



**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF MEDICINE**  
**DEPARTMENT OF PUBLIC HEALTH**

**RISK BEHAVIOURS AND FACTORS ASSOCIATED WITH HIV PREVALENCE  
AMONG FEMALE PRISONERS AGED 18-65 YEARS AT LUSAKA CENTRAL  
PRISON: MISSED OPPORTUNITIES IN HIV PREVENTION**

**by**

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*A dissertation submitted to the University of Zambia in Partial Fulfillment of the requirements  
for the degree of Masters of Science in Epidemiology*

**LUSAKA - ZAMBIA**

**October 2014**

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## DECLARATION

I, **Margaret Chilambwe Kashinga Mpundu**, do hereby declare that this dissertation is my own original work. It has been presented in accordance with the guidelines for Master of Science in Epidemiology for the University of Zambia. It has not been submitted elsewhere for a degree at this or another University.

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I, **Dr. Selestine H Nzala** have read this dissertation and approved it for examination. I am satisfied that this is the origin work of the author under the name it is presented. I confirm that the work has been completed satisfactorily and ready for presentation to examiners.

**Dr. Selestine H. Nzala**

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## **CERTIFICATE OF APPROVAL**

The University of Zambia approves this dissertation of **Margaret Chilambwe Kashinga Mpundu** in partial fulfilment of the requirement for the award of Masters of Science in Epidemiology by the University of Zambia.

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## **DEDICATION**

*Affectionately dedicated to my late father and Legend:*

***Ba Malitino Kapembwa Moses Songolo Mpundu (MYSRIEP)***

***1912-2002***

## ACKNOWLEDGEMENTS

I thank the almighty God for making me feel his touch many times when in despair; restored my health when I almost gave up with whom this work would not have been completed.

I sincerely thank my supervisor Dr. Selestine *Nzala* for taking me on at a time the going became tough. His advice, encouragements and thought through criticisms contributed in many ways in writing of this dissertation.

I am indebted to Dr. Patrick *Musonda* for opening the way through proposal development and in particular his guidance through the data analysis.

To my brother and a friend *ba Nsofwa*, ever worried about my poor health. His encouragement, unfailing, non-judgemental support and understanding especially during my studies was a blessing.

I am very grateful to my old time and all-weather friend, who believed in my abilities and encouraged me to take up this course. His support through my long time of ill health when I nearly withdrew from the programme, reviewing my dissertation and giving constructive criticisms is greatly appreciated in accomplishing this work.

I thank in a unique way my classmates in first ever Epidemiology course at University of Zambia School of Medicine, for the stimulating discussions, for supporting each other and all the memorable times we shared.

It was a great honour from the Ministry of Home Affairs to accord me a rare opportunity and privilege to undertake this study in the prison. I thank the prison officers at Lusaka Central, in particular the female section and *Kansenshi* prisons for their hospitality and cooperation, without them this work would not have been accomplished.

I extend my appreciation to Lusaka District Health Office for granting me permission to use Lusaka Central Prison clinic. I am grateful to the members of staff at Lusaka Central prison clinic for their support and the supply of materials needed for the study. I also thank UTH Blood Bank for undertaking quality control analysis on selected specimens.

## ABSTRACT

Studies globally indicate that HIV prevalence in prisons is high (UNODC, 2011) suggesting that prisons are a high risk environment for HIV transmission (UNODC, 2008). HIV and AIDS in Zambian Prisons is high (27.4%), contributing to morbidity and mortality (CSO, 2009). HIV infection among female prisoners has been on the increase from 33.6% in 2010 (HRW) to 43.3% in 2011 (UNODC and UNAIDS). Studies by HRW (2010) and UNODC/UNAIDS (2011) suggested Men having Sex with Men (MSM) as the main driver of HIV infection among male prisoners. Currently, there is no data on risk behaviours associated with HIV sero-positivity among women prisoners.

The study explored the risk behaviours and factors associated with HIV sero-positivity among female prisoners in Lusaka Central Prison.

The study was a cross-sectional analytical survey, using both quantitative and qualitative approaches. A non-probability, convenience sampling method was used and 118 female prisoners participated in the study. Determine and Uni-Gold Rapid Tests were used for screening and ELISA Test as Gold Standard. Pre and post-test HIV counselling was offered. Quantitative data was analysed using STATA 12 (Stata Corp, USA) while qualitative data NVivo10 was used. Chi-squared tests were used to determine the association. Multivariate Logistic Regression was used to obtain CI and odds ratios. The statistical significance was set at  $\leq 0.05$  and 95%CI were calculated.

HIV prevalence estimation among female prisoners was high 67/118(56.8%). New sero-convertors accounted for 28/67(41.8%) and among these 17/28(60.7%) declined referral to HIV and AIDS management. A total of (28/39)71.8% were on ART, (11/39)28.2% were on CD4 monitoring, while 53/67(79.1%) had undergone VCT or DCT. Risk behaviours and factors which predicted HIV sero-positive status were: age group 28-37 years (AOR 7.6, 95%CI: 2.97-12.52,  $P=0.004$ ), one or more years in prison (AOR 4.6, 95%CI: 1.45-10.49,  $P=0.016$ ), previous incarceration (AOR 8.5, 95%CI: 2.53-7.02,  $P=0.005$ ), substance use (AOR 4.2, 95%CI: 3.17-7.18,  $P=0.034$ ), commercial sex (AOR 3.1, 95%CI: 1.42-7.72,  $P=0.042$ ), coerced sex while in lawful custody (AOR 3.3, 95%CI: 1.78-11.61,  $P=0.041$ ) and multiple sexual partners (AOR 9.6, 95%CI: 2.46-9.78,  $P=0.019$ ).

HIV prevalence has continued to be high among female prisoners despite observed declined in the general population. The possibility of some female prisoners being infected while in prison may not be ruled out. HIV in prisons has implications for HIV outside prison.

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## **Abbreviations and Acronyms**

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>AOR</b>	Adjusted Odds Ratio
<b>ARV</b>	Anti-retroviral
<b>ARASA</b>	AIDS Rights Alliance for Southern Africa
<b>DCT</b>	Diagnostic Counseling and Testing
<b>HIV</b>	Human Immunodeficiency Virus
<b>HRW</b>	Human Rights Watch
<b>IDIs</b>	In-depths Interviews
<b>IDUs</b>	Intravenous Drug Users
<b>MDGs</b>	Millennium Development Goals
<b>MoHA</b>	Ministry of Home Affairs
<b>MoH</b>	Ministry of Health
<b>MTCT</b>	Maternal To Child Transmission of HIV
<b>MSM</b>	Men who have Sex with Men
<b>NAC</b>	National HIV/AIDS/STD/TB Council
<b>NASF</b>	National AIDS Strategic Framework
<b>NGOs</b>	Non-Governmental Organisations
<b>NMAC</b>	US National Minority AIDS council
<b>PEP</b>	Post Exposure Prophylaxis
<b>PMTCT</b>	Prevention of Mother To Child Transmission
<b>PRISCCA</b>	Prisons Care and Counseling Association
<b>UN</b>	United Nations
<b>UNGASS</b>	United Nations Assembly Special Session on AIDS
<b>UTH</b>	University Teaching Hospital
<b>UNAIDS</b>	Joint United Nations Programme on HIV and AIDS
<b>UNODC</b>	United Nations Office on Drugs and Crime
<b>UNZA-BREC</b>	University of Zambia Biomedical Research Ethics Committee
<b>VCT</b>	Voluntary Counseling and Testing
<b>WHO</b>	World Health Organisation
<b>ZDHS</b>	Zambia Demographic and Health Survey
<b>ZPS</b>	Zambia Prison Service

## Definitions of Key Operational Terms

These are the assigned meaning to words and some will describe the activities and terms used in this study.

**Attitude:** A way of thinking, feeling and behaviour.

**Bwana:** A native word for anyone with authority in the prison system.

**Cell:** A restricted room where prisoners sleep at night or when permitted. Other cells are secluded small rooms within prison where inmates are locked for punishment.

**Detainee:** A suspect arrested by law enforcement accused of having committed a crime and awaiting trial.

**Female inmate:** A female prisoner from the age of 18-65 years.

**High Risk behavior:** High-risk behaviour in the prison environment include unprotected sex, rape, sex slave, unsafe injecting practices, use of non-sterile needles and other cutting instruments for tattooing are widespread (UNAIDS, 2008).

**Intemba:** Native word used in prison for a group of 3-5 prisoners headed by a *Kapitao* (Captain), supporting each other as a family, cooking and eating together.

**Inmate:** Convicted, Remanded or Detained prisoner.

**Prison:** A place of compulsory detention in which people are confined while on remand awaiting trial, on trial or for punishment following conviction for a criminal offence including police cells.

**Prisoner:** A female detained in any criminal justice or correctional facilities in Zambia: during investigation of crime; while awaiting trial; detained for immigration reasons or refugee status; detained without charge; after conviction and after sentencing.

**Prison Warder:** Prison Officer who guards prisoners and maintain law and order among inmates.

**Remandee:** Any person committed to lawful custody by a court order or order of detention, undergoing trial, not a convicted criminal prisoner.

**Releasee:** Ex-convict, remandee or detainee who has been released from prison or lawful custody after serving the sentence or being acquitted or pardoned.

## **CHAPTER 1: BACKGROUND**

### **1.1 Global HIV Prevalence and Distribution**

The Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) epidemic has been a major public health problem in the past three decades across all the continents with millions dying every year. According to Global HIV and AIDS Report (WHO et al., 2011), it was estimated that 34 million people were living with HIV, with 2.7 million new infections and 1.8 million deaths in 2010. In the same report, sub-Saharan Africa was the worst hit by HIV accounting for 68% of all people living with HIV with 1.9 million new HIV infections and 11.1 million people living with the virus that causes AIDS in Southern Africa in 2010.

Globally, the epidemic has affected more women than men indicating a gender bias in the epidemic. WHO et al., (2011) report estimated women to constitute about 50% of adults living with HIV in 2010. The report also observed that the burden of HIV on women was heaviest in sub-Saharan Africa with 1.4 times more adult women than men were living with HIV, an estimation of 59% of adults living with HIV in sub-Saharan Africa in 2010. Nelson Mandela spoke about the disproportionate burden of HIV infection that the worldwide HIV epidemic had taken on the face of a woman (De Groot et al., 2005).

### **1.2 HIV Prevalence in Prisons**

The data across the globe shows overwhelming evidence that prisons have become a fertile ground for HIV transmission with potential for intra and extra prison transmission of new HIV infections (UNODC, 2011). UNAIDS (2008) had listed prisoners as one of the four at risk and neglected populations in HIV and AIDS pandemic. Studies worldwide have shown that HIV prevalence rate in prisons is higher than in the general population and is still increasing (UNODC, 2011 and Jürgens et al., 2011). In the United States of America (USA), female prisoners accounted for 5-10% of prison population with HIV prevalence of 2.8% and 1.9% in male inmates (NMAC, 2008). The other study by Kantor (2006) observed gender disproportion in almost all state prisons, with some states such as Maryland accounting for 11.1% among female prisoners and less than 5% in male and New York female inmates accounted for 14.6% while 7.4% among male inmates. In the same study, it was revealed that deaths from AIDS in prisons were more than twice that of the general population, while survival time for female inmates with AIDS in USA prisons was worse than that of male inmates. In Brazil, HIV prevalence in prisons was 15% and 0.6% in the general population (Kantor, 2006). In another

study by Suresh et al., (2011) in India, HIV and AIDS was the major cause of deaths in 2008, accounting for 26% of all prison deaths.

### **1.3 HIV and AIDS among African Women Prisoners**

In the Sub-Saharan Africa, HIV and AIDS in prisons is as high as 5 times to that of general population (UNODC, 2008). Women are more at risk for HIV infection and particularly true among female inmates (De Groot et al., 2006). In Nigeria; 9.0% of prisoners were HIV positive compared to 3.7% in general population and was even higher in female inmates of 11.6%. In Cote d'Ivoire, HIV prevalence in general population in 2001 was 10.8% and in prisons was 27.5% while among female inmates it was 36.4% (Kantor, 2006). There had been significant increase in national and international funding to control the pandemic, but prisons in the sub-Saharan Africa had received surprisingly little attention (WHO and UNAIDS, 2008).

### **1.4 HIV and AIDS and Women Prisoners in Zambia**

Zambian prison total population was about 16,140 inmates, and females accounted for approximately 1.5% of all the total prison population, with an estimation of 300 female prisoners incarcerated nationwide by February 2013 (MoHA, 2013). Zambia has 86 prisons; women live in separate sections of prisons with one dedicated exclusively to female inmates (HRW, 2010). HIV and AIDS prevalence in prisons had been high about 27% (CSO, 2009), nearly double compared to general population and 33% for female inmates (HRW, 2010). According to the survey conducted by MoH in conjunction with UNODC and UNAIDS in July 2011, it revealed a sharp increase in HIV prevalence among female prisoners to 43.3%.

### **1.5 Statement of the Problem**

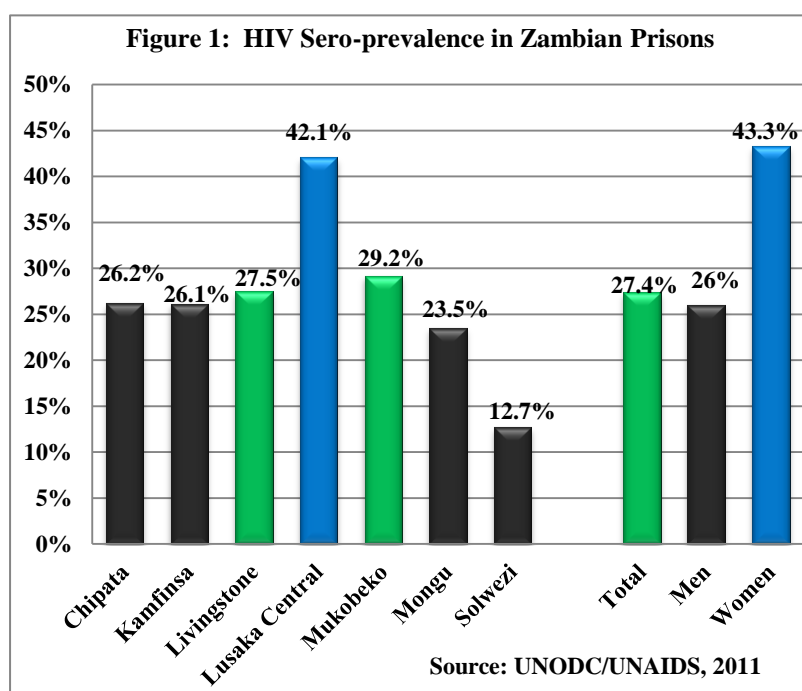
According to WHO and UNODC (2009) report, imprisonment of women had become common and population in prison has been increasing fast. In the same report, it was observed that women prisoners constituted a very small proportion of the general prison population worldwide, between 2% and 9% of a country's prison population. The table 1 below from the World Prisons Brief Online (2008) shows the proportion of female prisoners in countries with lowest proportion of female prisoners.

**Table 1: Countries with lowest proportion of Women Prisoners**

Seychelles	0%	Gambia	1.2%
Liechtenstein	0%	Zambia	1.5%
Tanzania	0.9%	Fuji	1.5%
St. Kitts and Nevis	0.9%	Jordan	1.6%
Burkina Faso	1.0%	Pakistan	1.7%
Malawi	1.2%	Azerbaijan	1.7%

**Adapted from World Prisons Brief Online, 2008.**

Zambia's HIV prevalence rate is high (14.3 %); 16.1% women and 12.3% men living with HIV and AIDS (CSO, 2009). Zambia is ranked seventh in the world among most affected countries (UNAIDS, 2008); Between 1995 and 2000, it was reported that 2,397 prisoners and staff died of AIDS related illnesses, while in 2004; 449 prisoners died of AIDS related illnesses (UNODC, 2011).

