DECLARATION

I hereby declare that this dissertation represents my own work and has not been presented either wholly or in part for a degree at the University of Zambia or any other university.

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2014

APPROVAL

This proposal of Dr Sam Miti has been approved as fulfilling the requirement of the award of the Degree of Master of Medicine in Paediatrics and Child Health by the University of Zambia.

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ABSTRACT

Child sexual abuse (CSA) is a growing global problem. In Zambia, CSA was found to be a significant concern in Lusaka and to be associated with a high risk of HIV infection. CSA provides an increasing but highly unfortunate avenue of paediatric HIV infections among Zambian children.

OBJECTIVE

The aim of the study was to determine the incidence of the human immune deficiency virus (HIV) transmission and the effectiveness of HIV post exposure prophylaxis (PEP) intervention among sexually abused children who presented to the University Teaching Hospital (UTH).

RESEARCH DESIGN AND METHODS

A cohort of HIV negative female children aged less than 16 years of age presenting with child sexual abuse to the UTH in Lusaka, were recruited over a period of 13 months and conveniently grouped into two study arms based on the time of presentation to UTH. Cases presenting at less than 72 hours post exposure {given HIV post exposure prophylaxis (HHIV-PEP)}, whilst controls presented after 72 hours (not given HIV-PEP). The participants had an HIV Polymerase Chain Reaction (PCR) test done at baseline and a follow up test done after one month.

RESULTS

A total of 376 clients were enrolled into the study with 239 cases and 137 controls. Only 166 participants were retained at one month (106 cases and 60 controls) with an overall retention rate of 44%. The overall HIV infection rate among children that came for the second visit was 2.4% (4/166). The HIV infection rate was 1.7 % among controls and 2.8% among cases. However, among cases that received HIV-PEP but did not finish the full PEP course, the HIV infection rate was 15.8%, whilst there were zero infections among those that completed HIV- PEP (p=0.005). Risk of HIV infection was about 16 times more in children that did not complete the full course of PEP compared to children completing PEP.

Young adolescents (10 -15 years) were more frequently sexually abused, comprising about 70% of the cases. Kanyama-John Laing, Mtendere-Kalingalinga, and Chawama-Kuku-Misisi residential areas were the places with most occurrences of child sexual abuse cases. Most frequently, the perpetrator

was a person well known to the child, either the neighbour or boyfriend. The majority of the cases (64%) sought PEP intervention within the recommended time frame of within 72 hours. Important influencers of seeking PEP early or starting PEP were age of child (OR: 0.33, CI: 0.13 - 0.86, p = 0.02), abuser's relationship (OR: 0.49, CI: 0.26 - 0.93, p = 0.03), and residence (OR: 2.78, CI: 1.16 - 6.67, p =0.02).

CONCLUSION

The overall HIV infection rate was 2.4% following child sexual abuse in children presenting to the University Teaching Hospital (UTH), Lusaka regardless of HIV-PEP Administration. However, this could not be generalized to the entire population due to the small sample size and the high drop-out rate of 56% in the study. When HIV PEP was administered, there was no significant difference in HIV infection based on early (within 36hours) or late (36 to less than 72 hours) presentations. However, the risk of HIV infection was about 16 times more in children not completing PEP compared to children completing PEP. Therefore, HIV PEP is effective in reducing the risk of HIV infection following CSA only when it is administered correctly and for the correct duration. The age of the child, relationship of defiler to the child and residence are significant predictors for early presentation for HIV PEP.

DEDICATION

To my beloved wife Kandy, my children Mambwe, Chisomo and Takondwa who continue to be my inspiration and motivation to aspire for greater things in life. My utmost thanks goes to Jesus Christ who has taught me to value the life He has given me and that through Him, I can do all things.

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ABBREVIATIONS AND ACRONYMS

AIDS .....Acquired Immune Deficiency Syndrome

ANCAHRD .....Australian National Council on AIDS, Hepatitis C and Related Diseases

ART.. .....Anti-Retroviral Therapy

CD4. .....Cluster of Differentiation 4

CD8. .....Cluster of Differentiation 8

CSA. .....Child Sexual Abuse

CSA-OSC .....Child Sexual Abuse One Stop Centre

DNA.....Deoxyribonucleic Acid

ELISA.....Enzyme Linked Immunosorbent Assay

FDA.. .....Food and Drug Administration

HCW ..... Health Care Workers

NGO .....Nongovernmental organisation

PCR.. .....Polymerase Chain Reaction

PEP..... .....Post Exposure Prophylaxis

PMPA. .....Phosphonylmethoxypropyl adenine

RNA.....Ribonucleic Acid

SIV.....Simian Immune Virus

STI.....Sexually Transmitted Disease

STIs.....Sexually Transmitted Infections

UK.....United Kingdom

UNAIDS.....United Nations Programme on AIDS

UNICEF.....United Nations Children's International Fund

USA .....United States of America

UTH .....University Teaching Hospital

WHO .....World Health Organization (WHO

ZDHS 2007.....Zambia Demographic Health survey report 2007

CHAPTER ONE

1.1 INTRODUCTION

Child abuse is a global public health concern. World Health Organization (WHO) estimates that globally, some 40 million children aged 0 to 14 years suffer some form of abuse and neglect requiring health and social care (WHO World report on violence and health, 2002). A study by Cohen et al 2000 showed that about a quarter of women experience some form of violence in the United States of America (USA) and that 31% of the HIV-sero positive women and 27% of the HIV-sero negative women reported childhood sexual abuse (Cohen et al 2000) . Epidemiological research on child abuse in Africa comparable to that in richer regions has not been conducted. Therefore, the magnitude of the problem in the African region is not known, and information from authoritative studies is scarce.

By definition, Child Sexual Abuse (CSA) is the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared and cannot give consent or that violate the laws or social taboos of society (Faller 1988; Kempe 1978; Sedlak & Broadhurst 1996; Sgroi 1982). Available literature suggests that child sexual abuse is a global problem and that in sub-Saharan Africa, it is at least as prevalent as it is elsewhere (Mathoma et al 2006). Mathoma et al stated that the problem of child sexual abuse in Southern Africa was a mental health problem that was growing at an escalating rate. In a South African survey of women about rape experiences in childhood, 1.6% revealed unwanted sexual activity before the age of 15 and that 85% of all child rape cases are in children between 10 and 14 years of age (Jewke et al 2002). A Zimbabwean study by Birdthistle et al 2008 revealed that among unmarried, sexually active adolescents, 52.2% had experienced forced intercourse at least one time and that 37.4% of first sexual intercourse acts were forced. In Zambia, Murray et al 2006 found that CSA is a significant concern in the community in Lusaka. Defilement was mentioned by 40% of women and 30% of children asked to list problems affecting children in the community. Unfortunately, most cases of CSA presented to medical facilities only after symptoms or complications had developed (Chomba et al 2010).

There were up to 33.3 million people living with HIV at the end of 2009 of which 2.5 million were children (United Nations Programme on AIDS -UNAIDS 2010). Sub-Saharan Africa bears the largest burden of the paediatric HIV infections (2.3million) (United Nations Programme on AIDS -UNAIDS 2010). In Zambia, the HIV prevalence rate for 2007 was 14.3 % and that of Lusaka province was 21% (Zambia Demographic Health survey report 2007). Of the total 1.8million infected with HIV in Zambia, 95,000 are estimated to be children as at 2008 (UNAIDS/WHO 'Epidemiological Fact Sheet - 2008 Update, Zambia). Most HIV infections in children (95%) occur through vertical transmission via mother to child transmission mainly peri-natally and during breast feeding (Lehman et al 2007, Zambian guidelines for Paediatric ART, 2011). However, there is an increasing number of sexually acquired HIV and other sexually transmitted infections (STI's) especially among older children (Lalor 2008).

HIV post exposure prophylaxis (PEP) is the term used to describe administering antiretroviral (ARV) therapy to individuals following potential or actual exposure to HIV infection (Australian National Council on AIDS, Hepatitis C and Related Diseases (ANCAHRD) PEP guidelines, Girardet et al 2009). There are two forms of PEP; occupational and non occupational. Occupational HIV PEP is an accepted form of secondary HIV prevention for health care providers and other workers exposed to HIV through their jobs. Non occupational HIV- PEP includes all other forms of HIV- PEP, such as that given after sexual assault and consensual sex, injecting drug use, and needle-stick and sharp injuries in non-health care persons (Merchant et al 2001). Of the total cases of defilement presenting to the UTH in 2006, only 26% started PEP of which only 42% completed PEP. In 2009, 44% of defiled children started PEP of who only 38% completed PEP. Also, none of the children presenting to the UTH child sexual abuse centre had received PEP from the local clinic that referred them to UTH for defilement (Annual PEP summary sheets, one stop centre -UTH 2010). The impacts of sexual abuse, HIV infection and HIV PEP on a child's development have not been well studied. Sexual abuse has adverse effects on the mental, cultural and social development of a child (Bechtel et al 2010; Zulu 2004) although the exact extent of such injury to the child may never be quantified in totality. However, there has been little documented evidence of what the rates of sexually transmitted HIV and other STI's are, the efficacy of HIV-PEP and factors affecting HIV-PEP among the sexually abused paediatric populations in Zambia, Africa and the world as a whole (Human rights watch 2002

for Zambia; Zambia Demographic Health survey report 2007). Further, the immunological responses in children receiving HIV-PEP have not yet been well documented.

The rise of CSA cases prompted the creation of a one stop centre at the UTH to expedite and adequately handle cases of CSA reported to the hospital (Chomba et al 2010). The one stop centre has medical staff, child psycho-social counsellors and specially trained police officers to handle various aspects of sexually abused children who present to it. The centre also offers HIV testing, syphilis testing and provides HIV-PEP against HIV infection and emergency contraception to those that are eligible. An average of 2 to 3 new children were attended to on a daily basis in the out patients department and the one stop centre in 2010 (Annual PEP summary sheets, one top centre-UTH 2010). The majority of these children are referred from primary health facilities within Lusaka.

1.2 LITERATURE REVIEW

CSA in Zambia and sub Saharan Africa is linked with high risk of HIV transmission (Chomba 2011; Lalor et al 2008; Dunkle et al 2006; UNICEF 2001; WHO 2006)). Background evidence of a link between sexual violence and HIV is growing (Human rights watch 2002 for Zambia). However, studies among children are scarce. Jewke et al 2002 surveyed 11, 735 South African women between the ages of 15 and 49 years about their history of rape during childhood. Overall, 1.6% reported unwanted sexual intercourse before the age of 15 years of age. The study showed that 85% of child rape occurred between the age of 10 and 14 years and 15% between the ages of 5 and 9 years**.**

There are some indications that the prevalence of CSA may be increasing (Mathoma et al 2006; Lalor et al 2008). CSA is widely believed to be underreported as some experts believe that for every case reported another 10 go unreported (Agency France-Press, Sexual Abuse of young girls rife in Zambia, September 2003). Although CSA is increasingly being reported in Zambia (data from one stop centre-UTH), it is still more of a "silent epidemic" (Human rights watch 2002 for Zambia - suffering in silence; Chomba 2011) which has been going on from time immemorial and is still greatly under reported especially in rural areas. Cultural and socio economic factors have contributed immensely to this silent epidemic of CSA in Zambia and Africa as a whole (Human rights watch 2002 for Zambia; Mathoma et al 2006; Lalor et al 2008). Poverty, gender inequality and the

increasing number of AIDS orphans are rapidly expanding the number of children at risk of sexual abuse (Human rights watch 2002 for Zambia; Murray et al 2006). In Africa and Zambia in particular, underlying causes why children face sexual abuse include many reasons among which are children's vulnerability, the "virgin cure" myth (which wrongly claims that sex with a virgin can cure AIDS), that children are 'safe', HIV-free sexual partners, the belief that sex with children can bring success to your business, and rituals like child sexual cleansing where a widow or widower has sex with a child to prevent the ghost of the deceased spouse causing trouble (Mathoma et al 2006; Bota et al 2003; Human rights watch 2002 for Zambia; Zulu 2004). Regardless of the reasons for the CSA, children who are sexually abused suffer physical and psychological damage which can affect their behaviour and the way they socialise with peers and other members of society. It can also affect their welfare in school and ultimately their school performance (Zulu 2004).

