Immunodeficiency Virus**

Human Immunodeficiency Virus (HIV) continues to be a major global public health problem, with approximately 37.9 million people living with HIV globally at the end of 2018 (1). The World Health Organization (WHO) African region is the most affected region globally, accounting for more than two thirds of new HIV infections (1). Zimbabwe has one of the highest HIV prevalence in sub-Saharan Africa at 13.3%, with 1.3 million people living with HIV according to the WHO 2018 country profile report (2).

### **1.2 Occupational Exposures**

Health care workers (HCWs) risk occupational exposure to bloodborne pathogens through contact with human body fluids. Occupational exposures to bloodborne infections represent a major risk factor for HCWs and are probably the most serious causes of anxiety amongst health professionals in many countries (3). Occupational exposure can occur through percutaneous injury (when a needle or a sharp object penetrates the skin), mucous membrane exposure (such as exposure of the eyes, nose or mouth) and non-intact skin exposure. The sharps include needles, lancets and broken glass. Percutaneous injury accounts for 66 to 95% of occupational exposures to bloodborne pathogens (4).

The pathogens most commonly transmitted to HCWs in occupational settings are hepatitis B and C viruses (HBV, HCV) and HIV. Health care workers may also acquire other infections from bloodborne pathogens such as Creutzfeldt-Jakob disease, airborne pathogens (including

tuberculosis and influenza) or faecal-oral pathogens (such as hepatitis A and salmonellosis). However, the risk of infection from these pathogens is either lower than that from HBV, HCV and HIV, or is poorly estimated (5).

The WHO estimates that the global burden of disease from occupational exposure is around 40% of the HBV and HCV infections and 2.5% of the HIV infections (6). More than 90% of these infections occur in developing countries, particularly in Africa, where there is high prevalence of the infection and adherence to universal precautions is poor (6). The risks for transmission vary with the type and severity of occupational exposure. The risk of HIV transmission was estimated to be 0.3% after percutaneous exposure and 0.09% after mucosal membrane exposure to HIV infected blood in studies carried out among HCWs (7).

Occupational exposure can be classified as high risk or low risk for HIV infection (8). Low risk exposure involves exposure to a small volume of blood or body fluids on mucous membranes or non-intact skin and the source patient is asymptomatic or has a low viral load (9). High-risk exposure involves a deep injury, large volume splash on mucous membranes or the source patient is symptomatic or has a high viral load level (9).

### **1.3 Universal Precautions**

Universal precautions refer to the practice of avoiding contact with patients' bodily fluids by use of protective barriers such as gloves, masks, or protective eyewear, single-use equipment, and proper management of sharps and contaminated materials (10). Under universal precautions, the blood and body fluids of patients are considered potentially infectious for HIV, HBV, HCV and other bloodborne pathogens. Universal precautions can reduce the risk of exposure to potentially infectious materials and should be observed by all levels of HCWs.

#### **1.4 Post-exposure prophylaxis**

Post-exposure prophylaxis (PEP) is a short-term antiretroviral (ARV) treatment to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse (10). Within the health sector, PEP should be provided as part of a comprehensive universal precautions package that reduces staff exposure to infectious hazards at the workplace.

After exposure, HIV replicates within dendritic cells of the skin and mucous before spreading through the lymphatic vessels and develops into a systemic infection. Approximately three days from exposure are required for the virus to be detected in lymph nodes, and up to five days in the blood (11). This delay offers a short window of opportunity during which HIV acquisition following exposure can be prevented through PEP, which inhibits viral replication and halts the irreversible establishment of the infection (12).

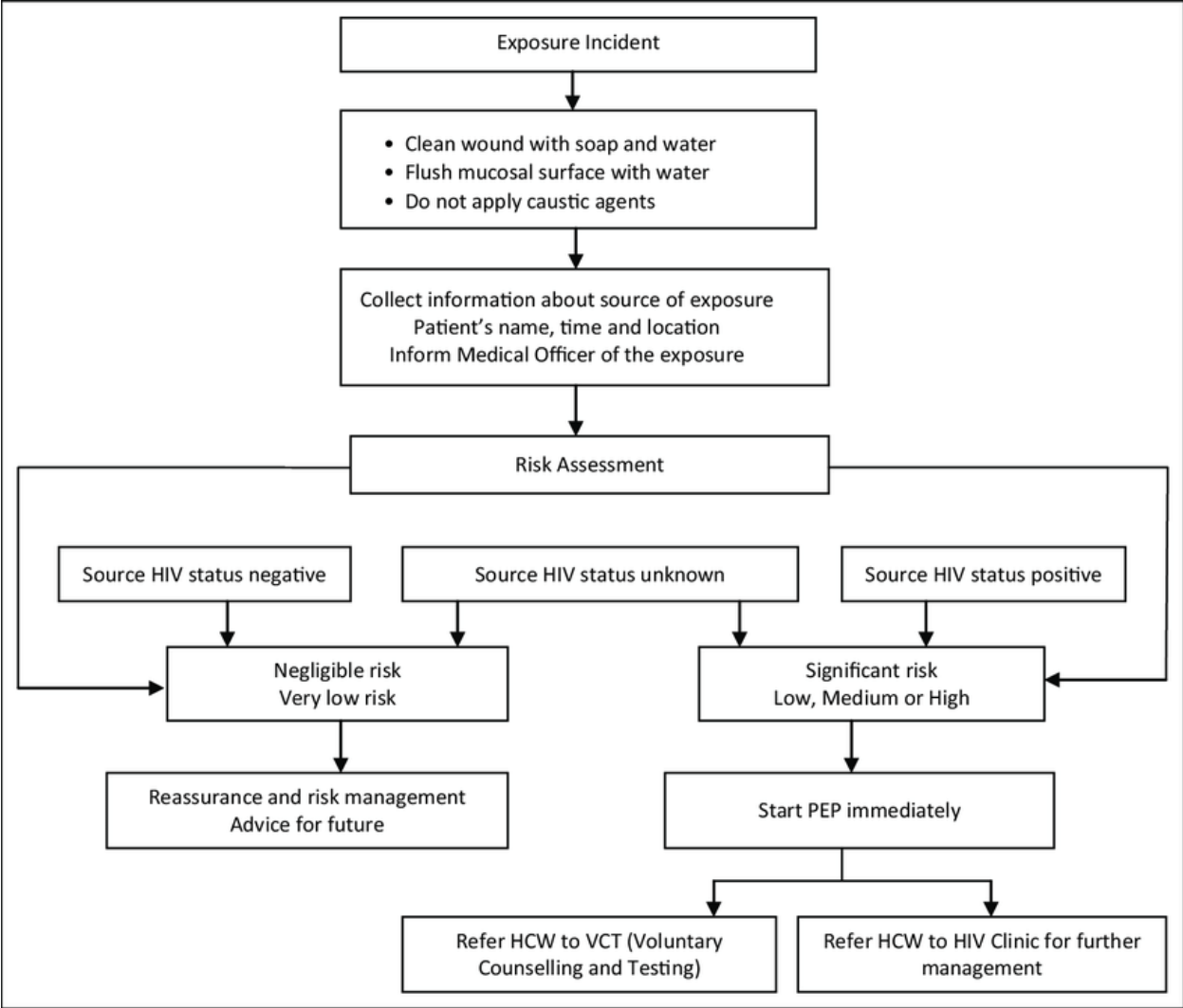
Post exposure prophylaxis should be initiated as early as possible for all individuals with an exposure that has the potential for HIV transmission, ideally within 72 hours (13). Post exposure prophylaxis reduces the risk of HIV infection by over 80% if commenced soon after exposure and adherence to the 28-day course of ARVs is critical to the effectiveness of the intervention (10,14). The current PEP regimen in Zimbabwe is a three-drug regimen consisting of tenofovir and lamivudine as a fixed-dose combination with atazanavir or ritonavir (10).

Despite the effective role of PEP, an estimated 1,000 health care workers are infected with HIV each year worldwide (14). Given the pivotal role of HCWs in resource-limited countries in expanding antiretroviral therapy (ART), the potential loss of this number of workers each year is a serious problem, which needs urgent attention (15). Developed countries reduce the risk of

diseases that can be transmitted to health personnel by continuous occupational surveillance, however, in developing countries such events are rarely monitored (16).

### **1.5 Procedure for PEP**

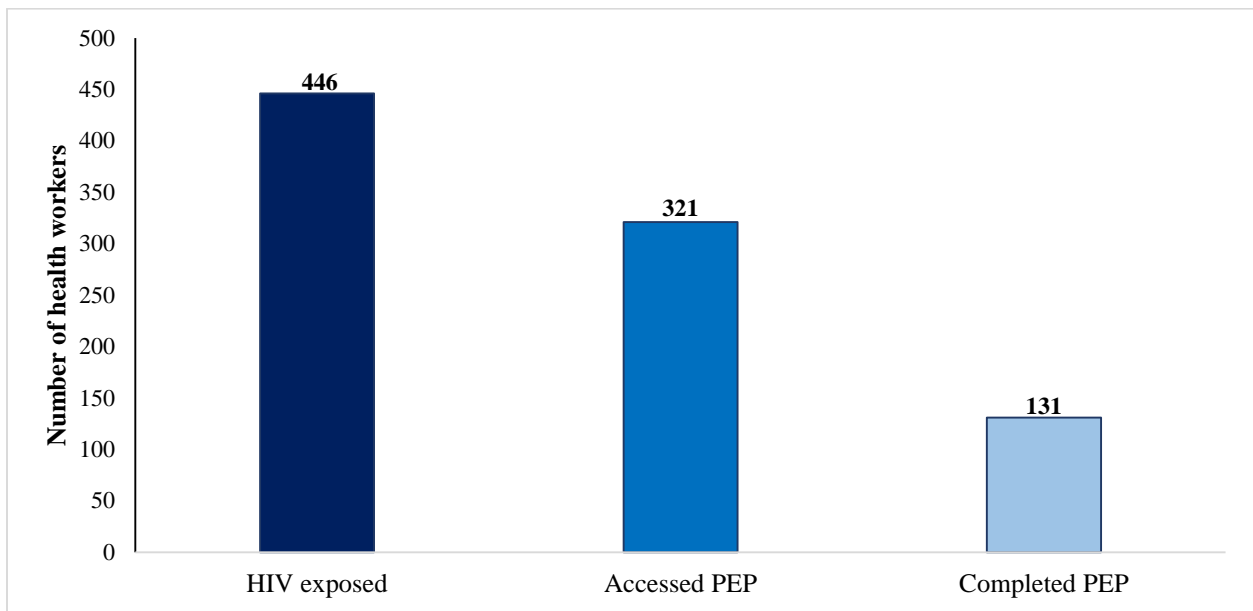
Following an occupational injury, the incident should be reported to the immediate supervisor and the exposure examined by a physician. The ARVs recommended for PEP should be started immediately, within one hour if possible and at the latest within 72 hours of the exposure. The HIV status of both the staff and the source patient should be determined and counselling done as part of the comprehensive PEP services. The procedure to be followed in the event of an occupational injury is shown in figure 1.



**Figure 1: Procedure for management of occupational exposure** (Adapted from [www.aids.gov](http://www.aids.gov))

## 1.6 Problem Statement

Despite Matabeleland South province having the highest burden of HIV in Zimbabwe, PEP uptake was only 72% (n=321) in 2018 following occupational exposure among health workers (Figure 2). Furthermore, only 41% (n=131) of the people who commenced on PEP in 2018 completed the full course.