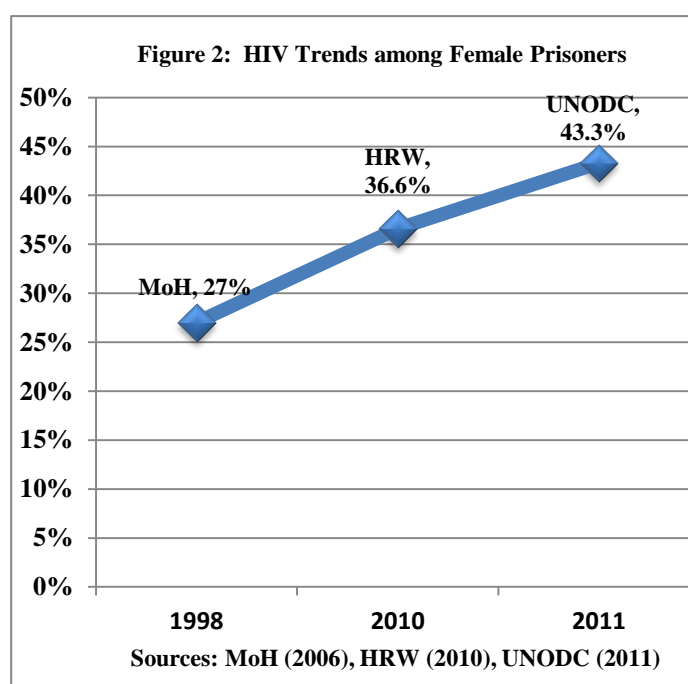


HIV and AIDS in Zambian prisons has remained high (27.4%) and highest among female inmates (43.3%) according to UNODC and UNAIDS (2011) national survey and continues to increase. Figure 1 shows HIV positive status among the prison population in Zambian prisons with Lusaka Central Prison leading with 42.1% and

highest was among female prisoners with 43.3% (UNODC and UNAIDS, 2011).

In an earlier report by HRW (2010) showed that although female inmates constituted a very small percentage of prison population (1.5%), the HIV prevalence rate was 33.6%. It was more than double that of the general population (14.3%) and that of the female general population of 16.1% (CSO, 2009).

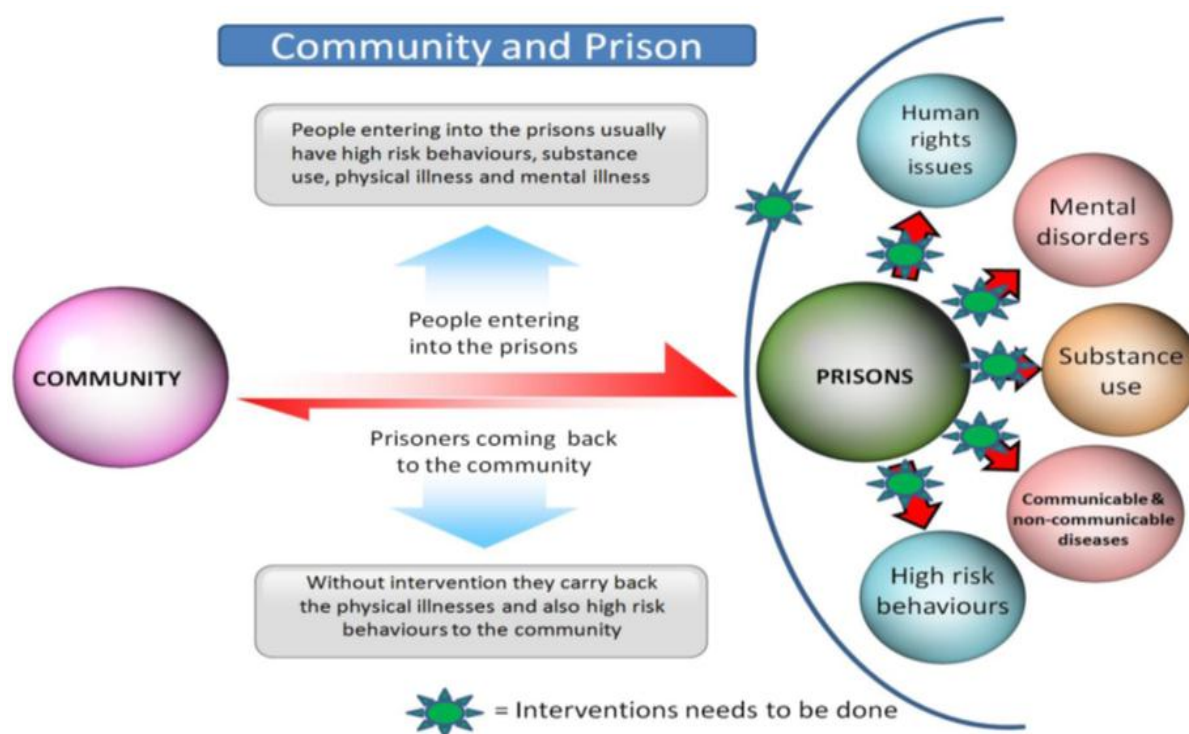
HIV infection among Zambian female prisoners has been high and on the increase since the National HIV Surveillance in 1998 (figure 2). HIV infection among female prisoners was 27% (MoH, 2006), increased to 33.6% in 2010 according to the survey conducted by HRW. In the national survey of sero-behavioural prevalence in the Zambian prisons by MoH and MoHA in conjunction with UNODC and UNAIDS (2011),



showed that after a decade since the last survey in 1998, HIV prevalence in prisons had remained unchanged (27.4%), while HIV prevalence among female inmates had increased to 43.3% (UNODC and UNAIDS, 2011).

Despite international and national commitments and resources in mitigating HIV and AIDS, the burden of disease in Zambian prisons is high and continues to increase among female prisoners. The increase in HIV prevalence in prisons may be an indication that the HIV preventive interventions and strategies may not have been effective and it is evident that gaps may exist between HIV prevention policies and their application in Zambian prisons. Prisoners are part of the community, protecting them protects the community as prisoners came from the community before incarceration and will be released back into the community and their families; recognising that inaction in prison has serious consequences not only to the health of prisoners, but to the health of the community (Jürgen, 2007). Figure 3 below shows the relationship between the community and the prison.

**Figure 3: The Continuum between the Community and Prison**



Adapted from Minds Imprisoned: Health and Prisons by Suresh et al., 2011

Prisoners are not sealed off; they are often in close contact with the general population, thus making prison populations a significant vector of inward and outward transmission of HIV (Suresh et al., 2011). HIV is both public health and human rights issue that needs to be addressed urgently for effective response in prisons (UNODC et al., 2007).

### **1.5.1 The Proximate-determinants framework of HIV transmission in the prison.**

The proximate-determinants framework was originally developed for the comparative study of fertility and child survival in developing countries. The key to this framework is identification of set of variables called 'proximate determinants' that can be influenced by changes in contextual variables or by interventions with direct effect on biological mechanisms to influence health outcomes. Later, this framework was adopted by Boerma and Weir (2005) in the study of distribution and determinants of HIV transmission in the population by combining demographic and epidemiological approaches. In research of determinants HIV, the framework identifies both behavioural and biological components in HIV transmission. The framework describes HIV transmission in a sequential way in which underlying determinants, through proximate biological determinants, lead to HIV infection exposure, followed by health outcome of HIV Infection (Boerma J and Weir S 2005). Finally, the framework demonstrates disease (AIDS) and mortality as final demographic

outcomes in the epidemic dynamics. The framework in figure 4 describes a range of risk behaviours and factors that are classified into categories discussed below that may affect the risk of HIV transmission.

➤ **Health Service Related Determinants**

According to HIV/AIDS/TB/STIs 2007-2010 Strategic Plan for ZPS, it was established that the public health system should provide required health services to prisoners (MoHA and UNAIDS, 2007). Current health care services were inadequate, inconsistent and below accepted standards (HRW, 2010). This was partly due to geographic distance from prisons to health facilities, inadequate staff and lack of transport.

- **Inadequate staffing and training**

The Zambia Prisons Service (ZPS) had inadequate medical staff and MoH seconded workers to prisons who are not often there, except for a few days in a week and only 15 prisons had clinics or sick bays (HRW, 2010). The same report by Human Right observed serious gaps existed between legal requirements and health practice, with little or no medical care available at most prisons. Inadequate staffing had affected the delivery of HIV and AIDS health care services in prisons.

- **Funding**

Prison medical services particularly suffered from lack of funding (MoHA, 2006). Prison-based medical care was under the MoH and medications came out of the prison budget under the MoHA rather than the MoH budget (HRW, 2010). Inadequate funding had affected implementation of most health programmes in the strategic plan (MoHA, 2006).

- **Referral System**

The referral system from the prisons to health care facilities are not be reliable due to lack of transport and long distance to the public health facilities. Sometimes, prison officials did not respect the prisoners' rights to access health care services (HRW, 2010). Referrals and linkages are critical components of prevention, care and management of people living with HIV and AIDS in incarceration.

- **Justice System**

Sex in prison is not allowed and it is a punishable offence. This makes it impossible for sex offenders to talk about it or seek medical help for fear of reprisal. According to HRW (2010), the Zambian Justice System was inadequate in granting bail, paroles, trials and sentencing and observed inadequate legal presentation. The delayed justice may lead female

inmates to engage in consensual or coerced sex to secure their release with high risk of HIV infection.

- **Sexual Violence and Abuse**

There were reports of widespread sexual violence and abuse among female prisoners though the prison officials were reluctant to discuss this openly (HRW, 2010, MoHA, 2007). Female prisoners had been coerced into sex bartering for favours such as food, preferential treatment and consequently to secure their release (HRW, 2010). The report also revealed evidence of some warders involved in sexual violence, buying and selling sex slaves; others simply refused to report or follow up complaints and refused prisoners access to psychological and medical attention (HRW, 2010). Female prisoners are vulnerable groups who may turn to risky behaviours such as sex trade in exchange for favours exposing them to HIV infection.

- **Prison health Policies**

The policies for ZPS Health Care Services were none existent by 2010 as observed by HRW. For instance, Post Exposure Prophylaxis (PEP) and VCT were not found in many prisons (HRW, 2010). VCT services are a key motivation factor for behaviour change, link to care and support for people with HIV and AIDS and helps individuals make decisions to reduce risks and increase safer sex practices (MoH, 2006). The prisons had no complaints procedures for sexual violence against female inmates that could have the perpetrators face prosecution (HRW, 2010).

➤ **Inmate Related Determinants**

- **Socio-economic determinants**

Most of the female inmates come from low income families who may be unable to support them while in incarceration. Inadequate support may lead to some female inmates engaging in risky sexual behaviours before, during and after imprisonment.

- **Inadequate Knowledge**

Majority of women in prisons have low education that may have made them susceptible to crimes such as stealing, illegal possession of drugs and commercial sex work before incarceration. Inadequate knowledge may also make them susceptible to abuse, not fully understand HIV transmission and prevention while in prison such as sharing of instruments for making tattoos which was very common in prisons and significantly associated with HIV positive status in Zambian prisons (UNODC and UNAIDS, 2011).

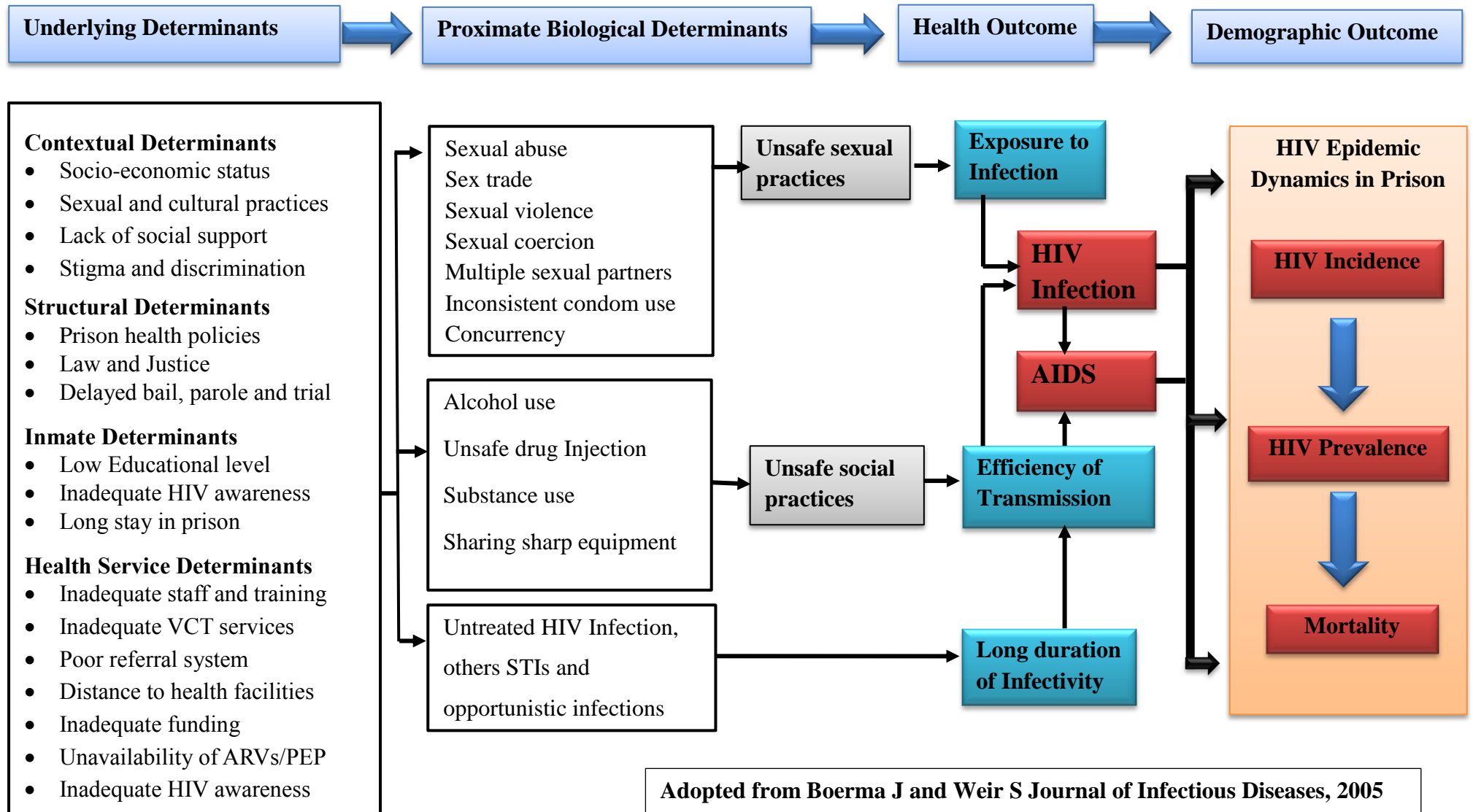
- **Substance use**

Female inmates turn to substance use such as alcohol and cannabis smoking which can be easily smuggled into prisons to cope with harsh prison conditions, pain, abuse, grief and loss (UNODC, 2008).

- **Stigma**

Stigma is a label imposed on persons who are believed to be deviant or to have a status that distinguishes them (MoH, 2006). The HRW reported that officers lacked confidentiality during VCT; calling names of those who were HIV negative to leave and those who were sero-positive to remain (HRW, 2010). The attitude by prison staff may be felt by female inmates and may eventually lead to self-stigmatisation and individual isolation

**Figure 4: Proximate-determinants Conceptual Framework of factors affecting risks of HIV Transmission in Prison**



## **1.6 Justification of the Study**

HIV and AIDS is a major contributor to morbidity and mortality in the Zambian prisons. Between 1995 and 2000, 2,397 prisoners and staff died of AIDS related illnesses and in 2004; 449 prisoners died of AIDS related illnesses. HIV infection among Zambian female prisoners has been high and on the increase since the first National HIV Surveillance in 1998. HIV infection among female prisoners was 27% in 1998 (MoH, 2006), increased to 33.6% in 2010 according to the survey conducted by HRW. In a study by UNODC and UNAIDS (2011), Lusaka Central Prison with highest HIV infection (42.1%) and a sharp increase among female prisoners to 43.3%. HIV infection among female prisoners has been on the increase, cannot be and should not be ignored and call for public health concern and intervention. Studies have been done in Zambia on the risk behaviours and factors associated with HIV transmission among the male prisoners. The finding suggested MSM as the main driver of HIV infection among male prisoners (Simooaya et al., 2001, ZPS 2005, MoHA 2007, HRW 2010, UNODC and UNAIDS 2011).

Currently, there are no studies in Zambia that had been conducted to explore the risky behaviours and factors that may be associated with the high HIV and AIDS prevalence among women prisoners. There is need to halt and reverse HIV infection among female prisoners if the Millennium Development Goals have to be met by the year 2015 and attain “Zero new infection and a nation free of HIV and AIDS by year 2030” (NAC, 2010 pp. 1). The country cannot attain these ambitious goals with HIV prevalence of 42.1% in Lusaka Central Prison and 43.3% among women prisoners (UNODC and UNAIDS, 2011).