Zambia has witnessed an increase in the reporting of sexual abuse of children country wide (Chomba et al 2010). Given the high HIV prevalence in the Zambian population, CSA in Zambia and sub-Saharan Africa is linked with high risk of HIV infection (Chomba 2011; Lalor et al 2008; Bota et al 2003; Human rights watch 2002; Lindegren et al 1998). Recent data from the one stop child sexual abuse centre at UTH shows an increasing trend of reported cases of CSA from a total of 829 cases in 2006, 1012 in 2009 and 1064 cases in 2010 (Annual PEP summary sheets, one stop centre-UTH 2010). This increasing trend in child sexual abuse cases poses an important and strongly unfortunate route of transmission of HIV and other sexually transmitted infections among the Zambian paediatric populations (Human rights watch 2002 for Zambia; Chomba 2011).

A study by Bota et al 2003 at the UTH on perceptions on child sexual abuse interviewed 194 men and 192 women. In 19% of cases, the perpetrator was the father or a relative of the victim, while neighbours represented 31% of cases and strangers were responsible for 33% of cases. The victim was taken to a health centre in 87% of cases; 80% required care for physical trauma and 7% later developed an STI. More recent data from UTH on characteristics of the abuser in CSA cases for 2010 (Chomba 2011) found that most of the abusers are non relative adults known to the child (66.4%), relatives (12.7%) and 13.1% were unknown as shown below in figure 1. Strangers accounted for only 7%. However, the HIV transmission rates were not known.

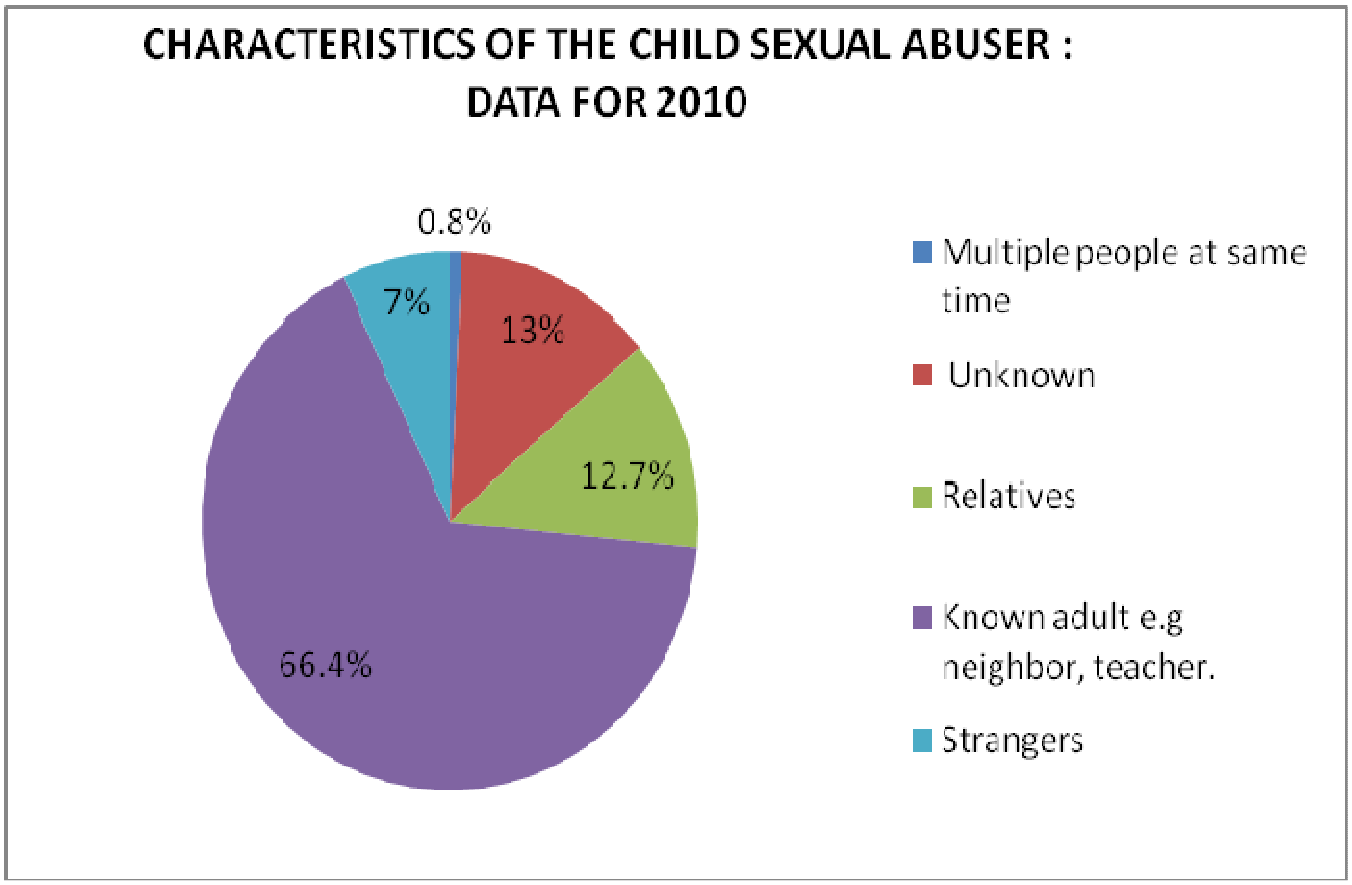


Figure 1: Pie chart of child sexual abuse perpetrators for children presenting to UTH for 2010 (Chomba 2011).

A study in Malawi by Molyneux 2009 showed an increase of 57% in presentation of child sexual abuse cases in 2005 to 2007 to Queen Elizabeth Central Hospital following the establishment of an HIV-PEP programme. More than half (63%) of the cases reviewed presented within 72 hours of defilement. Of all the cases, 42% received a one month course of HIV PEP. They concluded that the introduction of an HIV PEP programme for victims of CSA had lead to an increase in numbers presenting and being treated for CSA. They also postulated that it was likely that a significant number of children could have been prevented from acquiring HIV and other STIs following CSA. In Zimbabwe, a study by Birdthistle et al 2010 sought to characterise child sexual abuse in Harare, and explore its links with HIV and orphan hood. They reviewed medical and demographic records of

1194 children new clients (aged 7 weeks to 16 years) presenting to a sexual abuse clinic from July 2004 to June 2005. Their results over a one year period showed that 94% of clients reported penetrative sexual abuse. Only 6% of the clients presented within 3 days of abuse and received PEP for HIV. They concluded that high numbers of children in Harare experience penetrative sexual abuse, and most present too late for PEP. They also postulated that more immediate presentation of sexual abuse can help to prevent HIV. However, both the Malawian and Zimbabwean researches do not show the rates of HIV infection acquisition following CSA.

Although data on transmission rates of HIV infection following CSA is scarce, a meta analysis on HIV transmission rates found that heterosexual infectivity can exceed 0·1 (one transmission per ten contacts) for penile vaginal contact or even 0·3 (one transmission per three contacts) for penile-anal contact if the susceptible partner has an STI or is uncircumcised, if contact is penile-anal, or if the index case is in early stage or late-stage infection (Power et al 2008). CSA is often traumatic and may probably be associated with a transmission rate similar to penile-anal sexual contact.

For PEP to be administered, the client's HIV status has to be established (Zambian guidelines for the management of sexually abused children). There are a number of HIV tests available ranging from on the spot antibody tests to laboratory based molecular ribonucleic acid (RNA)/ deoxyribonucleic acid (DNA) polymerase chain reaction (PCR) tests (UK national guidelines for HIV testing 2008, FDA 2009, FDA 2010, Constantine et al 2005). The HIV DNA test detects an HIV infection more accurately and more quickly after a possible exposure than the HIV Antibody test. DNA PCR test are based on the premise of amplifying HIV viral DNA sequences using polymerase chain reaction. The HIV DNA test can detect the virus as early as 6 days after possible exposure, however it is generally recommended waiting a full 28 days after possible exposure (Constantine et al 2005; DNA PCR testing 2011). Recent data shows specificity at 100% and sensitivity at 89 % at one month (Burgard et al 2011). The HIV DNA test differs from the HIV Antibody test in that the antibody test detects the HIV virus by measuring the body's production of antibodies against the virus. Because different people produce these antibodies at different rates, the HIV Antibody test is recommended for use 3 months after possible exposure. However, the HIV antibody test is much cheaper than the DNA PCR test. There are other tests such as the p24 antigen tests and the new fourth generation HIV tests such as the architect antigen/antibody test (U.S. Food and Drug Administration, 2010). The p24 test is

available in Zambia and is mainly used in the screening of donated blood. However, the architect assay is not available in Zambia. Despite DNA PCR HIV tests being available in Zambia, their superiority in early detection of HIV infection compared to the traditional rapid ELISA HIV tests has not been harnessed to determine the HIV infection incidence in CSA.

In the first three days of acute HIV infection, the virus remains concentrated at the site of infection and regional lymph nodes (Merchant et al 2001). The observation that some HIV-exposed individuals develop antigen-specific CD8 T-cell responses without becoming chronically infected suggests that transient infection may have occurred in these subjects (Pinto et al 1997; Spira et al 1996). CD8+ T cells are critical immune effectors for clearance of many viruses and failure of CD8+ T cell effectors' function has been associated with persistent infection of humans with HIV (Clerici et al 1994). While exponential replication of HIV-1 with attendant CD4 cell activation and loss is the primary dynamic during very early infection, more subtle processes begin at the same time. Small populations of $CD4^+$ cells with a resting memory cell phenotype begin to integrate HIV-1 DNA in the chromosome. Such cells are detected relatively early in HIV infection, and at least some cells appear to have a long half-life (Chun et al 1995). Two reservoirs of latently infected cells are likely to exist from early in acute infection, the more abundant one having "pre-integration" HIV-1 and the other having integrated, replication-competent HIV. After initiation of antiretroviral therapy (ART), the two cell subpopulations can be distinguished. Cells with pre-integration HIV and a shorter half-life decay, revealing a smaller, long-lived reservoir (Blankson et al 2000). These long-lived cells are invisible to the immune system and have a decay half-life on the order of 44 months (Pierson et al 2000). Persistence of quiescent but infected cellular reservoirs makes HIV incurable with current interventions (Blankson et al 2000). Patients started on therapy while they were still HIV antibody-negative had lower levels of latently HIV-infected $CD4^+$ cells, consistent with the hypothesis that these reservoirs are fully established only toward the end of the acute-infection interval (Blankson et al 2000). However, the exact time when these latently infected CD4+ reservoirs are established in children is not known. Therefore, the administration of PEP seeks to prevent the establishment of quiescent but infected cellular reservoirs for HIV just after HIV exposure. PEP may act, not to prevent, but to limit initial cellular infection and spread of virus, allowing the host's immune defences to clear the virus inoculums (Mori et al 2000; Merchant et al 2001; Spira et al 1996). However, these host immune responses have not been well documented in Zambian children receiving HIV PEP.

