

**ACCESS TO SEXUAL REPRODUCTIVE HEALTH  
SERVICES AMONG HIV POSITIVE ADOLESCENTS  
ATTENDING UNIVERSITY TEACHING HOSPITAL  
(UTH) – PCOE (PEDIATRIC CENTER OF  
EXCELLENCE) LUSAKA-ZAMBIA**

By

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A dissertation submitted to the Department of Public Health,  
School of Medicine, University of Zambia, in partial fulfillment  
of the requirement for the degree of Master of Public Health  
(MPH)

2019

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## DECLARATION

I, **Therese Ntigwa Ndongmo**, declare that this research is my own work. It is submitted for the Masters of Public Health at the University of Zambia, Lusaka in Zambia. To the best of my knowledge it has not been submitted for any other degree.

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**CERTIFICATE OF COMPLETION OF DISSERTATION**

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## ABSTRACT

An estimated 80,000 adolescents (10-19 years) are living with HIV in Zambia (UNICEF, 2011). As they mature into adulthood, adolescents encounter challenges related to sexuality and sexual reproductive health (SRH), coupled with dealing with a complex condition such as HIV infection. The current study aimed at exploring the experience, challenges and barriers encountered by adolescents in accessing reproductive health services at the Pediatric Center Of Excellence (PCOE) - University Teaching Hospital (UTH). It is hypothesized that adolescents living with HIV are also beginning to experience their sexuality, may have some challenges in accessing SRH services.

The study was conducted using a mixed-method whereby adolescents aged 15-19 years were surveyed using a semi-structured questionnaire, about their needs and access to SRH. Services offered at the study setting (UTH PCOE) were also investigated through key informants' in-depth interviews of healthcare workers. Emerging themes from open-ended questions qualitative data were explored using content analysis. The data was entered into an access database and exported to SPSS for analyses. Ethical clearance was obtained from the UNZABREC.

A total of 148 adolescents aged 15-19 years were interviewed, including 63.5% females and 36.5% males. The majority (77%) had secondary education level. Those currently in school were 77.2%. About 68.9 % expressed intention to have children; 40.1 % admitted to having a boy or girl friends. Overall 15.1 % (21/139) have ever had sex. Of those sexually experienced, only 61.1 % reported consistent condom use. Two (2.1%) of the girls had been pregnant before. Ten out of 52 respondents indicated having had an STI before. Not being in school was found to be a positive predictor, not only for knowing where to go to talk about sex (OR= 2.53; 95% CI:1.10-5.82; p=0.02), but also for having ever gone to seek advice on sexual issues (OR=2.61; 95% CI:1.04-6.58; p=0.03). While SRH services are available, although not covering the full spectrum of needs at the PCOE, healthcare workers expressed challenges in terms of time and resources dedicated to these services. Overall access to SRH services (at least a counseling, FP, or STI service) was 31.5% in terms of availability and utilization combined. There was no significant factor that predicted access or not.

We find evidence of reported "sexuality experience" illustrated by their expressed sexual desire and needs, presence of social friendships, and desire to have healthy children. HIV infected adolescent sexual reproductive needs were found to be similar to those of general population of the same age in terms of counseling in sexual matters, Family Planning (FP) and Sexual Transmitted Infection (STI) services. ALHIV face additional challenges within their family and social environments. This suggests that efforts should be made to provide one-stop center for all adolescent overall health care needs and to create an environment that is more aware, responsive, and tolerant of adolescent sexuality not only at tertiary but also a lower levels of healthcare settings. HCWs are available at the UTH PCOE to provide the services but still face challenges in terms of adequate training, time and recourses dedicated to these services.

*Key words: HIV/AIDS, SRH, Reproductive Health, Sexuality, Family planning, STI, Counseling, access, adolescents, Zambia*

## **DEDICATION**

I dedicate my dissertation work to my family. A special feeling of gratitude to my loving late parents, Titi Nkengla, and Kwa Ayounang, my brother Jacob Donfack whose words of encouragement and push for tenacity ring in my ears. My sister Marie Lekefack who has never left my side and is very special.

I also dedicate this dissertation to my husband Clement Ndongmo who has supported me throughout the process; I will always appreciate all he has done for the many hours of proofreading. I dedicate this work and give special thanks to my wonderful children Evrard Ndongmo, Bryant Ndongmo, Lauryn Ndongmo, and Arianna Ndongmo, for being there for me throughout the entire Master program. All of you have been my best cheerleaders.

## **ACKNOWLEDGEMENTS:**

I would like to thank all the following individuals for their contribution of data collection and write up of this dissertation

Dr Clement B. Ndongmo, MPH, PhD - CDC, for his countless hours of reflecting, reading, encouraging, and most of all patience throughout the entire process. Thanks for supporting me financially for this project and enduring this long process with me, always offering support and love

Dr Rokaya Ginwalla, MD, MPH – CDC, for your encouragement and your participation in the key informant interview

Dr Elizabeth Marum, MPH, PhD, for your advice, continuous support, and encouragements.

Prof. Charles Michelo, MD, PhD –UNZA, who read my numerous revisions and helped make some sense of the confusion,

Dr Kankassa Chipepo, MD –PCOE Director, who approved for this project to take place at PCOE

Sylvia Mwanza, Adolescent Psychologist for her continuing help gathering and explaining the project to the participants

Sister Joyce, Sister Jane, sister Maggie, Sister Rudia, sister Carol, nurses counsellor at PCOE for their kindness in participating in the key informant interview

Sister Justina, and Brenda from Family Support Unit (FSU), for participating in the key informant interview

Sister Mwamba, Mr Banda, Sister Loveness from Adult center of excellence (ACOE), thank you for your contribution in the data collection process.

Peer educators at the PCOE that assisted me with this project for their contribution in translating and explaining the questionnaire to the participants and their excitement and willingness to provide feedback that made the completion of this research an enjoyable experience.

Finally, but not the least, I would like to thank the study participants, their parents, and guardians for their cooperation and for accepting to take part in the study.

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## ABBREVIATIONS:

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-retroviral therapy
ARV	Anti-retroviral drugs
CBoH	Central Board of Health
CDC	Centers for Disease Control and Prevention
HIV	Human Immunodeficiency Virus
PCOE	Pediatric Center of Excellence
PLHA	People Living With HIV
PMTCT	Prevention of Mother-to-Child Transmission
SRH	Sexual Reproductive Health
STI	Sexually Transmitted Infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
UTH	University Teaching Hospital
UNZA	University of Zambia
UNZABREC	University of Zambia Biomedical Research Ethics Committee
ZDHS	Zambia Demographic Health Survey

## CHAPTER ONE: INTRODUCTION

### 1.1. HIV burden

There were 36.9 million people estimated to be living with HIV/AIDS globally by the end of 2014; with 2 million people who became infected with HIV at the end of 2014 (UNAIDS, 2015), and 1.2 million died from AIDS-related illnesses. It was estimated that in 2013 alone, 120 000 adolescents died from AIDS-related causes (more than 300 every day); while more than 250 000 15 to 19-year-olds were newly infected with HIV in 2013, most of whom (two third) were girls (UNAIDS, 2015).

Of all 36.9 million living with HIV/AIDS in the world, up from 34 million in the 2011 UNAIDS report including 390 newly infected (UNAIDS, 2015). Of the most recent 35.3 million infected in 2012; 2.1 million were adolescents aged 10 – 19 years, with the majority (56%) being girls. Regarding new infections, about 300,000 occurred among adolescents aged 15 – 19 years, representing 13% of the global 2.3 million new infections.

The Sub-Saharan Africa region continues to be the hardest hit by the HIV/AIDS epidemic as it is home for 70% of all the cases, and home for 85% (1.7 million) of all adolescents living with HIV. Furthermore, 1.3 million of these adolescents living with HIV in Sub Saharan Africa were in Eastern and Southern Africa. (UNICEF, 2013).

In Zambia, it's estimated that 13.3 % of the population age 15-49 years are currently living with HIV/AIDS according to the most recent ZDHS survey (CSO et al., 2014) ; down from 14.3% in the previous survey (CSO et al., 2007). Female adolescents aged 15 – 19-year olds have significantly higher HIV prevalence (5.7%) than their male counterparts (3.6%) (CSO et al., 2007); and most recently, the highly trend in female remained, with 4.8% versus 4.1% respectively, however the gap has reduced over time (CSO et al 2014). Although the legal age for consent for sex is 16, the 2007 DHS in Zambia revealed that among 15-19 years, 12.3% and 16.2% of women and men respectively had sexual debut before the age of 15 (CSO et al., 2007). In the ZDHS 2013-14, 11.7% of male and 18.3% of female of the same age group were found to have had their sexual debut by age of 15 years. (CSO et al., 2014).

Zambia Demographic Health Survey (1996) revealed that despite the adolescents' high risk of sexually transmitted diseases (STDs), unwanted pregnancies, and illegal abortions, they were often excluded from receiving reproductive health services. According to a situation analysis by Kaseba et al., it was observed that limited access to quality family planning services in rural areas and among young women contributes to the high rate of unsafe abortion and abortion complications in Zambia (Kaseba, 1998). Health care providers interviewed in this assessment confirmed that most of post-abortion patients are young women, often in their early teens and in school, most are not counseled on the use of modern contraception.

## **1.2. Adolescent sexuality and sexual reproductive health needs**

### *Sexuality*

Adolescence is a period of transition between childhood and adulthood characterized by natural physiological, emotional and sexual development; it is also a period of individual autonomy, growing sense of identity and self-esteem (UNFPA, 2009). Adolescents, defined by the World Health Organization (WHO) as persons between 10 and 19 years of age (WHO, 1998), make up about 20% of the world's population (UNPF, 2012).

Adolescents shape the future of any nation and should be given the needed attention and care. In addition to physical, emotional, intellectual, and social changes, the brain evolves its capability to organize, regulate impulses, and weigh risks and rewards (Arain M et al., 2013). Because of all these changes, adolescence is quite a vulnerable stage, where mistakes could have long lasting impact into the adulthood. The vulnerability of adolescents is mainly associated with pressures to engage in high risk behaviors such as use of alcohol, cigarettes, and/or other drugs; in addition to pressure to initiate early sexual relationships. The most common problems in adolescents relate to growth and development; childhood illnesses that continue into adolescence; mental health disorders; and the consequences of risky or illegal behaviors, including injury, legal consequences, pregnancy, and infectious diseases. Unsafe and unprotected sexual activities lead to a cascade of health problems (Arain et al., 2013). such as unintended pregnancies, sexually transmitted infections (STIs), including the human immunodeficiency virus (HIV).

Furthermore, youth entering adolescence with the burden of HIV infection have endured perinatal deficits in growth, maturation, and neurodevelopment as well as years of less than optimal therapy and the psychosocial ramifications of HIV disease (Gorthmaker., 2001).

With the introduction of ARV treatment, perinatally HIV infected children are reaching older childhood and adolescence in larger numbers in Africa (Lowenthal et al., 2014). Majority of these youth are primarily from underserved communities living in low socioeconomic status. Their health condition does not only affect them, but may place others at risk for contracting HIV. HIV infected adolescents are prone to other factors relating to their infection, including disease progression, neuro-cognitive deficits due to HIV, HIV stigma, and disclosure of infection status. When combined with environmental factors such as illicit drug use, poverty, inner-city stress, and disrupted family attachments, these factors altogether make adolescence a challenging period for these HIV-infected youth (Remien and Mellins , 2007; Elkington et al., 2015). In a study conducted in Tanzania, preadolescents and adolescents with HIV face additional unique complexities related to the impact of HIV on health, mental health, and normative developmental process such as school functioning, puberty, growth, peer relationships and sexuality (Mbwile, 2012).

One study conducted in Uganda found as with all adolescents, many of those that were HIV positive were beginning to explore their sexuality – they were dating and some of them were beginning to have sex (Birungi et al., 2008). Still in Uganda, during 2006 alone, TASO (The AIDS Support Organization) and PIDC (Pediatric Infectious Disease Clinic) reported 184 and 7 pregnancies respectively among 4,696 and 600 young HIV positive people receiving services at the 2 institutions. It was unclear whether those pregnancies were intended or unintended. Despite attending these institutions, HIV infection status did not seem to significantly change attitudes towards childbearing in Uganda (Kirumira, 1996; Neema et al., 2004). Moreover, the desire to have children early in adult life remains strong, including for people living with HIV and AIDS (PLHA), and a romantic relationship is commonly not considered legitimate unless it produces a

baby. Generally, Ugandans have their first sexual experience early in life. According to the Uganda 2004-2005 HIV/AIDS Sero-Behavioral Survey (Uganda Ministry of Health and ORC Macro, 2006), 14 percent of young women and men have sex before they turn age 15, and 63 percent of women and 47 percent of young men have sex before age 18 (Uganda Ministry of Health and ORC Macro, 2006). Thus in this context, adolescents living with HIV may desire and/or succumb to familial/social pressure to have children early so that they do not die without an offspring. A survey of 732 infected female and male adolescents (15-19) in Uganda found that 52% were in relationship, mostly unmarried with only about 5% in a marital or long term relationship; also 33% had started having sexual intercourse, and of these only about a third (37%) reported using a method to prevent HIV infection or re-infection (Birungi et al, 2008).