There is knowledge gap in understanding the impact of HIV epidemic within prison communities, among female inmates and its multiplier effects on the Zambian society at large. The increase in HIV prevalence in prisons may be an indication that the HIV preventive interventions and strategies may not have been effective and it is evident that gaps may exist between HIV prevention policies and their application in Zambian prisons. This study therefore, will endeavour to explore the risk behaviours and risk factors associated with increased HIV prevalence among female prisoners in Lusaka Central prison. The research findings will be essential in formulation and implementation of programme to mitigate the impact of HIV and AIDS at individual female prisoner and prison communities in ZPS.

## **1.7 Research Question**

What are the determinants of HIV prevalence among female prisoners at Lusaka Central state prison?

### **1.7.1 The Main Objective**

To explore the risk behaviours and factors associated with high HIV and AIDS prevalence among female prisoners at Lusaka Central prison.

### **1.7.2 The Specific Objectives**

1. To estimate of HIV sero-prevalence among female prisoners at Lusaka Central Prison.
2. To determine risk behaviours and factors that may influence HIV transmission among female prisoners at Lusaka Central Prison.
3. To identify availability of HIV and AIDS and health services for female inmates at Lusaka Central Prison.

### **1.7.3 Research Hypotheses**

**Null Hypothesis:** HIV positive status in women incarcerated is not associated with any risk behaviours and factors.

**Alternative Hypothesis:** HIV positive status in women incarcerated is associated with risk behaviours and factors.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Global Perspective**

#### **2.1.1 Ethnic disparities of HIV prevalence in Prisons**

According to the US National Minority AIDS Council (NMAC) (2008), prisons are the only setting in the USA where HIV prevalence is higher in females (2.6%) and males (1.8%) in state prisons. It was observed in the same document that incarcerated women were more likely to be African-American nearly four times higher than Caucasian and more than twice Hispanic females. In addition, it was also stated that AIDS was the leading cause of death among the African-Americans from 2001 to 2006 (NMAC, 2008). The increase in HIV prevalence among African-American women could be due to the fact that most of them were from low socio-economic status with high risky sexual behaviours.

#### **2.1.2 Socio-economic Characteristics of Female prisoners**

In a study by Hammett and Drachmann-Jones (2006) in Massachusetts USA explored the relationship between incarceration and the emerging increase in HIV and STDs in rural south, particularly among black women of low socioeconomic status. The researchers used secondary data on incarceration populations, rates, admission to prisons and jails, HIV and STD prevalence among inmates. The results like other studies worldwide showed that the HIV burden was high among female (3%) and 2% male inmates, while 15% of women with HIV and AIDS had history of being in prison (Hammett and Drachmann-Jones, 2006). The study attributed the high HIV and STDs prevalence in women prisoners to extreme poverty, illicit drug use and very limited health care resources. This discrepancy existed in almost all state prisons in the USA. Some states showed high HIV prevalence such as the district of Colombia (22.4%) among women and 7.6% among men, Maryland (11.1%) and less than 5% in males, and for New York, it was at 14.6% for females, 7.4% for male inmates (Kantor, 2006). These results concluded that though women may have been HIV positive before incarceration and may have had risky behaviours and factors, there could be other factors that may have facilitated HIV transmission in prison. In this study, it was critically recognised that prisons can be vectors for HIV transmission where programs for prevention, diagnosis, treatment and care can be deployed. These interventions if focused on female prisoners with

high HIV prevalence would not only benefit female prisoners and releasees, but achieve broader goals to reduce HIV in larger population.

### **2.1.3 Characteristics of Crimes among Female Prisoners**

In 2011, the UNODC (2011) conducted a study in Pakistan prisons on the risk behaviours among female prisoners. The results showed that most of the women (68%) were illiterate, only 17% had a source of income support, while 61% relied on families and friends. In the same study, results showed that increased numbers of women were being incarcerated due to selling or possession of illegal drugs (24%), second to murder (40%) the most committed crime. Interestingly, 17% had been imprisoned for commercial sex work and were under trial which showed that sex workers as a risk group for HIV transmission were kept in prison. The same study further showed that, a proportion of female prisoners (12.8%) had used any sort of illegal drugs before being imprisoned, but could not continue as drugs were not available in prisons. Further, the results showed that drug use among females in Pakistan prisons was not a regular occurrence with 8.9% having had used illegal drugs while in prison. Most Injection Drug Users (IDUs) of any form (6.1%) took place before the women were admitted to prison which put them at risk of contracting HIV infection and other infectious diseases such as hepatitis (UNODC, 2011).

### **2.1.4 HIV and AIDS Prevention and Treatment in Prisons**

India, a country that accounts for half of the 5 million people living with HIV in Asia, a national study was conducted in 2010 to gather information on the risk, prevalence, prevention and treatment of HIV in prisons. This study was necessitated by national survey that revealed high HIV prevalence among IDUs (24%) and less than 1% in the general population, in the country which had no data on HIV risk behaviours, transmission and prevalence of drug use in prisons. In addition, India had no HIV prevalence data in prisons though an earlier study by Nagaraj et al., (2000) showed 9.5% among female inmates and 1.7% among male inmates (Dolan and Larney, 2010). The results of the study revealed that 63% had ever used illicit drug before. The main risk behaviours found were unprotected sex between men in Indian prisons, lack of condoms conducive to unprotected sex, limited HIV programmes while there was no prevalence of drug use and tattooing (Dolan and Larney, 2010). The HIV prevalence among female prisoners was ten times higher than in the general

population, more than five times higher than among male prisoners and there was no data available at national level on the HIV prevalence among prisoners for ten years (Dolan and Larney, 2010). This fact revealed how HIV prevention, care and treatment had largely been neglected in prisons globally. The study also highlighted the main risk behaviours such as MSM in prisons (Dolan and Larney, 2010). The study however did not highlight the risk behaviours among female prisoners whose HIV prevalence was very high (9.5%), less than 1% in the general population and 1.7% among male inmates.

## **2.2 Regional Perspective**

Several studies that have been conducted have shown that majority of the people living with HIV and AIDS are in Sub-Saharan Africa and prisoners are among the vulnerable groups worst affected by the pandemic (WHO et al., 2011). In the sub-Saharan Africa, HIV and AIDS in prisons was 5 times higher than to that of the general population (UNDOC, 2007).

### **2.2.1 HIV Prevalence among Female Prisoners in African Prisons**

A study conducted in South Africa by Muula (2008) acknowledged that the country had one of the highest HIV prevalence (41.4%) in the prison population, had limited or no data on the epidemiology of HIV among incarcerated; relatively neglected in South Africa. The same study further revealed that the existed statistics did not indicate the prevalence of HIV infected women in prisons since it was not obligatory in South Africa to be tested for HIV (Muula, 2008). Similarly, Chimphambano and others in 2005 conducted a study on HIV prevalence in Central Prison of Southern Malawi. This study estimated 36.6% HIV prevalence in prison population; 29.9% among men and 50% among women in prison, three times higher as that of the general population (Chimphambano et al., 2005). The high HIV prevalence among women in incarceration called for public health concern and may imply that new HIV infection was higher in prisons. The same study further indicated that the high HIV prevalence in prisons may indicate that the incarcerated women may have had background of HIV risk behaviours before incarceration (Chimphambano et al., 2005). While it's a fact that some women may have been HIV positive before incarceration, assumptions that women could have contracted HIV before incarceration may not be justified as no testing was done on admission to prisons. This study further pointed out that the effects of incarceration on HIV transmission does not only manifest while in incarceration,

but even after release as most ex- prisoners had risk behaviours and risk factors (Chimphambano et al., 2005). HIV infection acquired outside or inside the prison among female prisoners was high and required comprehensive response to reduce the disease burden both in prison and the general population.

### **2.2.2 Practices, Attitudes and Knowledge of HIV transmission in Prisons**

In Lesotho, a country which had HIV prevalence of 23.6% in the general population, had no literature on risk behaviours, risk factors and HIV and AIDS prevalence in prisons; while HIV prevention in prisons had not been addressed by 2006 (Akeke et al., 2007). The scanty published reports about HIV and AIDS in Lesotho prisons was confirmed by Akeke et al., (2007) which showed that HIV prevention in prisons was a neglected area and conducted a study to review the knowledge, attitudes and practices that facilitated the transmission of HIV infection among prison inmates. In 2009, another study conducted by Akeke et al in Quthing district prison to assess the factors which contributed to risk of HIV transmission and blood borne viruses in male prisons. The two studies revealed that tattooing, drugs and alcohol abuse, sharing shaving instruments and unprotected anal sex were the main risk behaviours and factors that possibly facilitated the HIV transmission among male prisoners. The findings of the two confirmed the earlier report by UN in 2008 that risk behaviours among female prisoners had not been addressed in a country with HIV prevalence of 56 % among women in general population (MoHSW, 2008).

### **2.2.3 Intra-and Extra-Prison HIV Transmission.**

Studies by Jürgens (2007) and Suresh et al., (2011) suggested the inter-relationship of prison community and the general population. In a similar study in Ghana Accra prisons, Adjei et al., (2008) conducted a comparative study on HIV prevalence and risk behaviours among prisoners and prison staff compared to the general population. Interestingly, the findings by Adjei et al., (2008) were striking, indicating high HIV prevalence in correctional facilities both among prison inmates (19.2%) and prison staff (8.5%) compared to between 1.5% to 3.8% among blood donors and 3.1% among general female population (Duda et al., 2005). The study concluded that the high HIV prevalence among prison inmates and prison officers could be due to movement of prison officers between prison and the community and the rate at which releases return to prison; indicating that prisoners and prison officers may be a

source of intra and extra-prison HIV transmission (Adjei et al., 2008). The study findings supported the UNODC (2006) report that suggested prisons as being a breeding ground for HIV infections. The findings may be a strong presumptive evidence of intra prison HIV transmission between prison inmates and prison staff. The study also revealed prevalence of risk behaviours for transmission including unsafe sexual activities of homosexuality and lesbianism, illicit drug use to cope with harsh prison conditions and tattooing out of boredom (Adjei et al., 2008). The High HIV prevalence and risk behaviours among prisoners and prison staff were indicative of substantial risk of contracting the infection while in incarceration and working in prison respectively. Though this study had compared HIV prevalence in correctional facilities to the women in general population, HIV prevalence among female prisoners was not highlighted.

### **2.3 National Perspective**

The National Survey conducted in 1998 reported HIV prevalence in prisons of 27%. It was reported that between 1995-2000, 2,397 prisoners and staff died of AIDS related illnesses, while in 2004; 449 prisoners died of AIDS related illnesses (UNODC, 2011). According to HRW (2010) female inmates constituted a very small percentage of prison population (1.5%), HIV prevalence was high (33.6%) while male inmates was 26%. It was more than double while in the general population was 14.3% and that of the female general population at 16.1 % (CSO, 2009).

#### **2.3.1 Drivers of HIV Transmission in Zambian Prisons**

There had been studies conducted in Zambia on HIV risk behaviours and factors among male prisoners; however there is no current data on the risk behaviours among women prisoners that could have contributed to the high HIV prevalence which is still on the increase. The study conducted by Simooya et al., (2001) and HRW (2010) indicated that MSM was the main driver for HIV transmission among male prisoners. This risk behaviour among male prisoners was also reported by MoHA (2006) pp. 9; MoHA and UNAIDS (2007), pp. 19-20; NAC, (2010) pp. 11, and UNODC and UNAIDS (2011). These studies however, did not establish the risk behaviours and factors which were the main drivers of HIV among women prisoners. In a similar study, findings reported sexual activity including rape, consensual sex, sex traded for protection, food and other necessities not provided in prison as risk

behaviours and factors that may facilitate HIV transmission (Tordys et al., 2011). In the NASF 2011-2015 of NAC (2010), it had been acknowledged that the increase of vulnerability to HIV and STIs prevalence in prisons was due to frequent unprotected sex in form of rape and non-use of condoms (NAC, 2010); women prisoners who are vulnerable to these forms of risk behaviours had no health programmes, or any legal recommendation to protect them from HIV infection through rape while in incarceration (HRW, 2010).

### **2.3.2 Sero-behavioural and Imprisonment**

The HRW Report acknowledged that the main contributing factor to the spread of HIV among male inmates was Men having Sex with Men (HRW, 2010). The report findings suggested that there was high prevalence of sexual activity between male inmates which was mostly consensual. The report attracted political attention and former Republican President Late Patrick L. Mwanawasa acknowledged and expressed sadness at the rate of sodomy in prisons which resulted in transmission of HIV as reported by the Post Newspaper, Wednesday 9<sup>th</sup> May, 2009 (HRW, 2010:44). Though earlier studies had showed significant increase in HIV prevalence among female prisoners, this study didn't investigate risk behaviours among female prisoners that could have contributed to the increase in HIV infection.

A national survey was conducted by the MoH, UNODC and UNAIDS in July 2011, the results showed no significant change in HIV prevalence in prison population which still stood at 27.4%. However, HIV prevalence among female prisoners had increased from 33% to 43.3% (UNODC and UNAIDS, 2011). The results also showed that 48% who were HIV seropositive were widowed compared to 29.7% who were married at the time of incarceration. The increase in HIV sero-positivity among widows could be attributed to the loss of their husbands who are the breadwinners; forcing them to engage in risk sexual behaviours such as commercial sex work for survival. The same study showed that tattooing was significantly associated with HIV infection (34.8%) compared to 26.9% who had never been tattooed. The same survey results showed that many prisoners knew about HIV, its mode of transmission and methods of prevention (UNODC and UNAIDS, 2011). Although it would appear that most HIV infection among female prisoners could have been acquired before incarceration, the possibility of some female prisoners being infected while in prison

cannot be ruled out due to the sharp increase in HIV prevalence rate while it's on the decline in the general population.

### **2.3.3 Sexual Abuse and Violence among Female Prisoners.**

The survey findings by HRW revealed that women in police custody and prisons were particularly subjected to abuse which was widespread and systematic in pattern in order to coerce a confession. Further, the report observed that police officers raped and coerced female inmates into sex to secure their release or preferential treatment (HRW, 2010). These findings by HRW confirmed earlier report by MoHA and UNAIDS (2008) that observed that prison officials, warders and inmates were very reluctant to discuss the nature and extent of sexual violence and abuse in prisons (HRW, 2010). The HRW in its report assumed that the actual incidence of sex and rape could be much higher than suggested by the limited information that was available. The report further observed that the investigations and mechanisms in prisons were insufficient to address that kind of abuse (HRW, 2010). Similarly, Tordys and Amon (2011) also observed similar findings of systematic and widespread physical and sexual abuse of female prisoners held in the Zambian police custody. The “Zero” HIV new infection by the year 2030 (NAC, 2010) cannot be attained if women in incarceration were subjected to sexual violence, sexual abuse and coercion which was said to be widespread (HRW, 2010) with a high risk of new HIV infections.

### **2.3.4 HIV and AIDS services for Female Prisoners**

Accessibility to HIV and AIDS services has been a factor to HIV prevention in Zambian prisons. A study was conducted by Tordys and others in 2011 to assess the accessibility to HIV and TB prevention and treatment in Zambian prisons. The study was a mixed method of qualitative and quantitative of 246 prisoners from 6 prisons around the country. The results showed that female prisoners were significantly less likely to access HIV health care services and only 42% of female prisoners had access to VCT (Tordys et al., 2011). Similarly, earlier survey by HRW report highlighted unavailability of VCT in most prisons country wide. The VCT rates were consistently lower for female prisoners (42%) while 62% for male inmates. The results suggested discriminatory access to VCT prison based services (HRW, 2010). The global concern of HIV infection among prisoners as vulnerable group is a public health concern, but a limited priority and negligible concern (UNDOC, 2008).

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Research Design**

The study design was a descriptive and analytical cross sectional survey which explored risk behaviours and factors associated with HIV infection among female prisoners. A mixed method employing quantitative and qualitative approaches was used to address the objectives. The study was quantitative as data was collected using structured questionnaire and quantified in numerical values and percentages to which statistical inferences have been made. The design had a qualitative aspect in order to obtain detailed information on risky behaviours and factors associated with the research problem using in-depth interviews. The study estimated HIV prevalence, described and documented aspects of a situation as it naturally occurred.

### **3.2 Research Setting**

The study was conducted at Lusaka Central Prison female section, located in the Capital city of Zambia. The study site was selected purposively as it had highest HIV prevalence of 42.1% among prisoners (UNODC and UNAIDS, 2011). Lusaka Central prison houses the biggest number of female prisoners.