The presumed efficacy is based on a collection of animal and human data on occupational, peri-natal, and non-occupational exposures to HIV. Tsai and colleagues administered R-9-(2-phosphonylmethoxypropyl) adenine (PMPA) to macaques that had been infected intravenously with simian immune virus (SIV). One group of macaques was given PMPA simultaneously with the infecting dose; another group received the drug 4 hours after infection, and a third group was treated 24 hours after the intravenous SIV inoculum was administered. All untreated control animals were infected, and, even using sensitive molecular techniques, no signs of SIV infection could be detected in any of the treated animals (Tsai et al 1998). Delay in treatment was also found to be a substantial risk factor for infection in this model. Only half the animals that received the first dose of PEP 48 hours after infection and only one fourth of the animals that did not receive the first dose until 72 hours after infection were protected from SIV infection, whereas all of the animals treated within 24 hours of infection were protected. Cardo et al 1997 examined 712 health care workers (HCW) exposed to HIV through needle-stick injuries and found an 81% odds reduction of HIV sero-conversion in those who took zidovudine. However, human studies and in children in particular, comparing the efficacy of PEP at 24, 48 and 72 hours are scarce.

1.3 STATEMENT OF THE PROBLEM

Child sexual abuse is increasingly becoming an avenue of sexually acquired HIV infection among children in Zambia. HIV-PEP is known to be most efficacious when administered in the first one hour but is recommended up to seventy two hours. Most sexually abused children do not receive prompt post exposure prophylaxis (PEP) at the health facility of first contact which may affect the efficacy of PEP. The efficacy of both occupational and non occupational HIV-PEP in Zambia is not known. Also, the immunological responses in Zambian children receiving PEP are not documented.

1.4 STUDY JUSTIFICATION

There has been a rise in reported cases of child sexual abuse in the recent past. However, there has been no local research documenting the acquisition rates of sexually transmitted infections and HIV in particular, in sexually abused children. Further, there have been no studies comparing acquisition of sexually transmitted infections including HIV after child sexual abuse between those children who present at different times to health facilities and receive HIV PEP and those children who present late and do not receive HIV-PEP.

There are unacceptably high numbers of CSA cases not receiving HIV-PEP despite its wide availability in most government medical facilities, the results of this study will be used to advocate for policy to ensure early administration of HIV-PEP at the health facility of first contact to the child even before referral to the UTH. Past researches have shown poor follow-up of victims of CSA at 3 months and subsequently few HIV antibody tests at three months. However, there have been indications that follow up at one month is much easier to do, hence the need for HIV tests that could detect acute HIV infection outside the conventional three month window period for antibody tests. Therefore, DNA PCR HIV tests done at one month were able to give a more accurate HIV infection status among sexually abused children. This study shows the incidence of HIV infection after child sexual abuse. Also, the effectiveness of HIV PEP in relation to time of commencing PEP after exposure among sexually abused children has been determined. Further, the documented and comparative results from the study will be used for effective advocacy to encourage early reporting and treatment of child sexual abuse cases at health facilities. It will also be used to lobby for policy to ensure that one stop child sexual abuse centers are rolled out to different areas of the country to ensure accessibility. This will consolidate and further encourage early reporting of cases and enhance sensitization in schools, the media and public places. Ultimately, this will reduce the rates of horizontally acquired HIV infections due to child sexual abuse.

In the face of this silent epidemic of child sexual abuse in Zambia, every effort and resource need to be mastered to curb the epidemic and better the lives of our children. The cost of sexually acquired HIV infections due to CSA is already high as all cases infected deserve long term treatment and follow up. Even if DNA PCR HIV tests are expensive, the benefits of the data and information that has been obtained is more valuable and will contribute tremendously to our fight against paediatric

HIV infection. Therefore, the costs of efforts to prevent HIV infection and augment preventive efforts in the face of our rising trends of CSA cannot in the long run be deemed too high to embark upon.

The study has provided background data on HIV infection after CSA and will provide baseline data for a follow up study on the immunological responses that occur when PEP is administered to children. Immunological responses after PEP can help increase our understanding of correlates of PEP and viral control, functional cure of HIV infection and probably help contribute to vaccine development.

CHAPTER TWO

2.1 HYPOTHESIS

HIV PEP in sexually abused Zambian children is most efficacious when administered within the first 72 hrs.

2.2 RESEARCH QUESTIONS

What is the incidence of HIV infection following child sexual abuse?

What is the effectiveness of HIV PEP intervention among sexually abused children?

CHAPTER THREE

3.1 GENERAL OBJECTIVE

To determine the incidence of sexual HIV infection and the effectiveness of HIV-PEP intervention among sexually abused children presenting to the UTH.

3.2 SPECIFIC OBJECTIVES

1. To determine the proportion of children who become DNA PCR HIV positive four weeks after reported child sexual abuse.
2. To assess the association of early HIV-PEP intervention (less than 36 hours verses more than 36 hours) with HIV DNA PCR status at four weeks among sexually abused children.
3. To determine the proportion of sexually abused children who do not receive PEP and if there is a relationship with DNA PCR HIV status after 4 weeks.

CHAPTER 4

4.1 METHODOLOGY

Study design

This was an analytical observational cohort study.

Study site

The UTH is a tertiary national referral hospital for Zambia located in Lusaka district and attends to referrals from across the country. However, the majority of patients seeking medical attention are from within Lusaka district. The UTH has four main clinical departments namely paediatrics and child health, internal medicine, surgery and obstetrics and gynaecology.

The study areas were the UTH paediatric out-patient unit and the one stop centre for sexually abused children (CSA-OSC) both located in the department of Paediatrics and Child health. The CSA-OSC is domiciled at the Paediatric Centre of Excellence, a unit in the department of Paediatrics and Child health of the UTH. The CSA-OSC has a multidisciplinary team serving sexually abused children. The multidisciplinary team consists of a full time clinical officer, two police officers (female), two nurse counsellors, one community health worker and is covered by two doctors and a social worker. Services offered are; HIV counselling and testing, ARVs for PEP, morning pill for adolescents that have attained menarche (to prevent pregnancy), trauma counselling, supportive counselling, collection of statements by police officers, physical examination and collection of clinical & forensic specimen, treatment of STIs and referral to other treatment (not offered at the centre), to legal care and arrangement of placement of children in safe homes when need arises.

Duration of study

The study was conducted over a period of 13 months from march,2013 to april,2014.

Study population

Children who presented for suspected sexual abuse to the Department of Paediatrics of the University Teaching Hospital, Lusaka made up the target population. However, only children who had a

suggestive history and on examination by the attending physician had clinical evidence of genital trauma and/or torn or absent hymen formed the study population.

Sample size

The sample size for this study was 172 children presenting with sexual abuse to the Paediatrics department of the University Teaching Hospital for 10 months.

Sample Size using open Epi calculator for cohort studies

Two-sided significance level (1-alpha):	75
Power (1-beta, % chance of detecting):	60
Ratio of sample size, Unexposed/Exposed:	0.2
Percent of Unexposed (no PEP) with Outcome:	4.2
Percent of Exposed (HIV-PEP) with Outcome:	0.86
Risk Ratio detected:	0.2

	Kelsey
Sample Size – Exposed	143
Sample Size-Non exposed	29
Total sample size:	172

Assumed an HIV transmission rate of 0.2 per sexual contact of CSA (that CSA associated with more trauma than adult consensual sex and hence a probable higher transmission rate of 0.2 i.e between 0.1 of penile vaginal and 0.3 of penile anal transmissions, an HIV prevalence rate of 21 percent for Lusaka, HIV PEP effectiveness of 80 percent in preventing infection and a drop out rate of 10 percent in follow up for cases and 70% for controls, sample size adjusted to 256 (159 cases and 97 controls).

The study had two arms;

1. Test Group: all children who received PEP started within 72 hours divided as within 36 hours and after 36 hours.
2. Control Group: all children who presented after 72 hours after sexual abuse or declined HIV testing, and/or PEP for any reason.

Sampling procedure

All female children less than 16 years who presented with sexual abuse to the University Teaching Hospital were invited to join the study.

Inclusion criteria

Sexually abused female children whose parents/guardians consented to HIV tests were included in the study.

Exclusion criteria

Excluded from the study were: male children , children whose parents/guardians refused HIV testing or refused to participate in the study, and all children who tested HIV positive by ELISA antibody test or DNA PCR. Children who presented after two weeks of the sexual abuse were also excluded from the study.

Independent variables

The independent variables were age, area of residence, care giver at first visit and abuser's relationship to the sexually abused child.

Dependent variables

The dependent variables for the study were the HIV status at one month and the completion of HIV PEP at one month.

Conduct of the research

The study was conducted mainly at the CSA-OSC in the department of paediatrics of the UTH. Most recruitment occurred from 08:00 to 16:00 on working days when the centre was open. Children presenting with complaints of CSA where interviewed and examined by the attending physician. The physical examinations were conducted in an examination room with a poison examination lamp, colposcope, examination bed and both visual and auditory privacy. The patients were examined in lithotomy position and/or in the knee chest position. The entire child was examined with particular focus on the genital urinary system. Only those that physical evidence of CSA such as genital trauma to the vestibule, posterior fourchet, fossa navicularis, and/or torn or absent hymen were recruited into the study.

The research was carried out by two interviewers who administered standardised questionnaires interviewing children and/or their care givers (APPENDIX 1 and 2) at initial presentation and at the one month follow-up visit. Four to five drops of blood were taken at the initial and follow-up visits for HIV DNA PCR test using the dried blood spot collection kit (DBS 50_NN) produced by BIOCENTRIC Laboratories, 276 chemin de Roumpinas, 83150 Bandol- France. The dried blood spots were stored at room temperature and transferred to the research laboratory and processed for HIV DNA amplification and detection using DNA isolation kit (QIAamp DNA mini kit, manufactured by QIAGEN Sample and Assay Technologies.

Children who were excluded from the study because they were found to be HIV antibody positive at presentation were counselled and linked to HIV care services for treatment and follow-up. Children who were too late for HIV PEP or did not complete the course of HIV PEP but became DNA PCR positive at the one month visit were also counselled and linked to HIV care services for treatment and follow up. Children who were HIV negative on both first and second visits were counselled on prevention and the need for further follow-up.

4.3 ETHICAL CONSIDERATIONS

The study adhered to ethics as provided for by the University of Zambia Research and Ethics Committee (UNZABREC). The author sought ethical clearance to carry out the study from UNZABREC and a letter of authorization to carry out the study at UTH was obtained from the Ministry of Health. All guardians were provided with adequate information about the study and were allowed to ask questions to enable them give an informed consent; the purpose and nature of the study was explained and guardians were asked if they agreed to be interviewed. The letters of permission from the ethics committee and Ministry of Health were shown to the participants and their guardians. Nurses and counsellors engaged in the study were trained in DNA PCR dry blood spot collection. Test samples were collected for investigation by the attending nurses and counsellors. Bloods were taken at presentation and at the four week visit for DNA PCR HIV tests. During data collection, a private environment was arranged for conducting interviews. No names were recorded on the individual questionnaires, the information was instead coded. Study information was handled carefully and stored securely to maintain confidentiality. Patients who declined to participate in the study were offered the same standard of care as those who participated. Further, a participant or their guardian was allowed to withdraw from the research at any point without giving any reason as to why they were withdrawing.