A study among people living with HIV aged between 15-49 years in Tanzania revealed that their fertility desire and intention was considerably high (Mmbaga et al., 2013). Similar findings came out of a study in Canada where HIV positive women of reproductive age exhibited fertility desires and intentions higher than previously thought in North America and comparable to levels found in African populations (Loutfy et al.; 2009). Other studies also reveal that the prevalence of unprotected sex among HIV positive young people has increased (Mhalu et al., 2013). A study in the US that included samples of HIV positive youth aged 13-24 years after the advent of highly active antiretroviral therapy showed that they were more likely to have unprotected sex with a partner they knew was HIV positive (Rice et al., 2006). Unprotected sex is also seen in sero-discordant relationships among adolescents (Levine et al., 2006)

Perinatally infected youth initiation of sexual activity during adolescence may lead to HIV transmission to others, and also acquisition or transmission of HIV and other sexually transmitted infections to others. HIV-infected youth may be at even greater risk for contracting STIs due to

their compromised immune system, and the presence of STIs, leads to increased HIV transmission efficiency to partners. The vulnerability and risk of contracting or passing HIV can be exacerbated by alcohol and drug use; studies have shown strong association between adolescent HIV/AIDS and drug abuse (Mellins et al., 2006; Havens and Ng, 2001; Mellins, 2004; [Graves](#) and [Leigh](#), 1996), which in turn is further associated with unprotected sexual intercourse (Elkington et al., 2012), teen pregnancy, and sexually transmitted infections.

### *Sexual reproductive health*

The World Health Organization defines reproductive health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes”. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so (WHO, 2012). Implicit in this are the rights of men and women to be informed of and to have access to safe, effective, affordable and acceptable methods of fertility regulation of their choice, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. It involves the interaction of four main components: 1) The ability, particularly of women, to regulate and control fertility, 2) Safe motherhood, 3) Infant and child survival, growth, and development, and 4) Safe from sexual transmitted disease (CDC-Safe motherhood, 2003).

The sexual and reproductive health needs especially of this unique and rapidly increasing population of HIV+ adolescents are largely unmet in developing countries. Youth have their own right to access sexual reproductive health services and achieve a healthy reproductive health life

(UNFPA, 2009); ensuring SRH right of youth constitute an integral part of the millennium development goals. A study done in Uganda (Birungi, 2007) shows that the HIV/AIDS treatment, care and support programs are still organized around either adult or pediatric care and fail to adequately address the needs of this growing segment of the population that usually falls between these two groups. Hence adolescents are usually and wrongly considered as young adults or big children which has resulted in providing with services designed for adults or pediatric population (Gruskin, 2007; Birungi, 2009). Most programs assume that HIV-infected young people remain asexual (Birungi, 2007). Studies in Uganda, Kenya, Zambia, and Swaziland have shown that service providers and counselors usually advise perinatally infected adolescents and adolescents in general not to engage in sexual relationships (Kipp, 2007; Warenius, 2006; Mngadi , 2008).

Despite the evidence presented above on HIV positive adolescents, including fertility desires and intentions, sexual activity, existing HIV care and support programs do not always seem to address the fertility aspirations or desires of this small but rapidly growing population of adolescents (Birungi, 2008; Lowenthal et al., 2014). It is clear that sexual, reproductive, and gender health needs in youth living with HIV should be addressed while they are adolescents and thought out in the health care transition process (Dowshen and D'Angelo, 2011).

According to a report in 2001, it was found that many more health facilities and hospitals had realized that there was a need to have youth friendly corners where information can be given to youths on reproductive health and sexuality, and that a number of Non-Governmental Organizations were working in collaboration with the provider to educate youths on their reproductive health and have assisted in the setting up of youth friendly corners in health centers (Mtonga and Ndhlovu, 2001). However a recent study noted a rather slow implementation and decentralization of adolescent-friendly services and this remains an area that requires further

attention (Mburu et al, 2014). In the current Ministry of Health Zambia 2016 adolescent HIV guidelines, HIV prevention among young people constitutes one of the priorities, although there is no well-defined provisions health care among the subpopulation of adolescents and other youth already infected with HIV (National AIDS Council, 2011. NASF 2011-2015).

### **1.3. Core determinants of adolescent sexual and reproductive health**

#### *Pregnancy in adolescents*

Adolescent pregnancy is a complex issue with many reasons for concern. Kids age 12 – 14 years old are more likely than other adolescents to have unplanned sexual intercourse. They are more likely to be talked into having sex (Elfenbein and Felice, 2011). Unwanted pregnancy is a major public health problem principally; it is a violation of first basic element of reproductive health, which is the ability to control fertility. In the US, the advent of large scale availability of HIV therapy led to increase in the number of pregnancies especially among 15-24 year olds (Blair et al.; 2004).

All options made available to the pregnant teen should be considered carefully, including abortion, adoption, and raising the child with community or family support. Discussion with the teen may require several visits with a health care provider to explain all options in a non-judgmental manner and involve the parents or the father of the baby as appropriate. Early and adequate prenatal care, preferably through a program that specializes in teenage pregnancies, ensures a healthier baby. Pregnant teens need to be assessed for smoking, alcohol use, and drug use, and they should be offered support to help them quit. Adequate nutrition can be encouraged through education and community resources. Appropriate exercise and adequate sleep should also be emphasized.

Contraceptive information and services are important after delivery to prevent teens from becoming pregnant again (Kohler, 2008).

Pregnant teens and those who have recently given birth should be encouraged and helped to remain in school or reenter educational programs that give them the skills to be better parents, and provide for their child financially and emotionally. Accessible and affordable child care is an important factor in teen mothers continuing school or entering the work force (Elfenbein and Felice , 2011).

A number of negative outcomes are associated with teenage parenthood, although it must be emphasized that these outcomes are not universal – parenthood can be a positive and life-enhancing experience for some teenagers for at least some of the time, although at a young age it presents unique challenges (Swann et al., 2003). Some of the negative outcomes can be summarized as follows: a study examining the midlife outcomes of 548 adults in Wisconsin, USA, who became parents before the age of 20, prospectively followed from age 18 till age 53, showed that compared to delayed child bearers, early child bearers completed less schooling and in midlife had less prestigious occupations, more unstable marriages, and were less physically healthy (Taylor JL, 2009). Other studies have also shown impact on schooling (Hofferth et al., 2001; Shearer et al., 2002), on health of the adolescent and her infant, especially in countries with weak health system. Complications from pregnancy and childbirth are the leading cause of death among girls aged 15-19 years in many low- and middle-income countries (WHO, 2014). Stillbirths and newborn deaths are 50% higher among infants born to adolescent mothers than among those born to mothers aged 20-29 years. Infants of adolescent mothers are also more likely to have low birth weight, which can have a long-term impact on their health and development (WHO, 2012b).

### *Unsafe abortion among adolescents*

Pregnant adolescents are more likely than adults to have unsafe abortions. An estimated three million unsafe abortions occur globally every year among girls aged 15-19 years. Unsafe abortions contribute substantially to lasting health problems and maternal deaths (WHO, 2012).

Induced abortion provides another indication of the level of unmet needs for contraceptive use in developing countries. With an estimated annual rate of 32-46 abortions per 1000 women, which represents 36-53 million induced abortions yearly (Henshaw, 1990), the magnitude of the problem of unwanted pregnancy and unmet needs for family planning can be highly anticipated (U.S. Teenage Pregnancy Statistics, 2010). Review of abortion laws shows that 52 countries fall into most restricted category except when a woman's life is in danger (Rahman et al., 1998).

### *STI in adolescents*

Worldwide the highest reported rates of STIs are found among people between 15 and 24 years; up to 60% of the new infections and half of all people living with HIV globally are in this age group (Dehne and Riedner, 2001; Dehne and Riedner, 2005). Many adolescents around the world are sexually active and because many sexual contacts among them are unprotected, they are potentially at risk of contracting sexually transmitted infections. Adolescents' use of contraception is generally low and they are less likely to use condoms than adults because of lack of access and, for girls in particular, the inability to insist on their use. STIs may be the consequence of unprotected sex with a number of short-term partners, but may also occur among those who have a long-term unfaithful, perhaps older, partner or husband. The risk is often greater for adolescents who are in socially and economically marginalized positions as sexual activity may take place within a context of coercion or violence or in the course of selling sex for a living. Furthermore,

for biological reasons, sexually active girls may be at greater risk of contracting STIs than boys (Dehne and Riedner, 2005).

#### *Needs for adolescent SRH services*

The literature clearly shows that adolescents, including those infected with HIV 1) are in sexual relationships and sexually active, and may be faced with unintended pregnancies and STIs, 2) engage in poor preventive practices with respect to transmitting HIV and other STIs or re-infecting themselves, and 3) exhibit fertility desires and intentions. However, existing HIV care and support programs do not seem to address the fertility aspirations or desires of this small but rapidly growing population of adolescents (Birungi, 2008); nor do they always include appropriate counseling and STI services. Hence more attention is needed to address these gaps. Sexual reproductive and gender health needs in youth living with HIV should be addressed while they are adolescents and thought out in the health care transition process (Dowshen and D'Angelo, 2011). HIV positive adolescents have the same needs and should have the same reproductive right as their HIV negative counterparts. Programs directed at adolescents should be studied, and strengthened, taking into account their sexual reproductive needs and right to safe and healthy sexual development.

#### **1.4. Adolescent sexual reproductive health services**

Socio-economical and biological events that mark adolescent's developmental phase have profound impact in their adult lives. It is well established that specially tailored sexual reproductive health services, education and other social programs are needed to support adolescents as they transition into adulthood. These services should include provision of contraceptives and FP, Safe abortion, STI diagnosis and treatment, and counseling services. Hence availability and accessibility of adolescent friendly SRH services are critical to avoid unwanted pregnancies,

unsafe abortion, and ensure adequate contraception, pregnancy care, and diagnosis and treatment of STIs among this particularly vulnerable population. WHO describes youth friendly SRH services as “services that are accessible, acceptable, equitable, and appropriate to meet the SRH needs of young people aged between 10-24 years” (WHO, 2002). A number of interventions have been undertaken towards enhancement of SRH services provision to the youth, for example health service provider training, facility improvement, and community wide health education have been shown to increase uptake of service (Dick et al., 2006). For young people contemplating or already engaged in sexual activity, clinicians play a central part in the provision of contraception and counseling around sexual decision-making and behavior (WHO, 2004)

While attempts have been made to design services addressing these SRH needs of adolescents following global guidance (WHO, 2002; WHO, 2012), the availability remain limited; which constitutes the most important barrier to access. Even when available, there are still other barriers to accessing or using those services due to lack of information or unfounded beliefs; for instance, a study in Malawi indicated that while 90% of young people knew about HIV, only 65 % of males and 51% of females knew that abstinence, being faithful, and using condoms are 3 ways to avoid getting infected (Wittengberg et al., 2007). Still in Malawi, 40% of girls aged 12-19 years believe they could not get pregnant if they had sex while standing up, while in Kenya youth believe that taking aspirin would prevent pregnancy (Tavrow, 2008). Other barriers to the provision of SRH services to adolescents have been shown to originate from health care workers, for example in Kenya, Zambia (Warenius et al., 2006), Uganda (Kipp et al., 2007) and Swaziland (Mngadi et al., 2008). Hence even where services are thought to be available there is need to explore whether they are being assessed and what barriers could be hindering access.

## **1.5. Access to antiretroviral therapy and sexual reproductive health among HIV infected adolescents**

HIV programs have expanded in recent years including increased access to ART. Increasingly, older children are becoming the face of the pediatric HIV epidemic and many that are infected perinatally have now reached adolescence (Merzel et al., 2008; Chomba et al., 2010). The access to treatment implies greater survival of HIV positive infants growing to adolescence and into adulthood.

Despite improvements and greater access to treatment, adolescents may still face challenges in managing a complex disease such as HIV infection. Most HIV prevention, treatment and care services have been mostly designed around younger children and adults. Adolescents are usually lost between pediatric and adult care systems, with limited access to youth-friendly health services (UNAIDS, 1998). Hence, while HIV treatment program experience for adults and infants is well supported and studied, little is known about adolescents especially with respect to HIV status disclosure, ART adherence, and sexual reproductive needs and access to services. HIV infected Adolescents are faced with problems of adherence to complex medications; and this may lead to treatment failure and drug resistance. (Paterson et al., 2010 ; Farley et al., 2003 ; Gibb DMet al., 2003 ; Van Dyke et al., 2002).

In a prospective study that included 96 HIV- infected Zambian children, Haberer et al (2011) demonstrated that adherence among children taking fixed-dose combination ART in sub-Saharan Africa is high and sustained over two years. However, certain groups are at risk for treatment failure, including children with disrupted routines, no knowledge of their HIV diagnosis among older children, and relatively high household income, possibly reflecting greater social support in the setting of greater poverty (Haberer et al., 2011).