**Figure 2: Uptake of HIV PEP in Matabeleland South Province, 2018**

Additionally, three of the HIV exposed health care workers had serological conversion at 3 months post exposure in 2018. Failure to access and complete treatment poses a threat to the achievement of the global goal to ensure effective occupational safety and health among health workers and reduce the transmission of HIV. The study therefore seeks to determine the factors contributing to low uptake of PEP among health workers.



## **CHAPTER 2**

### **2.0 Literature Review**

Studies looking at the uptake of PEP among HCWs were reviewed using search engines such as Google Scholar, HINARI and PubMed Central. Articles less than 10 years from the time of publication were preferably considered for review. The following keywords were used in combination to search for research and peer-reviewed articles in the databases: post exposure prophylaxis, occupational injuries/exposures, health care workers and HIV infection. The review focused on literature in the English language.

#### **2.1 Occupational Injuries and HIV infection**

Occupational exposures to bloodborne infections represent a major risk factor for HCWs. The WHO estimates that three million percutaneous exposures occur annually among 35 million HCWs globally, over 90 % occurring in resource-limited countries (17). However, there is limited information on the transmission risk in resource-constrained settings, which face the largest burden of HIV infection. The reasons contributing to high frequency of occupational injuries in the resource-constrained countries include lack of occupational safety facilities and HCWs' sensitiveness to taking precautionary measures (18).

The risk of HCWs to acquire HIV after occupational exposure depends on multiple factors. These include a high prevalence of the infection in the specific population, frequency of exposure, high viral load, or patients with advanced illness. Health care workers in areas such as delivery and emergency rooms and laboratories have a higher risk of exposure. Cleaners, waste collectors and others whose duties involve handling blood-contaminated items are also at risk. In several studies,

nurses had the highest number of occupational exposures compared to other health care professionals most probably because they are responsible mostly for collecting blood specimens and becoming more exposed to sharps than other staff (19,20).

Needle stick injuries represent the majority of occupational injuries in healthcare settings (21). According to WHO, the most common causes of needle stick injuries are two-handed recapping and the unsafe collection and disposal of sharps waste (5). In a study carried out in Ethiopia, the most common reason for sustaining needle stick injuries was due to patient sudden movement followed by needle recapping (22). However, in a study conducted in Tanzania, the leading cause of occupational exposures was blood splashes in 57% of the healthcare workers (21).

## **2.2 Knowledge on PEP**

Proper knowledge of PEP protocols and that of the universal precautions is paramount to the success of any PEP program. Lack of knowledge among HCWs increases the risk of acquiring HIV infection at the workplace. Evidence suggests a lack of information about PEP in many healthcare settings. A study by Mathewos in Ethiopia showed that 81.6% of those exposed, never used PEP, because of the lack of information about PEP (24). Consistent with these findings, significant gaps in the knowledge among health workers concerning actions to be taken following an exposure, how soon to commence the PEP treatment and the duration of medication were noted in a study carried out in Nigeria (25).

In Cameroon, Aminde et al (2015) noted that 73.7% of the health workers had poor knowledge about PEP for HIV (26). Low levels of awareness and knowledge of HIV and PEP may translate to missed opportunities for access to PEP, and potential HIV infections.

### **2.3 Demographic factors associated with PEP uptake**

Several studies have explored the contribution of gender to HIV PEP utilization. In a study by Beyera et al (2015) gender was significantly associated with PEP utilization against HIV, with more than half (53.7%) of those accessing PEP being females (15). This could probably be because females have high responsibilities in the household for baby care such as breast-feeding, which imposes them to undergo the necessary protective precautions (15). Once the virus affects them, they could easily transmit it to their babies and other members of the family. In another study by Tebeje et al (2010), however, none of the sociodemographic characteristics including gender and age were significantly associated with HIV PEP utilization (27).

### **2.4 Health care worker factors associated with PEP uptake**

Insufficient PEP utilization has been attributed to a number of health worker-related factors. In a study carried out in Ethiopia, the major reasons cited by HCWs for not receiving PEP following their exposure was negligence (49.6%), lack of awareness about the existence of PEP service and protocol (9.9%), and considering PEP as not important (9.1%) (21). This finding signifies the need to provide education and infection prevention training for HCWs to practice precaution behaviours such as taking PEP and avoiding the risk of acquiring HIV following occupational exposures.

In another study by Maaten et al (2010), a remarkably low rate of PEP utilization among HCWs was noted (28). This was largely attributed to HCWs fear of getting HIV tests and fear of drug side effects. In a study by Adebimpe et al (2018), the common reasons given by those who did not take PEP included ignorance of PEP, fear of HIV stigma and discrimination and the belief that they cannot contract HIV (29). In a similar supportive study carried out in Kenya, the main reasons for

not seeking PEP among health workers was lack of sufficient information followed by fear of the process and what could follow (30).

The physical effect of ARVs well known by the HCWs from their own patients increases their fear of going through the PEP process. The association of the medication with AIDS may create immense distress among health workers and is a barrier to taking PEP according to Abrahams et al (2010) (31).

## **2.5 Health system factors associated with PEP uptake**

Several studies have demonstrated the health system to contribute to the low utilization of HIV PEP services. Lack of any written protocol for reporting exposure conditions at the institutions was the major contributing factor to low uptake of the HIV PEP in a study carried out by Okoh et al (2016) (32). Training of health professionals on PEP had a statistically significant association with PEP utilization in a study by Abera et al (2018) (21). Providing training for all health professionals on infection prevention, including PEP would help lower the occupational exposures and enhance the use of PEP (30).

In a study by Bosenia et al (2010), the major perceived reasons reported for not using PEP of HIV after exposure included fear of reprimand, uncertainty regarding the confidentiality of the results, and lack of support and encouragement to report (27). The unavailability of PEP at the health facilities also contributes to low utilization. In Nigeria, the health workers who did not take PEP highlighted unavailability of the HIV PEP as one of the common reasons for low uptake (33).

## **2.6 Reasons for defaulting PEP**

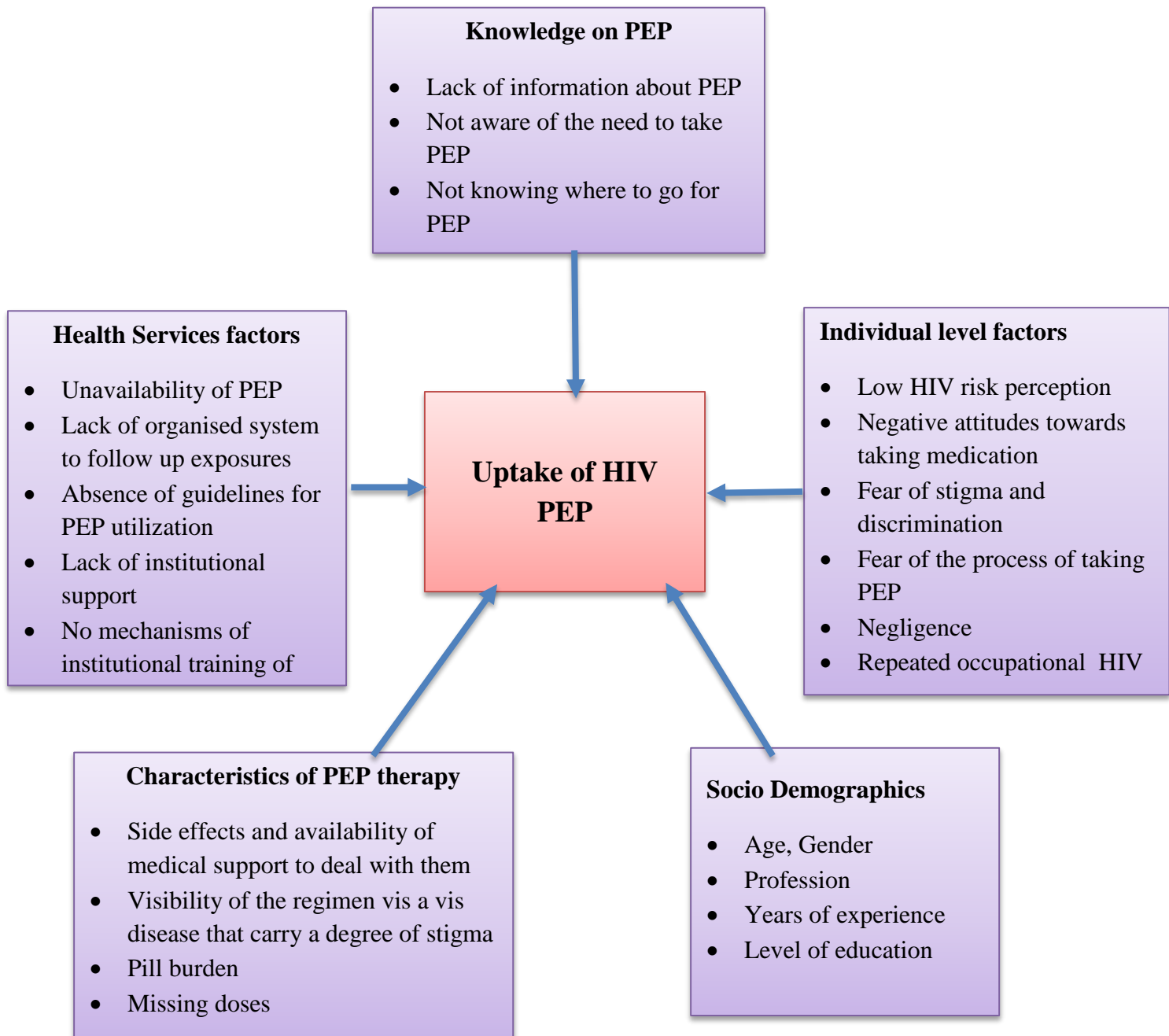
Defaulting PEP poses a potential risk of drug resistance developing in those who fail to complete the full course and acquire HIV. Pill burden and the side effects of treatment may influence

completion rates. Other factors such as psychological distress and re-evaluation of risk may also affect PEP utilization. In a study carried out by Bareki et al (2018) in Botswana, 26.6% of the respondents that took PEP did not complete the course (34). The reasons for defaulting PEP cited by the health workers were adverse side effects of the drugs, assuming that the treatment was enough and doubting the drug efficacy (34).

The intolerance to adverse events was cited as the major reason for defaulting HIV PEP among health workers in a study conducted by Tetteh et al (2015) in Ghana (35). Education on the need to complete the PEP schedule can lead to increased adherence, which is critical in minimizing the risk of HIV seroconversion (36).

## 2.7 Conceptual framework

A conceptual framework developed following literature review is shown in Figure 3. Data collection tools were developed from this conceptual framework.



**Figure 3: Conceptual Framework for factors associated with uptake of HIV PEP in Matabeleland South Province, 2018**

## **2.8 Justification**

Exposure to HIV is of particular concern given the nature and severity of HIV infection and the consequences of transmission. Thus, an investigation of the uptake of HIV PEP among health care workers is relevant in order to provide immediate evidence-based decisions to inform HIV programming. There is a good chance of implementation of the recommendations arising from this study, which is the first kind to be done in Matabeleland South Province. There are no major ethical, resource and political constraints anticipated in this investigation hence making it feasible. The study findings will add to the limited body of knowledge on uptake of HIV PEP following occupational exposure among health care workers.

## 2.9 Research question

What are the determinants of PEP uptake among HIV exposed health workers in Matabeleland South province, 2018?