4.4 DATA ANALYSIS

Double entry of baseline data into data base was done to reduce errors. SPSS version 21 statistical package was used to analyse the data.

The incidence of HIV infection among the two arms of the study was determined as simple proportions and later analysed by time categorises. Further, the rates were compared using chi-square and P values to determine if there were statistical differences.

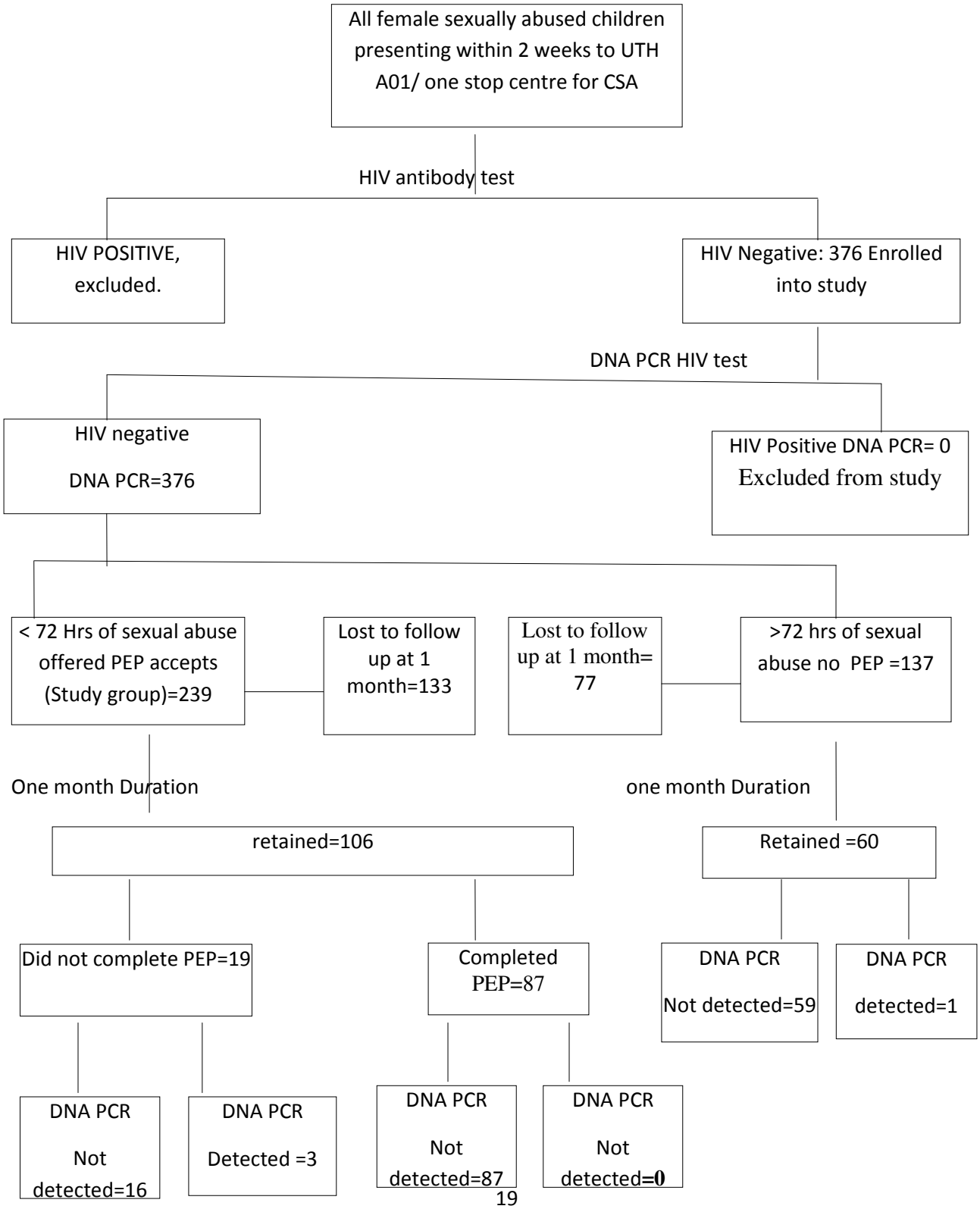
Infection rates in children given PEP within 36 hours and after 36 hours were determined as simple proportions. The infection rates were further analysed based on the completion and none completion of HIV PEP. Logistic regression and multivariate analysis methods were used to determine the effectiveness of HIV PEP intervention in the study group and took into consideration the different time periods of commencing PEP and factors that influence starting and completing of HIV PEP.

CHAPTER FIVE

5.0 RESULTS

SPSS version 21.0 and SAS version 9.3 were used to run results analysis under this section. Data on total of 376 sexually abused female children presenting at the UTH was analyzed for this study (Flow chart 5.1)

5.1 FLOW CHART



5.2 Baseline Characteristics

Demographics

The mean age of the children was 11 ± 3.83 years. Half of the children were aged 13 years and under. The youngest child was 2 years old and the oldest child was 15 years old (Table 5.2.1).

Table 5.2.1. Age distribution of abused female children at the UTH

N	Median age	Mean age	STI. Deviation	Minimum age	Maximum age	Age Range
376	13	11.1	3.83	2	15	13

About 10% of the abused children were less than 5 years of age and approximately 70% were between 10 to 15 years of age (Table 5.2.2).

Table 5.2.2.Distribution of abused children by age group

Age Group	**Frequency**	**Percent**
1 - 4 years	37	9.8%
5 - 9 years	73	19.4%
10 - 15 years	266	70.7%
Total	376	100%

Kanyama-John Laing, Mtendere-Kalingalinga, Chawama-Kuku-Misisi, and Garden-Chilulu residential areas were among the top sources of the abused children. Table 5.1.3 below highlights the frequency distribution of the children by residential area.

Table 5.2.3. Distribution of abused children by residential area

Residential Area	Frequency	Percent
Kanyama-John Laing	59	15.7%
Chawama-Kuku-Misisi	34	9%
Matero-Lilanda-George	30	8%
Garden- Chilulu	32	8.5%
Chipata-Mandevu-Chazanga-Kabanana	30	8%
Mtendere-Kalingalinga	39	10.4%
Others	152	40.4%
Total	376	100%

In about 60% of the cases, the caregiver that brought the abused children to the UTH was the mother. Aunt and father were the other two relationships that appeared in about 10% of the cases each. Table 5.2.4 shows the caregiver relationship that presented the abused children at the hospital at first visit.

Table 5.2.4. Distribution of caregiver relationship at first visit

Caregiver	Frequency	Percent
Mother	227	60.4%
Father	37	9.8%
Aunt	39	10.4%
Uncle	7	1.9%
Grandparent	28	7.4%
Sister	20	5.3%
Others	7	1.9%
Brother	11	2.9%
Total	376	100%

In most cases the abuser was someone familiar to the victim like a neighbour (29%) or a boyfriend (28.5%). Only 7.4 % were abused by total strangers. Table 5.2.5 below shows the distribution of the abuser relationship to victim.

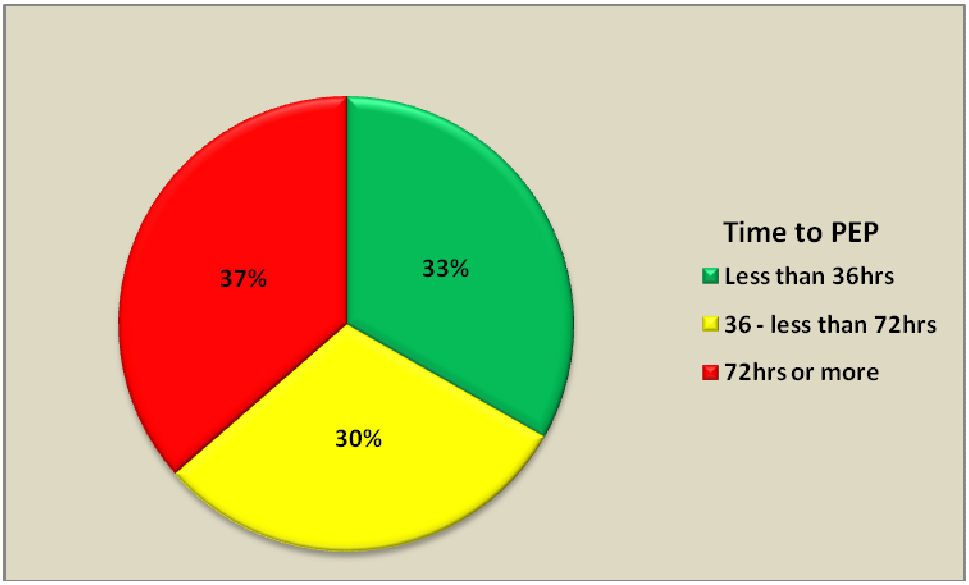
Table 5.2.5. Distribution of abuser relationship to child

Abuser	Frequency	Percent
Boyfriend	107	28.5%
Neighbour	109	29%
Brother	5	1.3%
Uncle	35	9.3%
Father/Stepfather	5	1.3%
Stranger	28	7.4%
Others	87	23.1%
Total	376	100%

Time to Seeking PEP

More than half (63.6%) presented within 72 hours of the CSA. Only 36.4% of participants presented after 72 hours of the sexual abuse (Figure 5.2.6). All those that qualified to start PEP were started on PEP (Table 5.2.7). None of the children received HIV-PEP from the local clinic that referred them to the UTH.

Figure 5.2.6. Pie Chart of distribution of time to seeking PEP



Children Started on PEP

All the children that presented within 72 hours of the CSA and had HIV antibody negative results were started on PEP accordingly. A total of 239 children out of the 376 children enrolled in the study were started on PEP (Table 5.2.7).

Table 5.2.7. Children started on PEP

Started on PEP	Frequency	Percent
No	137	36.4%
Yes	239	63.6%
Total	376	100%

5.3 Number of HIV infected children

Out of the total 376 children seen at baseline, there were 166 (44.1%) that presented for the second follow-up visit representing a high lost to follow up rate of 55.9%. The lost to follow up rates were similar in both the PEP and no PEP groups at 44.4% and 43.8% respectively. Of the 166 children who presented for the second follow-up visit, 106 were started on PEP and 87 (82%) completed the PEP while 19(18%) did not complete HIV PEP. Overall , 2.4% (4 out of 166) of the children that presented for the second follow-up visit became infected with HIV.

Among the non- PEP cohort at the second visit, only one child out of 60 developed HIV infection (1.7 %). However, three children in the PEP cohort out of 106 developed HIV infection (2.8%) at the second visit. Further analysis shows that there were 19 children that did not complete PEP, of which three developed HIV infection (15.8%). Amongst the 87 children that completed PEP at the second visit, none developed HIV infection (0 %) (Table 5.3.1). Therefore, children who did not complete PEP had about 16 times increased risk of developing HIV infection compared to children completing PEP and this was statistically significant with a p value of 0.005.

Table 5.3.1 Number HIV infected children following sexual abuse

Status	**Developed HIV**	**No HIV**	**Total**	**HIV infection rate**	**Fisher's exact test p value**
Completed	0	87	87	0	0.005
Not Completed	3	16	19	0.158	
Total	3	103	106	0.028	

There were a number of reasons for not completing HIV PEP. The most commonly cited reason for failing to complete PEP was "drug intolerance". Table 5.3.2 below shows the frequency distribution of cited reasons for failing to complete PEP.