As far as access to sexual and reproductive health services are concerned, most HIV/AIDS programs in developing countries target adults and don't adequately address adolescent needs (Avery and Lazdane, 2010). It has been found that young people prefer "one-stop shop", which has been a term used to describe youth specific health centers. Every service package may be different, but most include a combination of physical, mental and sexual health, as well as social services, counseling, programs and activities – and even more. This literally means accessing all services from one place and preferably by the same provider (Wood and Aggleton,2004). The introduction of youth friendly corners or programs serves to evaluate for its impact in improving adolescent care in Zambia (Burke et al., 2012). For instance, the Pediatric Center Of Excellence (PCOE) has an adolescent corner that serve for health education and adolescents concerns. A number of Community Operated Sexual and Reproductive Health projects have been conducted in Zambia to address sexual reproductive health needs of both adults and adolescents. These projects covered intensified behavior change communication activities that provide information on birth preparedness, recognition of danger signs, timely referrals, and importance of delivering at health facilities and other relevant information on safe motherhood (Hodgson et al. 2012).

## 1.6. Research focus

### 1.6.1 Statement of the problem

All adolescents especially those who are HIV infected need special attention and support to handle a complex condition such as HIV infection. One of the challenges they may face is having access to adequate sexual reproductive health services. While the number of adolescents accessing HIV care, including ART, has been increasing in the last decade (WHO, 2007), limited studies have been carried to look specifically at the outcome of these services among this population in low and medium income countries, such as retention in care, adherence to treatment, and viral suppression (Murray et al., 2017). Attrition or lost to follow up is common among PLHIV (Kranzer et al., 2012). There are limited studies that have looked at the effectiveness and quality of programs targeting adolescents, current evidence is both sparse and lacking in its quality (Ridgeway et al., 2018). Adolescents living with HIV continue to be a vulnerable population needing special and targeted programs and resources (WHO, 2016); hence an urgent need remains to develop and test targeted intervention strategies to improve adherence among this high-priority population.

Sexual and reproductive health education that is specifically catered to the unique needs of adolescents living with HIV is missing from school and healthcare settings (UNICEF, 2006). Unmet need for contraception was found to be high among married female adolescents aged 15–19 (22 %), and even higher among sexually active adolescents who are not married (64 %); this finding was generated from a review of data from 30 countries describing a wide-ranging examples of adolescents' situation in several regions of the world, namely Sub-Saharan Africa, North Africa, South Asia, Southeast Asia and Latin America and the Caribbean, and Europe. The study covered 3 European and 27 developing countries, including Zambia. (Anderson et al., 2013).

Most HIV prevention, treatment and care services in Zambia have been primarily designed around children and adults. Adolescents are usually lost between pediatric and adult care systems (Boonstra, 2007). There have been limited studies on youth SRH health services in Zambia. An assessment of 3 youth-friendly service (YFS) projects in Lusaka, Zambia initiated in 1994, revealed that although the projects appear to have improved the clinic experience for adolescent clients and to have increased service use levels at some clinics, the findings suggest that community acceptance of reproductive health services for youth may have a larger impact on the health-seeking behaviors of adolescents (Mmari and Magnani, 2003). The current study will provide more insight into the sexuality and sexual behaviors of adolescents living with HIV. Factors associated with their SRH seeking behaviors, availability and access to information and access to SRH services will be explored.

#### **1.6.2 Rationale**

In Zambia the HIV prevalence among 15-24 is 4.2 % for male and 8.9% for female while the syphilis prevalence was 1% in the same age group (CSO, 2007), in most recent 2016 population survey, the HIV prevalence among this age group had reduced to 1.8% and 5.7% respectively among male and female (Zambia Ministry of Health, 2017). Among the 15-19 years old 16.2% of 1416 male and 12.3% of 1574 female interviewed have sex before the age of 15. While HIV programs and services for adults and infants are well studied, little is known about adolescents especially with respect to sexual reproductive needs and access to services in Zambia. Hence the present study aimed at investigating the experience, challenges and barriers encountered by HIV positive adolescents in accessing reproductive health services at the PCOE, the major pediatric center in the country, providing specialized HIV care to children and young adolescents. This study was also to provide information on the current state of HIV care to adolescent in order to identify best practices that can be learned and applied elsewhere in the country, as well as any gaps that

can hinder effective SRH services at this center of excellence. The study also intended to inform policy improvement and enhance program implementation in order to ameliorate the many reproductive health challenges adolescents face. The understanding of protective and risk factors associated with various sexual and reproductive health behaviors and outcomes was also to provide strategic information for designing effective intervention programs to address adolescent SRH service needs.

### **1.6.3. Research question**

What are SRH services offered at UTH PCOE and what factors (client and provider) are associated with accessing those services?

### **1.6.4. General objective**

To investigate the experience, challenges and barriers encountered by HIV positive adolescents in accessing reproductive health services at the PCOE

### **1.6.5. Specific objectives**

1. To assess the issues /challenges that HIV+ adolescents face in exploring their sexuality
2. To determine the SRH needs among HIV + adolescents seen at PCOE
3. To explore the SRH services offered at UTH PCOE and their challenges
4. To identify any gaps in services; and best practices that can be applied elsewhere

### **1.6.6. Conceptual framework for determinants of reproductive health**

A conceptual framework is a theoretical structure or a diagrammatic depiction of interrelationships between relevant assumptions, principles, and rules that holds together into a broad concept, the ideas regarding an event, disease, or program. The proximate-determinants framework has been applied extensively in the study of fertility and child survival in developing countries. Key to the framework is the identification of a set of intermediate variables, called "proximate determinants,"

that can be influenced by changes in contextual variables or by interventions and that have a direct effect on biological mechanisms to influence health outcomes (Boerma and Weir, 2005).

To explore and answer the objectives of this study, the following modified framework from Measure Evaluation has been adopted (Figure 1); which captures determinants of SRH including proximate biological and socio-demographic determinants.

While SRH services access can be seen from the perspective of a complex system where various factors and determinant may come into play, the full extent of the framework could not be explored in this study. Only selected proximate determinants have been assessed, and with the general assumptions that each factor studied here primarily influence access in a linear relationship fashion. In all, the current study acknowledges known assumptions but only few of these factors could be investigated here, within the context of the national pediatric center of excellence in Zambia.

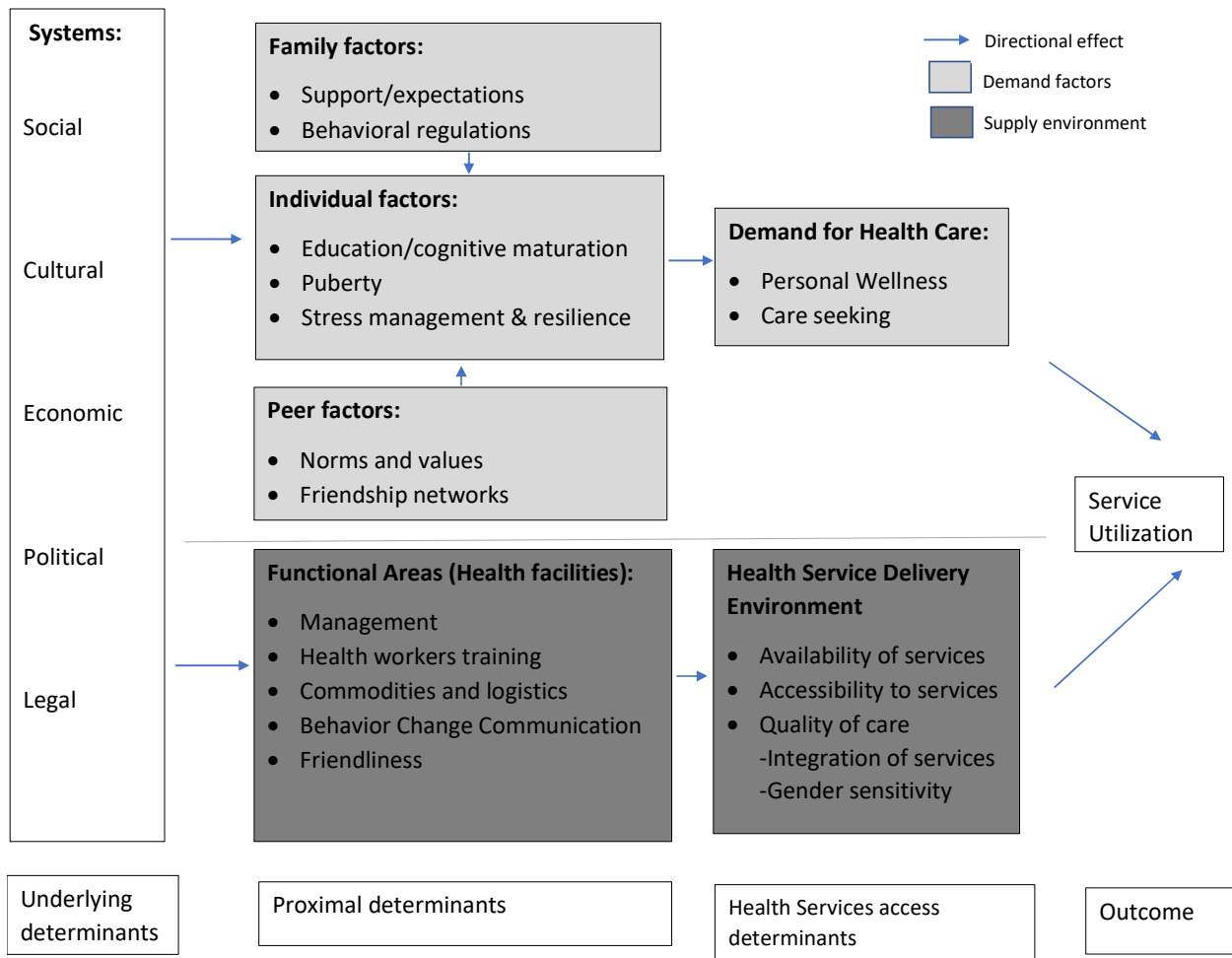


Figure 1. Proximate-determinants conceptual framework developed by Measure Evaluation, illustrating pathways by which reproductive health programs achieve their objectives including access to sexual reproductive health (adapted from Boerma and Weir framework, 2005). Here the horizontal line separates the health services demand and the health services provision environment. The unshaded boxes indicate the categories of determinants and the resulting outcome (service utilization).

## CHAPTER TWO- METHODOLOGY

### 3.1. Setting and study population

#### *The University Teaching Hospital (UTH)*

The University Teaching Hospital (UTH) is an academic medical center providing a full range of primary, secondary, and tertiary health and medical services on both inpatient and outpatient basis. UTH serves as the tertiary referral center for urban and peri-urban communities in Lusaka. UTH also provides primary and secondary care to Lusaka residents, and has a total bed capacity of 1,863, and provides both out- and in-patient care. The UTH is situated in Lusaka, the capital city of Zambia which has a population of over two million people. As the highest Government of Zambia referral health institution for the nation, it takes a leading role in disease surveillance such as TB, measles, influenza, poliomyelitis and sentinel surveillance for HIV, syphilis and other STI-related diseases. The UTH Mission statement is “To provide affordable, quality health care, function as a national reference centre, train health care providers, conduct research to find solutions to existing health problems and for the development of Science.” About 50% of the population is made up of children aged <15 years while women of childbearing age constitute about 20% of the total population. The high volume sub-specialty pediatric programs such as the HIV Center of Excellence provide a unique learning opportunity for medical studies.

#### *The Pediatric Center Of Excellence at the University Teaching Hospital*

The Pediatric Center of Excellence (PCOE) was established in 2004 at UTH to provide comprehensive care for HIV-exposed and HIV-infected children and training and dissemination of pediatric HIV expertise. The PCOE is part of the UTH Department of Pediatrics and Child Health and is primarily supported through collaboration between the Zambian Ministry of Health

(MOH), the US Centers for Disease Control and Prevention (CDC) with funding through the President's Emergency Plan for AIDS Relief (PEPFAR) and the International Center for AIDS Care and Treatment Programs, Columbia University Mailman School of Public Health. The PCOE has fostered a relationship between UTH, Boston University, and Columbia University to support pediatric HIV care.

Most children requiring hospitalization are sent to the admission ward; an inpatient ward. All children testing HIV positive from urban and peri-urban communities are offered enrollment in care at the PCOE or at the local district clinic. Doctors and trained- nurses counsel patients on treatment adherence and follow-up. Doctors refer patients with certain conditions to respective clinics.

According to the clinic registry, as of June 2012 the facility had a total of 800 enrolled on ART of which 300 were adolescents male and female 10 years and older. Five hundred (500) children were under 10 years of age. Pediatric Center of Excellence, department of Pediatrics and Child Health-UTH keeps record description of the children and adolescents seen at UTH PCOE: age range, services, staffing, infrastructure, history, support.

All HIV positive adolescents between 15 and 19 years old, attending the study site (PCOE) were probable candidates and targeted for the study. The second group of the study population included healthcare workers at the study site.