## 2.10 Study Hypotheses

- i. **H<sub>0</sub>**: There is no association between socio-demographic factors of the health care worker (years of experience, gender) and their uptake of HIV PEP.  
**H<sub>1</sub>**: There is an association between socio-demographic factors of the health care workers (years of experience, gender) and their uptake of HIV PEP
- ii. **H<sub>0</sub>**: There is no association between the knowledge of PEP among health care workers and their uptake of HIV PEP.  
**H<sub>1</sub>**: There is an association between the knowledge of PEP among health care workers and their uptake of HIV PEP.
- iii. **H<sub>0</sub>**: There is no association between health service-related factors and the uptake of HIV PEP among health care workers  
**H<sub>1</sub>**: There is an association between health service-related factors and uptake of HIV PEP among health care workers
- iv. **H<sub>0</sub>**: There is no association between the individual level (health care worker) factors and uptake of HIV PEP  
**H<sub>1</sub>**: There is an association between the individual level (health care worker) factors and uptake of HIV PEP



## **2.11 Objectives**

### **Broad Objective**

To determine factors associated with uptake of PEP among HIV exposed health workers in Matabeleland South province, 2018. An HIV exposed health care worker is one who had any percutaneous injury or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that are infected with HIV occurring at the workplace.

### **Specific Objectives**

- To describe demographic characteristics of health workers exposed to HIV in the workplace in Matabeleland South province, 2018
- To describe forms of occupational exposure among HIV exposed health workers in Matabeleland South province, 2018
- To assess knowledge on PEP among health workers in Matabeleland South province, 2018
- To determine the demographic factors associated with uptake of PEP among HIV exposed health care workers in Matabeleland South Province, 2018
- To determine the individual level factors associated with uptake of PEP among HIV exposed health care workers in Matabeleland South province, 2018
- To determine the health system factors associated with uptake of PEP among HIV exposed health workers in Matabeleland South province, 2018
- To assess the reasons for non-completion of HIV PEP among health care workers who commenced PEP in Matabeleland South province, 2018

## **CHAPTER 3**

### **3.0 Materials and Methods**

#### **3.1 Study design**

An unmatched 1:1 case-control study was conducted to assess the factors associated with uptake of HIV PEP among health care workers. A case-control study design was chosen because of its ability to allow for the evaluation of a wide range of factors for a single outcome. A case-control study design is efficient in terms of both time and costs, relative to other analytic approaches.

#### **3.2 Study setting**

The study was conducted in Matabeleland South Province, which is divided into seven administrative districts comprising three urban and four rural districts. The province is situated in the southern part of Zimbabwe bordering with South Africa (South), Botswana (South-West), Matabeleland North (North-West) and Bulawayo city (North) (figure 4).

The province has a population of 725 966 projected from the national population census report of 2012. It is situated in the ecological regions four and five, which are associated with less pattern rainfall and frequent drought. Droughts and lack of economic opportunities have resulted in widespread poverty in the region and frequent migration to neighbouring countries. The province is one of Zimbabwe's HIV hotspots, with the highest prevalence of 21.7%, approximately 7% higher than the national prevalence (37). This could be attributed to the fact that there are two busy border towns (Beitbridge and Plumtree) with a highly mobile population and a large number of mining activities in the province.



**Figure 4: Map of Zimbabwe showing location of Matabeleland South Province**

### 3.3 Study population

The study population was health care workers who had any percutaneous injury (e.g. a needle stick prick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g. exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that were infected with HIV at the workplace in Matabeleland South province.

### 3.4 Study unit

The study unit was an individual health care worker occupationally exposed to HIV in Matabeleland South province.

### **3.5 Inclusion and Exclusion criteria**

#### **Inclusion criteria**

Eligible study participants were health care workers in Matabeleland South Province who had any percutaneous injury or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that were infected with HIV occurring at the workplace between 1 January 2018 and 31 December 2018.

#### **Exclusion criteria**

Health care workers fitting the inclusion criteria were ineligible to participate if they were unable to sustain the interview due to illness or were unwilling to participate.

#### **Key informants**

These include the Provincial Infection Prevention and Control officer, the Provincial HIV Focal person, District Medical Officers, District Nursing Officers and the District Infection Prevention and Control focal persons.

### **3.6 Sample size**

The sample size was calculated using Fleiss formula.

$$\text{Number of cases} = \frac{[Z_{\alpha/2} \sqrt{((r+1) pq)} + Z_{(1-\beta)} \sqrt{rp_1q_1 + p_2q_2}]^2}{r (p_1 - p_2)^2}$$

Where:

$Z_{\alpha/2}$  = z value for a two-tailed test based on the desired confidence level,

r = ratio of cases to controls,

p = proportion of cases with the exposure,

q = 1- p and

$Z_{(1-\beta)}$  = desired power of the study.

Assuming an 80% power at 95% confidence and a case-control ratio of 1:1, using a 78% proportion of controls with exposure and an odds ratio of 3.5 for those who were aware of existing PEP policy, the calculated minimum sample size was 93 cases and 93 controls based on a study by Njemanze et al (2017) (36).

### **3.7 Definition of a case**

A case was defined as a health care worker in Matabeleland South Province who had any percutaneous injury (e.g. a needle stick prick or cut with a sharp object) or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that were infected with HIV occurring at the workplace in 2018 and did not commence on HIV PEP.

### **3.8 Definition of a control**

A control was defined as a health care worker in Matabeleland South Province who had any percutaneous injury (e.g. a needle stick prick or cut with a sharp object) or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that were infected with HIV occurring at the workplace in 2018 was occupationally exposed to HIV in 2018 and commenced on HIV PEP.

### **3.9 Sampling**

#### **Selection of cases**

HIV PEP registers for all health facilities were serially consolidated. From a total of 446 HIV exposed health care workers in the province, 125 were identified as cases and 321 were identified as controls. Ninety-three cases were randomly selected from a list of 125 health care workers who were occupationally exposed and did not access PEP in 2018. Random selection of the cases was

done using a computer statistical randomizer (<https://www.randomizer.org>) that generated 93 numbers randomly after each unit had been numbered sequentially in the sampling frame.

### **Selection of controls**

Ninety-three controls were randomly selected from a list of 321 healthcare workers occupationally exposed in 2018 and commenced on PEP. Random selection of controls was done using a computer statistical randomizer that generated 93 numbers randomly after each unit had been numbered sequentially on the sampling frame.

### **Selection of key informants**

Key informants were purposively selected for the study.

## **3.10 Study Variables**

### **Outcome variable**

The dependent variable for this study is uptake of HIV PEP, which is defined as the act of taking up or using PEP services after an occupational injury by a health care worker.

### **Independent variables**

#### **Socio-demographic Factors**

Socio-demographic factors include the age of the participant, gender, marital status, profession and number of years in clinical practice.

#### **HIV PEP knowledge**

HIV PEP Knowledge was defined as what was known by the health care worker regarding PEP use and all procedures to follow once a health worker is exposed as stipulated in the National infection prevention and control guidelines. Knowledge levels were assessed based on a battery of

five questions. The questions assessed knowledge on PEP protocols, awareness of the availability of PEP service at the facility, knowledge of when PEP is indicated, the preferable time to take PEP after exposure and the duration of the PEP course. To assess overall knowledge each of the five questions on knowledge was equitably scored (one point for each correct answer and zero otherwise). Points were summed across all questions and respondents who scored less than 3 were categorised as having “poor knowledge”, those who scored between 3 points were considered as having “fair knowledge” while those who scored 4 or more were categorised as having “good knowledge.”

### **Health Service-related factors**

Health service-related factors include the availability of PEP at the health facilities, presence of PEP guidelines, training of health workers on PEP and availability of a system to follow up on exposures and convenience of hours of service.

### **Individual related factors**

Individual related factors include HIV risk perception of health care workers, attitudes of health workers towards taking medication, number of previous occupational exposures.

### **3.11 Data collection**

An interviewer-administered questionnaire was used to collect data from cases and controls on socio-demographic characteristics, knowledge on PEP, forms of exposures, individual and health service factors. PEP registers were reviewed to triangulate data. An interview guide for key informants was used to elicit information on PEP services at health facilities. Back translation of the questionnaires into the local language (Ndebele) was done. Pretesting of the questionnaire was done to at St Annes Brunapeg Mission hospital.

### **3.12 Data Analysis**

Epi. Info 7.2.2.6 statistical software was used to capture and analyse the data. Checking for incompleteness and missing variables was done as part of data cleaning. Frequencies for all the variables were used to check for missing variables and the questionnaires were used to correct any mistakes in the consistency of data entry. The software was used to perform univariate analysis that is the calculation of frequencies, means and proportions. The same software was used to perform the bivariate analysis to determine strengths of association between the independent variables and the outcome variable (uptake of HIV PEP). Odds ratios were calculated from the bivariate analysis and their corresponding 95% confidence intervals were recorded. To control for confounding and identify independent factors, multivariate analysis using a forward stepwise logistic regression model was performed. All variables with a p-value  $\leq 0.25$  were included in the logistic regression model. All variables with a p-value  $<0.05$  were considered to be statistically significant.

### **Qualitative data analysis**

Data from key informants and questionnaire open-ended questions were analyzed thematically. Data was then triangulated with the quantitative data to get more opinions and perceptions on factors contributing to uptake of HIV PEP among health care workers.

### **3.13 Ethical considerations**

Ethical principles in human research were applied as per Belmont reports and Helsinki declaration. Ethical approval was sought from the Joint Research Ethics Committee (JREC) (Annex 7) and the Medical Research Council of Zimbabwe (MCRZ) (Annex 8). All respondents provided free uninfluenced written informed consent. All information about the research was communicated to



the respondents. The purpose of the study and any reasonably foreseeable risks and potential benefits were communicated to the respondents beforehand. All efforts and precautions were made to guarantee no risking of respondents' reputation and social standing because of participating in the study. All data collected was kept private and confidential and no communication of the same was done to entities outside the research. There were no economic risks or disturbances of the respondents during the study.

### **3.14 Permission to proceed**

Permission to proceed with the study was obtained from the Provincial Medical Directorate Matabeleland South Province, the University of Zimbabwe, Department of Community Medicine and the Health Studies Office.

## CHAPTER 4

### 4.0 Results

#### 4.1 Demographic Characteristics of Respondents

A total of 93 cases and 93 controls were recruited into the study. The demographic characteristics of the respondents are presented in Table 1.