Table 5.3.2 Reasons for failure to complete PEP

Reason for not completing PEP	**Frequency**	**Percent**
Reacted to drugs	1	5.3
Run out of drugs	1	5.3
Just could not tolerate drugs	13	68.4
Other	4	21.1
Total	19	100

5.4 Predictors of Seeking PEP on Time (Starting PEP)

PEP was sought on time for children under five years old (Table 5.4.1)

Residents from Mtendere- Kalingalinga residential area sought PEP earlier than others. There were over 60% from Mtendere-Kalingalinga that sought PEP in less than 36 hours from the incidence. However, not more than 40% from any other residential area sought PEP in the same duration (Table 5.4.2). There was an association between duration to seeking PEP and residential area ($p = 0.03$).

Table 5.4.1 Age group verses time at presentation

Age group verses Time at presentation Crosstabulation						
			Time at presentation			Total
			Less than 36hrs	36 - less than 72hrs	72hrs or more	
Age (Group)	1 - 4 years	Count	18	13	6	37
		% within Age (Group)	48.6%	35.1%	16.2%	100.0%
	5 - 9 years	Count	21	27	25	73
		% within Age (Group)	28.8%	37.0%	34.2%	100.0%
	10 - 15 years	Count	86	74	106	266
		% within Age (Group)	32.3%	27.8%	39.8%	100.0%
Total		Count	125	114	137	376
		% within Age (Group)	33.2%	30.3%	36.4%	100.0%

Table 5.4.2 Residence verses time at presentation			Time at presentation			Total
			Less than 36hrs	36 - 72hrs	72hrs or more	
Residence	Kanyama-John Laing	Count	16	23	20	59
		% within Residence	27.1%	39.0%	33.9%	100.0%
	Chawama-Kuku-Misisi	Count	11	12	11	34
		% within Residence	32.4%	35.3%	32.4%	100.0%
	Matero-Lilanda-George	Count	12	7	11	30
		% within Residence	40.0%	23.3%	36.7%	100.0%
	Garden-Chilulu	Count	7	9	16	32
		% within Residence	21.9%	28.1%	50.0%	100.0%
	Chipata-Mandevu-Chazanga-Kabanana	Count	11	10	9	30
		% within Residence	36.7%	33.3%	30.0%	100.0%
	Mtendere-Kalingalinga	Count	24	7	8	39
		% within Residence	61.5%	17.9%	20.5%	100.0%
	Others	Count	44	46	62	152
		% within Residence	28.9%	30.3%	40.8%	100.0%
Total		Count	125	114	137	376
		% within Residence	33.2%	30.3%	36.4%	100.0%

Caregiver

A cross-tabulation of caregiver and time at presentation suggested that PEP consultation was done much earlier for cases where the caregiver was the father (Table 5.4.3).

Table 5.4.3 First visit caregiver verses time at presentation

			Time at presentation			Total
			Less than 36hrs	36 - less than 72hrs	72hrs or more	
Caregiver at first visit	Mother	Count	80	65	82	227
		% within Caregiver	35.2%	28.6%	36.1%	100.0%
	Father	Count	15	12	10	37
		% within Caregiver	40.5%	32.4%	27.0%	100.0%
	Aunt/Uncle	Count	12	13	21	46
		% within Caregiver	26.1%	28.3%	45.7%	100.0%
	Grandparent	Count	9	11	8	28
		% within Caregiver	32.1%	39.3%	28.6%	100.0%
	Sister/Brother	Count	8	11	12	31
		% within Caregiver	25.8%	35.5%	38.7%	100.0%
	Others	Count	1	2	4	7
		% within Caregiver	14.3%	28.6%	57.1%	100.0%
Total		Count	125	114	137	376
		% within Caregiver	33.2%	30.3%	36.4%	100.0%

Abuser's relationship to victim

A cross-tabulation of abuser and time presentation suggested that PEP consultation was done much earlier for instances where the abuser was a stranger than any other relationship (Table 5.4.4).

Table 5.4.4 Abuser's relationship verses time at presentation

			Time at presentation			Total
			Less than 36hrs	36 - less than 72hrs	72hrs or more	
Abuser's relationship	Boyfriend	Count	27	32	48	107
		% within Abuser's relationship	25.2%	29.9%	44.9%	100.0%
	Neighbour	Count	35	34	40	109
		% within Abuser's relationship	32.1%	31.2%	36.7%	100.0%
	Uncle	Count	12	9	14	35
		% within Abuser's relationship	34.3%	25.7%	40.0%	100.0%
	Stranger	Count	14	9	5	28
		% within Abuser's relationship	50.0%	32.1%	17.9%	100.0%
	Others	Count	37	30	30	97
		% within Abuser's relationship	38.1%	30.9%	30.9%	100.0%
Total		Count	125	114	137	376
		% within Abuser's relationship	33.2%	30.3%	36.4%	100.0%

Bivariate Analysis of Predictors of Starting PEP

A bivariate analysis of the variables of age, residence, caregiver, and abuser was conducted to examine association with starting PEP. Table 5.4.5 below shows the bivariate analysis results.

Table 5.4.5 Factors associated with starting PEP

Variable	NO PEP		PEP		p-value (Chi sq / Fisher)
	N	%	N	%	
Age					
1 - 4 years	6	4.4	31	13.0	0.02
5 - 9 years	25	18.2	48	20.2	
10 -15 years	106	77.4	159	66.8	
Total	137	100	238	100	
Residence					
Kanyama-John Laing	20	14.6	39	16.3	0.17
Chawama-Kuku-Misisi	11	8.0	23	9.6	
Matero Lilanda-George	11	8.0	19	7.9	
Garden	16	11.7	16	6.7	
ChipataMandevu-Chazanga Kabana	9	6.6	21	8.8	
Mtendere	8	5.8	31	13.0	
Others	62	45.3	90	37.7	
Total	137	100	239	100	
Caregiver					
Mother	82	61.7	145	61.4	0.43
Father	10	7.5	27	11.4	
Aunt/Uncle	21	15.8	25	10.6	
Grandparent	8	6.0	20	8.5	
Sister/Brother	12	9.0	19	8.1	
Total	133	100	236	100	
Abuser					
Boyfriend	48	35.0	59	24.7	0.06
Neighbour	40	29.2	69	28.9	
Uncle	14	10.2	21	8.8	
Stranger	5	3.6	23	9.6	
Others	30	21.9	67	28.0	
Total	137	100	239	100	

Predictors of starting PEP

All the four variables from Table 5.4.5 were checked for correlation using the Spearman's correlation coefficient <0.8 and there being no correlation were entered into a logistic regression model for analysis. Table 5.4.6 shows the multivariate logistic regression analysis of predictors of starting on PEP.

Table 5.4.6 Predictors of starting PEP

Variable	**Unadjusted Odds Ratios (95% CI)**			**Adjusted Odds Ratios (95% CI)**			**P-Value**
Age							
1 - 4 years	1.00			1.00			
5 - 9 years	0.37	0.14	1.01	0.38	0.13	1.09	0.07
10 -15 years	0.29	0.12	0.72	0.33	0.13	0.86	0.02
Abuser							
Others	1.00			1.00			
Boyfriend	0.55	0.31	0.98	0.49	0.26	0.93	0.03
Neighbour	0.77	0.43	1.38	0.63	0.34	1.17	0.14
Uncle	0.67	0.30	1.50	0.73	0.30	1.73	0.47
Stranger	2.06	0.72	5.94	1.66	0.55	4.99	0.37
Residence							
Others	1.00			1.00			
Kanyama-John Laing	1.34	0.72	2.52	1.30	0.67	2.52	0.43
Chawama-Kuku-Misis	1.44	0.66	3.17	1.39	0.61	3.13	0.43
Matero Lilanda-George	1.19	0.53	2.68	1.27	0.54	3.02	0.59
Garden- chilulu	0.69	0.32	1.48	0.56	0.25	1.28	0.17
ChipataMandevu-Chazanga Kabana	1.61	0.69	3.74	1.68	0.68	4.19	0.26
Mtendere-kalingalinga	2.67	1.15	6.20	2.78	1.16	6.67	0.02
Caregiver 1st visit							
Mother	1.00			1.00			
Father	1.53	0.70	3.31	1.78	0.79	3.99	0.16
Aunt/Uncle	0.67	0.36	1.28	0.71	0.36	1.41	0.33
Grandparent	1.41	0.60	3.35	1.53	0.61	3.83	0.36
Sister/Brother	0.90	0.41	1.94	1.06	0.47	2.40	0.89

Compared to children under age five, adolescents (10 - 15 years) had 67% reduced likelihood to start PEP or seek PEP in time (OR: 0.33, CI: 0.13 - 0.86, p = 0.02), controlling for abuser, residence, and caregiver relationship. Compared to children under age 5 children aged 5 - 9 years had 62% reduced likelihood to start PEP (OR: 0.38, CI: 0.13 - 1.09, p = 0.07) but this was not significant.

Compared to instances when the abuser was other relationship, if the abuser was a boyfriend there were 51% reduced odds to start PEP or seek PEP in time (OR: 0.49, CI: 0.26 - 0.93, p = 0.03), controlling for age, residence, and caregiver relationship. Children were 66% more likely to seek PEP in time if the abuser was a stranger, albeit this was not significant (OR: 1.66, CI: 0.55 - 4.99, p = 0.37).

Compared to other areas, children from Mtendere-Kalingalinga area were 2.8 times more likely to start PEP or seek PEP in time (OR: 2.78, CI: 1.16 - 6.67, p =0.02), adjusting for age, abuser, and caregiver relationship.

Caregiver relationship was not important in predicting starting PEP or seeking PEP duration behaviour.

5.5 Predictors of Completing PEP

Age, area of residence, relationship of the abuser to the child, and sex of care giver were found determinants to completing PEP

A cross-tabulation of age and completing PEP suggested that a larger proportion of children under age five tended to complete PEP than children in the other age categories (Table 5.5.1).

Table 5.5.1 Age group verses completing PEP

			Completed PEP		Total
			No	Yes	
Age group	1 - 4 years	Count	2	15	17
		% within Age group	11.8%	88.2%	100.0%
	5 - 9 years	Count	5	22	27
		% within Age group	18.5%	81.5%	100.0%
	10 - 15 years	Count	12	50	62
		% within Age group	19.4%	80.6%	100.0%
Total		Count	19	87	106
		% within Age (Group)	17.9%	82.1%	100.0%

Children from Garden compound as well as those from Matero-Lilanda-George residential area were less likely to complete PEP. Much compliance was observed by children from Mtendere-Kalingalinga from which 95% of the children on PEP completed PEP (Table 5.5.2).

Table 5.5.2 Residence verses completing PEP

			Completed PEP		Total
			No	Yes	
Residence	Kanyama-John Laing	Count	4	13	17
		% within Residence	23.5%	76.5%	100.0%
	Chawama-Kuku-Misisi	Count	2	6	8
		% within Residence	25.0%	75.0%	100.0%
	Matero-Lilanda-George	Count	3	6	9
		% within Residence	33.3%	66.7%	100.0%
	Garden-Chilulu	Count	3	4	7
		% within Residence	42.9%	57.1%	100.0%
	Chipata-Mandevu-Chazanga-Kabanana	Count	0	7	7
		% within Residence	0.0%	100.0%	100.0%
	Mtendere-Kalingalinga	Count	1	18	19
		% within Residence	5.3%	94.7%	100.0%
	Others	Count	6	33	39
		% within Residence	15.4%	84.6%	100.0%
Total		Count	19	87	106
		% within Residence	17.9%	82.1%	100.0%

About 90% completed PEP if the abuser was a stranger; however, less than 78% completed PEP if the abuser was a boyfriend or uncle (Table 5.5.3).