### **3.2. Study design**

This study was conducted using a mixed-method comprising a quantitative design, cross sectional survey and a qualitative design, case study by key informant interview of health care workers

### **3.2.1. Cross-sectional Survey**

This was a non-interventional analytical cross sectional survey among HIV positive adolescents, about their SRH beliefs, attitudes, needs, and services received at the PCOE. This method was chosen as it represents a good approach to gain a broad base of knowledge about the study topic among subjects who have/do not have the outcome of interest, which is access to SRH services; and to assess associated factors

#### *Study population*

All HIV positive adolescents between 15 and 19 years old, attending the PCOE were potential participants and targeted for the study. The Pediatric Center of Excellence ART clinic at the University Teaching Hospital has been conveniently selected due to the large volume of clients that receive ART services and access care.

#### *Selection*

Study participants were approached and selected from among HIV infected adolescents attending the UTH, using the following criteria for inclusion: all HIV positive adolescents aged between 15-19 years attending the PCOE who provided informed consent (18 and 19 years old) or assent from guardians (15-17 years old) to be interviewed. Excluded from the study were patients younger than 15 years and patients older than 19 years and those who did not consent or assent.

#### *Sampling*

Study participants were selected using consecutive sampling method whereby HIV positive adolescents attending the PCOE were consecutively approached and asked to participate in the study, and were enrolled upon consent and meeting the inclusion criteria. Given their number, the

study targeted all adolescents over a period of time of approximately 3 months where they would visit the clinic at least once for their routine follow up.

*Sample size determination*

The estimation for sample size was done using the open source OpenEpi software for epidemiologic statistics. (OpenEpi, Version 2)

The sample size was calculated using the standard sample size formula:

$$n = [DEFF * Np(1-p)] / [(d^2 / Z^2_{1-\alpha/2} * (N-1) + p*(1-p)]$$

Population size (for finite population correction factor or fpc)(*N*): 250

Hypothesized % frequency of outcome factor in the population (*p*): 50%+/-5

Confidence limits as % of 100(absolute +/- %)(*d*): 5%

Design effect (for cluster surveys-*DEFF*): 1

Confidence interval: 95%. Z=1.96. Sample size: 152

*Sample Size for Frequency in a Population*

The estimation for sample size was done using the open source OpenEpi software for epidemiologic statistics. (OpenEpi, Version 2)

Table 1a: Sample size estimation

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Population size (for finite population correction factor or fpc)( <i>N</i> ):	250
Hypothesized % frequency of outcome factor in the population ( <i>p</i> ):	50%+/-5
Confidence limits as % of 100(absolute +/- %)( <i>d</i> ):	5%
Design effect (for cluster surveys- <i>DEFF</i> ):	1

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Table 1b: Sample Size(*n*) for Various Confidence Levels

Confidence	Level (%)	Sample Size
95%		152
80%		100
90%		131
97%		164
99%		182
99.9%		204
99.99%		215

The target was to reach a minimum of 152 HIV positive adolescents. However a 100% time sampling strategy was adopted, meaning that during the 3-month period of sample collection, all consenting/assenting eligible adolescents seen were included. It was estimated that 250 adolescents aged 15-19 years, returning for their routine follow up visit would be seen at the PCOE during the study period (Tables 1a & 1b). On average the clinic sees a total of 40-60 patients (0-19) years a day; 15-20 adolescents (15-19 years) are seen on Tuesdays and Wednesdays. This was aimed at facilitating meeting the maximum target population and required sample size in a minimum amount of time and at minimum cost.

*Data collection and entry*

A structured questionnaire was designed and used to collect information in the survey. The information collected included background characteristics such as age, sex, residence; as well as access to information and support for the HIV positive adolescent. The interview also explored the sexual behaviors and practices, preventive knowledge and practices, contraceptive knowledge and

use, pregnancy and childbearing experience, and issues of self-esteem, worries on sexual and physical violence, and health seeking behavior issues.

Each form was assigned a serial number to make it easy to go back and re-enter in case of any mistake. A master list was maintained for reference for assigning and tracking these ID in the future. Completed forms were reviewed to identify questionable responses and decisions were made to identify some common unexpected responses that survey respondents made. A decision was taken about how to enter them. Data was entered into an access database that was designed according to the questionnaire form.

#### *Data analysis*

Descriptive summaries and frequencies by socio-demographic characteristics (e.g. by age, sex, schooling, residence, distance, religion, etc...) were carried out using the Statistical Package for Social Science (SPSS).

Factors associated with access to services (counseling, STI, family planning) were examined by bivariate regression analysis; these factors included common social factors such as education, gender, age, religion, and relationships (Table 2).

In this study, the dependent/outcome variable was defined as access through availability or utilization of SRH services. Since access to services could be assessed through multiple variables (e.g. in the case of this study: Counseling, STI, and family planning), it was measured using composite variables covering these 3 main areas of services. The composite variables were generated using composite/recode command in SPSS software.

Table 2. Main operational variable framework

Variable	Indicator	Scale of measurement
<b>Dependent variable</b>		
Access	Yes/No	Nominal
<b>Independent variables</b>		
Age category	15-17/18-19 years	Interval
Gender	Male/Female	Nominal
Level of education	No to primary/Secondary/College and above	Interval
Religion	Protestant/Catholic/Muslim/Others	Nominal
Have Boy/Girlfriend	Yes/No	Nominal
Source of health information	Health institution/others	Nominal
Involvement in peer support group	Yes/No	Nominal
Living arrangement	With parents/with guardians	Nominal

Binary analyses were used to explore the link between one or more independent variables and the dichotomous (binary) dependent access variable. Odd ratios (ORs) were calculated to estimate likelihood or odd for not accessing or using SRH services with the absence or presence of a given factor/parameter with 95 % confidence interval.

Qualitative data from answers to open-ended questions were analyzed using content analysis method (Bree and Gallagher, 2016), and emerging themes were described.

### 3.2.2. Case study

This was a case study of a key informant HCWs in order to explore SRH services provided at the PCOE and challenges encountered. In-depth interviews of HCWs (medical, nursing staff and counselors) were conducted using semi-structured questionnaire. This method was determined to be the best approach for the purpose since the healthcare providers at the PCOE would have more knowledge on the SRH issue at the facility. This also gives room to ask clarifying questions and

obtain additional information where necessary. This was determined to be the best method for the purpose.

### *Study population*

HCWs were the adequate population here as they have first-hand knowledge about the adolescents, and issues or problems they encounter, as well as the services they are able to provide them.

### *Selection*

Healthcare worker participant selection was done by simply targeting representatives of different health provider cadres. The selection criteria included: being a service provider at PCOE (Pediatric Center Of Excellence) and ACOE (Adult Center Of Excellence), belonging to one of the different staff cadres, and providing consent to be interviewed. The exclusion criterion was if the staff did not consent to be interviewed.

### *Sampling*

The maximum variation sampling, also known as heterogeneous sampling was used to select key informant HCWs. This is a type of purposive sampling technique that was appropriate to the aim of this study, which was to be able to capture a wide range of perspectives relating to SRH services being provided at the PCOE. Maximum variation allows a search for variation in perspectives, ranging from those facts that are viewed to be typical through to those that are more extreme in nature. This allowed to gain greater insights into the SRH services and to identify common themes that were evident across the sample.

### *Sample size determination*

Since this was a purposive sampling, the sample size was targeted to be small enough to be manageable but large enough to generate useful information.

### *Data collection and entry*

An in-depth interview guide was used to collect information from service providers covering services available, and issues encountered with adolescents. The information from the interviews was captured on a form and entered into excel.

### *Data Analysis*

The qualitative data generated from in-depth interviews responses was organized using codes developed in Excel (Bree and Gallagher, 2016). The organization of the data was done according to the general categories defined in the discussion guide. After arranging the responses, the range of positions or opinions could be identified. Then, various opinions were summarized; the degree of consensus or differences expressed by the groups was assessed, and the themes or patterns that emerged were synthesized and summarized.

### **3.3. Ethical considerations**

Research study commenced after approval from UNZA Biomedical Ethics review committee (approval reference number: 012-03-13) and permission granted by UTH/PCOE management. The study was introduced by study assistants to participants and they were notified of the following: voluntary participation, research objective and expected outcome, and research benefits and risks. The consent was obtained from guardians/parents and from adolescents themselves for all non-emancipated persons aged 15-17 years. Meanwhile, no parental/guardian consent was sought for those aged 18-19 years and emancipated minors ages 15-17years. It was communicated to

participants that no personal identifiers will be used and data collected would only be accessible to authorized personnel to ensure confidentiality.

### *Confidentiality*

Data collected on the form did not include subject's names. Each questionnaire was allocated a unique sequential study number by the research assistants. Confidentiality agreements were signed by anyone who assisted with data collection, and agreed not to disclose any personal information about study participants to anyone outside of the study.

### *Risk*

The study involved minimal risk to participants as no biological sample was collected and no invasive procedures was performed; however, some questions may be perceived as intrusive especially for adolescents on a sensitive topic such as SRH..

### *Benefits of the study*

No direct benefits were anticipated in the course of this study but the results and recommendations could lead to improvement of overall services provided to adolescents at the center. The study could also yield some insights into the reproductive health of adolescents and could help direct some changes in the care of adolescents living with HIV.

## CHAPTER THREE: RESULTS

### 4.1. Cross-sectional survey of adolescents

#### *Socio-demographic, economic, and cultural characteristics*

A total of 148 HIV positive adolescents aged 15 to 19 years were reached in the study against the targeted 152; this could be due to an unusual limited number of ALWHIV during the study period, despite the historical attendance trend that predicted that the sample size will be largely met within the study time and funding limit. No eligible adolescent declined to participate. It is important to note that throughout this report, it will be noticed that the total number of all variables does not always add up to the resulting study sample size of 148, due to some questions not having been answered by all participants. This could be due to reasons such as the sensitive nature of some questions, the participants just not wanting to answer because of fatigue for instance. While all participants were encouraged to answer all questions, it was unethical to force them to do so. Hence analyses were limited to responses to given questions; and this was indicated as appropriate in each situation.

Of the 148 participants, 88 (59.5%) were aged 15-17 while 60 (40.5%) were aged 18-19. There were 94 (63.5%) females and 54 (36.5%) males. Of all participants, the majority 114 (77%) had secondary education level while 15 (10.1%) and 19 (12.8%) had no to primary, and tertiary education level respectively. On school attendance, 145/148 (98.0%) responded, among whom 112 (77.2%) were in school while 33 (22.8%) were not; of those not in school 4 were employed and some might have been in a gap year waiting to join the University. On marital status, majority (n=135; 93.1%) was single or never married; only one person was married.

Regarding source of information among these HIV positive adolescents surveyed, 140/148 (94.6%) responded by indicating all sources of information they have access to, the most frequent

source of information mentioned was health education sessions at the clinic (46.6% frequency; n=69), followed by television (44.6% frequency; n=66), phone (18.2% frequency; n=28), radio (16.9% frequency; n=25), newspapers (15.5% frequency; n=23), community talks (5.4% frequency; n=8), and internet (5.4% frequency; n=8).

Under religious affiliation, 138/148 (93.2%) responded, of whom majority were protestant (n=79; 57.2%), followed by Catholic (n=45; 32.6%), Muslim (n=2; 1.4%), while the remaining 12 (8.7%) indicated other faiths.

As to the living arrangements, 143/148 responded, out of whom the majority (n=81, 56.7%) were living with at least one of the parents, while 61 (42.6%) were living with guardian or relative, and only 1 was living alone. Table 3 gives a summary of socio-demographic characteristics of the study population.

Table 3. Socio-demographic characteristics of HIV positive adolescents aged 15-19 years attending the pediatric center of excellence (PCOE)

<b>Characteristics</b>	<b>N (%)</b>	<b>Characteristics</b>	<b>N (%)</b>
<b>Sex</b>		<b>Living with</b>	
Female	94 (63.5%)	Parents	81 (56.6%)
Male	54 (36.5%)	Guardians/relatives	61 (42.7%)
<b>Age group</b>		Alone	1 (0.7%)
15-17	88 (59.5%)	<b>Religion</b>	
18-19	60 (40.5%)	Protestant	79 (57.2%)
<b>School attendance</b>		Catholic	45 (32.6%)
In school	112 (77.2%)	Other faiths	12 (8.7%)
Not in school	33 (22.8%)	Muslim	2 (1.4%)
<b>Source of Health information</b>		<b>Level of Education</b>	
Health education talks	69 (46.6%)	Secondary	114 (77%)
Television	66 (44.6%)	College and above	19 (12.8%)
Telephone	27 (18.2%)	No to Primary	15 (10.1%)
Radio	25 (16.9%)	<b>Marital status</b>	
Newspapers	23 (15.5%)	Single or never married	135 (94.4%)
Others	16 (10.8%)	Married or cohabiting	8 (5.6%)

### *General health and HIV/AIDS issues*

When asked about how they rate their current health condition, 91 (61.5%) responded very good to excellent and 57 (38.5%) responded that their health was fair to good. As to whether their health interferes with their social activities, the majority, Of the 137/148 (92.6%), 103 (75.2%) said no, against 34 who said yes. Among 13/34 (24.8%) who said yes, some of the reasons why their health interferes with their social activities were: not being allowed to go to camps with their friends, having to take medication at certain hours, feeling “odd” among friends, feeling bad for not being able to do what other friends are doing, and being afraid of being stigmatized. Here are some of the quotations:

*“not allow to go to camp with friends because of fear to see you taking ARVs”*

*“yes it has interfered with social activities such that I haven’t even been going to school”*

*“I can't do what my other friends are able to do, and that makes me feel bad”*

*“bring up low self-esteem”*

Likewise of the 137/148 (92.6%) who provided a response, the majority 94 (63.5%) indicated that their health doesn’t interfere with household chores while 28 (20.4%) said it does interfere sometimes and 15 (10.9%) said yes; some of the explanations given were that they feel tired, dizzy, being afraid of cutting oneself while cutting vegetables. And 11 participants did not answer.