### **3.3 Study Population**

The study population included all women incarcerated at Lusaka Central prison within the study period.

#### **3.3.1 Target Population**

The target population were all women incarcerated in Lusaka Central Prison aged 18-65 years within the study period.

#### **3.3.2 Study Period**

The study was conducted between June 2013 and August 2013.

#### **3.3.3 Inclusion Criteria**

- Female prisoners, who were convicted, remanded or detained at Lusaka Central Prison aged 18-65 years.
- Female prisoners who provided informed consent for HIV testing and interviews.

### 3.3.4 Exclusion Criteria

- Female prisoners who were below the age of 18 or above 65 years.
- Female prisoners who refused to provide consent for HIV testing and interviews.

### 3.4 Study Variables

The following variables will be considered in the study as described below:

**Table 2: Variables and the Cutoff Points**

Type of Variable	Indicator	Scale of Measurement
<b>Dependent variable</b>		
HIV Status	Sero-positive	% of HIV positives
	Sero-negative	% of HIV negatives
<b>Independent Variables</b>		
Age	Young	18 - 27years
	Young adult	28 - 37 years
	Adult	38 - 47years
	Elderly	48- 65 years
Educational level	Secondary and Tertiary	High
	Never been to school/primary/Basic	Low
Economic status	Family income above K2 000	High
	Family income less than K2 000	Medium
	Family income unreliable	Low
Duration of stay in prison	1 year and above	Long
	Below 1 year	Short
Sexual practices	No sexual partner	% abstaining from sex
	One sexual partner	% faithful to one sexual partner
	Multiple sexual partners	% with multiple sexual partners
Substance use	Never used substance	% never used substances before
	Used substance before and during incarceration	% used substances before and during incarceration
Accessibility to HIV services	Able to access HIV health services	Good- above 75%
	Accessed HIV services occasionally	Fair- 50-74%
	Unable to access HIV health services	Poor - below 50%
HIV status awareness	Aware of HIV status	% accessed VCT or DCT before
	Not aware HIV of status	% not accessed VCT or DCT before
HIV transmission and prevention awareness	Aware of HIV transmission and prevention	Adequate- 80% and above
		Inadequate - below 80%

### **3.5 Data Collection Tools and Techniques**

#### **3.5.1 Structured Interviews (Face-to-Face Interviews)**

Quantitative data was collected using a structured questionnaire as guide on information of risk behaviours and risk factors by face-to-face interview sessions. The Researcher conducted all the interviews using both open ended and closed questions (Appendix i). The questions were asked as they were written and if not understood were repeated in the same way. The key variables on which information was collected were as follows:

- **Socio-demographic variables:** Age, education, marital status, professional information and citizenship.
- **Prison information:** Previous imprisonment and duration in prison.
- **Drug history:** Drug use in prison, drug use outside prison, drug injection use.
- **Sexual practices:** Sex partners, condom use, history of rape, sex trade and coercion.
- **Tattooing:** Sharing shaving, sharp and piercing equipment.
- **Accessibility to health service:** Availability of HIV and AIDS and health services.
- **HIV knowledge:** Modes of HIV transmission and methods of prevention.

#### **3.5.2 In-Depth Interviews (IDIs)**

In-depth Interviews were conducted with five (5) female prisoners who met the inclusion criteria on similar issues to obtain an in- depth information using IDI guide (appendix ii). We did not interview any key informants such as prison warders or MoHA officials because of the sensitivity of some information obtained, avoid linking information to some participants and prevent intimidation of participants. The Researcher conducted IDIs and discussions were recorded using a digital tape recorder after obtaining the consent. IDIs clarified questions, allowed probing and elicited additional information. This allowed for more revelations and new ideas were generated as participants expressed their ideas relating to the research problem. The IDIs guide comprised of open ended questions that allowed respondents to explain.

### **3.6 Sampling Methods and Sample Size**

A non-probability, convenience sampling method was used. One hundred and eighteen (118) female prisoners who met the criteria and provided consent were included in the sample.

### **3.6.1 Sample Size Determination**

#### **a) Sample Size for Quantitative Data**

Lusaka Central Prison housed about 122 female prisoners on average daily between June-August 2013. Female prisoners who met the inclusion criteria were 118 and were included in the sample.

#### **b) Sample Size for Qualitative Data**

A systematic method was used to select 5 participants from 122 female prisoners for IDIs. Every 25th participant in the structured interviews was selected for IDIs and did not participate in structured interviews.

### **3.7 Field Methods**

- Sensitisation of the prison staff of Lusaka Central Prison was done and an explanation of the purpose was also done. It was emphasised that the study was purely academic and for the information of MoHA in health care services for inmates and secured their support and cooperation.
- Assessment of the facility and site clinic for a private room for conducting interviews was conducted.
- Sensitisation of female prisoners regarding the purpose of the study, their rights, and risks, benefits of the study, assurance of anonymity, privacy and protection was done for a full one week.
- Interested participants were offered information sheets and informed consents to read through before participating in the study.
- The questionnaires and IDIs were administered in a private room.
- Completed questionnaires were collected and removed from the site. Only the Researcher had access to the prison questionnaires and site test results.

#### **3.7.1 Voluntary Counselling and Testing (VCT)**

Materials for VCT were organised at the site clinic, while VCT was done in the private room within the prison's female section. Group pre-test counselling was offered to all the participants in the study who were interested in knowing their HIV status. Individual pre-test counselling was offered to all who participated in the study. Post-test counselling was offered to all participants on individual basis and results were revealed when satisfied that

participants were psychologically ready. Participants, who were HIV seropositive if willing, were referred for HIV care and treatment according to the standard of care policy for prisons.

### **3.7.2 Site HIV Testing**

- HIV Testing was offered in a room at the female section after pre-test counselling.
- The HIV testing was conducted in accordance with the MoH guidelines obtained from University Teaching Hospital Virology Laboratory.
- Field test results were identified with a unique anonymous identity number (ID) that could not be linked in any way to the participant.
- No prison clinic site staff had access to test results and this eliminated any chance of them linking participants with test results.

### **3.7.3 HIV Testing procedure**

- The HIV test at site for screening was conducted according to Zambian HIV Rapid Test Algorithm guidelines by MoH. The guidelines call for each specimen to be tested for HIV1/2 using Determine HIV Rapid Test and Uni-Gold HIV Rapid Test and ELISA Test for tie-breaker.
- Both Determine HIV Rapid and Uni-Gold HIV Rapid Tests can use whole blood, serum or plasma. For the whole blood sample, a drop of appropriate chase buffer is added to the specimen pad.
- Each blood sample was tested using Determine HIV Rapid and Uni-Gold HIV Rapid Tests concurrently.
- There were no discordant results, no sample tested positive on Determine and negative on Uni-Gold or vice versa, that needed ELISA Test as a tie- breaker at UTH Blood Bank.
- For quality control purposes, random samples of HIV negative specimens from rapid tests were sent for ELISA test at UTH Blood Bank.

### **3.7.4 Transporting Specimens from Prison Site to UTH**

The specimens for quality control were stored and transported from Lusaka Central prison site to UTH Blood Bank using a cool box with frozen ice packs to maintain low temperature. Only one Laboratory Scientist performed ELISA test and interpreted the test results.

### **3.8 Data management and analysis**

#### **3.8.1 Quantitative data processing and analysis**

##### **3.8.1.1 Data Editing and Entry**

The raw data collected from the field was edited to ensure completeness, legibility, uniformity, accuracy and consistency while in the field entered data on the same day. Data was then after entered in Epi-Data, version 3.1 using double entry, and then data was exported to STATA for analysis.

##### **3.8.1.2 Statistical Data Analysis**

The data was analysed using Stata® version 12 (Stata Corporation, College Station, Texas) windows 7. The dependant variable was HIV status with binary outcome and independent variables included socio-demographic characteristics, sex practices, drug use, tattooing, imprisonment history and HIV knowledge. The data analysis was descriptive and analytical.

###### **i. Descriptive analysis**

In the initial stage, frequency counts and cross tabulations were done and have been illustrated using tables.

###### **ii. Analytical analysis**

In order to determine the association of each independent variable on dependent variable, Pearson's Chi-square and Fishers' exact tests were used exact tests where appropriate depending on whether the assumption of the Pearson's chi-squared test were satisfied or not. This involved cross tabulation where each independent variable against the dependent variable to obtain p-values. The statistically significant variables with p-value of  $\leq 0.05$  were retained for use in logistic regression model. In univariate logistic regression analysis, each independent variable was tested against dependant variable to obtain odds ratios and CI. The statistical significance (p-value) was set at  $\leq 0.05$  and the 95% CI were calculated. The independent variables with p-values  $\leq 0.05$  were considered statistically significant and were entered into multiple logistic regression model to obtain adjusted odds ratios and p-values.

### **3.9 Qualitative data processing and analysis**

#### **3.9.1 Data editing and entry**

The recorded data was transcribed in word and cross checked with transcripts. The notes were read several times to understand the contents and identify themes corresponding to IDI

guide as well as other topics that emerged. The data was classified according to questions and answers from participants which identified consistencies and differences. The coding and categorising of themes was done according to themes most frequently used in IDIs.

### **3.9.2 Data analysis**

The transcribed qualitative data was imported into NVivo 10 QSR International software for analysis according to pre-coded themes, indexes or categories. In the initial stage, a set of codes were generated to capture the key constructs. Further analysis was done to determine consistency of report across themes.

## **3.10 Ethical Considerations**

Prisoners are classified as a vulnerable group; therefore the following was adhered to before, during and after the study.

### **3.10.1 Informed Consent**

Potential participants were given information about the study and time that would be taken for interviews a week prior to starting the study. The details of participant's benefits, rights and protections were read to them (Appendices iii and v). The interviews and VCT were conducted when the researcher was confident that the participant fully understood the purpose of the study. The informed consent form included the following information:

- The purpose of the study that it was purely health and academic based.
- The participants were informed of benefits of the study, minimal risks of blood taking, assurance of anonymity, privacy and protection.
- Participants were informed of their rights to decline participation; end interviews or decide to withdraw from the study at any point with no penalty.
- The participation was voluntary with no direct benefits from participation and those who participate were not remunerated in any way; however the results will be used to improve health services within Zambia Prison Service.
- The study didn't discuss any reasons for incarceration and did not in any way affect their prison status.
- There was minimal risk from participation of slight pain on vein puncture, and participants felt embarrassed when discussing sexual behaviour and practices.

- A witness was present **only** during the consenting process.
- The consent form was signed and dated by the participant, interviewer and the witness. The consent to participate in the study was obtained by signing or mark of their thumbprint for those who could not write (appendices iv and vi).

### **3.10.2 Confidentiality**

Those involved in the study, Laboratory Scientist and data processors signed a pledge of confidentiality (Appendix vii). The participants were informed that the information collected will not go beyond them or passed on to the prison officers. Anonymity and confidentiality was adhered to throughout the study by not writing names of the respondents on the interview schedule, but unique anonymous ID numbers were used. The collected data was kept confidentially and stored data was coded in order not to be linked with any participant. Only the researcher, Laboratory Scientist and authorised staff responsible in data processing and analysis had access to test results, questionnaires and electronic data. A password was used to access data to avoid unpermitted access. Any access and use of data could only be approved by MoHA, MoH and UNZA, School of Medicine.

### **3.10.3 Privacy**

The interviews were conducted in a private room at female prison section, away from ear-range of prison staff and others. A private room provided an environment conducive for participants to express themselves especially on sensitive questions.

### **3.10.4 Protection of Participants from Coercion**

Female prisoners are autonomous and are capable of making their own informed decisions to participate or decline to participate in the study. Therefore, no prison officer was involved in the study recruitment of participant, and no observers were allowed during interviews. The interviews were not in any way pointing to the crime committed or reasons for incarceration.

### **3.10.5 Ethical Approval**

The approval to conduct the study was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZA-BREC) (Appendix viii). A written permission to access information and to conduct the study in the prison was obtained from the Permanent Secretary MoHA and copies were sent to the Commissioner of Zambia Prisons Services and Officers in-Charge of Lusaka Central Prison and *Kansenshi* Prison (Appendix ix). A written

permission was also obtained from the MoH of Lusaka District Health Office to use in Lusaka Central Prison site clinic for VCT (Appendix x) after UNZA-BREC approval of the Research. Those testing HIV sero-positive, if willing were referred for HIV/AIDS care and treatment according to the standard of care policy for prisons.

#### **3.10.6 Pre-Testing of Tools**

This was a small scale study in preparation for the actual study on a small number of participants to determine validity. Pretesting of tools was done at *Kansenshi* Prison among female prisoners in Ndola and determined the time to administer the tools and some changes were made where necessary.

## CHAPTER 4: RESULTS

The chapter provides results, describing the socio-demographic characteristics of the study participants, analytical relationship between risk behaviours and HIV seropositive status among female prisoners. A total of 118 female prisoners during the study period aged between 18-65 years participated in the study. The response rate was 98% as between 112-120 was the average daily female population. The presentation of findings ends with the awareness, knowledge of HIV and AIDS and health services available for female prisoners.

### 4.1 Descriptive analysis

#### 4.1.1 Socio-demographic Characteristics

**Table 3: Socio-demographic Characteristics of the participants (n=118)**

Characteristics	n	%
<b>Age of female inmate</b>		
18-27 years	31	26.3
28-37 years	47	39.8
38-47 years	29	24.6
48-65 years	11	9.3
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Marital Status</b>		
Single	16	13.6
Ever married	102	86.4
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Country of origin</b>		
Zambia	105	89.0
Foreign national	13	11.0
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Religion</b>		
Christian	117	99.2
Non-Christian	1	0.8
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Educational Level</b>		
Never	2	1.7
Primary/secondary	94	79.7
University/College	22	18.6
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Employment</b>		
Formal	28	23.7
Self-employed	72	61.0
Unemployed	18	15.3
<b>Total</b>	<b>118</b>	<b>100</b>
<b>Monthly Income</b>		
None	20	17.0
< K2000	39	33.0
>K2000	59	50.0
<b>Total</b>	<b>118</b>	<b>100</b>

#### 4.1.2 Imprisonment Characteristics of Participants

Lusaka Central Prison female section houses female suspects, those undergoing trial and those who have been convicted for less than five years. Table 4 below, depicts the prison history among participants.

**Table 4: Imprisonment history of participants (n=118)**

Characteristic	n	%
<b>Imprisonment type</b>		
Under trial	48/118	40.7
Controlled	70/118	59.3
<b>Prison time</b>		
< 1 year	50/118	42.4
>1 years	68/118	57.6
<b>Previous imprisonment</b>		
No	79/118	66.9
Yes	39/118	33.1

The participants were either undergoing trials were 48(40.7%), while 79(59.3%) were convicted and serving their sentences. The time period spent in prison varied according to the category of imprisonment. The participants who had spent more than one year made a large proportion 68(57.5%) and 50(42.4%) had been in prison less than one year. The results further show that 39(33.1%) had been in prison before the current.

We estimated the HIV prevalence among female prisoner. Table 5 below shows results of HIV sero-prevalence among female prisoners in Lusaka Central Prison.

**Table 5: Estimation of HIV Sero-prevalence among Female Prisoners (n=118)**

Characteristic	n	%
<b>HIV sero-status</b>		
Positive	67/118	56.8
Negative	51/118	43.2
<b>New sero-positive</b>		
Referred	11/28	39.3
Declined	17/28	60.7
<b>HIV/AIDS management</b>		
ART	28/39	71.8
CD4 monitoring	11/39	28.2
<b>VCT or DCT</b>		
No	14/67	20.9
Yes	53/67	79.1

The results showed a proportion 67(56.8%) of the participants being HIV sero-positive, while 51(43.2%) were sero-negative. Among those who were sero-positive, 28(41.8%) were new HIV sero-positive convertors, 11(39.3%) were referred for management, while 17(60.7%) declined. A proportion of those with known HIV status, 28(71.8%) were on ART and 11(28.2%) were on CD4 monitoring. Results also revealed that 53(79.1%) of those who had undergone VCT or DCT were HIV sero-positive.