Table 5.5.3 Abuser's relationship completing PEP

			Completed PEP		Total
			No	Yes	
Abuser's relationship	Boyfriend	Count	4	14	18
		% within Abuser's relationship	22.2%	77.8%	100.0%
	Neighbour	Count	5	31	36
		% within Abuser's relationship	13.9%	86.1%	100.0%
	Uncle	Count	3	8	11
		% within Abuser's relationship	27.3%	72.7%	100.0%
	Stranger	Count	1	9	10
		% within Abuser's relationship	10.0%	90.0%	100.0%
	Others	Count	6	25	31
		% within Abuser's relationship	19.4%	80.6%	100.0%
Total		Count	19	87	106
		% within Abuser's relationship	17.9%	82.1%	100.0%

When the caregiver was the father (Table 5.5.4). there was strong compliance to complete PEP (100%).

Table 5.5.4 Caregiver at first visit verses completing PEP

			Completed PEP		Total
			No	Yes	
Caregiver first visit	Mother	Count	11	56	67
		% within Caregiver	16.4%	83.6%	100.0%
	Father	Count	0	12	12
		% within Caregiver	0.0%	100.0%	100.0%
	Aunt/Uncle	Count	4	8	12
		% within Caregiver	33.3%	66.7%	100.0%
	Grandparent	Count	3	7	10
		% within Caregiver	30.0%	70.0%	100.0%
	Sister/Brother	Count	1	1	2
		% within Caregiver	50.0%	50.0%	100.0%
	Others	Count	0	3	3
		% within Caregiver	0.0%	100.0%	100.0%
Total		Count	19	87	106
		% within Caregiver	17.9%	82.1%	100.0%

Bivariate Analysis of Predictors of Completing PEP

A bivariate analysis of the variables age, residence, caregiver, and abuser was conducted to examine association with completing PEP. Table 5.5.5 below shows the bivariate analysis results.

Table 5.5.5 Bivariate analysis of factors associated with completing PEP

Variable	**NOT COMPLETED PEP**		**COMPLETED PEP**		**p-value (Fisher)**
	N	%	N	%	
Age					
1 - 4 years	2	10.5	15	17.2	0.88
5 - 9 years	5	26.3	22	25.3	
10 -15 years	12	63.2	50	57.5	
Total	19	100	87	100	
Residence					
Kanyama-John Laing	4	21.1	13	14.9	0.14
Chawama-Kuku-Misisi	2	10.5	6	6.9	
Matero Lilanda-George	3	15.8	6	6.9	
Garden-Chilulu	3	15.8	4	4.6	
ChipataMandevu-Chazanga Kabanana	0	0.0	7	8.0	
Mtendere-Kalingalinga	1	5.3	18	20.7	
Others	6	31.6	33	37.9	
Total	19	100	87	100	
Caregiver					
Mother	11	57.9	56	66.7	0.08
Father	0	0.0	12	14.3	
Aunt/Uncle	4	21.1	8	9.5	
Grandparent	3	15.8	7	8.3	
Sister/Brother	1	5.3	1	1.2	
Total	19	100	84	100	
Abuser					
Boyfriend	4	21.1	14	16.1	0.78
Neighbour	5	26.3	31	35.6	
Uncle	3	15.8	8	9.2	
Stranger	1	5.3	9	10.3	
Others	6	31.6	25	28.7	
Total	19	100	87	100	

Multivariate Logistic Regression Analysis of Predictors of Completing PEP

Multivariate logistic regression analysis showed that after adjusting for age, caregiver, and abuser; children from Garden compound had 96% reduced likelihood of completing PEP compared to other residences (OR: 0.04, CI: 0.004 - 0.48, p = 0.01). Age, abuser, and caregiver were not important factors in completing PEP (Table 5.5.6).

Table 5.5.6 Multivariate logistic regression analysis predicting completing PEP

Variable	**Unadjusted Odds Ratios (95% CI)**			**Adjusted Odds Ratios (95% CI)**			**P-Value**
Age							
1 - 4 years	1.00			1.00			
5 - 9 years	0.59	0.10	3.43	0.24	0.02	3.13	0.28
10 -15 years	0.56	0.11	2.76	0.71	0.08	6.55	0.76
Abuser							
Others	1.00			1.00			
Boyfriend	0.84	0.20	3.49	0.12	0.01	1.09	0.06
Neighbour	1.49	0.41	5.45	0.54	0.12	2.57	0.44
Uncle	0.64	0.13	3.17	0.34	0.05	2.58	0.30
Stranger	2.16	0.23	20.49	0.49	0.03	9.15	0.63
Residence							
Others	1.00			1.00			
Kanyama-John Laing	0.59	0.14	2.44	0.37	0.07	1.89	0.23
Chawama-Kuku-Misisi	0.55	0.09	3.37	0.55	0.06	4.86	0.59
Matero Lilanda-George	0.36	0.07	1.87	0.26	0.03	2.03	0.20
Garden- Chilulu	0.24	0.04	1.37	0.04	0.004	0.48	0.01
ChipataMandevu-Chazanga Kabanana	>999.99	<0.001	>999.99	>999.99	<0.001	>999.99	0.97
Mtendere-Kalingalinga	3.27	0.37	29.35	6.67	0.40	111.34	0.19
Caregiver							
Mother	1.00			1.00			
Father	>999.99	<0.001	>999.99	>999.99	<0.001	>999.99	0.95
Aunt/Uncle	0.39	0.10	1.54	0.47	0.08	2.85	0.41
Grandparent	0.46	0.10	2.05	0.63	0.10	3.93	0.62
Sister/Brother	0.20	0.01	3.38	0.08	0.00	2.45	0.15

CHAPTER SIX

DISCUSSION

The overall, 2.4% of the children (four out of 166) in the study became infected with HIV following sexual abuse regardless of HIV PEP administration. This needs to be interpreted with caution as only about 44 % of all children recruited were analysed at the second visit. This also excluded children that were found HIV antibody positive at recruitment and were therefore excluded from the study. Only children who presented during the day were recruited at the child sexual abuse center and this could have introduced bias towards those children with an earlier presentation. Only few cases were recruited in the night. This occurred when the author was on night duties in the pediatrics out-patient department of the hospital. Further, there could have been a perceived reduced risk for children that did not come for the second visit and this could have affected the results of the overall HIV infection rate following child sexual abuse.

Only one child (1.7%) was infected with HIV among the 60 sexually abused children who did not receive HIV- PEP. Of 106 children commenced on HIV- PEP, three became infected with HIV (2.8%). However, the HIV infection rate in the cohort that did not complete HIV- PEP was 15.8%. The HIV infection rates appear higher in the HIV- PEP group because they constituted the most of the retained cases at one month (63.9% of all second visits) despite having a similar dropout rate of 44.4% and 43.8% for PEP and no PEP groups. It was noted that not completing HIV- PEP was associated with the highest risk of HIV infection of more than 15.8% (three out of 19) compared with 0% (zero out of 87) HIV infection in the completed HIV- PEP group (p=0.005). This highlights the importance of good adherence and compliance to HIV- PEP for it to be effective.

Most participants who did not complete HIV- PEP indicated poor tolerance to drugs (drug side effects). All participants starting PEP were counseled on drug adverse effects and good adherence. Of the children that started PEP, at least 82% completed the dose requirement with 17.8% not completing HIV- PEP. All the ones who did not complete HIV- PEP took for a week or less as they did not come to collect the ARV's for the remaining three weeks after the initial one week supply given at commencement of PEP. Therefore the adequacy of drug adherence counseling needs to be

revisited as an avenue to improve HIV- PEP adherence and compliance. Further, the possibility of giving an entire course of HIV PEP at commencement of PEP needs to be evaluated in the light of possible side effects, compliance and increased risk of HIV infection with incomplete HIV- PEP course.

Overall the retention rate at one month was 44.1 %, was poorer than earlier reported by Chomba et al, who had earlier reported that the establishment of the UTH one stop center improved follow up rates from 23% to 52% at one month (Chomba et al 2010). Therefore, the increase in the lost to follow- up cases at one month needs to be investigated. This may reflect a deterioration in the quality of follow up activities such as the discontinuation of routine reminder phone calls for care givers to bring back children for scheduled appointment, which once existed at the UTH child sexual abuse center at the time of reporting by Chomba et al 2010. This together with the fact that participants and/or their guardians could withdraw at any point during the study could have contributed to the low retention of study participants. This compared well with the limitations cited in the Malawian study highlighting the difficulty of conducting research among sexually abused children (Molyneux 2009).

Of all the sexually abused children enrolled in the study on the initial visit, 63.6% presented within 72 hour whilst 36.4 % presented after 72 hours. Among the study participants who received PEP, there was no statistical difference between early (within 36 hours) or late (36 to less than 72 hours) commencement of HIV- PEP. The principle factor in the effectiveness of HIV- PEP seems to be good adherence and compliance. This therefore may show that HIV PEP intervention is effective when timely administered with good adherence and compliance. As noted in the Zambia anti-Gender Based Violence national guidelines 2012, HIV PEP administered correctly is effective and all efforts should be made to ensure that HIV negative sexually abused children are started on HIV-PEP as soon as possible within 72 hours. Compared to earlier data from the UTH child sexual abuse data (HIV-PEP summary sheet 2010 to 2012), there has been an increase in sexually abused children presenting within 72 hours in time for HIV- PEP. This could reflect an increase in the levels of awareness about sexual assault in the community. However, only 44.4 % of all the recruited participants came for the follow up visit. This high drop-out rate of 54.6 % could be attributed to several possible reasons paramount of which are the facts that in most instances, children depend on adult family members to take them for health services and health seeking behavior is poor when there is no obvious ill health.

Never the less, there is still great need to investigate the reasons for the high lost to follow-up rates further. Bridthistle et al, Molyneux , and chomba et al acknowledged in their reports of child sexual abuse in Zimbabwe, Malawi and Zambia that follow-up of child sexual abuse cases is a challenge (Bridthistle et al 2010, Molyneux 2009, Chomba 2011).

About a third of all study participants (36.4%) presented late to the sexual abuse centre for HIV- PEP to be administered. The reasons for the late presentation for HIV-PEP were not investigated. However it was noted that most of the children enrolled into the study had passed through a police facility and a primary health care facility before presenting to the health facility. None of the study participants had been given HIV-PEP at any of the primary health care facilities that referred them to UTH. This could be a significant source of delayed presentation for HIV-PEP and an important factor contributing to the large numbers of sexually abused children not accessing HIV- PEP in time. Further, most clinic in Lusaka district are both VCT and ART centers which stock both HIV test kits as well as ARV's. Further, all clinics stock HIV-PEP for health care workers in case of accidental occupational injury. However, there seems to be no policy guiding urgent HIV-PEP administration to sexually abused children at the primary facility of first contact as most children are referred to the UTH child sexual abuse center. Similar studies have shown that a number of sexually abused children present late with HIV and other STI's (Lalor 2008, Chomba et al 2011, Mathoma et al 2006, Bota et al 2003).