As to how many times they were hospitalized, 42/128 respondents (32.8%) were hospitalized at least once, while 86 (67.2%) had not been hospitalized in the past 1 year.

When asked whether they knew how they might have acquired HIV infection, 143/148 (96.6%) responded. Of these 143 respondents, 105 (73.4%) participants said they had been infected through

mother to child transmission, 29 (20.3 %) didn't know, 5 (3.5%) reported having acquired through contaminated sharps, and 3 (2.1 %) indicated sexual abuse, and 1 (0.7%) mentioned blood transfusion. With regards to the age at which they became aware of their positive serostatus, of 133/148 (89.8%) who responded, the majority 83/133 (62.4%) of the adolescents became aware of their HIV serostatus between the ages of 10 – 14; followed by 34/133 (25.6%) who became aware at 15 or older; then 16/133 (12.0 %) became aware before the age of 10. Of 140 respondents on how they learned about their serostatus, 71 (50.7%) said they learned about it from their HCW, 47 (33.6%) learnt from their parents, 19 (13.6%) from their relatives, and 3 (2.1%) found out by themselves through hearing their parents talk, reading their files and searching what their medication was meant for.

Of the 146/148 (98.6%) adolescents who responded, most of them, 135 (92.5%) said they were on ARV, while 11 (7.5%) were not because they were not yet eligible based on their CD4 count level. Of those on ARV, 61/135 (45.2%) could remember the name of at least one medication they were taking.

### *Sexuality and sexual behavior*

Analysis of the sexuality and sexual behavior data of the adolescents (see Table 4), revealed that, regarding puberty, only 86 (58.1%) responded that they were able to identify one change that is associated with growing up into adolescence, including body size changes (breasts, hips), voice change, pubic and armpits hair, menses, sexual desires. Of the 88/94 (93.6%) female HIV positive adolescents who responded, the majority, 52 (59.1%), had their first menses when they were between 13-14 years old followed by 22 adolescents who had it when they were 15 years or older and above (25.0%); and then 14 adolescents who had it when they were 10-12 years 15.9%).

Out of the 137/148 (92.5%) who responded to the question on friendship, 55 (40.1%) admitted to having a boy or girl friends; of these, only 11 (20%) admitted to ever had sex. Overall, 21 out of 139 respondents (15.1 %) said they have ever had sex (12 female and 9 male); and regarding relationship with partner at 1<sup>st</sup> sex, 15/21 (71.4%) had it with boy/girlfriend or spouse, while 5/21 (23.8%) indicated being forced; and 1 person did not answer. The age at first sex was 15 years and over for (85.7%; n=18) of the sexually experienced, and below 15 years for the remaining 14.7% (n=3). As to how many partners have they had sex in the last 6 months, 8/21 (38.1%) said none, 10/21(47.6%) said with only one and the remaining 3/21 (14.3%) said they had sex with 2 partners. Of all 21 with sexual experience, only 13 (61.9%) used condoms during the last sexual intercourse while 7 (33.3%) didn't; regarding disclosure, only 9/21 (42.8%) have had the chance to inform their sexual partner of their HIV status, and there was no negative reaction noted. On the other hand, only 6 (31.6%) out of 19 respondents knew whether their partner has been tested; 11(57.9%) didn't want to answer, and 2 didn't know.

On condom use overall, 11 out of 18 respondents (61.1%) reported using it always (6 of these were male and 5 female); 4 (22.2%) use it sometimes (1 male and 3 female), and 3 (16.7%) never use (1 male and 2 female); the remaining 3 participants non-respondents.

When asked about intention to have children 117 (79.0%) responded; of these, 104 (88.9%) said they would like to have children, while 13 (11.1%) said they wouldn't want to. Of those 104 who wanted to have children, 102 indicated as follows: 41 (40.2%) would like to have 2 children, 29 (28.4%) would like 3 children, 23 (22.5%) would like to have 4 children; 7 (6.9%) would like to have 5 children, and 2 (2.0%) would like more than 5 children. Of the 104 who would like to have children 63 (60.6%) were female and 41 (39.4%) were male. Among those 13 (11.1%) respondents

who didn't want to children, one of the respondents indicated: *"wouldn't (want) my child to go through what I'm going through"*

Out of the 12 female adolescents who ever had sex, 2 have been pregnant (age 16 and 18), and were pregnant before being aware of their HIV status, one stated that the pregnancy was intended and both self and partner initiated the pregnancy. One couple indicated the next birth in the next six months.

Table 4. Sexuality and sexual behaviors among HIV positive adolescents aged 15-19 years attending the pediatric center of excellence (PCOE)

<b>Sexuality and sexual behaviors</b>	<b>Male</b>	<b>Female</b>	<b>Both sex</b>	<b>Respondents</b>	<b>%</b>
Have boy/girl friend	17	38	55	137	40.1
Expressed intention to have children	41	63	104	135	77.0
Intended number of children (2-4)	33	60	93	117	79.5
Ever had sex	9	12	21	139	15.1
Have informed partner about HIV status	3	6	9	19	47.4
Know if partner has been tested or not	3	5	8	19	42.1
<i>Condom use during sex</i>					
Always	6	5	11	18	61.1
Sometimes	1	3	4	18	22.2
Never	1	2	3	18	16.7
<i>Source of condoms</i>					
Shop/drug store	7	5	12	16	75.0
Clinic	2	2	4	16	25.0
Ever been pregnant	0	2	2	19	10.5

### ***Family planning knowledge and practice***

Concerning knowledge on ways to delay pregnancy 134/148 (90.5%) responded while 14 (9.5%) did not. Among the 134 respondents, only 63 (47.0%) responded yes, including 43 (68.3%) female and 20 (31.7%) male; and 71 (53%) responded no, including 46 (64.8%) female and 25 (35.2%) male. As shown in Table 5, among those 63 who knew the way to prevent pregnancy, use of

condoms was mentioned the most (26 times; 41.2%), followed by FP pills (24 times; 38.1%), then abstinence (12 times; 19.0%), and withdrawal (2 times; 0.0%).

Table 5. Knowledge about ways to delay pregnancy among 15-19 years HIV positive adolescents attending the pediatric center of excellence (PCOE), expressed as number of times each method was mentioned

<b>Knowledge of ways to delay pregnancy</b>	<b>Male</b>	<b>Female</b>	<b>Both sexes</b>	<b>% (n=63)</b>
Condoms	12	14	26	41.3
FP pills	7	17	24	38.1
Abstinence	3	9	12	19.0
Withdrawal	1	1	2	3.2

When asked about awareness and having used FP methods (Figure 2), the most common FP methods that the respondents were aware of, were condoms (71.6%, n=106 out 126 respondents); followed by pills (66.9%, n=99 out of 128 respondents); and injections (52.7%, n=78 out of 126 respondents). Far less than 50% of the respondents were aware for each one of the other methods. Of those 106 who indicated being aware of condom as a FP methods, 12 (11.3%) said they are either currently using it or have ever done so, and for those 78 aware of injections, there were 4 (5.1%).

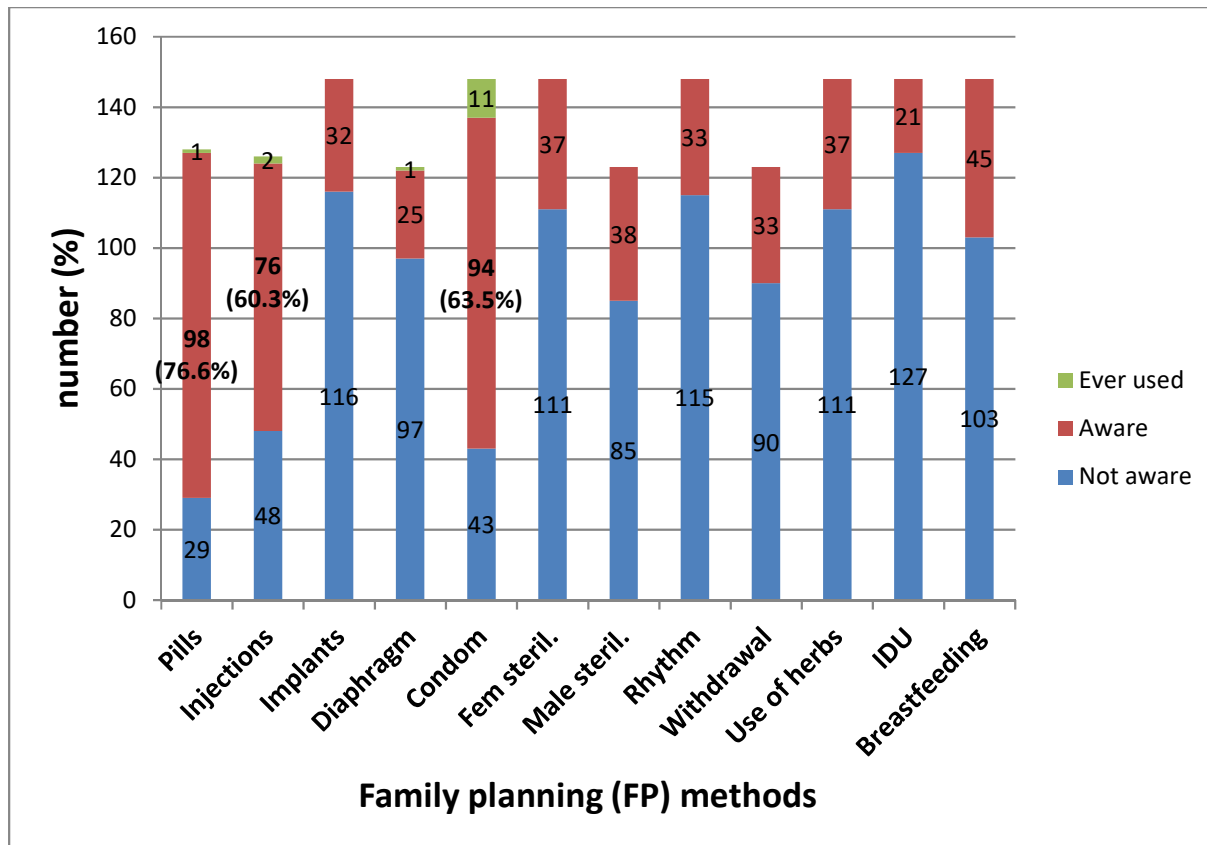


Figure 2: Awareness and use of family planning methods among HIV infected adolescents attending the University Teaching Hospital Pediatric Center of Excellence

A total of 76/148 participants (51.3%) were able to give at least one benefit of delaying pregnancy including 26 males and 50 females; while other 72/148 (48.7%) did not respond. Some of the benefits given were:

*“you get to have pregnancy when you are ready for it but still have an active sexual life”;*

*“A person is able to complete their education and have children when they are able to support them”;*

*“to enable you to plan what to do after the child is born, because it may bring problems”;*

*“being free from pregnancy can make you at least do something like job”*

*“fulfill your dreams and goals without having to worry about and early pregnancy”*

*“the risk of losing the child and mom are higher when the body is not fully developed”*

### ***Knowledge and beliefs on Sexually Transmitted Infections***

A large majority of respondents 130 (87.8%) out of 148 indicated knowing about infections or disease that can be transmitted through sexual intercourse (Table 6). As to whether they could list some STI that they know, 105 responded yes, and of these 104 (70.3%) were able to cite at least 1 STI (one person couldn't list any), while the remaining 43 did not answer. Furthermore, only 65 (43.9%) could mention an STI symptom. Only 66.7% said they knew how STI is acquired. On how to prevent STIs, condoms was the most frequent method mentioned (68/115; 59.1%), and abstinence (62/115; 53.9%).

Table 6. Knowledge and beliefs about STIs among 15-19 years HIV positive adolescents attending the pediatric center of excellence (PCOE)

<b>Knowledge and beliefs about STI</b>	<b>Number</b>	<b>Total respondents</b>	<b>%</b>
Aware of STIs	130	148	87.8
Can cite an STI	104	148	70.3
Knows how STIs are transmitted	86	129	66.7
Can mention an STI symptom	65	148	43.9
Knows STI prevention method	115	148	77.7
Use of condom	68	115	59.1
Abstinence	62	115	53.9
Believes danger of not treating STIs is	86	148	58.1
Death	58	86	67.4
Transmission to others	9	86	10.5
Infertility	6	86	7.0
Would inform partner if have STI	87	122	71.3

When asked about the STI they know and could cite, of 104 (70.3%) respondents, Syphilis was the most cited (84 times) followed by gonorrhoea (79 times), and HIV/AIDS (62 times). Other STIs were cited less frequently as show in Table 7.