#### **4.2. HIV and AIDS Knowledge and Health services in prison**

We also assessed the availability of the HIV and AIDS and others health services available for women in the prison. As depicted in table 6 below, all the female prisoners who participated in the study had knowledge of HIV and AIDS, 84(71.2%) had accessed VCT and 53(47.7%) of them were HIV sero-positive. The majority of the participants 90(76.2%) knew that transmission of HIV was through sexual intercourse, 27(22.9%) mentioned sharing of sharp instruments such as razor blades and only one (0.9%) mentioned through blood. The participants listed use of condoms 69(58.5%), abstinence and faithfulness 31(26.3%), use of new razor blades 18(15.2%) as protective measures. Strikingly, only 16(13.7%) of the participants had claimed to have used condoms during last sexual intercourse.

**Table 6: HIV and AIDS awareness and Health services**

<b>Characteristic</b>	<b>n</b>	<b>Percentage</b>
<b>HIV knowledge</b>	118	100
VCT or DCT	84/118	71.2
HIV sero-positive	53/118	47.7
<b>HIV transmission</b>		
Sexual intercourse	90/118	76.2
Sharing sharp instruments	27/118	22.9
Blood	1/118	0.9
<b>HIV prevention</b>		
Condoms	69/118	58.5
Abstinence and faithfulness	31/118	26.3
Use of new razor blades	18/118	15.2
<b>Condom use last sex</b>		
Yes	16/118	13.6
No	102/118	86.4

### **4.3. Analytical Results of Risk behaviours and Factors**

#### **4.3.1 Risk behaviours and Factors associated with HIV Sero-positivity among female prisoners**

The prevalence of HIV sero-positive among female prisoners was determined in the initial stage. Pearson's Chi-square and Fisher's exact test was used to examine the association between dependent variable (HIV sero-positive) and each independent variable. This helped to identify factors that were associated with HIV positive status and statistically significant variables for this study had p-value of  $\leq 0.05$  (95% CI).

#### **4.3.2 Chi-square analysis of Risk behaviours and factors associated with HIV positive Status**

Table 6 below shows the association of each risk behaviour and factor with HIV sero-positivity among female prisoners in Lusaka central prison using Pearson's Chi-square and Fisher's exact tests. The following factors were not associated with HIV sero-positivity: marital status (p-value 0.094), income (p-value 0.368), level of education (p-value 0.248), ever tattooed (p-value 0.096), sex debut (p-value 0.427), condom use last sex (p-value 0.299) and prison/custody rape (p-value 0.111). These variables with p-value  $> 0.05$  were excluded in the logistic regression model.

**Table 7: Chi-square and Fishers' test of association of risk behaviours and HIV positive**

Characteristic	HIV sero-status		Total	P-value
	Sero-negative 51(43.2%)	Sero-positive 67(56.8%)		
Age group				
18-27	23 (45.1)	8 (11.9)	31/118	<0.001* <sup>E</sup>
28-37	12 (23.5)	35 (52.2)	47/118	
38-47	10 (19.6)	19 (28.4)	29/118	
48-65	6 (11.8)	5 (10.5)	11/118	
Marital status				
Single	10 (19.6)	6 (9.0)	16/118	0.110
Ever Married	41 (80.4)	61 (91.4)	102/118	
Educational level				
Never	2 (3.9)	-	2/118	0.248
Primary/secondary	39 (76.5)	55 (52.2)	94/118	
Tertiary	10 (19.6)	12 (17.1)	22/118	
Income				
< K2000	25 (49.0)	34 (50.0)	49/118	0.500
>K2000	26 (50.9)	33 (49.1)	59/118	
Prison type				
Under trial	30 (58.8)	18 (26.9)	48/118	0.001*
Convicted	21 (41.2)	49 (73.1)	70/119	
Prison time				
< 1 year	35 (68.6)	13 (19.4)	48/118	<0.001*
> 1 year	16 (27.4)	54 (80.6)	68/118	
Imprisonment before				
No	48 (94.1)	32 (47.8)	80/118	<0.001*
Yes	3 (5.9)	35 (52.2)	38/118	
Prison substance use				
No	41 (80.4)	36 (53.7)	77/118	0.003*
Yes	10 (19.6)	31 (46.3)	41/118	
Ever tattooed				
No	12 (23.5)	8 (11.9)	20/118	0.096
Yes	39 (76.5)	59 (88.1)	98/118	
Sex debut				
< 14 years	4 (7.8)	6 (8.9)	10/118	0.427
14-18 years	27 (52.9)	41 (61.2)	68/118	
>18 years	11 (21.6)	7 (10.6)	18/118	
Don't know	9 (17.6)	13 (19.4)	22/118	
Commercial sex				
No	41 (80.4)	28 (41.8)	69/118	<0.001*
Yes	10 (19.6)	39 (58.2)	4/118	
Coerced sex in prison				
Yes	38 (74.5)	5 (52.2)	73/118	0.014*
No	13 (25.5)	32 (47.8)	45/118	
Sexual partners				
1 partner	16 (31.4)	2 (3.0)	18/118	<0.001*
Multiple partners	35 (68.6)	65 (97.0)	100/118	
Prison or custody rape				
No	50 (48.0)	61 (63.0)	111/118	0.138
Yes	1 (3.0)	6 (4.0)	7/118	

Notes: Chi-square and p-values based on Pearson's test. \*= statistically significant results

Fisher's Exact test \*E= statistically significant results, n=118

#### **4.3.3 Univariate Logistic Regression Analysis of Risk behaviours and Factors**

Having obtained HIV seropositive prevalence and associations, all independent variables with statistically significant values ( $p\text{-value} \leq 0.05$ ) were taken and used in univariate logistic regression model. This was to determine the association of each risk behaviour/factor and HIV sero-positive to obtain odds ratios, p-values and CI. In table 7 of the univariate logistic regression analysis, the following were found to be significantly associated with HIV sero-positive status among female inmates: Age groups 28-37 years (OR 8.4, 95%CI: 3.76-13.67,  $p\text{-value} < 0.001$ ) and in age group 38-47 years (OR 5.5, 95%CI: 1.79-12.58,  $p\text{-value} 0.003$ ), the type of imprisonment (OR 3.8, 95%CI: 1.78-8.45,  $p\text{-value} 0.001$ ), time spent in prison (OR 9.0, 95%CI: 2.89-8.01,  $p\text{-value} < 0.001$ ), history of previous imprisonment before current (OR 10.4, 95%CI: 5.26-10.72,  $p\text{-value} < 0.001$ ), use of substance while in prison (OR 7.1, 95%CI: 3.11-8.64,  $p\text{-value} < 0.001$ ), those who had ever sold sex (OR 5.7, 95%CI: 2.45-9.34,  $p\text{-value} < 0.001$ ), those who had ever been coerced into sex while in custody or prison (OR 3.7, 95%CI: 1.21-10.98,  $p\text{-value} 0.015$ ) and having multiple sexual partners (OR 12.3, 95%CI: 4.02-10.54,  $p\text{-value} < 0.001$ ). In this initial analysis, the results didn't show any association between HIV seropositive and age group 48-65 years (OR 2.4, 95%CI: 0.57-6.36,  $p\text{-value} 0.232$ ). The statistically significant variables with  $p\text{-value} \leq 0.05$  at 95%CI were retained for use in multiple logistic regression models.

#### **4.3.4 Multiple Logistic Regression Analysis of Risk behaviours and Factors**

In table 7, statistically significant variables with  $p\text{-values} \leq 0.05$  in univariate logistic regression analysis results were used in multiple logistic regression to obtain adjusted odds ratios, CI and p-values. After controlling for potential confounders such as demographic factors, the following risk behaviours and factors were found to significantly predict the HIV seropositive among female prisoners: age group 28-37 years (AOR 7.6, 95%CI: 2.97-12.52,  $p\text{-value} 0.004$ ). This showed that female prisoners in the age group 28-37 were 7.6 times more likely to be HIV sero-positive than those in younger age groups. The female prisoners who had spent prison more than one year in prison were 4.6 times more likely be HIV seropositive than those who had been there for less than one year (AOR 4.6, 95%CI: 1.45-10.49,  $p\text{-value} 0.016$ ). However, there was strong overlap between time spent in prison and having been convicted; mostly, those who had spent more than one year in prison, were already serving their sentences. Similarly, those who had been in prison before the current

incarceration were 8.5 times more likely to be HIV seropositive than those who were first offenders (AOR 8.5, 95%CI: 2.53-7.02, p-value 0.005). The results also showed that those using substances while in incarceration were 4.2 times more likely to be HIV seropositive than those who never had used any substance (AOR 4.2, 95%CI: 3.17-7.18, p-value 0.034). Furthermore, the results showed that those who had ever “sold” sex in exchange for money, favours or gifts were 3.1 times more likely to be HIV sero-positive than those who never had sold sex before (AOR 3.1, 95%CI: 1.42-7.72, p-value 0.042). The participants who reported to have been coerced into sex while in custody or prison in exchange for favours were 3.3 times more likely to be HIV sero-positive than those who had not (AOR 3.3, 95%CI: 1.78-11.61, p-value 0.041). The results also showed that those who had multiple sexual partners were 9.6 times more likely to be HIV sero-positive than those who had one sexual partner (AOR 9.6, 95%CI: 2.46-9.78, p-value 0.019). There was no association between HIV sero-positive status and the type of imprisonment of female prisoners (AOR 2.0, 95%CI: 0.68-7.61, p-value 0.181) and age group 48-65 years (AOR 2.1, 95%CI: 0.47-11.40, p-value 0.451).

**Table 8: Logistic Regression analysis of risk behaviours and factors associated with HIV sero-positivity among female prisoners**

Variable	HIV sero-prevalence n (%)	Crude OR (95% CI)	P-value	Adjusted OR (95% CI)	P-value
<b>Age group (years)</b>					
18-27	8 (11.9)	1.0	1.0		
28-37	35 (52.2)	8.4 (3.76-13.67)	<b>&lt;0.001*</b>	7.6 (2.97-12.52)	<b>0.004*</b>
38-47	19 (28.4)	5.5 (1.79-12.58)	<b>0.003*</b>	2.4 (0.46-10.43)	0.271
48-65	7 (10.5)	2.4 (1.57-6.36)	0.232	2.1 (0.47-11.40)	0.451
<b>Prison type</b>					
Under trial	18 (26.8)	1.0		1.0	
Convicted	49 (73.1)	3.8 (1.78-8.45)	<b>0.001*</b>	2.0 (0.68-7.61)	0.181
<b>Prison time</b>					
< 1 year	13 (19.4)	1.0		1.0	
> 1 year	54 (80.6)	9.0 (2.89 -8.01)	<b>&lt;0.001*</b>	4.6 (1.45-10.49)	<b>0.016*</b>
<b>Prison before</b>					
No	51 (76.1)	1.0		1.0	
Yes	16 (23.9)	10.4 (5.26-10.72)	<b>&lt;0.001*</b>	8.5 (2.53-7.02)	<b>0.005*</b>
<b>Prison substance use</b>					
No	36 (53.7)	1.0		1.0	
Yes	31 (46.3)	7.1 (3.11-8.64)	<b>&lt;0.001*</b>	4.2 (3.17-7.18)	<b>0.034*</b>
<b>Commercial sex work</b>					
No	28 (41.8)	1.0		1.0	
Yes	39 (52.2)	5.7 (2.45-9.34)	<b>&lt;0.001*</b>	3.1 (1.42-7.72)	<b>0.042*</b>
<b>Custody coerced sex</b>					
No	35 (52.2)	1.0		1.0	
Yes	32 (47.8)	5.7 (2.21-15.98)	<b>0.015*</b>	3.3 (1.78-11.61)	<b>0.041*</b>
<b>Sexual partners</b>					
1 partner	2 (3)	1.0		1.0	
Multiple partners	65 (97)	12.3 (4.02- 10.54)	<b>&lt;0.001*</b>	9.6 (2.46-9.78)	<b>0.019*</b>

*Note: OR=Odds Ratio, \*=significant p-values, CI=Confidence Interval*

#### **4.4 In-depth Interviews findings**

##### **4.4.1 Socio- demographic Characteristics of participants**

There were five (5) participants in IDIs and these did not participate in structured interviews. The participants were ever married before with one to more than 5 children, except one. In terms of education, two had attained tertiary education, two had attained secondary education, while one though claimed to have been to school was unable to read and write. Socio-economically, two were in formal employment while three were self-employed.

##### **4.4.2 Imprisonment Characteristics of participants**

Of the five participants in IDIs, three were serving their sentences, while two were undergoing trial. Among the five, three had been in prison for more than a year, while one had been in prison before the current. During discussion, two of the participants revealed that they were healthy before imprisonment, later in prison showed signs of AIDS tested HIV sero-positive. Below is what HIV sero-positive participant had said:

*“This is my 7th year and undergoing trial...how long one has been here depends on the case. I came here in 2007; I was very healthy until I started developing abscesses in 2009. I was taken to the hospital; I tested HIV positive and started ART.” [IDIs participant no.3]*

The above discussion underscored that the female prisoners who stayed longer in the prisons were at risk of contracting HIV infection.

##### **4.4.3 Substance use among Participants**

Substance use among female prisoners was associated with HIV seropositive. The five participants had ever used some form of substance either before or during incarceration. Discussions revealed that the use of substances was attributed to stress and harsh prison conditions. It was explained that cigarettes and *insunko* (tobacco) were the mostly common used. Below are the excerpts from two participants:

*“I have learned to chew tobacco (insunko) from the old lady who was here and this helps to calm me down especially before going to court. I have been here long and I had tried a mix of cannabis. Alcohol comes in here and what I have seen is gin and vodka. It is colourless and so its smuggled in as mineral water.” [IDIs participant no.5]*

*“I have seen people become high in here and started insulting others. If alcohol can come in as mineral water, one can’t be sure if it is insunko or something else.”*

*[IDIs participant no.1]*

*“When I was in custody, the police asked for money so that they could bring in a phone for me and I could call mum and so, I just did that. I gave them some money and they bought some beers for me and at least I was able to put my head on a pillow.”*

*[IDIs participant no. 4]*

It was established that there was substance use in prison, to some it was a behaviour learned to cope with boredom and prison life. Nevertheless, most felt that these substances should be scrutinised to ensure they were genuine. Substances use by female prisoners makes them vulnerable to HIV infection as they may engage in risky behaviours such as unprotected sex.

#### **4.4.4 Sexual behaviour and practices among Female Prisoners**

The in-depth interviews revealed more details of the sexual behaviours and practices that were associated with HIV seropositive status before and during incarceration.

##### **4.4.4.1 Coerced sex in prison and lawful custody**

According to participants, there was sex coercion was common in prison and lawful custody. It was explained that it was done in form of intimidation, exchange for favours, promise for early release and parole possibility. Below are some of the participants’ excerpts provided to support the above assertion:

*“When I was arrested by the police, they asked for sex. But I refused, they made me drunk, yes they were asking me for sex and I refused. Ati (saying) where we are taking you (prison), there is no sex, you are going to miss it (sex). I said to them, if I will rot there (prison), let me die without having sex with you. So they respect me for that and I know them. This happened at (.....) police station.” [IDIs participant no.5]*

*While in police cells at (.....) station; I used to have sex with one staff. He promised to help me get out of prison and to marry me when I am out of here.” [IDIs participant, no.1]*

*When I was in police custody at (.....) station, one of the officers came in drunk and asked for sex. When I refused, he told me I was going nowhere.” [IDIs participant, no.4]*

*“Sex in police cells happens and others talk about it out of annoyance and frustration because they were promised to be released but feel cheated. There was a young girl, a*

*juvenile who narrated what was happened to her in police cells. When we laughed at her, she said that policeman had assured to marry her when she goes out.”*

*[IDIs participant, no.3]*

During the discussions, those who were coerced into sex felt cheated and abused as the promises made during coercion were not fulfilled, others were apprehensive and reluctant to discuss the issue. The coerced sex in lawful custody which was unprotected is a risky behaviour to HIV infection not only to female prisoners, but to perpetrators as well.

#### **4.4.4.2 Sexual violence in prison and lawful custody**

During in-depth interviews, other risky behaviour mentioned was rape while in prison or lawful custody. Below is what participants said about rape in prison and lawful custody:

*“A juvenile was raped in (.....) court cells by another inmate from (...) prison. The girl was shaken, not walking properly and crying. She narrated the ordeal to us when she came back from the court. The Kapitaos (Captains) reported to bwana (.....) and was taken to the hospital where it was proved that she was raped and was given prophylaxis.”*

*[IDIs participant no.2]*

*My name sake (...) was raped by a bwana in the office. This bwana has been transferred, but this is not enough. The girl was given K2.00 to make her keep quite.”*

*[IDIs participant no.1]*

It became known during discussion that some women had experienced sexual violence while in lawful custody. The participants felt that the perpetrators had been protected; others were ashamed to talk about it while others felt degraded with nowhere to turn to for protection. Sexual violence is a driver of HIV infection and the effects on female prisoners may be more due limited access to prophylaxis while in custody.