The mean age was 11 ± 3.83 years and the median age was 13 years. However, the age range was two to 15 years. About 70 % of the children were adolescents aged between 10 to 15 years. Boyfriends and neighbours were the most common abusers at 28.9% and 28.3 % and stangers only consisted 7.5 %. This is similar to the earlier findings by chomba et al 2011 where they reported that most sexually abused children who presented to the UTH child sexual abuse center were adolescents and were abused by persons well known to them. Most sexually abused children were from high density areas with low economic status peri- urban areas of Lusaka with five of those areas contributing more than 50 % of cases in the study. From this data, it appears that residing in high population density and low economic areas predisposes to an increased inherent risk for child sexual abuse. Earlier reports indicated that poverty, gender inequality and the increasing number of AIDS orphans are rapidly

expanding the number of children at risk of sexual abuse in Zambia (Human rights watch 2002 for Zambia; Murray et al 2006)

Mothers and aunties were the most common relations who brought sexually abused children to the one stop center at 59 % and 10.45%. This could be because most children are cared for by female adult members of the family whilst most male adult family members are engaged in income generating activities for the family.

Analysis of predictors of seeking HIV PEP showed that there was an increased likelihood of seeking HIV-PEP when the child was less than five years. Of all the children aged less than five years in the study, about 84% presented early for HIV-PEP and received HIV-PEP. Only about 16 % did not receive HIV PEP among the under five children. This was in contrast with the adolescents who had about 40% not receiving HIV-PEP due to late presentation. This could be because younger children are unlikely to conceal their symptoms whilst adolescent could have more easily concealed their symptoms, could have feelings of shame and guilt (Mathoma et al 2006, Lalor 2008, Birdthistle et al 2010), or could have been willing victims of the abuse (consenting parties who did not consider themselves having sex as an abuse) especially if the abuser was the boyfriend. Therefore, age was significantly associated with starting HIV-PEP with a p-value of 0.02.

There was an association between duration to seeking PEP and residential area ($p = 0.03$). Analysis of residence and time at presentation suggested that residents from Mtendere-Kalingalinga compound sought PEP much on time than any other. There were over 60% from Mtendere-kalingalinga that sought PEP less than 36 hours from incidence. However, not more than 40% from any other residential area sought PEP in the same duration. Children from Mtendere- kalingalinga residential areas presented early compared to other compounds in Lusaka. It is not clear if proximity to UTH and single bus fare had any significant factors in early presentation. Of all the five major areas with the highest participant enrolled in the study, only Mutendere- Kalingalinga had a single bus fare and a direct bus route to UTH. All the other areas had at least two bus connections to get to UTH. The early presentation for HIV-PEP from Mutendere- Kalingalinga areas could also be attributed to much NGO community sensitization about gender based violence and child sexual abuse.

Another predictor of starting HIV-PEP on time was the care giver at presentation. The data from the study suggests that PEP consultation was done much earlier for cases where the caregiver was the father and was poorest when the care giver is any other relation other than the parents, sibling, grandparents, uncle or aunt. However, mothers and aunties were the two most common relations that brought the children to the hospital accounting for 59.0% and 10.4% respectively. In majority of the cases, the abuser was a neighbour or boyfriend, 29% and 28% respectively (Table 5.1.5). Only 7.4 % were abused by total strangers. There was no statistical association between abuser relationship and duration to seeking PEP ($p = 0.06$), however, it appeared as though PEP was sought much earlier if the abuser was a stranger. This was an interesting observation that could be associated with perceived risk. It does suggest that caregivers rushed children to the hospital to seek PEP if the abuser was a stranger as that posed unknown sexually disease infection risk, whereas in familiar circumstances where the abuser was a boyfriend, there was a tendency to delay seeking PEP and in some cases possibly try and settle the matters at family or community level.

Study participants were at liberty to withdrawal at any time of the study. Despite this, efforts were made to call a number of participants a week before the scheduled visit and transport money was provided in some cases. The study shows that the follow-up of sexually abused children is a big challenge. Only 44% of children were seen at one month. This is a significant drop in retention rates compared to earlier report by Chomba et al 2010 which demonstrated an increase from 23% to over 50% after the establishment of the one stop child sexual abuse center at UTH. This drop is a significant reduction that warrants investigation of factors contributing to this.

Of the 166 study participants who came for the second visit, 63.9% received HIV-PEP. Of the 106 cases who received HIV PEP, 19 (17.9 %) did not complete HIV PEP. All the cases that completed a 28 day course of HIV-PEP, none became HIV infected. However, of the 19 cases that did not complete HIV-PEP, three cases (15.8%) became infected. This shows that not completing HIV PEP increases the risk of HIV infection following child sexual abuse. It also shows that when HIV-PEP is commenced within 72 hours and administered correctly, consistently and for 28 days, it is effective in stopping HIV infection following child sexual abuse. It is worth noting that incomplete administration of HIV pep does not confer any benefits in reducing the risk of HIV infection following child sexual abuse and may probably be associated with increased risk of drug resistance

later on. This exemplifies the need for good adherence counseling for children and guardians before commencing HIV-PEP.

Analysis of the cases that became HIV infected shows that none of the cases who became DNA PCR positive took HIV - PEP for more than a week. All the children that became infected never returned to collect medications after the initial one week supply. The reasons advanced were the adverse drug effects and intolerance to the ARV. All the three cases were on zidovudine, lamivudine and lopinvior. A review of the actual adverse effects indicated nausea, vomiting, diarrhea and general body discomfort as the reasons for the intolerance to the drugs. All the stated reasons are well documented side effects of ARVs in literature (Zambian guidelines for Pediatric ART, 2011). All children put on HIV-PEP following child sexual abuse undergo counseling on adherence to drugs and possible drug side effects. It is however not clear to what extent family support could have contributed to poor adherence among the HIV infected cases. Further, the adequacy of the adherence counseling to both the participants and their guardians could not be determined and would need further research to explore other reasons other than drug intolerance for poor adherence in this group.

CHAPTER SEVEN

CONCLUSION

About a third of sexually abused children present too late for HIV- PEP administration at the UTH. The overall HIV infection rate was 2.4% following child sexual abuse in children presenting to the University Teaching Hospital (UTH), Lusaka regardless of HIV- PEP Administration. However, this could not be generalised to the entire population due to the small sample size and high drop out rate of 56% in the study. When HIV PEP is administered, there is no significant difference in HIV infection based on early (within 36hours) or late (36 to less than 72 hours) presentations. However, the risk of HIV infection was about 16 times more in children not completing PEP compared to children completing PEP. Therefore, HIV- PEP is effective in reducing the risk of HIV infection following CSA only when it is administered correctly and for the correct duration. The age of the child, relationship of defiler and residence are significant predictors for early presentation for HIV-PEP.

RECOMMENDATIONS

1. Ministry of Community Development, Mother and Child Health

In view that more than a third of all sexually abused children presented late for HIV-PEP in this study, it is recommended that CSA-OSC should be scaled-up to all district hospitals especially to high volume community based primary health facilities of first contact. This would reduce the incidence of HIV infection as more children will timely receive HIV-PEP.

Community sensitization and awareness should be intensified in the identified high risk high density residential areas of Lusaka that contribute to most cases of child sexual abuse. The sensitization should include prevetion of CSA, the importance of early reporting of cases of CSA and the benefits of HIV PEP in sexually abused children.

2. UTH One Stop Centre for Sexually Abused Children

The reduction in the retention rates at one month from 52 % to about 44% needs to be investigated and urgently addressed. Scheduled phone calls for missed appointments should be re- introduced and other follow up mechanisms should be strengthened.

About one in 18 sexually abused children who are started on HIV-PEP do not complete HIV-PEP. With the risk of HIV infection being increased by more than 15 times when HIV-PEP is not completed, the reasons for poor adherence and compliance among children taking HIV-PEP should be investigated and addressed. Also, the adequacy of the HIV-PEP adherence counselling to both the children and their care givers needs to be evaluated.

3. UTH and University of Zambia

It is recommended that a larger study to determine HIV infection rate following child sexual abuse be conducted. Further, it is recommended that further studies to investigate immunological responses associated with HIV-PEP administration in children who had actual HIV exposure following child sexual abuse be done in future. Sexually abused children usually have a clearly defined time of exposure and as such, good follow up will provide vital information on early immunologic responses associated with HIV-PEP for those that start HIV-PEP early and good follow up will be able to

identify early HIV infection in those who present too late for HIV- PEP. With the new policy of starting all HIV infected children under 15 years on anti retroviral therapy, all sexually abused children identified with new infection within a month or at the one month visit can be immediately commenced on ART as per protocol but immunological profiles compared with age appropriate newly diagnosed children whose infection points are not known. Such a cohort can be followed up and would provide more insights into theories of functional cure and immunological responses surrounding the same.

LIMITATIONS OF THE STUDY

This study was conducted in fulfilment of the Master of Medicine in Paediatrics and child Health Programme. The time period during which it was carried out and completed was limited to 13 months. The power of the study was based on a normal approximation of 60 percent and the confidence interval of 75 percent. Due to logistical challenges, there were times with reduced or no recruitments due to interruptions in the national supply of DNA DBS cards. Most children were recruited during week days from 08:00 to 16:00 hours and this could have introduced bias as some children presenting in the night were usually not being recruited. This could have skewed the results to favour recruitment of children from nearer locations to UTH. Secondly, this study entailed following sexually abused children for at least four weeks. Follow up facilities in most of our public institutions are a challenge as well as patient health seeking behaviour for follow up visits when the patient has no obvious physical adverse health event or condition to make them seek medical review despite the psychological. As this was a prospective study, it limited the number of clients who were adequately followed up in the study as the rates of lost to follow-up cases that arose were high. Further, it was difficult to distinguish single HIV exposure from recurrent HIV exposure in cases of recurrent sexual abuse.

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APPENDIX 1

BASELINE QUESTIONAIRE (1)

Date and time of presentation to UTH: ……..

Study number: ……

Date of birth: ……..

Age/sex: Age ……Sex…….

Residence: ……...

Guardian and relationship to patient:

Mother, father, brother, sister, aunt, uncle, grandmother, grandfather, neighbour, friend, others

If other specify: …….

Relationship to suspected defiler:

Mother, father, brother, sister, aunt, uncle, grandmother, grandfather, neighbour, friend, others

Date and time of alleged sexual abuse:	Date	Time
Findings on examination: Evidence of recent sexual assault	Yes	No
ELISA HIV status at presentation:	Positive	Negative
HIV PEP:	Given	Not given

Estimated time from defilement at commencement of PEP:

A) ≤ 24 hrs, 24> but ≤ 48 hrs, 48> but ≤72 hrs, >72hrs

B) ≤ 36hrs, 36> but ≤ 72hrs, >72hrs

DNA HIV status at presentation:	Positive	Negative

APPENDIX 2

28 DAY QUESTIONAIRE (2)

Date interviewed: ……..

Study number: ……..

Age/sex: Age ……Sex…….

Guardian and relationship to patient:

Mother, father, brother, sister, aunt, uncle, grandmother, grandfather, neighbour, friend, others

HIV PEP: Given; Yes No

Completed: Yes No

Reasons for not completing PEP:

-reacted to drugs

-Run out of drugs

-Misplaced drugs

-Just could not tolerate drugs

-Other reason: explain

DNA HIV status at one month visit: Positive Negative

Initial of the Research assistant: ……

APPENDIX 3

INFORMATION SHEET

You are invited to participate in this study that will look at the effectiveness of the practice of giving a short course of anti retroviral medicines (ARV's) in preventing the sexually abused children from getting HIV infection.

NATURE AND PURPOSE OF THE STUDY.

The Zambian guidelines for the management of sexually abused children require that all children who are sexually defiled and are HIV negative be given a short course of ARV's if they present within 72 hours (3 days) of the sexual abuse. Those who present after 72 hours are not given as they are considered too late for any meaningful intervention to stop possible HIV infection.