Table 7. STIs that HIV positive adolescents know about and were able to list down, expressed in number of times they were mentioned

<b>STI listed by adolescents (n=104)</b>	<b>Frequency</b>
Syphilis	84 times
Gonorrhoea	79 times
HIV/AIDS	62 times
Chlamydia	12 times
Herpes	12 times
HPV (cervical cancer)	7 times
Trichomonas	2 times
Genital warts	1 time

A total of 86 adolescents (58.1%) indicated what they believed could be dangers of not treating STI, among these, death was cited more frequently, 65.1% (56/86); infertility (6.9%), transmission to others (10.5%). Majority of respondents said they will be willing to inform their partner if they had an STI (71.3%), the main reason being that they feel it is the right thing to do, so the partner will get tested and treated, or so as not to infect partner. The remaining 35 (28.7%) either responded that they were unsure (14.7%), or simply wouldn't want to inform the partner (13.9%). Some of the reasons in quotes for being unsure or not willing to inform the partner were:

*“because she would either think she gave me the STI or I have been cheating on her”;*

*“because I wouldn't want him to leave me”;*

*“because she will think I'm unfaithful”;*

*“because I may not know the response or reaction to it”.*

Table 8. STI related symptoms ever experienced by 15-19 years old HIV positive adolescents attending the PCOE in Zambia

STI Symptoms ever experienced?	YES		NO		No response	
	Male	Female	Male	Female	Male	Female
Penile discharge	0	0	41	72	13	22
Vaginal discharge	0	6	41	70	13	18
Sores/wounds in private parts	4	14	39	66	11	14
Itching in private parts	8	20	36	61	10	13
Low abdominal pain	4	12	40	66	10	16

When given a list of STI related symptoms to select which ones they ever experienced, 22.4% of respondents (28 out of 125) reported itching in the private parts, 14.6% (18 out 123) mentioned having sore/wounds in the private parts, 13.1% (16 out of 122) reported low abdominal pain, and 5.1% indicated vaginal discharge. Table 8 shows a full summary of the STI symptoms selected and their frequencies as indicated by the study population. Overall, 42 out of 127 adolescents have ever suffered from at least 1 STI related symptom. The same information is presented in Figure 3 with the frequencies of the symptoms.

### ***Access to Sexual reproductive health services***

The majority 120 of 130 (92.3%) adolescents' respondents indicated not having any challenges accessing health services in general at the study clinic. Of the few 10 (7.7%) who said they have had challenges, one person mentioned as reason that "*sometimes at the clinic they run out of medicine*" another person said the clinic is "*too crowded*".

Concerning the waiting time in general to receive health service, 108 (77.7%) of the 128 respondents thought it was just ok while 20 (14.4%) indicated that it was long; and 11 (7.9%) felt

it was short. Majority, 107 (84.9%) respondents, said that there was privacy in the counseling and treatment room, while 19 (15.1%) respondents said there wasn't.

As to whether they ever used SRH services in particular at the clinic, 104 (77.0%) said no, and only 31 (23.0%) said yes; of these, 19 (61.3%) said they felt comfortable, 9 (29.0%) felt somewhat comfortable, and only 2 (6.5%) didn't feel comfortable, and 1 person did not respond.

The majority of these 31 adolescents who have ever sought SRH services said the way they were treated (n=26; 83.9%) was good to very good; while 3 said they were treated fairly, and 2 felt they were treated very poorly. Of the SRH issues which they visited the clinic from among 27 respondents, STI was the most cited (16 times), followed by issues to do with how the body matures as one grows up (9 times), issues to do with sexual activity and behavior (5 times), and issues related to child bearing and family planning (2 times). When asked whether they got the help they wanted, all 28 who responded said yes, while the remaining 3 didn't answer.

#### *Access to Sexually Transmitted Infections services*

As to where they would seek or access treatment if they had an STI, 131 (88.5%) participants responded and 17 (11.5%) did not; among those who responded, PCOE was mentioned 62.6% (82/131) of the times, while nearest clinic was mentioned at a rate of 40.4 %, followed by private clinic (19.0%), and pharmacy/drug store, 4.6%.

Only 10 of the respondents could think of a last time they suffered from an STI. Of these 9 said they were able to seek treatment, while one person did not because did not know where to go. Of the 10 who sought treatment, 5 did so from the study clinic (PCOE), 2 went to a private clinic, 1 went to a nearest health center to home, and the last person went to a traditional healer.

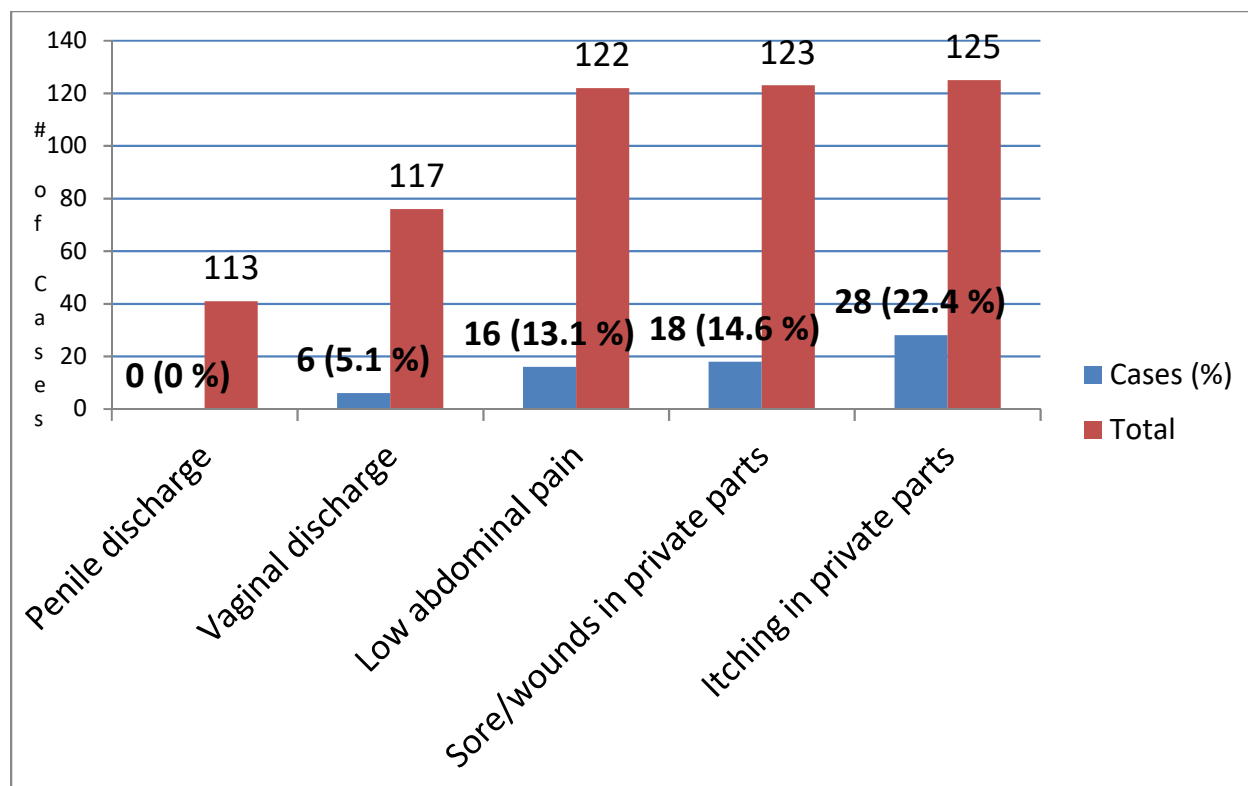


Figure 3. STI related symptoms ever experienced by HIV positive adolescents aged 15-19 years attending the pediatric center of excellence (PCOE)

#### *Access to family planning services*

Out of those sexually active adolescents who use condoms, the majority 12/16 (75.0%) said they access it from shops/drug store while only 4 (25.0%) access it from the clinic.

Only 28 adolescents responded to whether they have access to FP services; of these, 21 (75.0%) respondents indicated that they have access FP from the clinic or hospital.

#### *Access to counseling services*

A total of 27 out of 137 respondents (19.7%) have ever gone to the hospital to seek advice on issues related to sex. Fifty seven of 138 (41.3%) said they know where to go when they want to

talk about sex; of which 36 (67.9%) mentioned counselors/HCWs at the clinic and 17 (32.1%) mentioned friends, parents, and relatives. A total of 55.3% said they are able to discuss or get advice from parents/caregivers on sexual issues (73/132).

Regarding information on sexuality, 83.2% of the respondents (n=113) indicated having access at PCOE while 16.8% said they did not access it from there. Only 20.9% of the adolescents said they belong to an HIV/AIDS peer support group, of these the majority (27/31) said it was useful. Here are some quotations from the respondents on support group:

*“they believe I now make informed decisions and show signs of maturity”*

*“my family is happy and I live positive life”;*

*“As a family it helps all to understand what you are going through”*

*“it has put my family in pressure to support during live”*

*“it has helped them on learning to live with someone who is positive”*

### ***Determinants of access to SRH services***

In this study, access to SRH services by of the HIV infected adolescents respondents was defined in terms of both availability (knowledge of where to go if in need) and utilization (having actually used the given services). Access through availability of services was defined by a composite of 4 variables or indicators, and utilization by 2 variables; positive response rates for individual variables or indicators are shown in Table 9; A yes to any one of the indicators within the composite variable confers a yes to the composite variable. Binary logistic regression analyses were carried out for each individual variable against various factors (age, sex, schooling, residence, distance, religion, etc...) as described in the methods. One of the findings was that 41.3 % of

adolescents knew where to go to talk about sex, and only 19.7% have actually ever gone to a doctor or health clinic to get advice on anything related to sex. It was interesting to note that adolescents not in school were not only more than 2 times more likely to know where to go to talk about sex (OR= 2.53; 95% CI:1.10-5.82; p=0.02), but were also more than 2 times more like to have actually gone to seek advice on sexual issues (OR=2.61; 95% CI:1.04-6.58; p=0.03). Belonging to a peer support group was also a positive predictor of not only knowing where to go but to have actually ever gone to seek advice on sexual matters (OR=2.78; 95% CI:1.06-7.27; p=0.03). There was also a significant correlation between ever gone to seek counseling on sex and knowing ways to delay pregnancy (OR=2.60; 95% CI:1.06-6.41; p=0.03). Not in school was also found to be a significant predictor of knowing that they could access STI service at the PCOE as opposed to going to a private clinic (OR=2.7; 95% CI:1.03-7.41; p=0.03). The wider confidence obtained in some of these results could be due to the smaller sample size in the study.

Based on meeting at least one of the 2 variables (ever gone to the clinic to obtain advice on sexual matters or ever used a SRH service at the clinic), 33.3% (n=48 out of 144 respondents) were found to have access to SRH services at the study clinic. In terms of counseling services, 74.5% adolescents were found to have access. Overall availability based on a composite of 4 variables was determined to be 94.5 %, and overall access was found to be 95.3%.

Table 9: Rate of access to sexual reproductive services as determined by positive response to variables related to knowledge of availability or actual utilization, among 15-19 years old HIV positive adolescents attending the pediatric center of excellence (PCOE)

<b>Variable</b>	<b>Type</b>	<b>Yes</b>	<b>Total</b>	<b>%</b>
Ever gone to the clinic to obtain advice on sexual matters	Utilization	27	137	19.7
Ever used SRH services at the clinic	Utilization	31	135	23.0
Know where to go to talk about sex (counseling)	Availability	57	138	41.3
Information on sexuality available to you (counseling)	Availability	94	113	83.2
Know where to access FP services (FP)	Availability	19	28	67.9
Know where to go to seek STI treatment (STI)	Availability	82	131	62.6

Optimal access based on cross comparison between availability and utilization indicated that 47 (31.8%) meet both requirements of having SRH services available to them and have ever used them. Majority 93 (62.8%) indicated availability to them but have never used them. The remaining 8 (5.4%) adolescents came out not to have services available to them, although 1 of them somehow indicated having ever utilized.

Factors that may be associated with having services available and utilizing them were explored. It was found out that none of age, sex, education, religion and other factors as shown in Table 10 were significant predictors for accessing SRH services at PCOE.