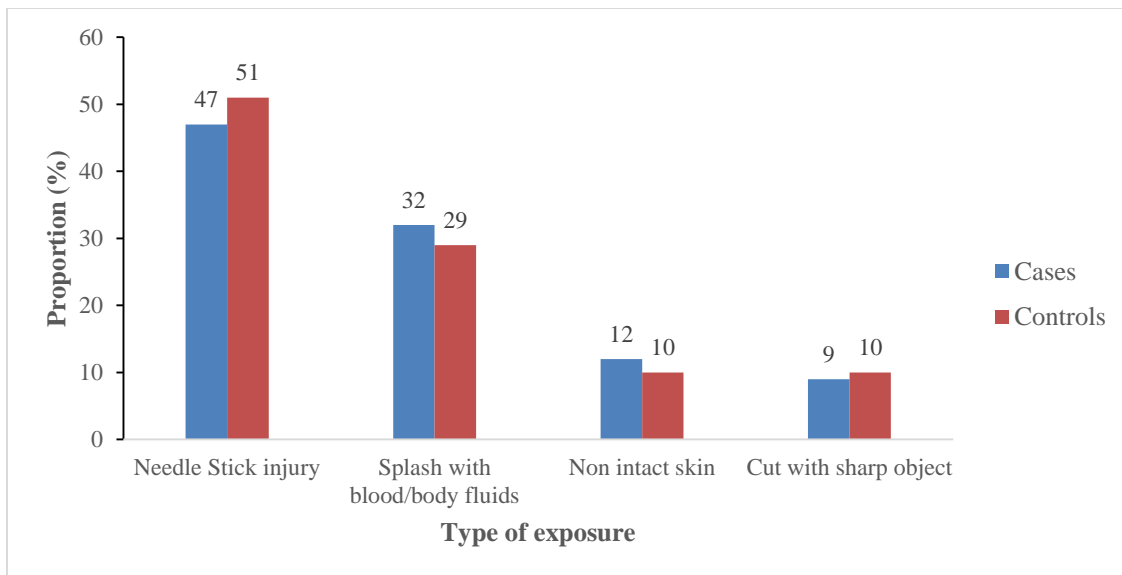
**Table 1: Socio Demographic Characteristics of Respondents in Matabeleland South Province, 2018**

Variable	Category	Cases n=93(%)	Controls n=93(%)	<i>p-value</i>
Sex	Female	51 (55)	43 (46)	0.40
	Male	42 (45)	50 (54)	
Marital status	Married	47 (51)	56 (60)	0.18
	Single	34 (37)	32 (34)	
	Divorced	8 (8)	4 (4)	
	Widowed	4 (4)	1 (1)	
Education	Certificate	12 (13)	17 (18)	0.40
	Diploma	55 (59)	50 (54)	
	Degree	25 (27)	25 (27)	
	Masters	1 (1)	1 (1)	
Profession	Nurse	64 (69)	61 (66)	0.23
	Laboratory staff	14 (15)	17 (18)	
	Doctor	9 (10)	8 (9)	
	Dental Technician	2 (2)	4 (4)	
	General Hand	4 (4)	3 (3)	
Religion	Christianity	89 (96)	88 (95)	0.16
	Muslim	1 (1)	5 (5)	
	None	3 (3)	0 (0)	
Number of years in clinical practice	< 5	26 (28)	25 (27)	0.07
	5 -10	44 (47)	43 (46)	
	11-15	14 (15)	13 (14)	
	16-20	6 (6)	10 (11)	
	21+	3 (3)	2 (2)	
Median age in years		34(Q <sub>1</sub> =29; Q <sub>3</sub> =39)	35 (Q <sub>1</sub> =30; Q <sub>3</sub> =37)	
Median number of years in clinical practice		6 (Q <sub>1</sub> =3; Q <sub>3</sub> =9)	7 (Q <sub>1</sub> =4; Q <sub>3</sub> =11)	

Cases and controls were comparable with respect to sex, marital status, educational status, profession, religion and number of years in clinical practice. The median number of years in clinical practice was 6 years (Q<sub>1</sub>=3; Q<sub>3</sub>=9) for cases and 7 years (Q<sub>1</sub>= 4; Q<sub>3</sub>=11) for controls.

#### 4.2 Forms of occupational exposures/ Nature of occupational incident

The forms of occupational exposures in Matabeleland South Province are shown in figure 5



**Figure 5: Forms of occupational exposures among respondents in Matabeleland South Province, 2018**

The majority of both cases (47%) and controls (51%) had needle stick injuries followed by splashes with blood and other body fluids in 32% of cases and 29% of controls.

### 4.3 Knowledge on Post Exposure Prophylaxis

Knowledge assessment on PEP among health care workers is shown in table 2.

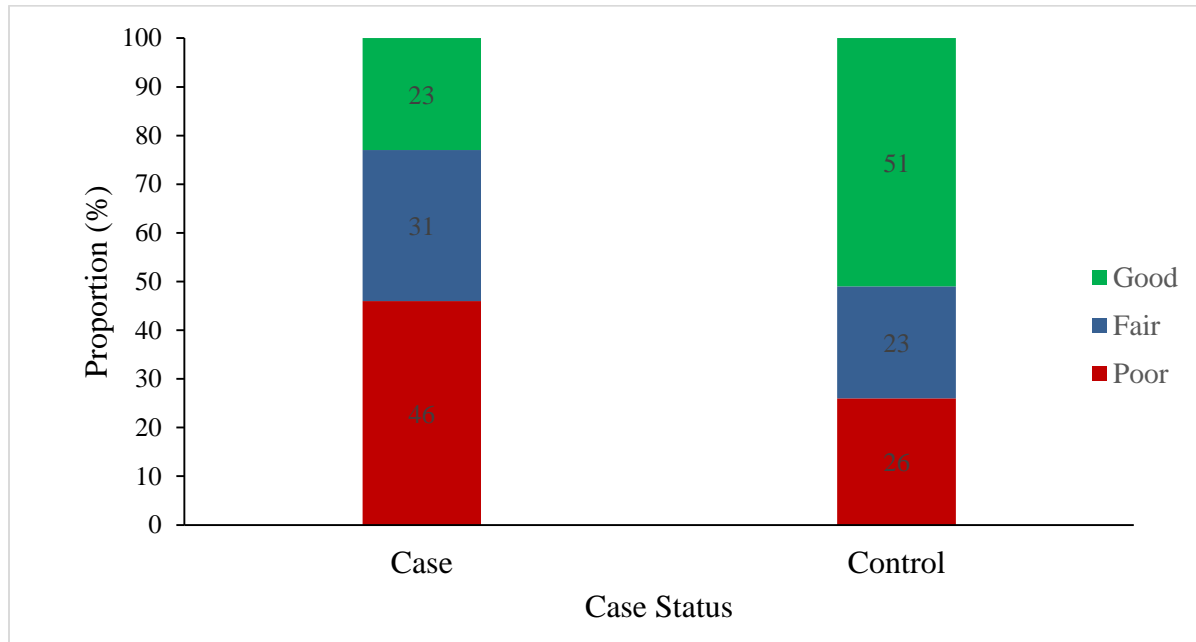
**Table 2 Knowledge on PEP among health workers in Matabeleland South Province, 2018**

Variable	Category	Cases n =93 (%)	Controls n=93 (%)	p value
Knowledge on PEP protocols	Yes	49 (43)	61 (66)	0.03
Knows the duration of the PEP course	Yes	43 (46)	56 (60)	0.02
Aware of the measures taken after an occupational exposure	Yes	46 (49)	61 (66)	0.01
Knows the preferable time to take PEP after exposure	Yes	58 (62)	69 (74)	0.04
Aware of where PEP services can be accessed at facility	Yes	66 (71)	82 (89)	<0.01

Controls were more knowledgeable than cases for all the variables and the differences in the knowledge levels between cases and controls were statistically significant ( $p < 0.05$ ). Among the health workers who did not take PEP, 43% (49/93) had knowledge on the PEP protocols, 46% (43/93) knew the duration of the PEP course while 49% (46/93) were aware of the measures to take after exposure.

## Overall Knowledge on PEP

The overall knowledge levels on PEP among health workers are shown in figure 6.



**Figure 6: Overall knowledge levels on PEP among health workers in Matabeleland South province, 2018**

Fifty one percent (47/93) of the controls had good knowledge on PEP while only 23% (21/93) of the cases had good knowledge. A greater proportion of the cases 46% (43/93) had poor knowledge on PEP compared to 26% (24/93) of the controls

#### 4.4 Individual level factors associated with PEP uptake

The individual level factors associated with PEP uptake among healthcare workers are shown in table 3.

**Table 3: Individual level factors associated with uptake of PEP among health workers, Matabeleland South province, 2018**

Variable	Category	Cases n=93 (%)	Controls n=93 (%)	OR	95% CI	p value
Sex	Female	51 (55)	43 (46)	1.41	0.79 – 2.51	0.12
	Male	42 (45)	50 (54)			
Marital status	Married	47 (51)	56 (60)	0.67	0.37 – 1.20	0.09
	Not Married	46 (49)	37 (40)			
Education Level	Certificate	12 (13)	17 (18)	0.66	0.29 – 1.47	0.16
	Diploma+	81 (87)	76 (82)			
Years in clinical practise	< 5	26 (29)	25 (27)	1.06	0.55 – 2.01	0.43
	≥ 5	67 (71)	68 (73)			
History of previous exposures	Yes	73 (78)	57 (61)	2.31	1.21 – 4.40	<0.01
	No	20 (22)	36 (39)			
Perceived risk of HIV acquisition at workplace	Yes	38 (42)	62 (67)	0.35	0.19 – 0.63	<0.01
	No	55 (58)	31 (33)			
Fear of stigma and discrimination	Yes	34 (37)	32 (35)	1.09	0.60 – 2.00	0.38
	No	59 (63)	61 (65)			
Knowledge on PEP	Good	21 (23)	47(51)	0.24	0.12-0.51	<0.01
	Fair	29 (31)	22 (23)	0.73	0.35-1.55	0.21
	Poor	43 (46)	24 (26)	1		

The odds of not taking PEP among health workers with a history of previous exposures is 2.31 times the odds of not taking PEP among health workers without a history of exposures (OR=2.31, 95% CI 1.21 – 4.40). Health workers who had a perceived risk of HIV acquisition at the workplace (OR=0.35, 95% CI 0.19 - 0.63) and having good knowledge on PEP (OR=0.24, 95% CI 0.12 – 0.51) were significantly more likely to take PEP. Those who had fear of stigma and discrimination were less likely to take PEP (OR=1.09, 95% CI 0.60 – 2.00) although this was not statistically significant ( $p > 0.05$ ).

#### 4.5 Health service-related factors associated with uptake of PEP

In table 4, the health service-related factors associated with uptake of PEP are presented.

**Table 4: Health service-related factors associated with uptake of PEP among health workers, Matabeleland South province, 2018**

Variable	Category	Cases n=93(%)	Controls n =93 (%)	OR	95% CI	p value
Trained on Infection control and PEP utilization	Yes	41 (44)	62 (67)	0.39	0.21 – 0.71	<0.01
	No	52 (56)	31 (33)			
PEP services readily accessible	Yes	59 (63)	76 (81)	0.38	0.19 – 0.76	<0.01
	No	34 (37)	17 (19)			
PEP services available at night	Yes	35 (38)	49 (53)	0.54	0.30 – 0.97	0.02
	No	58 (63)	44 (47)			
Received counselling following occupational exposure	Yes	21 (23)	41 (44)	0.37	0.20 – 0.70	<0.01
	No	72 (77)	52 (56)			
Received follow up after an exposure	Yes	20 (22)	33 (35)	0.49	0.26 – 0.96	0.01
	No	73 (78)	60 (65)			
Satisfied with PEP services at the facility	Yes	44 (47)	55 (59)	0.62	0.34 – 1.10	0.05
	No	49 (53)	38 (41)			

Health care workers who were trained on PEP (OR=0.39, 95% CI 0.21 – 4.59), who reported that PEP services were readily accessible (OR=0.38, 95% CI 0.19 – 0.76) and those who received counselling following an exposure (OR=0.37, 95% CI 0.20 – 0.70) were significantly more likely to take PEP. Health workers who were satisfied with PEP services at the facility were 38% more likely to take PEP following an exposure although this was not statistically significant.



#### **4.6 Dose Response Relationship of number of previous occupational exposures and PEP uptake**

In Table 5, the dose response relationship of number of previous occupational exposures and PEP uptake is presented.

**Table 5: Dose Response Relationship of number of previous occupational exposures and PEP uptake, Matabeleland South Province, 2018**

Number of previous exposures	PEP Uptake (OR)
0	1.00
1	1.87
2-3	3.77
$\geq 4$	4.18

Those with a history of having 1 exposure were 1.87 times more likely not to take PEP than those without previous exposures. Those with 2-3 previous exposures were twice more likely not to take PEP while those with  $\geq 4$  previous exposures were 4.18 times more likely not to take PEP. There was a dose response relationship between the number of previous occupational exposures and PEP uptake.