As at 2011, about half of the sexually abused children presenting to our University Teaching Hospital (UTH) come late to receive the short course of ARV's because they come after more than 72 hours. This is so even if most of the government clinics and health centers have free ARV's available, but usually send the children to UTH. This practice is contributing to a number of children coming late to benefit from the short course of ARV's to possibly prevent HIV infection.

PROCEDURES OF THE STUDY.

The child will be pricked on finger to collect a drop or two of blood on a small piece of special paper to do a special HIV test called DNA PCR at presentation and at one month's visit. This will be done by specially trained nurses.

POSSIBLE RISKS AND DISCOMFORT.

There are no expected adverse events apart from some pain of a needle prick on one of the fingers pricked. However, any study related injuries will be treated as per standard protocols.

POSSIBLE BENEFITS.

The benefits will be that maybe the child will not be infected with HIV and also to the nation at large in that if this research manages to show that the practice of giving a short course of ARV's to these children is effective, we want to lobby that a new policy be put in place which will make the nearest clinics or health centers give the short course of ARV's as soon as possible even before referring the child to UTH. The information from the research will also be used to encourage people in the community on the benefits of reporting cases of child sexual abuse early to clinics and health centers.

CONFIDENTIALITY.

All information collected in this study is strictly confidential and data or information that will be collected and reported.

CONSENT.

Your participation in this study is strictly voluntary. With or without participating in the study, the child will get the same quality of care and treatment which we give to all our patients of child sexual abuse as per standard guidelines. You may withdraw from the study at any time and for any reasons and there will be no repercussions.

Thank you for considering your child to participate in this study. If you have any concerns, clarifications or questions please do not hesitate to contact Dr. Sam Miti (Principle Investigator) or the University of Zambia Biomedical Research Ethics committee at the addresses below:

Dr. Sam Miti (Principle Investigator) **Department of Paediatrics and Child Health,** **University Teaching Hospital,** **Private Bag IX RW.** **Cell #: +260 966 293 508.** **E-mail:** Sammiti_domol@yahoo.com	**The Chairperson,** **UNZA Research Ethics Committee,** **Ridgeway Campus,** **Post Box 50110,** **Lusaka, 10101. Zambia.** **Cell #: +260-211-256067.** **Fax: +260-211-250753.** **Email:unzarec@zamtel.zm .**

CHIFORMU CHA ZOZIWA (NYANJA INFORMATION FORM).

Muitanidwa kuzatengako mbali mumaphunziro omwe aona kasebenzedwe ka mankhwala yochingiliza karombo ka HIV ku ana omwe amagwiliwa ndi zigawenga. Mankhwala ochedwa antiretrovirals (ARV's).

CHOLINGA CHAMAPHUNZIRO.

Cholinga cha mamphunziro awa ndi kuti muno muchalo chatu cha Zambia, ana omwe amagwiriwa ndi zigawenga ndipo alibe karombo ka HIV ayenela kupasidwa mankhwala ya ma ARV's pa kanthawi kang'ono chabe. Mankhwala aya yapasidwa ku ana ngati afika kuchipatala tsiku sizinakwane zitatu kuchokera pomwe anagwirwa ndi chigawenga. Ngati Mwanayu afika kuchipatala patapita tsiku zitatu, ndiyekuti mankhwala aya siyazapasidwa ayi chifukwa pindu yo chingiliza karombo ka HIV palibe.

Kufikira muchaka cha 2011, hafu ya ana omwe amagwiriwa ndi zigawenga amata ofika kuchipatala cha University Teaching Hospital (UTH) mochedwa chifukwa amabwela patapita tsiku zitatu ndipo nthandizo yamakhwala kukhala kulibe. Zonse izi zimachitika ngakhale kuti muzipatala zones za boma mankhwala ama ARV's yali free koma saapasidwa koma amabatuma kuchipatala cha UTH. Ichi chibonjezera kuti nambala ya ana omwe ambwela kuchipatala kochedwa. Ndipo thandizo yeni yeni sikalapo ayi.

MUNDANDANDA WAMAPHUNZIRO.

Ngati mudzabvomeredza kuti mwana wanu atengeko mbali mumaphunziro aya ndzafuntsako mafunso kuti ndizibe zonse zomwe zinachitika pomwe mwana yu anagwidwa. Pambuyo pache ndizatengako magazi yaying'ono kucala. Ndipo ndizadonyeza pa pepala . Magazi azatengedwa tsiku yalelo ndi ponso ngati mwbwela pakatapita mwezi umozi.otenga gazi ndi a nasi akaswili muchito iyi.

yomwe munali ndi pathupi ndi po beleka mwana uyu. Pambuyo pache tidzamukopa chikope cha mu mutu pa ma tsiku atatu ndi asanu ndi awiri kuyambira tsiku yomwe mwana adabadwiramo. Zomwe zidzathuluka mu mamphunziro awa tidzamudziwitsani.

ZIOPYEZO NDI ZOIPA.

Mwana wanu saazagundiwako pa mabvuto aliyontse kamba kokhala pa maphunziro aya ayi. Koma azamva kupweteka pang'ono chabe pamalo pomwe azatulusila magazi.

ANGAKALE MALIPILO.

Malipiro yomwe yazakhalapo ndikuti kapena mwanayu angathe kuchingiliziwa ku karombo ka HIV. Ndiposo ngati maphunziro awa yasonyeza kuti mwana omwe apasidwa mankhala akhala ochigilizidwa ndiye kuti tingathe kukambilana pamodzi ndi anzathu a boma omwe ayanganila pa za umoyo wa anthu kuti ayike lamulo yomwe izatha kutandiza ana awa muma clinic yapafupi ndi kunyumba kuti azipasidwa mankhwala yaochingiliza karombo ka HIV asanabatumize kuchipatala chachikulu cha ku UTH. Zothuluka mumaphunziro aya azathandizira kulimbisa anzathu amuma communities osiyana siyana kuti azipereka malipoti and ana awo mwamsanga kuma clinic kapena ma health sentas.

CISINSI.

Zomwe zidzatulukamo mumaphunziro aya zidzakhala zachisinsi koma ndiza uzako adotolo anzanga kuti pa modzi tinghathe odziwa motsungira ana awa. Dzina lanu kapena la mwana wanu siidzapedzekako pa pepala yamafunso.

CIBVOMEKEZO

Aya maphunziro ndi yozipereka kodzifunira. Ngati mwasankha kusatengako mbali, inu ndiponso mwana wanu adzatsamalilidwa ngathi ana ena. Muli omasuka kuleka maphunziro panthawi ili yonse ndi kusankha kwanu sikudzakhuza chisamalilo chili chonse chimene mungathe kutenga kuchipatala m'tsogolo. Sononso sikudzakala kumuvutisani kulikonse chifukwa cha ku sanka kwanu ku siya maphunziro panthahawi ili yonse.

Zikomo kwambiri pobvomedza mwana wanu kuti atengeko mbali mumaphunziro aya. Ngati muli ndimafunsto khalani omasuka kuti timumatsulileni pomwe simunabvetsetse. Omwe mungafuntse mungathe kufunsa a D**r. Sam Miti** Kapena a ku University of Zambia Research and Ethics Committee.

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APPENDIX 4

CONSENT FORM

I ……., being a parent/ guardian to the child named…..……..……. aged …… agree to participate in a research on the effectiveness of HIV post exposure prophylaxis intervention in sexually abused children presenting to the University Teaching Hospital, Lusaka. I have understood that the research will involve the drawing of one to two drops of blood for an HIV test and an interviewer administered questionnaire at presentation and at one month. I also understand that the procedure to be done is the drawing of four drops of blood from the above named child by medical staff adequately trained at conducting such a procedure. Further, it has been explained to me that the above procedure has minimal risk to the child apart from the pain of a small needle prick to one of the fingers of the hand. In the unlikely event that any adverse event arises from the procedure, I understand that all reasonable measures will be taken in accordance with the standard medical practice to mitigate such an event. I also understand that I am free to withdraw from the study at any time and that there will be no repercussions.

PARENT/ GUARDIAN	WITNESS
…… (Signature)	…… (Signature)
…… (Date)	…… (Date)
…… (Relationship to child)	……..... (Name and designation)

CHIFORMU CHO VOMEKEZA (NYANJA CONSENT FORM)

Ine ……..ndasimikidza kuti andifotokozera mwasatane satane zamamphunziro aya.Andifotokozera Ziopyezo ndi zoipa ndiponso ndimalipilo amamphunziro aya. Ndalandiratso ndipo ndawerenga/andiwerengela chipepala cha chibvomekezo ndipo ndabvetsetsa mokwanira. Ndidziba kuti zochitika mumaphunzi aya zizakhala zachitsintsi. Ndidziwa kuti ndiri omasuka kuleka maphunziro panthawi iliyontse ndipo mwana sazakhala ndi bvuto iliyonse. Ndinakhala ndimpata ofuntsa mafuntso yonse yazochitika mumaphunziro aya. Ndavomera kozipereka kuti mwana wanga atengeko mbali mumaphunziro aya. Sononso ndizdindikila kuti sikudzakala kunivutisa kulikonse chifukwa cha ku sanka kwanga ku siya maphunziro panthahawi ili yonse.

Ndalandira chikope cha pepala chosainidwa/chosindikizda chala.

Otengako mbali sainani/ sindikidzani chala……Tsiku……..

Dzina la anchito a maphunziro sainani/sindikidzani chala …….Tsiku……...

APPENDIX 5

ASCENT FORM (for children aged >7 years)

I ……., being a child aged …… agree to participate in a research on the effectiveness of HIV post exposure prophylaxis intervention in sexually abused children presenting at the University Teaching Hospital, Lusaka. I have understood the contents of the study and that it will also involve the drawing of four drops of blood for an HIV test, and an interviewer administered questionnaire at presentation and at one month. I also understand that the drawing of blood from my finger will be done by medical staff adequately trained at conducting such a procedure. Further, it has been explained to me that the above procedure has minimal risk to me apart from the discomfort of a small needle prick to one of the fingers on my hand. In the unlikely event that any adverse event arises from the procedure, I understand that all reasonable measures will be taken in accordance with the standard medical practice to mitigate such an event.

CLIENT	WITNESS
…… (Signature)	…… (Signature)
…… (Date)	…… (Date)
	…….. (Name and designation)

CHIFORMU CHO VOMEKEZA CHA MWANA(NYANJA ASCENT FORM)

Ine ……..pokala mwana wa ……..ndi dzaka……...ndasimikidza kuti andifotokozera mwasatane satane zamamphunziro aya.Andifotokozera Ziopyezo ndi zoipa ndiponso ndimalipilo amamphunziro aya. Ndalandiratso ndipo ndawerenga/andiwerengela chipepala cha chibvomekezo ndipo ndabvetsetsa mokwanira. Ndidziba kuti zochitika mumaphunzi aya zizakhala zachitsintsi. Ndidziwa kuti ndiri omasuka kuleka maphunziro panthawi iliyontse ndipo mwana sazakhala ndi bvuto iliyonse. Ndinakhala ndimpata ofuntsa mafuntso yonse yazochitika mumaphunziro aya. Ndavomera kozipereka kuti mwana wanga atengeko mbali mumaphunziro aya.

Ndalandira chikope cha pepala chosainidwa/chosindikizda chala.

Otengako mbali sainani/ sindikidzani chala……Tsiku……..

Dzina la anchito a maphunziro sainani/sindikidzani chala …….Tsiku……...