Table 10. Access through utilization and associated factors among 15-19 years old HIV positive adolescents attending the pediatric center of excellence (PCOE)

	Cases	No	Total	%	OR	LCI (95%CI)	UCI (95% CI)	p-value
<b>Sex</b>								
Male	21	33	54	38.9	1.00			
Female	39	55	94	41.5	1.11	0.56	2.21	0.75
<b>Age Category</b>								
15-17	32	56	88	36.4	1.00			
18-19	28	32	60	46.7	1.53	0.79	2.99	0.21
<b>Have a boy/girl friend</b>								
No	32	50	82	39.0	1.00			
Yes	26	29	55	47.3	1.40	0.70	2.80	0.33
<b>Live with</b>								
Guardians/Relatives	21	21	42	50.0	1.00			
Parents	32	44	76	42.1	0.73	0.34	1.55	0.4
<b>Religion</b>								
Catholic	17	28	45	37.8	1.00			
Protestant	35	44	79	44.3	1.31	0.62	2.77	0.47
<b>Level of education</b>								
No to primary	4	11	15	26.7	1.00			
Secondary	51	63	114	44.7	2.23	0.67	7.41	
Coll and above	5	14	19	26.3	0.98	0.33	2.91	0.163
<b>Source of information</b>								
Others	26	48	74	35.1	1.00			
Health education	32	34	66	48.5	1.74	0.88	3.43	0.11
<b>Belong to a support group</b>								
No	44	64	108	40.7	1.00			
Yes	14	17	31	45.2	1.20	0.54	2.68	0.66

## 4.2. Healthcare workers case study

A total of 12 health care worker key informants accepted to be administered an in-depth interview to talk about SRH services being offered and the challenges they encounter. Table 11 summarizes the different HCWs cadres interviewed.

From these interviews, apart from one HCW who said they are trained and have time and resources, it emerged from the majority of informants that one of the main challenges, was time needed to be dedicated to SRH issues of the adolescents; limited resources (such as for training, laboratory testing, etc...) was also cited as one of the challenges faced by the HCWs at the PCOE. Training workshops and counseling generally do not adequately address different types of contraceptives. One HCW voiced the need for a 24 hours one stop center where all services including SRHS will be covered.

Table 11. Distribution of healthcare worker key informants at the pediatric center of excellence (PCOE)

HCW category	Number	
	Male	Female
Doctors	1	1
Nurses counselors	0	6
Adolescent psychologist	0	1
Family support unit nurse	0	2
Teacher (educator)	0	1
Total	1	11

Some of the HCWs said they don't always have the answers to all the questions; in which case they sometime refer the adolescents to a colleague or a senior medical officer, and sometime to the internet. One of the key informants indicated that as a result of the challenges encountered, they now have 3 girls who are pregnant.

Lack of defined policy for adolescent, lack of usage of defined age range, lack of skill by providers; disaggregation of adolescent data not defined; lack of TWG on Adolescents, lack of FPP, lack of coordination, inadequate, quality, accessibility of condoms; inadequate test kits & reagents; inaccessibility of contraceptives; lack of information SRHR, some health workers are barrier, inadequate numbers of skilled manpower; lack of incentives for CHW, services not equal to demand; lack of advocacy to increase demand; lack of evidence-based research, social norms lead into adolescents shying away from services

### **4.3. Triangulation**

The current study was carried out using mixed methods to assess adolescent's access to SRH. The combination of the 2 methods was aimed at providing perspectives from both the adolescents and the health care providers. Overall, there was concordance between the information obtained from both adolescents and HCWs: mainly that the adolescents were sexually active and needed SRH services. The services that were available covered the 3 main areas, such as counseling on sexual and reproductive health issues. While some of the services were available according to the HCWs and as confirmed by adolescents utilizing them; it came out that the spectrum of services did not address all the needs of adolescents. For instance, there was no STI testing provision at the PCOE, although adolescents are said to be referred to be tested elsewhere.

Some of the SRH concerns that adolescents bring to the attention of HCWs included fear of losing a girl/boyfriend, fear of stigma, being mocked; getting married and having children and whether they will be negative, some are confused around their sexuality as to whether they are already adults or still children. One of the main concerns of the girls is wondering whether they could engage in sex and if condoms can really be the best contraceptive. Some express the need for a 24 hours service for them.

Culture was also cited as a barrier to openness to discuss SRH issues. They are more open while at adolescent corner and talking with the psychosocial counselor; and sometimes they shy and fear to talk to the counselor. They are apparently more open when they are among themselves. There was no clear cut tendency as to whether the boys were more open than the girls, or vice versa; the HCWs were almost split in the middle on this point.

## CHAPTER FOUR: DISCUSSIONS

HIV infected adolescent sexual reproductive needs are similar to that of general population of the same age: counseling in sexual matters, FP and STI services (Birungi et al., 2008). Their HIV condition raises worries as to being able to fulfill their sexual and reproductive desires; hence the needs for adequate SRH services to address these concerns. A survey of HIV infected adolescents 15-19 years in this study showed that majority have experienced their sexuality; they have sexual desire and needs, some were in friendship and majority have intention to have healthy children. This is consistent with a study on Sexual Reproductive Health needs of adolescents peri-natally infected with HIV in Uganda, where they also expressed the desire to have children (Birungi et al in 2008). A similar study on ART adherence and reproductive health among adolescents living with HIV (ALWHIV) in Ndola and Kitwe, Zambia (FHI, 2013), found that 31% of ALWHIV have boy/girlfriend, a rate lower than the 40.1% found in this study; however the same study in Ndola and Kitwe found a higher rate (21%) of ALWHIV who have had sex, compared to this study (15.1%). The 15.1% of HIV infected adolescents aged 15-19 in this study were found to have ever had sexual intercourse, is quite low compared to the rate 35% in 2009 and 44% in 2005, among general adolescent population of same age range, according to the Sexual Behavior Survey (ZSBS); this may suggest that because of their status, HIV positive adolescents are delaying in sexual debut. While more adolescent girls (41%) than adolescent boys (30%) reported having ever had sex in the 2009 ZSBS, the current study revealed lower rates overall among HIV infected adolescents, with rate among girls (13.1%, n=91) lower than in boys (18.7%, n=48).

In another study in 2010 among 111 ALWHIV in Zambia, about 50% adolescents were in sexual relationship and the sexually active adolescents tended to be older; among them, 6 were married and 28 of them were planning to have children in the future. Only 2 that had not disclosed their

HIV status to their sexual partner mainly for fear that it could end their relationships (Gitau-Mburu et al., 2010). Similar findings were obtained in another study in Zambia (Hodgson et al., 2012). A study of 54 perinatally infected adolescents in Northern Thailand found that nearly half – 48 percent – had never disclosed their status to anyone (Oberdorfer et al., 2006). Delaying disclosure has been shown to adversely affect treatment adherence and overall psychological well-being and may also affect family functioning adolescent social and academic life (Ferris et al., 2007; Nabukeera-Barungi N et al., 2007; Bikaako-Kajura W et al., 2006); however a recent review of 14 published studies revealed mixed impact of disclosure on adherence, including no impact, negative and positive impact (Nichols et al., 2016). The majority (62.4%) of the adolescents became aware of their HIV serostatus between the ages of 10 – 14; 12.02 % before the age of 10; while 25.6% only became aware at 15 or older. According most literature, disclosure is a process and all HIV infected adolescents should have been fully disclosed to by age 14. Some reports indicate that disclosure should start at the age of 5 years and then full disclosure should be made at the age of 12 years (Heeren et al., 2012; Seema, 2013; WHO, 2011). Overall, the recommended age for disclosure ranges between 10 years and 13 years. For example, in India, the mid teen years are considered the acceptable age of disclosure. In a prospective study, it was shown that the age at disclosure decreased significantly over time (Butler et al., 2009).

In this study 10.0% of the HIV positive adolescents had their first sex before the age of 15 years compared to 16.2% of male and 12.3% female of the same age group (15-19years) obtained among the general population of adolescents in the Zambia Demographic Health Survey conducted in 2007 (CSO et al., 2007).

Condoms and pills were the most known FP methods among the study participants. Overall, only 61.1% of sexually active respondents reported using condoms consistently. This represent a lower

rate as compared to 74 % among similar HIV infected adolescent population in Uganda (Birungi, 2008). The rate of consistent use (61.1%) of condoms in this study correlates well with the 61.9% who indicated having used it in the last sexual intercourse; a finding that provides further providing confirmation as found elsewhere (Younge et al., 2008) that condom use at last coitus is a valid proxy for condom use behaviors spanning longer time periods.

The knowledge about STIs was relatively high (87.8%) among adolescent population in this study, with 70.3% being able to name at least STI, as compared to a rate of 44% of general population adolescent of the same age in a study in Pakistan (Raheel et al., 2007).

Adolescents that were out of school were found to be 2 times more likely to know where to go to talk about sex and having ever sought advice on sexual matters. Although reaching out-of-school adolescents has usually been a challenge, this is not the case from this study, as compared to their counterparts in school. Having to keep a regular school schedule for those in school could sometime be a challenge.

SRH services are available at the PCOE, with an adolescent corner, workshops, but limited number of ALWHIV access the service. This is consistent with the limitations at the PCOE in terms time and resources for healthcare workers to address all the needs of the adolescents. Some studies have identified the lack youth friendly corner and workshops as a gap (Speizer et al., 2003); but this was not exactly the case in this study, as there was a youth corner with specific days for them.

There was no significant factor that predicted access to SRH or not, probably due the homogeneity of the group studied. On binary analysis, there was no significant correlation between access and factors studied, and hence, adjusted ORs were not assessed. Not finding significant or dominant factors correlated to access may be due to the fact that the youth population studied is homogenous

and the standard of services is maintained across the adolescents seen at the facility. Other studies have found showed significant predictors of access to SRH such as level education and, our study did not find such a correlation.

A study among Kenyan and Zambian nurse-midwives on their attitude toward adolescent sexual and reproductive health problems revealed that nurse-midwives disapproved of adolescent sexual activity, including masturbation, contraceptive use and abortion, but also had a pragmatic attitude to handling these issues (Warenius et al. 2006).

Some limitations of this study could be that this was a hospital based study design and only collected data on adolescents at the PCOE. The finding may not be generalized to the general population because the study site was selected conveniently to accommodate time and financial constraints, although this is currently the only reference center of excellence where most adolescents are sent from not only Lusaka but also from across the country.

## **CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS**

### **5.1. Conclusions**

Majority of HIV infected adolescents 15-19 years have sexual desire and needs. Some are already engaged in sexual activities and having to deal not only with their HIV condition but the full scale of challenges associated with going through adolescence into adulthood. SRH services are available at the PCOE although, not all areas are currently covered such as full provision of STI testing and pregnancy screening. HCWs are available to provide the services but still face challenges in terms of adequate training, time and resources dedicated to these services. This translated in lower rate of access (31.8%) in terms of both availability and utilization.

### **5.2. Recommendations for policy, research and interventions**

Measures need to be taken to address the gaps identified in the provision of services and making them more readily accessible to this particularly vulnerable population; this may require to develop new guidelines, ensure better age disaggregation to provide targeted services, and ensure adequate budget allocations. Emphasis should be put in undergraduate training, in-service training and continuing education, to help health care workers learn how to deal more empathetically with the reality of adolescent sexuality. Youth friendly corner should be designed to provide one-stop center for adolescent overall health care needs and to create an environment that is more tolerant of adolescent sexuality (Warenus et al., 2006); to include health information, family planning and STI services

At the policy level, the following issues should be addressed: informed consent, confidentiality, and autonomy in a group; training of HCWs; and provision of quality care beyond centers of excellence like PCOE, to be accessible at low level health care settings (Lowenthal et al., 2014).

Suggestions for interventions and research have been made to address the population, following the global effort being led by WHO and UNICEF (WHO, 2013).

Intervention and research priorities should be aimed at addressing specific issues to do with this rapidly growing and vulnerable population, including disclosure, adherence, stigma, and transitioning.

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APPENDICES

Appendix 1: Study questionnaire

Access to Sexual Reproductive Health services of Adolescents Living with HIV /AIDS at the Center of Excellence- UTH, UTH Lusaka.

Questionnaire- your answers are confidential and extremely important.

Starting time -----

Patient ID: -----

Section 1: characteristics of the respondent

- 1. Sex:  Male  Female
- 2. In what day, month, and year were you born?

Day		Month		Year			

- 3. How old were you in your last birthday? \_\_\_\_\_
- 4. Place of residence: \_\_\_\_\_
- 5. Phone: \_\_\_\_\_
- 6. What is the highest level of education you attained:

- No school  Secondary
- Primary  Tertiary (college and above)

7. What source of health information do you use or have access? **check all that apply**

- Telephone  Radio  Television
- Newspapers  Health education talks  Community health talks
- Others (specify) \_\_\_\_\_

8. Are you in school?

- Yes  No

If not in school, are you

- Unemployed  Employed
- Others (specify) \_\_\_\_\_

9. Religion:

Catholic     Muslim     Saved/Pentecost     Protestant

Others (specify) \_\_\_\_\_

10. Who do you live with?

Mother and father     Mother only     Father only     Grand parent

Guardian/relative     Alone

11. In general, how would you rate your health?

Excellent     Very good     Good     Fair     Poor

12. Has your health interfered with social activities?

Yes     No

if yes explain \_\_\_\_\_

13. Does your health interfere with household task or work? Like change bed sheets, clean room, cook, dust, fold clothes, take out trash, wash the car, sweep the floor, make the bed, mop, and laundry

Yes     No     Sometimes

If yes explain how \_\_\_\_\_

14. How often do you visit the clinic?

2 times or more per month     Every month  
 Every 3 months     Every 6 months

15. How many times in the last 1 year have you been hospitalized? \_\_\_\_\_

16. Do you have any other health problems or issues you want to talk about?  
\_\_\_\_\_

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## Section 2: HIV/AIDS issues

This section is going to talk about HIV, what you know about HIV, how one can acquire HIV, what are the modes of HIV transmission, and how to prevent it. ***As always your answers are confidential and extremely important***

17. At what age did you become aware that you are living with HIV? \_\_\_\_ years

18. Were you told about how you might have acquired the HIV infection?

I don't know     Mother to child transmission

Through using sharp contaminated instruments

Other (specify) \_\_\_\_\_

19. Who disclosed your HIV status to you?

Health care provider  Parents  Relatives  Others (Specify) \_\_\_\_\_

20. Were you referred from another clinic, center or hospital?

Yes  No

If yes name of the clinic \_\_\_\_\_

21. Have you ever accessed HIV/AIDS care anywhere else?

Yes  No

If yes why did you have to change to this clinic?