#### 4.7 Stratified Analysis

Having a previous history of occupational exposures was stratified by sex to control for confounding or assess effect modification. The results of the stratified analysis are presented in table 6.

**Table 6: The Effect of having a history of previous exposures on Uptake of HIV PEP stratified by sex, Matabeleland South Province, 2018**

Variable		Case (%)	Control (%)	OR	95% CI
<b>Female</b>					
History of previous exposures	<b>Yes</b>	39(76)	27(63)	1.92	0.78 - 4.71
	<b>No</b>	12(24)	16(37)		
<b>Male</b>					
History of previous exposures	<b>Yes</b>	34(81)	30(60)	2.83	1.08 - 7.36
	<b>No</b>	8 (19)	20(40)		
<b>Crude</b>					
History of previous exposures	<b>Yes</b>	73 (78)	57 (61)	2.31	1.21 - 4.40
	<b>No</b>	20 (22)	36 (39)		

$\chi^2 = 0.33$   $p = 0.56$

The test of homogeneity proved that stratum specific odd ratios were not significantly different ( $p=0.56$ ) and were each neither different from the crude odds ratio. The effect of having a history of exposure on uptake of PEP was neither confounded nor modified by sex.

#### 4.8 Independent factors associated with PEP uptake

The independent factors associated with PEP uptake are shown in Table 7.

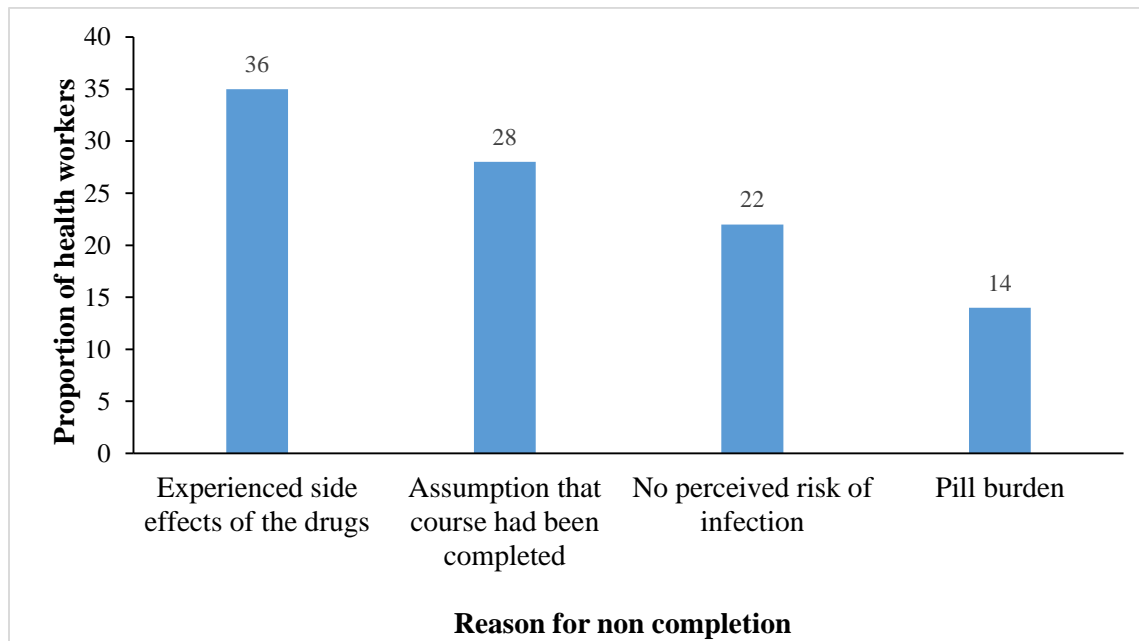
**Table 7: Independent factors associated with uptake of PEP among health workers, Matabeleland South province, 2018**

Variable	Crude OR	Adjusted OR	95% CI	p-value
History of previous occupational exposures	2.31	2.62	1.29 – 5.33	<0.01
Perceived risk of HIV infection	0.35	0.28	0.14 – 0.54	<0.01
Trained on infection control and PEP utilization	0.39	0.42	0.22 – 0.81	<0.01

Having a history of previously occupational exposures (aOR=2.62, 95% CI 1.29-5.33), having a perceived risk of HIV infection at the workplace (aOR=0.28, 95% CI 0.14-0.54) and having been trained on PEP (aOR=0.42, 95% CI 0.22-0.81) were independent factors associated with uptake of PEP.

#### 4.9 Reasons for non-completion of HIV PEP

Among the 93 study participants who commenced on PEP, 38% (35/93) completed the course, while 62% (58/93) did not complete the course. Figure 7 illustrates the reasons for non-completion of PEP in Matabeleland South Province.



**Figure 7: Reasons for non-completion of HIV PEP among health workers, Matabeleland South Province, 2018**

Thirty six percent (21/58) of the health workers who did not complete the PEP course highlighted side effects of the drugs as the reason for non-completion of PEP. Twenty eight percent (16/58) assumed that they had completed the course, while 14% (8/58) did not complete the course because of the pill burden. Among those who experienced the side effects, 81% (17/21) did not get the help they expected from the health facility.

#### **4.10 Results from key informants**

Twelve key informants were interviewed with the aim to get information on HIV PEP program activities in Matabeleland South province. Among these were; the Provincial HIV focal person (1), District Medical Officers (2), District Nursing Officers (4) and District Infection Prevention and Control focal persons (5).

Eight out of twelve key informants highlighted that they have a schedule for staff training on infection control and prevention, however among these no trainings had been conducted in the past 12 months. Three out of the 12 key informants reported that they experienced shortage of PEP medications in the past 12 twelve months. Four key informants indicated that they are able to follow up HCWs who commence on PEP while only two key informants reported that they are able to monitor adverse effects of the medications.

The pertinent issues recorded during the key informant interviews are quoted as follows:

**Speaker A:** “Most of the occupational exposures are unreported because HCWs do not want to get tested for HIV.”

**Speaker B:** “PEP use among health care workers is difficult to monitor because most of them are lost to follow up.”

**Speaker C:** “Shortage of staff results in lack of dedicated staff to administer PEP during weekends and at night.”

## CHAPTER 5

### 5.1 Discussion

In this case-control study, the established independent factors associated with the uptake of PEP were having been trained on PEP utilization, having a history of previous occupational exposures to HIV and health workers' perception of the risk of HIV acquisition at the workplace. None of the sociodemographic characteristics was significantly associated with PEP uptake.

In this study, needle stick injuries were the most common form of occupational incidence encountered by the health care workers followed by splashes with blood and other body fluids. This could be due to lack of awareness of hazard and lack of training among health care workers as shown in a study done by Lee et al (2009) (38). Lack of safer needle devices, sharps-disposal containers and recapping needles have also been shown to be contributing factors to high rates of needle stick injuries at workplaces. These findings are similar to those reported in Kenya by Burmen et al (2018) (39). However, the proportion of needle stick injuries noted in this study was higher compared to another study carried out in Uganda (40).

These findings suggest that most health workers in the province are at risk of acquiring HIV infection at their workplaces, given that needle stick injuries carry the major risk for bloodborne infections. There is, therefore, the need for health workers to adhere to universal safety precautions to avoid injury from needles and other sharp instruments that have been exposed to body fluids.

In this study, the health workers who did not take PEP had poor knowledge levels on PEP compared to those who took PEP. More than 50% of those who did not take PEP were unaware of the measures taken after an occupational exposure and the preferable time to take PEP after

exposure. A similar study done in Cameroon noted poor to moderate knowledge levels on PEP among health workers (11). Optimal post exposure care, including the administration of antiretroviral drugs to HIV infection, depends on the knowledge of health workers on the proper procedures to follow. Contrary to findings from this study, Oche et al (2018) in Nigeria noted high knowledge levels on PEP among health workers (41). The difference in knowledge levels might be because of differences in the level of awareness in the different populations.

Additionally, the study has demonstrated a strong association between healthcare worker knowledge and uptake of PEP. Health workers who had good knowledge of PEP were more likely to take PEP than those with poor knowledge. In a similar study conducted by Mabwe et al (2015), health care workers who had awareness of PEP were 12 times more likely to use PEP than those who were not aware (42). This is an indication of much work needed to strengthen the infection prevention and control program at health facilities.

In this study, health workers who had a history of previous occupational exposures to HIV were significantly less likely to take PEP than those without a history of exposures. A possible explanation could be health workers who did not acquire infection from their previous exposures may have experienced familiarity, which may contribute to taking fewer precautions and not taking PEP in subsequent exposures. Furthermore, the study established that as the number of previous occupational exposures increase, the risk of not taking PEP among those exposed increases. Findings from this study conform to those by Aminde et al (2015) however; the difference in study designs limits comparison of the risk of a history of previous exposure in the uptake of PEP (11).

In this study, health workers with a perceived risk of HIV acquisition at the workplace were significantly more likely to take HIV PEP. Health workers who recognize the presence of occupational HIV risk are more likely to be motivated to practice universal infection control precautions in making sure they undertake appropriate post exposure measures than those who do not perceive risk. In a study conducted in Cameroon, a significant proportion of the participants who did not believe they could be infected by HIV at work did not commence on PEP (26). Raising awareness on occupational risk and PEP among health workers is important in addressing the limited risk awareness.

Healthcare workers who were trained on PEP were significantly more likely to utilize PEP compared to those who were not trained in this study. Consistent with findings in this study, the odds of PEP utilization were three times higher among those who trained on PEP compared with those who were not trained in a study by Abera et al (2018) (21). There is, therefore, the need to train health care workers on the PEP protocol, on the procedure to be taken following accidental exposure to infectious body fluids. Mashoto et al (2013) established that training of healthcare workers influences their knowledge on PEP, which enhances uptake of the services (43).

In this study, accessibility of PEP services at the health facilities was another significant factor associated with PEP uptake. This finding is plausible, as those who have PEP services readily accessible are more likely to utilize PEP services than those without accessible services. In a study in the Mbarara region, Uganda, PEP services were not available at night and on weekends, which was a barrier to uptake of PEP when exposure occurred at night or over the weekend (40). Lack of access to PEP may occur because there is no organized system within the hospital for reporting, investigating and treating exposures (40). Having an organized department at the health facilities



with staff assigned to receive, follow-up and treat reported occupational exposures would help improve the services.

Health workers who received counselling following occupational exposure were more likely to take PEP compared to those who did not receive counselling in this study. Counselling following occupational exposure can lead to increased adherence, which is critical in preventing HIV seroconversion. In a study by Kabyemara et al (2015), counselling after occupational exposure was minimal and this contributed to low uptake of PEP (22). Counselling provides education to the exposed health workers on risks and benefits of HIV PEP, management of side effects and the need to complete the PEP schedule.

In this study, only 38% of the health workers who commenced on PEP completed the course. This is comparable to findings in other studies in Africa where the proportion of PEP completion ranged from 23.1 % to 40% in Tanzania (44). The major reason for non-adherence noted in this study was the side effects of the drugs. This finding was in agreement with a study conducted by Tetteh et al (2015) where exposed HCWs who reported adverse effects of the drugs were less likely to adhere to their medication than those who did not report adverse effects (35). This intolerability to adverse events highlights the need for adequate, appropriate and effective counselling, active follow-up and management of adverse events (26,35). In a study carried out in India, an initiative of a PEP telephone helpline was taken at the health facilities to ensure reporting of cases, initiation and completion of PEP, which resulted in 98% PEP completion among the health workers (45).