#### **4.4.4.3 Condom use last sex**

The non-adherence to the use of condoms was identified as risky behaviour in particular to those who knew that they were HIV seropositive status or engaged in commercial sex. Below are excerpts from two HIV seropositive participants:

*“Using condoms these days does not work. These men, even if you tell them that you are (HIV) positive, they don’t care. They say how can you enjoy eating bubble gum without removing a cover? So this condom and HIV thing is neither here nor there.” [IDIs participant no.5]*

*“Using condoms pays less for the service...men are not willing to pay much with a condom and negotiations take long. I have to pay for rent and school fees, I go for higher charge...with AIDS these days one can top-up (be on ART and be healthy).”*

*[IDIs participant no.4]*

IDIs revealed that there was non-adherence to condom use regardless of one's HIV positive status. Furthermore, it became evident that the perceived reduced risk of HIV infection from ARVs could have been compensated high risk sexual behaviour among female prisoners who were HIV sero-positive.

#### **4.4.4.4 Commercial sex work**

During the IDIs commercial sex was discussed with female prisoners as a common practice. It was revealed that female prisoners had engaged in commercial sex for economic survival. Below is what those who participated in IDIs had to say:

*“I have to survive and take care of my children. I was gang raped and dumped near...motel. It is risky work and more especially that business is at night.”*

*[IDIs participant no.1]*

*“I am on separation with my husband and life became tough for me and children. I was introduced to this work in a tavern by a friend. It is risky as some men didn't want to pay for the service (sex) and they threatened me.” [IDIs participant no.4]*

*“When my husband died, I started going to lodges and charged for service (sex). Charges depended on whether you use condoms or not. Without a condom, I charged K50.00, while with condom it was K20.00 per hour.” [IDIs participant no.2]*

#### **4.4.4.5 Multiple sexual partners**

During IDIs, multiple sexual partners were discussed with participants. It was revealed that having multiple sexual partners was commonly practised by some female prisoners. Below are excerpts by some participants to support this assertion:

*“Sexual partners...many, but less than ten I think.” [IDIs participant no.5]*

*“Sexual partners, a number before I settled down in marriage.” [IDIs participant no.4]*

*“I have been divorced for ten years now; I have had about five sexual partners if not more.” [IDIs participant, no.3]*

Having multiple sexual partners is a known HIV infection driver. Most of the female prisoners were from vulnerable communities and having multiple sexual partners was a way of survival socially.

#### **4.4.5 HIV and AIDS prevention in the prison**

Many organisations had conducted HIV awareness information in the prison. However, it was revealed during IDIs that HIV prevention among female prisoners seemed compromised by both prison staff and prisoners themselves.

##### **4.4.5.1 Searching for prohibited materials in prison**

Below is how some participants described their ordeal during one of the routine prison checks:

*“HIV transmission can’t be stopped in this prison. Recruits came from Kabwe to conduct a search. They had to put fingers into back passage (anus) and front (vagina) without changing gloves between prisoners. You have seen that we are many women; they don’t care if one is having menses or not. When we tried to talk, we were threatened that our sentences will be extended if reported. Boma ni Boma (State is State).” [IDIs participant no.1]*

The other participant who knew her HIV seropositive status had this say:

*“HIV infection cannot be prevented here.. never! When they search, they come inside (Vagina) poking without changing gloves. Blood remained on the floor for those who had their pees (periods), they don’t care...next in a queue. By so doing, how can HIV and AIDS be reduced? They are spreading it (HIV)...as for me they didn’t ask about my HIV status, they just said open up; they checked inside, then next person. Don’t you think the (HIV) virus can move from me to the other person? They don’t care...saying they were doing their job and it was a directive. Some girls cried because they knew that they had taken the (HIV) virus. When we complained we were given vaginal pessaries. What can pessaries do? Can they (pessaries) kill (HIV) virus? What I know, pessaries are used for those who have thrush.” [IDIs participant no.5]*

The searching of prohibited materials could be a potential vehicle in transmitting HIV due non adherence to changing of gloves between female prisoners when conducting vaginal examinations.

#### **4.4.5.2 Sharing of sharp instruments in the prison**

Two of the participants who knew they were HIV seropositive had this to say:

*“We share razor blades especially for cutting eye brows..yes we do. When I used one side, she asked me to use it. I asked her if she didn’t mind and she said she didn’t...Kabili, (but) there are two sides, use one side and sometimes we are forced.” [IDIs participant, no.5]*

*“Sewing needles are exchanged; we probably have two needles in the prison. It’s really pathetic, it’s bad in here. Knives move from one Intemba to the other, needles and razor blades are shared, I have also shared.” [IDIs participant, no.4]*

During the IDIs, all the participants were aware of HIV transmission within prison setting. However, it was evident that they had no control over procedures that are carried out within the prison though they were seen as means of HIV transmission. On the other hand, the female prisoners shared sharp instruments that can be a means of HIV transmission within the prison.

#### **4.4.6 HIV/AIDS and Stigma in prison**

In the descriptive analysis, among those who were new HIV sero-positive many declined to be referred for further management citing stigma from fellow prisoners and prison staff as the main hindrance factor. Below are excerpts by participants to support the assertion:

*“Both the bwanas and fellow prisoners cause many not to be open about their HIV positive status and hide medicines (ARVs). The bwanas at the forum ask, “What is your problem? Are you going to take drugs (ARVs)? Or who are those going to the clinic to take drugs (ARVs)?” So people hide and others end up stealing drugs (ARVs). Last week one of my cell mates had her drugs (ARVs) stolen.” [IDIs participant, no.2]*

*“The problems we have are the bwanas who call people at the forum that those who are on drugs (ARVs) should remain. People feel bad about it and do not want to remain as others will know that they are HIV positive. These bwanas need to have counselling skills. As for me I will just go and have CD4 count done when I go out.” [IDIs participant no.1]*

*“This lady from (...) had her drugs (ARVs) stolen from under the pillow where she used to keep them. There was a lot of talking by prisoners that whoever was sick (has HIV) should come out so that we know you. This one, that one are sick (have HIV) and the bwanas seem not to care; they are just here to guard us.” [IDIs participant no.4]*

Stigma against female prisoners was the major contributing factor to some not accessing HIV services available within the prison. Some female prisoners failed to disclose that they were on ART for fear of being stigmatised. Non-compliance to ART can lead to drug resistance and treatment failures.

#### **4.5 Health services in prison and lawful custody**

There are many organisations that conduct health services within the prison setting. During IDIs, it was revealed that though the clinic was situated within the prison setting, accessing health services was a challenge: Below is what some participants had to say:

*“I fought with a cell mate while in custody...she had bitten my thumb. I was not given any medicine until it dried up. I am worried I might get HIV from her.”*

*[IDIs participant, no.2]*

*“It is not easy to go to the hospital in here; the bwanas always say they are short staffed to escort us. One inmate gave birth in cells assisted by a fellow prisoner, with no gloves. The bwanas didn’t care.....we shouted and they said she should have told them during the day.” [IDIs participant no.4]*

The discussions further revealed that the prison though had a clinic; there was delay in the referral system for those who needed to be seen by medical practitioners.

## **CHAPTER 5: DISCUSSION OF THE FINDINGS**

This study explored risk behaviours and factors which were associated with HIV sero-positivity among female prisoners in Lusaka Central Prison. A range of risk behaviours and factors associated with HIV sero-prevalence among female prisoners were related to female prisoners, prison staff and the system. This study identified the following as the risk behaviours and factors associated with high HIV sero-positivity were: age group between 28-37 years, time spent in the prison, previous imprisonment before current, sexual coercion and abuse, commercial sex, substance use in prison and multiple sexual partners. The knowledge of HIV sero-prevalence in the prison is essential in planning intervention measures. This study will assist in formulation of policies designed at interventions for HIV prevention; formulate effective HIV and AIDS educational programmes that are targeted at female prisoners and a basis for clinical practice within the prison setting.

In this study, age 28-37 years of the participant was strongly associated with HIV sero-positivity. Female prisoners in this age group had the highest HIV sero-positive proportion (52.2%). This could mean that this age group is sexually active and within child bearing age with high risk of contracting HIV infection. This study supports earlier findings by UNODC and UNAIDS (2011) which didn't find any association of HIV sero-positivity with income and educational level. However, the later showed association between HIV sero-positivity, income, having had children and marital status.

The results showed a significantly high HIV sero-prevalence among female prisoners at Lusaka Central Prison. This study supports earlier studies that represented women as disproportionately at risk of HIV infection and particularly true among female inmates (De Groot et al., 2006, Kantor, 2008, Jurgens et al., 2011, WHO, UNAIDS and UNICEF, 2011). The observed increase in sero-positivity among female prisoners may be a strongly presumptive of intra and extra prison transmission. This could be due to a number of factors such as the rate at which female prisoners are admitted to, released from the prison and high rate at which female prisoners return to prison after release. In this study, many female prisoners who were HIV seropositive had been in prison before. The high rate at which female prisoners that had been in prison before current return to prison may be a source of intra and extra prison transmission. The study findings of this study are similar to Jürgens et al., (2011) who observed that most female

prisoners served short sentences and readmission to prison was common, consequently HIV infection, related communicable illnesses and the at risk prisoners move between prison and their communities. Furthermore, IDIs revealed that most readmissions to the prison lacked stable employment, income and survival skills after release. This may have led them to involve themselves in risky life styles and sexual behaviours. Other studies with similar findings concluded that the high mobility between prison and community meant that when prisoners with HIV are released from incarceration, prison health issues become community health problems (Jürgens et al., 2011 and Suresh et al., 2011). A further study by Tordys and others in 2011 echoed similar concerns by observing that linkages between prison and general population facilitate disease transmission by the high turnover of prison population coupled with the fact that prison staff and visitors travel between prison and community, thereby increasing the spread of disease both into and out of prison setting.

It is evident that female prisoners have high risk behaviours and are exposed to factors associated with HIV transmission. Some studies suggest that most of them could have been HIV seropositive before incarceration (Adjei et al., 2008, Dostoyevsky, 2008, Jürgens et al., 2011 and UNODC, 2011). Therefore, in this study it may be reasonable to suggest that most of HIV infections among female prisoners may have occurred before incarceration. However, prison acquired infection cannot completely be ruled out as this study revealed sharing of sharp instruments, coerced sex, sexual violence and abuse among female prisoner. In addition, none of the sero-positive female prisoners were screened on admission to prison to conclude that the HIV infection was acquired before incarceration. This study has been supported by an earlier study by Adjei and others (2008) in Ghana. Strikingly, the findings by Adjei and others showed high HIV sero-prevalence in correctional facilities concluding that both prisoners and prison staff may be a source of intra and extra-prison HIV transmission. The other studies with similar findings were reports by UNODC, 2006 and 2011 which showed overwhelming evidence that prisons had become a fertile and breeding environment for HIV transmission with potential for intra and extra prison transmission of HIV new infection.

Obtaining data on sexual activity in prison and lawful custody was a challenge due to fear of punitive measures, while others felt embarrassed to admit having had consented to sex or had sex against their will. Despite this challenge, there was evidence of coerced sex, sexual

harassment, sexual abuse and violence among female prisoners as risk behaviour associated with HIV seropositive status. Participants also reported cases of rape whilst in prison and lawful custody. This was also evident during IDIs that there was sexual coercion, sexual abuse and violence within lawful custody and prison. The participants in IDIs described rape in prison as vicious and degrading. They felt that perpetrators of sexual violence against women prisoners have been protected, while others were so embarrassed to discuss the issue and blamed themselves for what they had endured. Female prisoners who reported coerced sex may never had been threatened explicitly, but engaged in sex against their will believing they had no choice, a means of survival or a means to secure release or parole from lawful custody. The study supports earlier studies by HWR (2010), Suresh et al., (2011), UN (2011), Jürgens et al., (2011), UNODC and UNAIDS (2011) which revealed wide spread sexual abuse and violence against female prisoners.

In the report by UN, Human Rights Mission to Zambia (2011), it was observed that the women in detention were subjected to sexual abuse, violence and offered release in exchange for sex. The UN report further cited a case where a woman died in detention after being raped by police officers at the station though the police denied allegations saying it was suicide, but post-mortem did not reveal any signs of hanging. Further, HRW (2010) observed that the system had no capacity to handle such cases while prison staff simply refused to report or follow up complaints, refused prisoners access to medical and psychological attention, while prisoners were reluctant to talk about it. Similarly, Tordys and Amon (2011) also observed similar findings of systematic and widespread physical and sexual abuse of female prisoners held in the Zambian police custody.

Whilst in prison, female prisoners were guarded by female prison staff. However, most sex coercion, sexual abuse and violence reported to had taken place in police custody where male staff had access to female custody rooms. Suresh et al., (2011) reported similar observations in India where male staff had unchecked visual and physical access to female prisoners who physically and sexually abused them. It is beyond comprehension to note that in America, where legal protection exists to prisoners, sexual violence is underreported due to illicit nature of it and stigma associated with it; limiting authorities to prosecute perpetrators and provide appropriate care to victims like VCT and PEP (Dostoyevsky, 2008). The findings in this study may be a

strong presumptive evidence of intra and extra-prison HIV transmission between prisoners, prison staff and general population where prisoners return to after release and staff after work. Further, this study may conclude system's failure to handle cases of sexual abuse and violence against female prisoners. However, this study didn't find any evidence of consensual sex or Lesbianism within the prison.

The time spent in prison was strongly associated with HIV seropositive status in this study. The findings revealed that those who had been in prison for more than one year were more likely to be convicted and were HIV sero-positive. Although this study didn't find any association with the type of imprisonment, most of the female prisoners who had been longer in the prison were serving their sentences. Similarly, a study by Barros et al., (2008) concluded that longer imprisonment periods were associated with relatively higher HIV and HCV prevalence among female prisoners. This also could be an assumptive evidence of intra-prison HIV transmission among those who had been in prison longer. It may also be true therefore to say that, female prisoners who were convicted stayed longer in the prison and had risk of HIV infection. To the contrary, the study by UNODC and UNAIDS (2011) did not find any association between actual time spent in prison and HIV sero-positivity.

Substance use is a known risk behaviour associated with high risk of HIV infection in both prisoners and general population (Akeke et al., 2007). Having used any form of substance while in prison was highly associated with HIV sero-positivity in this study. The commonest substance used in prison was tobacco, while other prohibited substances such as cannabis and colourless alcohol were smuggled into the prison or lawful custody. The findings in this study are similar to earlier studies by Akeke et al., (2009), Suresh et al., (2011) and UNODC, (2011) which revealed that most female prisoners had used some form of substance before and during incarceration. During IDIs, it was revealed that substance use for some was prison learned behaviour to release tension and cope with prison environment. IDIs of this study support similar findings by Jürgen et al., (2011) which revealed that prison was a place where drug use was initiated often as a means to release tension, cope with being overcrowded and violent environment. Surprisingly, it was revealed during IDIs that some female prisoners accessed prohibited substances through prison staff in form of trade. However, this study didn't find any use of injection drugs among female prisoners in this prison similar to findings in India by

Dolan, K. and Larney, S. (2010) who found no evidence of injection use in prison. Although injection use was not found in this study, other studies had shown injection drug use as very high risk behaviour in HIV transmission in prison settings (UNODC, 2011) and closely related to HIV infection among prisoners who used and convicted for drug-related offences (Jürgens et al., 2011). Substance use in prison in this study appeared to be a challenge to the prison system, though the entry of people and materials into the prison is subjected to scrutiny; new strategies need to be developed to prevent entry of prohibited substances into prison.

It is evident from many studies that most female prisoners are from a vulnerable group and most at risk in community with low socio-economic backgrounds. It is not surprising that, HIV strikes more in communities that are less socially and economically empowered. In order to survive, many engage in high risk sexual behaviours such as commercial sex work, sex trade for favours, gifts or food without protection putting them at high risks of HIV infection (NMAC, 2008), while NAC (2010) recognised commercial sex work as one of the drivers of new HIV infection. In this study, commercial sex work was highly and positively associated with HIV sero-positivity among female prisoners supporting the earlier study by Suresh et al., (2011). These findings are not striking as it is a known factor for centuries that commercial sex work being one of the oldest careers, is not only associated with HIV infection, but other health problems as well. During IDIs, there was evidence of risk compensation among participants; in which the perceived reduced risk of HIV infection from ARVs could have been compensated this for high risk sexual behaviour of unprotected sex among female prisoners. The authors therefore concluded that the knowledge of HIV transmission did not necessarily translate into change of behaviours.