\_\_\_\_\_  
\_\_\_\_\_

22. For how long have you been receiving care at PCOE?

\_\_\_\_ Years \_\_\_\_ months

23. When were you transferred from PCOE to the ACOE?

1-5 months ago  6 -11months ago  one year ago  2years ago  >3years

24. Are you currently taking ARV?

Yes  No

If yes, how long ago were you started on ARV?

Less than 1 year  1-2years  3-4 years  More than 5 years

If not on ARV, can you explain why?

\_\_\_\_\_  
\_\_\_\_\_

25. Do you have any challenges accessing health services in general at the clinic?

Yes  no

If yes, explain

Medical \_\_\_\_\_

\_\_\_\_\_

Non-medical \_\_\_\_\_

\_\_\_\_\_

26. Do you know the name(s) of the medication you are taking?

Yes, give names \_\_\_\_\_

No

27. How is the waiting time at the PCOE/clinic?  
 Short                                       Just OK                                       Long

28. Do counseling and treatment room allow for privacy?  
 Yes                                       No

29. Are you involved in any HIV/AIDS peer support group?  
 Yes                                       No

If yes, name the peer support groups you have ever been involved in \_\_\_\_\_

30. How useful are the support programs?  
 Not useful                                       Useful                                       Very useful

31. Give suggestions to improve the peer support group?

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### Session 3: Introduction to Sexual Reproductive Health (SRH)

This section introduces you to sexual reproductive health and issues related to it. Sexual reproductive health relates to issues to do with how your body matures as grow up, your sexual activity and behavior, bearing children and family planning, sexually transmitted infections. ***As always your answers are confidential and extremely important. Honesty will be appreciated.***

32. As you have been growing up, what have you learned about how your body changes during puberty? \_\_\_\_\_

33. Do you know about infections or diseases that are transmitted through sexual intercourse  
 Yes                                       No

34. Have you ever gone to the doctor or health clinic to get advice on anything related to sex?  
 Yes                                       No

35. Do you know where to go when you want to talk to someone about sex?  
 Yes                                       No

If Yes where: \_\_\_\_\_

36. Have you ever used sexual reproductive health services at this clinic?  
 Yes                                       No

If yes, select among the following all sexual reproductive issues you visited the clinic for:

Issues to do with how your body matures as grow up,

Issues to do with your sexual activity and behavior,

- Issues to do with bearing children and family planning,
- Issues to do with sexually transmitted infections.

37. Did you get the help you wanted?

- Yes                      no

38. How comfortable did you feel using this sexual reproductive health services at the clinic?

- Not comfortable                      somewhat comfortable                      Comfortable

39. How were you treated

- Good                      Fair                      Very poor                      Very good                      Poor

## Section 4: Sexuality / Sexual behaviors

This section is going to talk about your sexual activity and to gain a better understanding of some issues you may be facing. ***As always your answers are confidential and extremely important.***

40. What is your current marital status?

- Single                      Married                      Cohabiting                      Never married
- Divorced/separated    Widowed

41. If married or cohabitating, do you live together with this partner?

- Yes                      No

42. Do you intend on having children in your life?

If yes, how many? \_\_\_\_\_

If not, state the reasons \_\_\_\_\_

43. Do you have a girlfriend/boyfriend?

- Yes                      No

44. Have you ever had sex?

- Yes                      No

**If no, jump to question 61**

If yes Age at first sex

- Less than 10 years    10-12 years    13-14 years
- 15-16 years                      16 years                      17 years or older

45. At the time you had the first sexual intercourse, what was your relationship with your sexual partner

- Spouse                      Fiancé                      Girlfriend/boyfriend                      Friend
- Acquaintance Just met                      Relative                      Forced intercourse

Other (specify)       Don't remember

46. How old was the person whom you had sexual intercourse with for the first time?  
\_\_\_\_ years       younger       older       same age       Don't know

**Following are some personal questions, as always your answers are confidential and extremely important.**

47. The first time you had sexual intercourse, would you say you were forced into it against your will?  
 Yes       no       Don't want to answer

48. When was the last time you had sex?  
 7 days ago       2 weeks ago       2 months ago       years ago

49. Was the condom used in the last sexual intercourse?  
 Yes       no

50. With how **many partners** have you had sex in the last 6 months?  
 None       only one       2       3-4       5 and above

51. Have you had the chance to inform your sexual partner about your HIV status?  
 Yes       No       Don't want to answer

If yes, what was the sexual partner reaction?

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52. Has your sexual partner been tested for HIV?  
 Yes       No       Don't know

53. Does your sexual partner have another sexual partner beside you?  
 Yes       No       Don't know

54. Do you use condom during sexual intercourse?  
 Always       Sometimes       Never

55. Where do you access the condom?  
 Clinic/PCOE       Shops       Peer educator       Drug store

56. Are the condoms free/available to you?  
 Yes       No

57. Have you or your sexual partner ever been pregnant?  
 Yes       No

If yes, when did you or your sexual partner become pregnant?

Before I became aware of my HIV status       After I became aware of my HIV status

58. Was the pregnancy intended or planned?  
Yes      No

If the pregnancy was intended or planned, who initiated the idea to have a child?

Husband      Self      Both self and partner      In laws

Others (specify) \_\_\_\_\_

59. When would you consider giving birth again (having another child)?  
 No intention at all     In the next six months       in the next 12 months  
 After one year       I don't know

60. Give reasons for your choice  
\_\_\_\_\_  
\_\_\_\_\_

61. Is information on sexuality available to you at the PCOE/ clinic?  
Yes      no

## Section 5: Family planning

Now, the following questions are going to talk about your body as you are growing up, and your aspirations around bearing children. ***As always your answers are confidential and extremely important.***

### For Girls only

62. At what age did you started your menses?  
10-12 years      13-14 years      15>

63. How many times do you menstruate in a month  
Once a month      Twice a month      Three or more

64. How many days do you menstruate in a month?  
3-4days      4-5 days      5days>

65. How many days do you usually take without menstruation or before your next menses  
Less than 21 days      21 days      28 days  
30 days      More than 30 days      Don't know

66. What was your last menstrual period? (DD/MM/YYYY) \_\_\_\_\_

67. How many days did you take from last menstrual period to the next recent one in your last cycle?

- Less than 21 days
- 30 days

- 21 days
- More than 30 days

- 28 days
- Don't know

**For boys and girls**

68. Do you know of anything one can do to delay a woman becoming pregnant?

- Yes
- No

If yes, what can you do?

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69. Do your parents/caregivers discuss or advise you on sexual issues?

- Yes
- No

70. In your opinion, what is/are the benefits of delaying pregnancy?

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**71. What family planning (FP) methods are you aware of? Sources of information. Ever used and/or currently using? Tick every boxes that apply to you**

Family planning	Aware of		Ever used		Currently using	
	yes	no	yes	no	yes	no
1-pill						
2-injections						
3-implants						
4-diaphragm, foam, jelly						
5-Condom						
6-female sterilization						
7- male sterilization						
8- rhythm, counting days						
9- withdrawal						
10- use of herbs						
11- IUD(Intra Uterine Device)						
12- breast feeding						

72. Is your partner/spouse comfortable with using family planning methods?

- Yes
- No
- No partner

73. Where do you access/get family planning services?

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## Section 6: Sexually Transmitted Infections (STIs)

*As always your answers are confidential and extremely important.*

This section will talk about sexually transmitted infections (STIs), which are infections that you can get from having sex with someone who has the infection. The causes of STIs are bacteria, parasites and viruses. There are more than 20 types of STIs, including:

Chlamydia, Gonorrhea, Genital herpes, HIV/AIDS, HPV, Syphilis, Trichomoniasis

Most STIs affect both men and women, but in many cases the health problems they cause can be more severe for women. If a pregnant woman has an STI, it can cause serious health problems for the baby.

74. Have you ever heard of someone/or yourself complaining of sores on the private part?

Yes

No

Unsure

75. Can you list some of the STI that you know?

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76. List the symptoms of STI

---

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77. Do you know how STIs are acquired?

Yes

No

Unsure

If yes, state how:

---

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78. How would you prevent transmission of STIs?

---

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79. If you had an STI, where would you seek treatment? (Select all that apply)

Health center nearest home

Private clinic

Pharmacy/drug stop

Traditional healer

Hospital /clinic (PCOE)

Others (specify) -----

80. What are the dangers of not treating STIs?

---

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81. In case you have a STI, would you be willing to inform your sexual partner?

Yes

No

Unsure

Please explain the response given above

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82. Have you ever suffer from any of the following symptoms? **Tick everywhere it applies to you**

	Yes	No
1-Penile discharge		
2-Vaginal discharge		
3-sores/wounds in private parts		
4-Itching in private parts		
5-low abdominal pain		

83. When did you last suffered from an STI? \_\_\_\_\_

84. Did you seek treatment?

Yes

No

If no, give reasons for not seeking treatment

---

---

If yes, where did you obtain treatment?

Health Centre nearest home

Private Clinic

Pharmacy

Traditional Healer

Hospital /PCOE

Others (specify) \_\_\_\_\_

***The following are final general questions about the clinic. As always your answers are confidential and extremely important. Remember answering this questionnaire will not deny the care you are receiving***

85. Overall, are you satisfied with sexual reproductive health services offered at this clinic?

Not satisfied

Somehow satisfied

Satisfied

86. What do you think should be improved?

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87. What impact your attendance to the clinic has had on your personal life in general?

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88. What impact your attendance to the clinic has had on your family's life

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89. Is there a transparent, confidential mechanism for adolescents to submit complaints or feedback about Sexual Reproductive Health services at this facility?

Yes

no

90. Do you have anything else you want to say? \_\_\_\_\_

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**Interview ended at (time):** \_\_\_\_\_

*Thank for your participation*

## Appendix 2: Information sheet

Good morning/afternoon. My name is \_\_\_\_\_ from \_\_\_\_\_.

We are conducting interviews with adolescents attending this hospital about their sexual and reproductive health needs and access to services. The purpose of this study is to gather information to help us develop services and educational programs to promote the health of young boys and girls.

I would like your permission to talk with you today about your ideas and experiences related to your reproductive health and sexuality. It is up to you if you wish to answer any or all of my questions.

The data collection process will be conducted in a manner that is comfortable for each person, and in which you are able to speak openly and honestly.

No one will charge you for your participation or give you any money, whether or not you agree to the interview.

You may end our discussion or seek clarification at any time.  
You are free not to answer questions you may deem personal or for any reason

Everything you say will be kept private and confidential.

I want also to assure you that your participation will not affect the services that you receive from this hospital. You will receive the same standard of care whether you participate or not.

If you have any questions you may ask me or contact \_\_\_\_\_ at \_\_\_\_\_.

You can also contact the UNZABREC at:  
Biomedical Research Ethics Committee  
University of Zambia  
Ridgeway Campus  
P.O.Box 50110  
Lusaka, Zambia  
Tel: 256067  
Fax: 250753

**Appendix-3: Informed consent agreement form**

A study is being conducted among adolescents attending the Pediatric Center of Excellence about their sexual and reproductive health needs and access to services.

The purpose of this study is to gather information to help us develop services and educational programs to promote the sexual reproductive health of young boys and girls.

If you agree to participate in this interview, please initial/sign this page. Your name will not be used in any report, but your ideas and suggestions will help us to better meet the needs of young boys and girls like you. You are free not to answer question you may deem personal or for any reason

If you do not wish to participate, thank you for your time.

\_\_\_\_\_ Yes, I agree to the interview  
\_\_\_\_\_ No, I do not agree to the interview

Date: -----

Witness: -----

(Example: a relative or interviewer)

If you have any questions you may ask me or contact \_\_\_\_\_ at (Address, tel no.) \_\_\_\_\_.

You can also contact the UNZABREC at:  
Biomedical Research Ethics Committee  
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#### **Appendix 4: In-depth key informant interview guide**

1-What SRH services do you offer to adolescents?

2-What challenges do you encounter? (time, resources, etc...)

3-Are adolescent open to talk to you about their SRH concerns? Any differences between boys and girls?

4-What are the keys concerns they bring to your attention? For boys? for girls?

5-Do you always have answers to them? If not, which ones are you not able to respond to?

6-Where do your adolescent patients come from?

-from Lusaka area?

-from outside of Lusaka?