## **5.2 Limitations**

The study was with limitations. There was a possibility of recall bias whereby both cases and controls could have forgotten about the history of their previous exposures. This was reduced by

confirming with the registers where the information was available. Most responses related to the utilization of HIV PEP were self-reporting which could have introduced social desirability bias in the study.

### **5.3 Conclusions**

The study revealed significant knowledge gaps regarding PEP among those who did not take PEP and having good knowledge was significantly associated with uptake of PEP. Health workers' perception of the risk of HIV acquisition at the workplace and training of health care workers on PEP plays an important role in the uptake of PEP services. Side effects of PEP contribute to non-adherence to the medication in the majority of the exposed health workers.

### **5.4 Recommendations**

Based on findings from this study, the following are recommended:

- Continuous refresher trainings on infection prevention and control and PEP use for all health care workers including general hands, laboratory personnel and cleaners. **(Provincial Infection Prevention and Control focal nurse)**
- The health facilities should have a system that includes written protocols for prompt reporting of occupational exposure, evaluation, counselling, treatment and follow-up available to all health care workers. **(District Infection Prevention and Control focal nurse/ Health Promotion officer)**
- The health facilities should institute support structures such as establishing a 24-hour accessible PEP centre. **(District Health Executive)**

- The districts should establish a PEP telephone helpline to offer support to health workers on reporting of exposures, initiation and completion of PEP to help improve services. **(District Health Executive)**
- There is also a need for policy makers in the ministry of health to set in place a system to measure up or monitor and evaluate PEP services in health care settings to improve service delivery. **(Ministry of Health and Child Care)**

## CHAPTER 6

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## Annex 1: English consent form

**DEPARTMENT OF COMMUNITY  
MEDICINE**

P. O. Box A 178  
Avondale  
Harare, Zimbabwe  
Telephone: + 263 4 795835/707707  
Fax: + 263 4 795835  
Telex: 26580 UNIVZ ZW  
Telegrams: UNIVERSITY



**COLLEGE OF HEALTH SCIENCES**

**UNIVERSITY OF ZIMBABWE**

### **CONSENT FORM FOR STUDY PARTICIPANTS**

**PROTOCOL TITLE:** Determinants of Post exposure prophylaxis uptake following occupational exposure to HIV in Matabeleland South Province, 2018

**PRINCIPAL INVESTIGATOR:** Tendai Chipendo

**PHONE NUMBER:** +263 776 387 330

### **CONSENT TO PARTICIPATE IN THE STUDY**

My name is Tendai Chipendo a Public Health Officer with the University of Zimbabwe currently attached to the Provincial Medical Directorate, Matabeleland South Province. You have been selected to participate in this study. Before you decide whether to participate in this study, you must understand its purpose, how it may help you, the risks to you, and what is expected of you. This process is called informed consent.

### **PURPOSE OF THE STUDY**

The study seeks to determine the factors associated with Post exposure prophylaxis uptake following occupational exposure to HIV in Matabeleland South Province, 2018. This study is expected to generate evidence-based recommendations for the HIV and infection prevention and control programs. The findings of this study are expected not only to inform interventions, but also to impact on information communication and dissemination, training programs and policy formulation.

## **PROCEDURES**

If you volunteer to participate in this study, I would like you to know that: participation is voluntary. Refusal to participate in the study will not result in a penalty or withdrawal of any benefits that you are entitled to. If you choose to participate and at any stage, feel uncomfortable and wish to terminate the process you are free to do so. There will be an interviewer-administered questionnaire that is expected to be completed within 20 minutes. Please try to respond honestly.

## **POTENTIAL RISKS AND DISCOMFORTS**

Given the nature of the study, no risks are foreseeable during the questionnaire phase. You might express fear of deception whereby you doubt the investigator's motives. You might feel that the investigator is not revealing the whole truth about the purpose of the study or questionnaire. The investigator will therefore, address this by providing the contact details for the supervisor if you want to confirm. You might feel that the more you reveal information about the subject; you might actually be viewed as unknowledgeable resulting in a feeling of inferiority complex. The investigator will emphasize that the study has nothing to do with performance assessment of the participant. There is no wrong or right answer. The aim of the study will be explained to you.

## **POTENTIAL BENEFITS TO SUBJECTS AND TO THE SOCIETY**

The aim of the study is to determine factors associated with PEP uptake following occupational exposure among healthcare workers in Matabeleland South province.

## **PAYMENT FOR PARTICIPATION**

You shall not receive any payment for participation.

## **CONFIDENTIALITY**

Any information that is obtained in connection with this study will not be identified with you. Moreover, the data is confidential and will not be disclosed without your permission or as required by law. Your identity will be kept confidential. You will not be required to put your names on the questionnaire. Confidentiality will be maintained. Completed questionnaires will be kept under lock at all times. The Information can only be shared with the supervisor or the Research Department of the University. Your names will not be published.

## **PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw anytime you feel like. You may also refuse to answer any questions you feel uncomfortable answering. The investigator may withdraw you from this research if circumstances arise which warrant doing so. Participation may be terminated if you start to feel that the questionnaire is a direct attack on you and hence making it impossible to continue with the

investigation. If you react with intense emotions or being, defensive in such a manner that it leads to failing to respond correctly, no questions will be asked to justify the withdrawal.

### **IDENTIFICATION OF RESEARCHERS**

**Researcher:** Tendai Chipendo

Community Medicine, University of Zimbabwe  
+263 776 387 330; [tendaichipendo@gmail.com](mailto:tendaichipendo@gmail.com)

**Co-investigator:** Prof M. Tshimanga

Department: Community Medicine, University of Zimbabwe  
+263 4 792157, [tshimangamufuta@gmail.com](mailto:tshimangamufuta@gmail.com)

### **RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact my supervisor.

### **AUTHORIZATION**

You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and have decided to participate.

_____	_____	_____
<b>Name of Research Participant (please print)</b>	<b>Date</b>	<b>Signature of Participant</b>
_____	_____	_____
<b>Researcher's Name</b>	<b>Date</b>	<b>Signature</b>
<b>Witness' Signature</b> _____	<b>Date</b> _____	

### **YOU WILL BE OFFERED A COPY OF THIS CONSENT FORM TO KEEP.**

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant or research-related injuries; please feel free to contact the Medical Research Council of Zimbabwe (MRCZ) on telephone (04)791792 or (04) 791193 and cell phone lines 0784 956 128. The MRCZ Offices are located at the National Institute of Health Research premises at Corner Josiah Tongogara and Mazowe Avenue in Harare

**Annex 2: Ndebele consent form**

**DEPARTMENT OF COMMUNITY  
MEDICINE**

P. O. Box A 178  
Avondale  
Harare, Zimbabwe  
Telephone: + 263 4 795835/707707  
Fax: + 263 4 795835  
Telex: 26580 UNIVZ ZW  
Telegrams: UNIVERSITY



**COLLEGE OF HEALTH SCIENCES**

**UNIVERSITY OF ZIMBABWE**

**INCWADI YESIVUMELWANO**

**PROTOCOL TITLE:** Determinants of Post exposure prophylaxis uptake following occupational exposure to HIV in Matabeleland South Province, 2018

**UMXWAYISISI:** Tendai Chipendo

**UCINGO:** +263 776 387 330

**ISIVUMELWANO SOKUPHATHEKA KULELI HLELO**

Igama lami ngingu Tendai Chipendo. Owogatsha lweze mpilakahle ofunda eUniversity of Zimbabwe okwamanje ngisebenzela emahofisini kasibalukhulu ozempilakahle esabelweni sema Matabeleland South Province. Ukhethiwe ukuba uphatheke kuloluhlelo ungakacabangisisi ukuthi uphatheke kumbe hatshi kuloluhlelo kufanele wazi njalo uzwisise injongo yalo.

**INJONGO YOKUCUBUNGULA**

Isifundo sifuna ukunquma izici ezihlobene nazo ukusetshenziswa kwe PEP emva ukuchayeka kwe HIV emsebenzini weMatabeleland South Province. Lolu cwaningo lulindeleke ukuthi lukhiphe izincomo ezisekelwe ebufakazini zezinhlelo zeHIV le Infection Prevention and Control. Okutholakele kulolu cwaningo lulindeleke ukuthi kwazise ukungenelela kanye nokuthinta ulwazi lokuxhumana kanye lokuqedwa, uhlelo lokuqeqesha kanye nokwakhiwa kwenqubomgomo.

**ZIZOTHATHWA ESIFUNDWENI**

Uma usukhethe ukungena kulolu cwaningo ngingthanda ukwazi ukhuthi awuphoqelekile ukuba ujoyine lolu cwaningo. Ukhululekile ukuphuma noma yikuphi kwalokhu kusesha. Ukuphuma kulesi losesho akuthinti ubuhlobo bakho bokusebenza. Ngizosebenzisa leli phepha ngemibuzo ozocelwa ukuba uphendule. Inkulumo yami nawe ngeke ithathe ngaphezu kwemizuzu engamashumi amabili. Zama ukwethembeka lapho uphendula imibuzo.

### **INGOZI NOMA UKULIMALA KWALOKHU KUCWANINGO**

Asilindele ukuthi ubone ingozi noma ukucindezeleka kulolu cwaningo. Uma ungathanda ukuqonda ngalokhu kusesha, ngizokunika izinamba zocingo zabantu abadala ongabashayela ukuzoziqonda. Ungase ukhululeke ngenxa yeminye imibuzo engizokubuza yona, ayikho impendulo elungile noma engalungile.

### **KUNGAKUSIZA KULOKHU KUCWANINGO**

Ayikho inzuzo oyithola kulokhu ukusesha ngesikhathi sokusesha, kodwa wena nabanye ungazuza esikhathini esizayo.

### **IZINDLEKO ZOKUNGENA KULESI SOCWANINGO**

Ayikho icala lokungena kulokusesho

### **IMFIHLO YOLWAZI LWAKHO**

Awudingi ukubhala igama lakho, ikheli lakho lekhaya noma inombolo yocingo kushidi lesignesha. Senza lokhu ukuze silondolozwe isimo sakho. Akekho ovunyelwe ukubona icala lakho ngaphandle kokuthi usinike imvumo. Amarekhodi azogcinwa eshalofini elungile ngaso sonke isikhathi. Amagama akho angeke abanakale.

### **UKUBAMBA IQHAZA NOMA UKUHOXISWA KULOLU CWANINGO**

Uma uvuma ukubamba iqhaza esifundweni, unгахoxisa noma kunini uma uzizwa. Awuphoqelekile ukuphendula imibuzo ongafuni ukuyiphendula.

### **UMCWANINGI**

**Researcher/Umxwayisizi:** Tendai Chipendo  
Community Medicine, University of Zimbabwe  
+263 776 387 330; tendaichipendo@gmail.com

**Co-investigator:** Prof M. Tshimanga  
Department: Community Medicine, University of Zimbabwe  
+263 4 792157, tshimangamufuta@gmail.com

### **ILUNGELO LAKHO**

Ungakwazi ukuhoxisa esifundweni ngaphande kwesijeziso. Ungacela ukuthi kukhona yini okudingayo ukuyiqonda.

### **UKUVUMA UKUPHATHEKA**

Lapha wenza isinqumo sokuba uyafuna ukuphatheka kulolucwayisiso kumbe hatshi. Isiginetsha yakho iveza ukuba obale wazwisisa konke osokubethwe ngaphambilini njalo yonke imbuzo obungabe ulayo isiphendululiwe ngakho usunqume okuphatheka. Nanzelela ukuba ilanga lapho ofaka khona isiginetsha yakho uvuma ukuphatheka alikadluli ilonga elibhalwe kusidindo esisekhasini lonke lalesi sivumelwano. Amalanga la atshengisa ukubana lelifomu liqotho njalo lisafanele ukusentshenziswa. Awatshengisi ukubana lolucwayisiso luzaphela nini.