It is known that female prisoners are susceptible to poor health including HIV infection during incarceration due to complexity of interrelated factors. Accessibility to free VCT and ART by all has increased in Zambia in the past decade. However, this study observed that access to specialised medical care was controlled by untrained and unqualified prison officers who evaluated and determined whether a visit to the prison clinic was necessary. The findings of this study were consistent with earlier study by HRW (2010) and Tordys et al., (2011) who observed lack of qualified staff and delayed transfer of sick prisoners to medical care outside prisons, in some cases took days or weeks. It was revealed during IDIs that inequality in accessing health care within prison existed depending on legal classification and standing in society. Female

prisoners reported lack of confidentiality by prison officers and were stigmatised for being HIV sero-positive by both prison staff and fellow prisoners. During IDIs, it was reported that those on ART were called by names when it was time for their review at the clinic. VCT was offered by many organisations while DCT and ART were offered at the prison clinic. However, in this study stigma was the main factor reported by most female prisoners who declined to be referred for further HIV and AIDS management and opted to delay until they were released from prison.

## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusion

The risk behaviours and factors associated with HIV seropositive status among female prisoners in Lusaka Central Prison are complex; encompassing moral, socio-economic and legal issues. The risk behaviours and factors are three fold and inter related; namely female prisoners, prison staff and system. Most female prisoners serve multiple short sentences, cycling between prison and the community making them a significant vector for intra and extra prison HIV infection. The HIV sero-positive status among female prisoners has a possibility of newly released HIV infected female prisoners transmitting infection to broader community. Families, visitors and prison officers act as a link between prison and the community; bridging prison and public health. It is reasonable to assume that most HIV sero-positive female prisoners could have acquired infection before incarceration. However, though it is hard fact, there could be possibility of some female prisoners being infected while in lawful custody and prison. We may therefore, conclude that each of two **“HIV and incarceration”** has affected the other in one or many ways. From this study, we can presume that high HIV prevalence and risk behaviours among female prisoners may be indicative of substantial risk of contracting HIV infection while in prison and transmitting it to the general population after release. With the findings of this study and earlier studies in the prisons, we believe MoH, NAC, MoHA and co-operating agencies have a major role to play to begin to roll back the HIV epidemic among female prisoners.

### 6.2 Recommendations

- Sexual abuse and coercion must be addressed to end sexual violence among female prisoners. Therefore, it is imperative that the system formulates a legal framework and complaint procedures to address sexual abuse and violence against female prisoners. Women prisoners who are victims of sexual violence and abuse be given medical attention such as: access to PEP, psychological and spiritual counselling to help them cope with the experience of sexual violence. Engagement of legislatures and judiciary to consider terms of punishment for perpetrators of sexual violence and abuse in prisons and lawful custody.

- Compulsory VCT and DCT are against human rights; however there is need for OPT-OUT VCT for all admissions to prison. This will assist in HIV and AIDS management while in prison in terms of HIV prevention, risk reduction and ART.
- Behavioural and Vocational rehabilitation: Appropriate techniques to address sexual behaviour and substance use through counselling. Provision of skills training to work and adequate planning for self- support after release from prison.
- ART inquiry be routine for all admissions to prison, so that they are provided with supplies of medicines on time in order to avoid development of drug resistance and stealing from others fuelling disharmony within the prison.
- Prison Warders searching female prisoners for prohibited items be trained on how to conduct vaginal and rectal examinations in order to prevent intra HIV transmission by adhering to changing of gloves between prisoners.
- Training of prison officers (Prison Warders) as HIV and AIDS and Psychosocial Counsellors to be introduced. This will assist in reducing stigma and ensure confidentiality of female prisoners living with HIV and AIDS in correctional facilities.
- Building and relocating Lusaka Central Prison female section to a bigger area with health, skills training centre and recreational facilities within the prison.
- Deliberate policy to train medical personnel to MoHA Prison Medical Directorate to provide health services to prisoners than rely on seconded MoH staff.

### **6.3 Limitations of the Study**

This study was undertaken in one prison; Lusaka Central Prison. This was hindered by geographical barrier and time in which to complete the study. Therefore, the findings of this study cannot be generalised to other settings. The ideal study would have been to conduct study to cover all the prisons that houses female prisoners in the country. Being a cross-sectional study, it is observational in nature in that there are no interventions and no controls. Hence, the study has limitations such as self-reporting and subject to multiple reporting biases. We are not sure how accurate the information given is. However, we tried to control for this with respect to being HIV positive by conducting a test ourselves on the participants. However, using mixed method approaches; in-depth interviews with prisoners strengthened the main findings. Further, our findings of this study can be used in policy formulation and implementation of HIV and

AIDS programmes for female prisoners in Zambia Prison Services. The findings could also be used as a baseline for further research within the Prison Service.

#### **6.4 Areas for Further Research**

The research can be duplicated on a larger scale to cover the whole country to enable the generalisation of the findings.

A Prospective Dynamic Cohort Study to be conducted. On admission, female prisoners are admitted to study with opt-out VCT and followed up for a period of time and monitor their HIV sero-status.

A comparative study on HIV sero-positive prevalence among prisoners and prison staff with the general population to determine possibility of extra and intra prison HIV transmission.

Conduct a large scale qualitative research to provide an in-depth understanding in the risky behaviour and factors among female prisoners.

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## APPENDICES

### *Appendix i: Structured Interview Schedule*



#### THE UNIVERSITY OF ZAMBIA SCHOOL OF MEDICINE DERPARTMENT OF PUBLIC HEALTH

#### Structured Interview Schedule

**Title of Study:** Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV Prevention.

DATE OF INTERVIEW:   -   -   (DD/MM/YY)

TOWN:  TIME TAKEN FOR INTERVIEW:   (IN MINS)

PRISON NAME:

#### INTERVIEW DETAILS

INTERVIEW ID:

INTERVIEWER: (NAME).....

RESEARCHER: (NAME).....

#### DATA ENTRY INFORMMATION

DATE OF DATE ENTRY:   -   -   (DD/MM/YY)

DATA ENTERED BY: (NAME).....SIGNATURE.....

## INSTRUCTIONS FOR THE INTERVIEWER

- Greet and introduce yourself to the participant before starting the interview.
- Explain the reason for the interview and ask for permission to interview the participant.
- Assure the participant of confidentiality of information and anonymity.
- Do not write the name of the respondent on the interview schedule.
- Fill in spaces provided with most appropriate response to the question.
- At the end of interview, provide time for the respondent to ask questions.
- Thank the participant at the end of each interview.

## BEFORE STARTING, THE FOLLOWING WILL BE READ TO THE RESPONDENT

*“This interview is part of the partial fulfilment of the researcher’s study in Masters of Science in Epidemiology at the School of Medicine. The questions cover various aspects of your personal information, drug use history, sexual practices and other aspects of risk factors in transmission of HIV infection. The interview is confidential and anonymous. Whatever you tell me is between the two of us, can never be traced to you as an individual and will not affect your prison status. Your participation in this interview is entirely voluntary, you are not obliged to answer all or any questions if you do not wish to and you may terminate the interview at any point. Before we start the interview, do you have any questions that you would like to ask me?”*

## SECTION 1: SOCIO-DEMOGRAPHICS

**Q1. What is your age at last birthday?**

18-27years	28-37 years	38-47 years	48-65 years
1	2	3	4

**Q2. What is your current marital status?**

Single never married	Ever married
1	2

**Q3. Country of origin**

Zambia	Foreign national
1	2

**Q4. How many children do you have?**

No child	1-4 children	$\geq 5$ children
1	2	3

**Q5. What is your religious denomination?**

Christian	Non-Christian
1	2

**Q6. What is your highest level of education?**

Never been	Primary	Secondary	University/College
1	2	3	4

**Q7. How did you support yourself before incarceration?**

Formal employment	Unemployed	Self-employed
1	2	3

**Q8. What is your income per month?**

Below K2000.00/month	Above K2000.00/month
1	2

## SECTION 2: PRISON HISTORY

**Q9. What is your type of imprisonment?**

Under trial	Convicted
1	2

**Q10. How long have you been in prison?**

Less than 1 year	More than 1 year
1	2

**Q11. Have you ever been in prison before?**

No	Yes
0	1

## SECTION 3: SUBSTANCEUSE HISTORY

**Q12. Which of the following do think is commonly used in this prison?  
(tick appropriately)**

	Drug Name	
1.	Alcohol,	
2.	Local spirits	
3.	Tobacco	
4.	Cannabis, Dagga, Marijuana, Chamba, Ibange	

**Q13. Have you ever used any substance before coming into prison?**

No	Yes
0	1

**IF NO DRUG USE EVER, GO TO SECTION 4**

**Q14. Have you ever used any substances during your current stay in prison?**

No	Yes	Refused
1	2	99

**Q15. Have you ever injected drugs? (If NO, go to Section 4)**

No	Yes
0	1

**Q16 The last time you injected drugs, did you share needle or syringe with someone?**

No	Yes
0	1

#### **SECTION 4: TATOOING HISTORY**

**Q17. Have you ever tattooed or pierced any part of your body?**

No	Yes
0	1

**Q18. Have you ever tooted or pierced any part of your body while in prison?**

No	Yes
0	1

#### **SECTION 4: SEXUAL PRACTICES**

**In this section, I will ask you some questions regarding your sex life style. As I said at the beginning of the interview, if you do not feel comfortable in answering any of the questions in this section, you may refuse to answer them.**

**Q19. How old were you the first time you had sex?**

< 14 years	14-18 years	≥ 19 years	Don't know
1	2	3	88

**Q20. Have you ever sold sex for money, food or other benefits such as drugs, favours or gifts?**

No	Yes
0	1

**Q21. Have you ever been coerced into sex or sexually harassed? while in police custody or prison?**

No	Yes
0	1

**Q22. The last time you had sex, did you use a condom?**

No	Yes
0	1

**Q23. How many different sexual partners have you had?**

Multiple sexual partners	One sexual partner
1	2

**Q24. Have you ever been forced or raped while in police custody/prison?**

No	Yes
0	1

## **SECTION 5: HIV AND AIDS AWARENESS AND PREVENTION**

**Q25. Have you ever heard of HIV or the disease called AIDS?**

No	Yes
0	1

**Q26. Do you think that you are at risk of HIV infection in prison?**

No	Yes
0	1

**Q27. How can HIV be transmitted from one person to another?**  
**(Don't read the list, tick the answer which the participant knows)**

1.	Sexual Intercourse	
2.	Sharing sharp instruments/razor blades	
3.	Insect and mosquito bites	
4.	Kissing, touching and hugging	
5.	Mother to Child Transmission of HIV	
6.	Blood Transfusion	

**Q28. Have you ever had VCT or DCT for HIV?**

No	Yes
0	1

**Q29. What were the results of HIV test?**

HIV positive	HIV negative	Don't know
1	0	88

**Q30. If YES to Q28, have you disclosed your status to anyone?**

No	Yes
0	1

## **SECTION 6: HIV/AIDS AND HEALTH SERVICES**

**Q31. Have you ever received or come across any document providing information on any of the following? (tick appropriately)**

1.	HIV/AIDS ,VCT and Antiretroviral Treatment	
2.	Condom use	
3.	Prevention of Mother to Child Transmission	
4.	STIs and Cervical Cancer	
5.	Zambia Prisons HIV and AIDS Policy	
6.	Drug use and Tattoos	

**Thank you very much for your kind cooperation and spending your valuable time with me.**

Ask participant if she has any questions. Provide risk reduction counselling as appropriate. Give information on HIV testing and counselling services. **End of interview.**

*Appendix ii: In-depth Interview Guide*



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DEPARTMENT OF PUBLIC HEALTH**

**In-Depth Interview Guide**

**Title of Study:**        **Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention**

DATE OF INTERVIEW:   -   -   (DD/MM/YY)

TOWN:  TIME TAKEN FOR INTERVIEW:   (IN MINS)

PRISON NAME:

**INTERVIEW DETAILS**

INTERVIEW ID:

INTERVIEWER: (NAME).....

RESEARCHER: (NAME).....

**DATA ENTRY INFORMATION**

DATE OF DATE ENTRY:   -   -   (DD/MM/YY)

DATA ENTERED BY: (NAME).....SIGNATURE.....

## INSTRUCTIONS FOR THE INTERVIEWER

- Greet and introduce yourself to the participant before starting the interview.
- Explain the reason for the interview and ask for permission to interview the participant.
- Assure the participant of confidentiality of information and anonymity.
- Do not write the name of the respondent on the interview schedule.
- At the end of interview, provide time for the respondent to ask questions.
- Thank the participant at the end of each interview.

## BEFORE STARTING, THE FOLLOWING WILL BE READ TO THE RESPONDENT

*“This interview is part of the partial fulfilment of the researcher’s study in Masters of Science in Epidemiology at the School of Medicine. The questions cover various aspects of your personal information, drug use history, sexual behaviour and other aspects of risk factors in transmission of HIV infection. The interview is confidential and anonymous. Whatever you discuss with me is between the two of us, can never be traced to you as an individual and will not affect your prison status. Your participation in this interview is entirely voluntary, there no risks involved, you are not obliged to answer all or any questions if you do not wish to and you may terminate the interview at any point. Before we start the interview, do you have any questions that you would like to ask me?”*

- Q1. How old are you this year?
- Q2. Which part of Zambia do you come from, if not what is your country of origin?
- Q3. Do you belong to any Religious denomination?
- Q4. Have you ever been to school and if so what is your highest level of education?
- Q5. Are you currently married or ever married before and do you have children?
- Q7. What is the type of imprisonment and for how long have you been in prison?
- Q8. Do you think drug use is a problem in this prison?
- Q9. Have you ever used drugs before imprisonment or inside the prison?
- Q10. Do you have any tattoos on your body, and if so where did you have them done?
- Q11. Have you ever sold sex for money, food or any favours?
- Q12. Have ever had more than one sexual partner, if so what was/were the reason(s)?
- Q13. Have you ever had sex while in prison, if so was it consensual, coerced or raped?
- Q14. Have you ever heard of HIV and the disease caused AIDS?
- Q15. Do you think HIV and AIDS is a problem in this prison and how can it be prevented?

***Appendix iii: Information Sheet***



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DERPARTMENT OF PUBLIC HEALTH**

**Information Sheet**

**Title of Study:**            **Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention**

**Introduction:**

Margaret Kashinga Mpundu is my name, a student of Masters of Science in Epidemiology at the University of Zambia, School of Medicine. I am requesting for your participation in the research study mentioned above because you are in prison. Before participation in this study, we would like to explain to you the purpose, procedure, benefits and our expectations from you.

**Purpose of the Study:**

The study will explore the risk behaviours and factors that are associated with high HIV infection among female prison inmates. Participation in this study will entail one visit only. The information obtained will assist the policy makers and implementers of the programme in the MoHA and stakeholders re-direct programme implementation in order to provide HIV and AIDS health services in prisons.

**Procedure:**

Participation in the study is voluntary, you have rights to decline participation; end interviews or decide to withdraw from the study at any point with no penalty. Once you have signed the informed consent, the study involves a face-to-face interview with the help of the researcher who will ask you a set of questions about risk behaviours, sex practices and HIV and AIDS awareness using a structured questionnaire. We would also like to find out about the HIV and AIDS health services in this prison. There will be no names required or written on the questionnaire.

**Confidentiality:**

All the information collected from you will be confidential to the extent permitted by law. The information you provide will be between the two of us and will not be released without your written permission or when required by law. The discussion will not include anything on reasons your for incarceration and will not have any effect on your prison status. You will be identified by a unique anonymous number and no one will be able to link you to answers provided to us. Those who would like to know their HIV status, only the researcher will conduct the HIV testing and no will have access to test results. The MoH, the UNZA-BREC or the School of Medicine may review your records again but this will be done with confidentiality. The interviews will be conducted in a private room in the clinic.

**Potential Benefits:**

By participating in the study, you can learn about HIV and AIDS and know your HIV status through VCT. You will be referred for HIV treatment and care if your HIV result is positive according to standard care for prisons. You may not receive direct benefit from the study; however information which will be obtained will help the policy makers and implementers to take measures that will ensure that female prisoners are protected from HIV infection.