---

Ibizo lakho

---

Ilanga lanamuhla

---

Isiginetsha kamaphatheka

---

Isiginetsha lomcwaningi

---

Ilanga lanamuhla

### **OKUYE ONGAFUNA UKUBA KWAZI**

Kumafomu ozawasayina enye izaba ngeyakho ukuba uyigcine. Uma ungaba leminye imibuzo engaphendulwanga okusuthisayo, kumbe uma ungaphathwa kakubi ngabacwayisisi loba ulokunye ongeke wakukhuluma labacwayisisi ungatshayela ucingo abe Medical Research Council of Zimbabwe ku (04) 791792 or 791193 okuyibo osibakhulu kwezencwayisiso ezempilo.

**Annex 3: English Questionnaire**

**DEPARTMENT OF COMMUNITY  
MEDICINE**

P. O. Box A 178  
Avondale  
Harare, Zimbabwe  
Telephone: + 263 4 795835/707707  
Fax: + 263 4 795835  
Telex: 26580 UNIVZ ZW  
Telegrams: UNIVERSITY



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**Health worker Questionnaire**

<b>Section 1: Socio-demographic Characteristics</b>			
<b>Qn No#</b>	<b>Question</b>	<b>Response</b>	<b>Instruction</b>
1.	Respondent status	<b>Case</b> [ ] <b>Control</b> [ ]	<b>Required</b>
2.	How old were you at your last birthday?	.....	
3.	Sex	Male [ ]      Female [ ]	<i>Observe</i>
4.	What is your highest level of education you have attained?	Certificate [ ]      Diploma [ ] Bachelor degree [ ] Master's degree [ ] Other (specify).....	
5.	What is your marital status?	Single [ ]      Married [ ] Divorced [ ]      Widowed [ ]	
6.	What is your religion?	Christian [ ] Muslim [ ]	

		Traditional [ ] Other, specify.....	
7.	What is your profession?	Medical Doctor [ ]                      Nurse [ ] Dentist [ ]                                  Dental technician [ ] Lab Technician / Scientist [ ]      General Hand [ ] Other, Specify.....	
8.	How many years have you worked as a health care worker?	.....	
<b>Section 2: Forms of occupational exposures</b>			
9.	Have you ever had multiple occupational exposures to HIV in the past?	Yes [ ]    No [ ]	<i>If no, skip to Question 10</i>
10.	How many exposures have you had in the past 12 months?	1 [ ]    2-3 [ ]                      >4 [ ]	
11.	What type of occupational exposures have you experienced in the past?	Needle stick injury [ ] Splashing of blood/bodily fluid on mucosal surfaces [ ] Cut with sharp object [ ] Human bite [ ] Non intact skin injury [ ] Other, Specify.....	<i>Tick all that apply</i>
12.	What were the circumstances of exposure?	Setting up IV line [ ] During surgery [ ] Giving injections [ ]	<i>Tick all that apply</i>



		Collecting blood samples [ ] Recapping needles [ ] During delivery [ ] Other, specify.....	
<b>Knowledge of HIV post exposure prophylaxis</b>			
13.	Are you aware of the existing policy on Post exposure prophylaxis after an occupational exposure?	Yes [ ]      No [ ]	
14.	What are some of the measures that you take after an occupational exposure?	i. Promote active bleeding of the injury? Yes [ ]      No [ ]  ii. Wash exposed area with soap and water and apply dressing? Yes[ ]      No[ ]  iii. .Report occupational exposure to a clinic staff? Yes[ ]      No[ ]	
15.	Are you aware of where PEP services can be accessed at this facility?	Yes [ ]      No [ ]	<i>If no, skip to Question 16</i>
16.	Where are the PEP services accessed?	Outpatients department [ ]      Pharmacy [ ]  Staff clinic [ ]      Other, specify.....	
17.	When should HIV PEP be taken following an occupational exposure?	Immediately [ ]      Within 72 hours [ ]  Within a week [ ]      I don't know [ ]	
18.	What is the duration of the PEP course?	1 week [ ]      1 month [ ]      1 year [ ]  Other, specify.....	
<b>Health worker related factors</b>			

19.	Following an occupational exposure to HIV, did you commence on PEP for HIV?	Yes [ ] No [ ]	<i>If no, skip to Question 25</i>
20.	After how long did you commence on HIV PEP?	Within 1 hour [ ] Within 1 day [ ] Within 3 days [ ] Within 1 week [ ]	
21.	Did you experience any problems with the drugs?	Yes [ ] No [ ]	
22.	If yes, what problems did you experience?	Appetite loss [ ] Diarrhea [ ] Fatigue [ ] Nausea [ ] vomiting [ ] Other, specify .....	
23.	Did you get the help you expected to deal with the problems?	Yes [ ] No [ ]	
24.	How many days did you take the PEP medication?	.....	
25.	(If not for 28days), what are the reasons for not completing the course?	Experienced side effects of the drugs [ ] Pill burden [ ] No perceived risk of acquiring infection [ ] Other, specify ..... .....	
26.	If you answered no to question 18, what are the reasons for not taking PEP?	Did not want to take medication [ ] Fear of the process of taking PEP [ ] Did not know about PEP [ ] Fear of side effects of PEP [ ] PEP was not available [ ]	

		Other, specify ..... ..... ..... .....	
27.	Do you consider yourself to be at risk of HIV acquisition at your workplace?	Yes [ ]      No [ ]	
28.	Is there stigma attached to HIV infection at your workplace	Yes [ ]      No [ ]	
29.	If occupational injury is sustained, are you worried of being stigmatized by others?	Yes [ ]      No [ ]	
30.	Does the fear of stigma affect the practice of PEP?	Yes [ ]      No [ ]	
<b>Health system related factors</b>			
31.	Have you ever had any training on infection prevention and HIV PEP utilization?	Yes [ ]      No [ ]	
32.	Are you satisfied with the current HIV infection prevention protocol at work?	Yes [ ]      No [ ]	
33.	How would you rate the quality of the PEP services you received at the facility?	Excellent [ ]      Good [ ]      Fair [ ] Poor [ ]      Very poor [ ]	
34.	Are the PEP services easily accessible at this facility?	Yes [ ]      No [ ]	
35.	Are PEP services available 24hours a day?	Yes [ ]      No [ ]	

36.	Have you ever received any counselling following occupational exposure at this facility?	Yes [ ] No [ ]	
37.	Have you ever received any health education before HIV PEP initiation at this facility?	Yes [ ] No [ ]	
38.	Is there a system for following up on those who have commenced on PEP at this facility?	Yes [ ] No [ ]	
39.	Are there areas in the delivery of PEP services at this facility that you would need improvement?	Yes [ ] No [ ]	
40.	If yes, what areas need improvement? ..... ..... ..... .....		

## Annex 4: Ndebele Questionnaire

### DEPARTMENT OF COMMUNITY MEDICINE

P. O. Box A 178  
Avondale  
Harare, Zimbabwe  
Telephone: + 263 4 795835/707707  
Fax: + 263 4 795835  
Telex: 26580 UNIVZ ZW  
Telegrams: UNIVERSITY



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### Questionnaire for study participants- Ndebele

Questionnaire number [      ]

Socio-demographic Characteristics			
Qn No#	Question	Response	Instruction
1.	Respondent status	Case [ ]                      Control [ ]	<b>Required</b>
2.	Uleminyaka emingaki yokuzalwa?	.....	
3.	Ubulili	Ngowesilisa [ ]    Ngowesifazana [ ]	<i>Observe</i>
4.	Ufunde wafika kubanga liphi?	Certificate [ ]    Diploma [ ]  Bachelor degree [ ]  Master's degree [ ]  Other (specify).....	
5.	Ungabe uthethe kumbe wendile?	Angikathathi / angikendi [ ]  Ngithethe/ Ngendile [ ]  Sehlukana [ ]    Ngingumfelokazi [ ]	

6.	Yiluphi ukholo lwakho?	Ngilikhholwa lesiKristu [ ] NginguMuslim [ ] Ngengowamasiko[ ] Okunye, chaza.....	
7.	Ulesicoco siphi?	Medical Doctor [ ]                      Nurse [ ] Dentist [ ]                      Dental technician [ ] Lab Technician / Scientist [ ]    General Hand [ ]    Other, Specify.....	
8.	Ususebenze isikhathi eside kanganani kwezempilo?	.....	
<b>Forms of occupational exposures</b>			
9.	Sewaba sengozini yokuthola umkhuhlane weHIV kangaki ngenxa yomsebenzi wakho lo na?	Yebo [ ]    Hatshi [ ]	<i>If No, skip to Question 11</i>
10.	Phakathi kwenyanga ezilitshumi lambili ezedlule ukwewaba sengozini kangaki?	1 [ ]    2-3 [ ]                      >4 [ ]	
11.	Yiziphi ingozi ezakuvelelayo ezazingenza uthole umkhuhlane we HIV ngenxa yomsebenzi?	Ingozi yenalithi [ ] Ukuchaphakelwa ligazi okusetshenzelwa khona [ ] Ukuzisika[ ] Ukulunywa ngumuntu [ ] Ukulimala emsebenzini [ ] Okunye, chaza.....	<i>Tick all that apply</i>
12.	Kwakubangelwa yini ukuthi ubesengozini?	Ngifaka ijekiseni yamanzi[ ] Ngesikhathi sokuhlinza[ ]	<i>Tick all that apply</i>

		Ngimhlaba ijekiseni[ ] Ngithatha igazi[ ] Ngivala ijekiseni [ ] Ngimbelethisa [ ] Okunye, chaza .....	
<b>Knowledge of HIV post exposure prophylaxis</b>			
13.	Uyawazi na umthetho mayelana lokuthi mele wenzeni nxa uthe wavelelwa ingozi?	Yebo [ ]      Hatshi [ ]	
14.	Okumele ukwnze nxa suthe wavelelwayingozi yokuthatha IHIV ngenxa yomsebenzi?	iv. Ukukhuthaza ukopha nxa ulimele? Yebo [ ]      Hatshi [ ] v. Ukugeza ngesepa lamanzi lapho olimele khonalo kwelatshwa masinya? Yebo[ ]      Hatshi[ ] vi. Tshela abezempilo masinya eclinic? Yebo[ ]      Hatshi[ ]	
15.	Uyakwazi ukuthi okokuvikela lokhu kutholakala ngaphi?	Yebo [ ]      Hatshi [ ]	<i>If No, skip to Question 17</i>
16.	Kungaphi othola khona lolusizo?	Outpatients department [ ]      Pharmacy [ ] Staff clinic [ ]      Okunye.....	
17.	Kumele ukwenzelokhu ngemva kwesikathi esinganani?	Masinya [ ]      phakithi kwamaholo angamatshumi ayisikhombisa lambili [ ] Iviki ingakapheli [ ]      angazi [ ]	

18.	Loluhlelo lokuvikela luthatha isikhathi eside kangani?	Iviki [ ] Inyanga [ ] Umnyaka [ ] Okunye, chaza.....	
<b>Health worker related factors</b>			
19.	Ngemva kokuvelwa yingozi waludinga yini uncedo?	Yebo [ ] Hatshi [ ]	<i>If No, skip to Question 27</i>
20.	Kwathatha isikhathi esinganani ukuqala ukunatha?	Phakathi kwehola [ ] phakathi kosuku [ ] phakathi kwamalanga amathathu [ ] Phakathi kweviki [ ]	
21.	Waba lohlupho yini ngala mapilisi?	Yebo [ ] Hatshi [ ]	
22.	Nxa wabalalo, yiluphi lolohlupho owahlangana lalo?	Inhliziyo yabamnyama [ ] isihudo [ ] ukuphela amandla [ ] ukugonyuluka [ ] Ukuhlanza [ ] Ukubalesiyezi [ ] Okunye, chaza .....	
23.	Waluzuza uncedo na mayelana lalohlupho?	Yebo [ ] Hatshi [ ]	
24.	Wawanatha okwensuku ezingaki?	.....	
25.	Wawanatha wawaqeda yini	Yebo [ ] Hatshi [ ]	
26.	Nxa ungawaqeda, ngayiziphi izizatho ezenza wehluleke ukuwaqeda?	Ayengigulisa [ ] Ayemanengi kakhulu [ ] Ngangingela hlupho, futhi kungela ngozi [ ] Ngabona sekwanele [ ] Okunye, chaza	



		..... .....	
27.	Nxa ungazange uqale ukunatha amapilisi okuvikela yiziphi izizatho ezenza ungahle uqale ukunatha?	Ngangingafuni amapilisi [ ] Ngesaba isikhathi sakhona okumele usithathe unatha [ ] Ngangingazi [ ] Ngesaba ukuthi azangigulisa [ ] Ayengekho [ ] Okunye, chaza ..... ..... ..... .....	
28.	Ukubona usengozi yeHIV emsebenzini wakho na?	Yebo [ ]      Hatshi [ ]	
29.	Kulokubandlululana yini ngenxa yeHIV emsebenzini wenu?	Yebo [ ]      Hatshi [ ]	
30.	Nxa uthe walimala, ulokwesabela yini ukuthi bazakubandlulula emsebenzi wakho?	Yebo [ ]      Hatshi [ ]	
31.	Ukubandlulula lokhu kwenza yini wesabe ukunatha amaphilisi okuvukela mgceke emsebenzini?	Yebo [ ]      Hatshi [ ]	
<b>Health system related factors</b>			
32.	Sewake wafundiswa yini mayelana lokuvikelwa kwengculaza emsebenzini?	Yebo [ ]      Hatshi [ ]	
33.	Uyasuthiseka yini ngendlela iHIV ephathwa ngayo emsebenzini?	Yebo [ ]      Hatshi [ ]	
34.	Ubona njani ngoncedo lwamaphilisi la owaluthola eclinic le?	Excellent [ ]      Good [ ]      Fair [ ] Poor [ ]      Very poor [ ]	

35.	Ayatholaka lulayini amaphilisi okuvikela eclinic yenu	Yebo [ ]    Hatshi [ ]	
36.	Akhona nsukuzonke loba yisiphi isikhathi?	Yebo [ ]    Hatshi [ ]	
37.	Sewake wathola abokuxoxisana labo ngemva kokuvelelwa yingozi kule clinic?	Yebo [ ]    Hatshi [ ]	
38.	Wathola yini ukufundiswa ungakatholi uncedo lolu kule clinic?	Yebo [ ]    Hatshi [ ]	
39.	Balayo yini indlela yokulandelela abathe bawelolwa yingozi le?	Yebo [ ]    Hatshi [ ]	
40.	Uyasuthiseka yiniyindlela okutholiswa ngayo uncedo nxa uthe wabasengozi kule iclinic?	Yebo [ ]    Hatshi [ ]	
41.	Nxa unga suthiseki kuyini okumele kwenziwe ukuze kuthuthuke?	..... ..... ..... .....	

**Ngiyabonga**

## Annex 5: Key Informant Questionnaire

Name of health facility .....

Date \_\_\_/\_\_\_/\_\_\_

(DD/MM/YY)

<b>Section 1: Demographic Characteristics</b>			
<b>Qn No#</b>	<b>Question</b>	<b>Response</b>	<b>Instruction</b>
1.	What is your job title/position		
2.	Sex	Male [ ] Female [ ]	<i>Observe</i>
3.	How long have you been in your current position?		
<b>Section 2: HIV PEP services</b>			
4.	Do you as an institution have a written protocol highlighting the practice guidelines for the management of Health workers accidentally exposed to the potential or confirmed HIV infected fluids?	Yes [ ] No [ ]	<i>Request to see the guidelines</i>
5.	Is there a mechanism of reporting occupational exposures at this facility	Yes [ ] No [ ]	<i>If no, skip to Question 7</i>
6.	How are occupational injuries reported?	.....	
7.	Is there a mechanism of staff training on Infection Prevention and control?	Yes [ ] No [ ]	<i>If no, skip to Question 10</i>
8.	Does the training include training on HIV PEP?	Yes [ ] No [ ]	
9.	How often is the training done at this facility?	Once a year [ ] Once in 2 years [ ] Can't remember [ ] Other, specify.....	
10.	Has any training been conducted in the past 12 months?	Yes [ ] No [ ]	<i>Verify</i>

11.	Has this facility ever experienced unavailability of HIV-PEP medications?	Yes [ ]      No [ ]	<i>If no, skip to Question 14</i>
12.	How did you address the shortage?	.....	
13.	How long did it take to address the shortage?	.....	
14.	Have you ever had health workers fail to commence on PEP due to drug shortages	Yes [ ]      No [ ]	
15.	Where are HIV PEP services offered at this facility?	Casualty [ ]    Staff Clinic [ ]    pharmacy [ ] Other, specify.....	
16.	Do you have specially trained practitioners providing the PEP services in this hospital?	Yes [ ]      No [ ]	
17.	If no, who offers PEP services?	.....	
18.	Are HIV-PEP medications services accessible all the time (i.e. day and night, weekends, and public holidays)?	Yes [ ]      No [ ]	
19.	Are the following PEP related services offered at this facility?	Post exposure counselling Yes [ ]      No [ ] Laboratory and clinical monitoring for adverse effects Yes [ ]      No [ ]	
20.	Is there a mechanism of follow up of health care workers who would have commenced on PEP?	Yes [ ]      No [ ]	<i>If no, skip to question 21</i>
21.	What follow up mechanism is there in place?	.....	
22.	Do you monitor adherence to PEP medication at this facility?	Yes [ ]      No [ ]	<i>If no, skip to question 23</i>
23.	How do you monitor adherence to PEP?	.....	
24.	What do you think are barriers to uptake of HIV PEP by occupationally exposed health care workers at this facility?	..... ..... .....	

## Annex 7: JREC Approval letter



### Joint Research Ethics Committee For The University of Zimbabwe, College of Health Sciences and Parirenyatwa Group of Hospitals

JREC Office No. 4, 5th Floor College of Health Sciences Building  
Telephone: +263 4 708140/ 791631 Exts 2241/2242  
Email: jrec.office@gmail.com | jrec@medsch.uz.ac.zw, website: www.jrec.uz.ac.zw



#### APPROVAL LETTER

Date: 3 June 2019

JREC Ref: 156/19

Names of Researcher: Tendai Chipendo  
Address: Department of Community Medicine

RE: **DETERMINANTS OF POST EXPOSURE PROPHYLAXIS UPTAKE  
FOLLOWING OCCUPATIONAL EXPOSURE TO HIV IN MATABELELAND  
SOUTH PROVINCE, 2018.**

Thank you for your application for ethical review of the above mentioned research to the Joint Research Ethics Committee. Please be advised that the Joint Research Ethics Committee has reviewed and approved your application to conduct the above named study. You are still required to obtain MRCZ and RCZ approval before you commence the study if required by the nature of your study.

- APPROVAL NUMBER: JREC/156/19
- APPROVAL DATE: 3 June 2019
- EXPIRY DATE: 2 June 2020

This approval is based on the review and approval of the following documents that were submitted to the Joint Ethics Committee:

- a) Completed Application Form
- b) Full Study Protocol
- c) Informed Consent in English and/or appropriate local language

After this date the study may only continue upon renewal. For purposes of renewal please submit a completed renewal form (obtainable from the JREC office) and the following documents before the expiry date:

- a. Progress report
- b. A Summary of adverse events
- c. A DSMB report

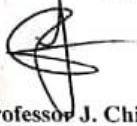
- **MODIFICATIONS:**

Prior approval is required before implementing any changes in the protocol including changes in the informed consent.

- **TERMINATION OF STUDY:**

On termination of the study you are required to submit a completed request for termination form and a summary of the research findings/ results.

Yours sincerely,



**Professor J. Chifamba**  
**Acting JREC Chairman**  
**JC/ilm/uh**

## Annex 8: MRCZ Approval Letter

Telephone: 791792/791193  
Telefax: (263) - 4 - 790715  
E-mail: [mrcz@mrcz.org.zw](mailto:mrcz@mrcz.org.zw)  
Website: <http://www.mrcz.org.zw>



Medical Research Council of Zimbabwe  
Josiah Tongogara / Mazoe Street  
P. O. Box CY 573  
Causeway  
Harare

### APPROVAL

REF: MRCZ/B/1747

01 July 2019

**Tendai Chipendo**  
NC1 Kadoma General Hospital  
Box 540  
Kadoma

**RE: Determinants of post-exposure prophylaxis uptake following occupational exposure to HIV in Matebeleland South Province, 2018**

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-

1. Completed MRCZ 101 form
2. Full protocol

• **APPROVAL NUMBER** : MRCZ/B/1747

This number should be used on all correspondence, consent forms and documents as appropriate.

- **TYPE OF MEETING** : EXPEDITED
- **APPROVAL DATE** : 01 July 2019
- **EXPIRATION DATE** : 30 June 2020

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

• **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.

• **MODIFICATIONS:** Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).

• **TERMINATION OF STUDY:** On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.

• **QUESTIONS:** Please contact the MRCZ on Telephone No. (0242) 791792, 791193 or by e-mail on [mrcz@mrcz.org.zw](mailto:mrcz@mrcz.org.zw)

#### Other

- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.
- In addition to this approval, all clinical trials involving drugs, devices and biologics (including other studies focusing on registered drugs) require approval of Medicines Control Authority of Zimbabwe (MCAZ) before commencement.

Yours Faithfully

  
.....  
**MRCZ SECRETARIAT  
FOR CHAIRPERSON  
MEDICAL RESEARCH COUNCIL OF ZIMBABWE**



**Annex 9: Matabeleland South Province Approval letter**

Telephone: +263 284 24590



**ZIMBABWE**

MINISTRY OF HEALTH AND CHILD CARE  
MATABELELAND SOUTH PROVINCE  
First Floor, New Government Complex  
Third Avenue  
P O Box 39  
Gwanda  
Zimbabwe

Email: [pmdmatsouth@gmail.com](mailto:pmdmatsouth@gmail.com)

Ref:

20 May 2019

Dear Tendai Chipendo

**RE: STUDY ON - DETERMINANTS OF POST EXPOSURE PROPHYLAXIS UPTAKE FOLLOWING OCCUPATIONAL EXPOSURE TO HIV IN MATABELELAND SOUTH PROVINCE, 2018**

Your letter with above reference refers. Permission has been granted to conduct a study on 'Determinants of Post exposure prophylaxis uptake following occupational exposure to HIV in Matabeleland South Province, 2018.'

You will be expected to share your research findings with Matabeleland South Province, Medical Directorate following the appropriate ethical procedures.

**DR. R. CHIKODZORE.**  
**PROVINCIAL MEDICAL DIRECTOR-MAT SOUTH**