**Risks and Discomforts:**

There would be minimal risk from participation as blood will be collected; you may feel slight pain or discomfort. You may experience a bruise or swelling at site of vein puncture if blood is taken from you. The interviews will take part of your time to answer questions and you may be embarrassed when discussing sexual behaviour and practices. Some questions may seem to be very sensitive and personal; you are free to abstain from answering questions that makes you uncomfortable. If you have HIV, knowing your status may cause anxiety and may experience stigma from others while in prison or when you leave prison by the family and community.

**Costs of Participation:**

There will be no monetary reward in exchange for participating; however, information that will be obtained will assist in HIV prevention and care within ZPS.

**Alternative Benefits:**

If you do not participate in the study, but will need discussion on HIV and AIDS, it will be offered to help you understand the topic more.

**Persons to contact for Problems or Questions:**

If in case you will ever have questions with regard to this study or as a result of your participation in the study, you feel grieved, you should contact the following:

1. Margaret Kashinga Mpundu,  
University of Zambia, School of Medicine  
Department of Public Health  
P.O. Box 50110, Lusaka.  
**Zambia**  
Mobile: +260975143946, Email: [mpundumc@yahoo.co.uk](mailto:mpundumc@yahoo.co.uk)
  
2. The Chairperson,  
Biomedical Research Ethics Committee  
The University of Zambia  
P.O. Box 50110, Lusaka  
**Zambia**  
Telephone number: +260211256067

*Appendix iv: Informed Consent Form*



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DERPARTMENT OF PUBLIC HEALTH**

**Informed Consent Form**

**Title of Study: Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention.**

The purpose of this study has been explained to me and I understand the purpose, the benefits, risks or discomforts associated with the study. I have been assured of confidentiality and anonymity of my responses and that completed questionnaires will be collected by the Researcher will be kept in such a manner as to guarantee my privacy.

I also understand that:

If I agree to take part in the study, it is entirely voluntary; I can withdraw at any time without giving an explanation and being intimidated.

Indicate your willingness to participate by signing or by putting your thumb print here

Signature or thumb print \_\_\_\_\_ Date: \_\_\_\_\_  
(Participant's signature or **thumb print**)

Administered by (print): \_\_\_\_\_

Administer signature: \_\_\_\_\_ Date: \_\_\_\_\_

Witness name \_\_\_\_\_

Witness signature: \_\_\_\_\_ Date: \_\_\_\_\_

*Appendix v: Translated Version of the Instruments (Icibemba)*



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DERPARTMENT OF PUBLIC HEALTH**

**Impendwa Yakusendamo Ulubali (Icibemba)**

**Title of Study: Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention.**

**Amashiwi ya kutangisha:**

Ishina lyandi nine Margaret Kashinga Mpundu. Pali inonshita ndecita amasambililo yakalamba pesukulu likalamba ilya University of Zambia, School of Medicine. Ico ndeipusha sana kuli imwe kutila muiposemo sana muli uku kufwailisha mukwesha ukusambilishanya pa mulandu wafileta nangula ukulenga ubulwele bwantandabwanga (AIDS) ukuseka kulibanamayo abafungwa. Ilyo tamulaipela ukusenandamo ulubali muli aya masambililo, kuti natemwe ukulondolola ubukalamba bulimo, ubusuma bulimo elyo nefyo mwingatemwa ukucita.

**Umulandu ukalamba uwa aya masambililo**

Aya masambililo yali pakufwaisha imisango ne mibele yaba fungwa mufifungo, banamayo iyo iinga baitelelela nokulenga ukuti bakobwa nakashishi (HIV) kaleta ubulwelele bwantantabwanga (AIDS). Pakusanga ifishinka muli uku kufwailisha, chipekanishiwe ukuti, kukaba ukutandalila abafunga kuchifungo nokuyalanshanya nabo. Uku kutandala no kulanshanya kukabafye kwa muku umofye. Fyonse ifikashangwa muli uku kufwaisha kwakufwaya ikwishiba pa mibele nemikalile no kwishingilila kwa ba fungwa ku bulwele bwantantabwanga ubuletwa notushishi twa HIV, fikafwako bampandamano ukupanga amafunde yakucincintila ububulwele ukupitila muchiputulwa cabuteko icilolekesha pabumi bwabekala calo (MoH), elyo nabonsefye abo cikumine pakwafwako uku cefya no kucingilila ubulwele buletwa no tushishi twa HIV utulenga no bulwele bwa AIDS ukusalangana pakati kabafungwa mufifungo.

**Ifyakukonka**

Bonse abali nokuiposa muliku kufwailisha nokusambilila balifye no kucitefi mukutemwa kwabo fye abene ukwabula ukupatikishiwa. Ilyo lyonse balefwaya ukuleka, kuti baleka panshita ili yonso. Lelo kuli abo abengatemwe ukusambilila pali ubu bulwele ukupitila mumepusho abalefyailisha baleipusha bena kuti basumina abene ukwabula ukupatikishiwa. Panuma yakusuminishanya, amepusho yakwipushiwa alinokuba pamenso namenso ukupitila mukulanshanya pabulwele bwantanda bwanga, ifyo bwisa elyo nefyo bufwile ukucingililwa.

**Ukusunga inkama (Imfundato)**

Fyonse ifikalandwa pali ububulwele bwa HIV na AIDS, inshila bwishilamo elyo necilenga bwise, tafyakashimikilwe kumuntu nangu umo iyo. Fikaba fyamunkama elyo fikasungwa munkama palifye imwe na ine. Uku kulanshana pali imwe naine, kulacitikila munkama na bumfisolo. Ifyo tukalanshana, tapakabe nangu cimo pamulandu walenga kuti musangwe muli cino icifungo. Abo abengafwaya ukwishiba nga cakuti balikwata akashishi ka HIV, ninefye keka nkaba nokuceceta umulopa wenu elyo takuli nangufye umo ukeshiba ifyo twasanga mumulopa wenu.

**Ubusuma bulecetekkelwa ukufumamo**

Bonse abakaiposa muli uku kusambilishanya bakalundapo pafyo baishiba pakashishi HIV akaleta ubulwele bwa ntandabwanga (AIDS). Ngacakuti mwasenadamo ulubali, kuti mwasambililoko pa kashishi ka HIV akaleta ubulwele bwa ntandabwanga (AIDS), nemisango yakuicingiliamo mukulanshanya no kupimisha umulopa (VCT). Ifi fyonse fyakubafwako ukutwala ubumi bwabo pantashi elyo no kwishiba ifyakwisunga. Elyo abo abakasangwa no ubu bulwele, bakaba nokundapwa ukulingana nefyo catandikwa mucifungo.

**Amafya mwingasangamo**

Kuti limbi kwaba ukumubula umulopa nokuupima. Pakubula uyu mulopa limbi kuti mwaumfwa ubukali panono, limbi kuti pafimba panono apo injeleti yacingilila pakusenada umulopa. Nomba utwamusango uyu, tatufwile ukumusakamika. Amepusho yamo kuti yamumfwisha insoni, lelo namukwata insambo ukukana asuka amepusho ayamumfwisha ububi. Nga cakuti bwalikwata akashishi (HIV) akaleta ubulwele bwa AIDS, nalimo kuti mwaumfwa umwenso elyo nokufwaya ukukanaishiba.

**Ifyakulipilwa pakusendamo ulubali**

Takwakabe kulipila nangu ukulipilwa ngacakuti mwasala ukusendamo ulubali muli uku kusambilila. Nomba kubaipeshe, bakasambilako ifingi pa kashishi ka HIV akaleta ubulwele bwa ntandabwaga (AIDS) ukupila mukulanshanya no kupimwa ukwa VCT. Elyo kukaba nokufwailisha imisango yakucingilamo aka kashishi (HIV) nobubulwele (AIDS) mufifungo.

**Ubusuma bumbi**

Ngacakuti mwasala ukukana sendamo ulubali muli ayamasambililo, ukundapwa kwena mukaba nokundapwa panchita mucili mucifungo. Elyo nacakuti nulefwaya ukulanshanya pali aka kashishi (HIV) no bulwele bwa AIDS, ubu bwafwilisho kuti bwapelwa.

**Abakumona ngamuli namepusho nangu ubwafya**

Ngacakuti mukakwatapo amepusho, nangula cimo camucitikila pamulandu wakuti mwalisendamo ulubali muli aya masambililo, kuti mwalanda nangu ukumona aba bantu pali aya amakeyala.

1. Margaret Kashinga Mpundu

University of Zambia, School of Medicine

Department of Public Health

P.O. Box 50110, Lusaka

**Zambia**

Mobile: +260975143946; email: [mpundumc@yahoo.co.uk](mailto:mpundumc@yahoo.co.uk)

2. The Chairperson

Biomedical Research Ethics Committee

The University of Zambia

P.O. Box 50110, Lusaka

**Zambia**

Telephone number: +260211256067

*Appendix vi: Translated Version of informed Consent (Icibemba)*



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DEPARTMENT OF PUBLIC HEALTH**

**Icipande Chakusuminishanya**

**Title of Study: Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention.**

Umulandu uukalamba uwa aya masambililo nabanondolowela, elyo nakabili ningumfwikisha ubusuma notumafya twinngangwamo. Nabanjeba nokutla ati ifi fyonse tukalanshana fikasungwa munkama, elyo takapabe nangula umo uwingeshiba ifyo nayaswike muli uku kulanshanya.

Ine ningumfwikisha nokutla:

Ngacakuti nasendamo ulubali muli aya masambililo, nkaipelafye nemwine; kabili kuti nafumamo inshita iyili lyonse ukwabula ukulondolola nangu ukutitikishiwa.

Mukwai langeni nokusumisha ubufwayo bwenu mukusendamo ulubali pakusani nangu ukufwatika icikumo pesamba.

Uulesendamo ulubali\_\_\_\_\_Ubushiku\_\_\_\_\_  
(Lembeni ishina/musaine nangu ukufwatika icikumo)

Bakepusha\_\_\_\_\_Ubushiku\_\_\_\_\_  
(Lembeni ishina/musaine nangu ukufwatika icikumo)

Bakambone\_\_\_\_\_Ubushiku\_\_\_\_\_

Lembeni ishina/musaine nangu ukufwatika icikumo)

*Appendix vii: Pledge of Confidentiality*



**THE UNIVERSITY OF ZAMBIA  
SCHOOL OF MEDICINE  
DEPARTMENT OF PUBLIC HEALTH**

**Pledge of Confidentiality**

**Title of Study: Risk Behaviours and factors associated with HIV Prevalence among Female Prisoners in Lusaka Central Prison: Missed opportunities in HIV prevention.**

1. I understand the importance of confidentiality of all the information collected in this study in Lusaka Central prison.
2. I understand and accept the responsibility to maintain and protect the confidentiality of all the information, collected and processed in this study at Lusaka Central prison.
3. I will only collect data on what has been agreed upon. I will not copy or record any personal name, address or phone number.
4. I understand the confidentiality of information collected and will not reveal to anyone, neither will I discuss participant information in public.
5. I will not reveal or show to anyone not involved with study any information, questionnaire or laboratory results.
6. I understand the ethical obligations to respect the rights of participants, to protect the right to privacy of participants and their personal and medical information.
7. I understand that failure to protect the confidentiality of participants will attract disciplinary actions.
8. I hereby, declare that I have read and understood the above confidential pledge to act in accordance with these policies and procedures.

Name\_\_\_\_\_ Institution\_\_\_\_\_

(Please print)

Signature\_\_\_\_\_ Date\_\_\_\_\_

**Appendix viii: Approval letter from Biomedical Research Ethics Committee**



**THE UNIVERSITY OF ZAMBIA  
BIOMEDICAL RESEARCH ETHICS COMMITTEE**

Telephone: 260-1-256067  
Telegrams: UNZA, LUSAKA  
Telex: UNZALU ZA 44370  
Fax: + 260-1-250753  
E-mail: unzarec@unza.zm  
**Assurance No. FWA00000338**  
**IRB00001131 of IORG0000774**

Ridgeway Campus  
P.O. Box 50110  
Lusaka, Zambia

17<sup>th</sup> May, 2013

Your Ref: 004-12-12

Ms. Margaret Kashinga Chilambwe Mpundu  
Plot No. 167B, Flat 1A  
Lusito Road, Roma  
Lusaka

Dear Ms. Kashinga,

**RE: RE-SUBMITTED RESEARCH PROPOSAL: "RISK BEHAVIOURS ASSOCIATED WITH HIV PREVALENCE AMONG FEMALE PRISONERS IN LUSAKA CENTRAL PRISON AGED BETWEEN 18 YEARS AND ABOVE: MISSED OPPORTUNITIES IN HIV PREVENTION" (REF. NO: 004-12-12)**

The above mentioned research proposal was re-submitted to the Biomedical Research Ethics Committee with recommended changes on 30<sup>th</sup> April, 2013. The proposal is approved.

**CONDITIONS:**

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please consult this office. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your approval expires you may need to request for renewal. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretariat).
- **Ensure that a final copy of the results is submitted to this Committee.**

Yours sincerely,

Dr. J.C. Munthali  
**CHAIRPERSON**

Date of approval: 01 May, 2013

Date of expiry: 30 May, 2014

**Appendix ix: Permission letter from Ministry of Home Affairs**

TEL: LUSAKA 254261/2  
TELEGRAPH: MINHOME, RIDGEWAY  
TEL FAX: 254336  
Email: homeaffairs@zammtel.zm

In reply please quote :

No.....



**REPUBLIC OF ZAMBIA  
MINISTRY OF HOME AFFAIRS**

**INDEPENDENCE AVENUE  
P.O. BOX 50997  
LUSAKA**

**MHA/101/3/15**

18<sup>th</sup> October, 2012

Dr H. Halwindi  
Acting Head of Department  
The University of Zambia  
School of Medicine  
Department of Community of Medicine  
**LUSAKA**

**RE: REQUEST FOR PERMISSION FOR MPH STUDENT TO CONDUCT THE RESEARCH STUDY –  
MPUNDU M. KASHINGA.**

I refer to your letter dated 15<sup>th</sup> October, 2012 on the subject above.

Permission is hereby granted to the above student who is doing her Masters of Science in Epidemiology to collect data on "Risk Behaviour and factors Associated with High HIV Prevalence among Female Prisoners" at Lusaka Central Prison.

However, the information should be used for academic purposes only.

By copy of this minute Prison authorities are requested to facilitate the visit.

Michael Sakala(ASP)  
Acting Prisons Secretary  
For/Permanent Secretary  
**MINISTRY OF HOME AFFAIRS**

CC: The Commissioner of Prisons, Prisons Headquarters – **KABWE**  
CC: The Regional Commanding Officer, Lusaka Region – **LUSAKA**  
CC: The Regional Commanding Officer, Copperbelt Region, **NDOLA**  
CC: The Officer in Charge, Lusaka Central Prison – **LUSAKA**  
CC: The Officer in Charge, Kansenshi Prison, **NDOLA**

**Appendix x: Permission letter from Lusaka Health Office, Ministry of Health**

P.O. Box 50827  
Lusaka  
Tel: +260-211-235554  
Fax: +260-211-236429

*in reply please quote*

*No.....*



Republic of Zambia

**MINISTRY OF HEALTH  
LUSAKA DISTRICT HEALTH MANAGEMENT TEAM**



Wednesday, May 29, 2013.

Ms. Margaret Kashinga Chilambwe Mpundu  
Plot No. 167B, Flat 1A  
Lusito Road, Roma  
**LUSAKA.**

Dear Ms. Mpundu,

**RE: AUTHORITY FOR MSc. EPIDEMIOLOGY STUDENT TO USE LUSAKA  
CENTRAL PRISON CLINIC- MPUNDU M. KASHINGA.**

Reference is made to the above mentioned subject.

Lusaka District Health Office (LDHO) has no objection for you to use Central Prison Clinic for your Masters of Science in Epidemiology study entitled "**Risk Behaviours and Factors Associated with HIV Prevalence Among Female Prisoners in Lusaka Central Prison**".

Kindly ensure that during your study you cooperate with the Clinic In-charge so as not to disrupt Health centre operations. After your completion, you are requested to avail the Health centre and Lusaka District Health Office a copy of your study.

By copy of this letter, the respective Health centre In-charge is herewith informed.

Yours sincerely,

**DR. M. M. CHIKO  
AG. DISTRICT MEDICAL OFFICER.**

c.c.: The Health centre In-charge: Central Prison Centre.  
c.c.: Dr. H. Halwindi - Postgraduate Coordinator (UNZA).