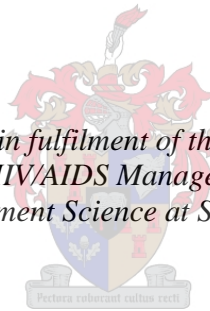


**An evaluation of the level of awareness about biomedical intervention for HIV prevention among the post secondary school youth in Richards Bay**

by

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*Assignment presented in fulfilment of the requirements for the degree of  
Master of Philosophy (HIV/AIDS Management) in the Faculty of Economic  
and Management Science at Stellenbosch University*



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April 2014

## **DECLARATION**

By submitting this assignment electronically, I declare that the entirety of the work contained therein is my own, original work, that I am sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: March 2014

## **ABSTRACT**

Despite various strategies such as biomedical, behavioural and political strategies to stop the spread of HIV epidemic among the youth, the risky sexual behaviour among the youth and the resultant increase in unwanted pregnancies is driving the spread of HIV transmission among the youth of Kwazulu-Natal. This study sought to evaluate the level of awareness of post secondary school youth who are living in Richards Bay in Kwazulu-Natal.

The researcher conducted the study within a quantitative paradigm. The population for this study are the post secondary school youth in Richards Bay. The data sources for this study will come from survey conducted using semi-structured questionnaire and from the focus group session. The data collection tool was distributed by referral using snowball sampling technique.

This study found that the level of general knowledge about biomedical strategies for HIV prevention is low among the youth in Richards Bay since most participants knew only about condoms as a strategy for HIV prevention. The study also found that a significant number of the study participants did not know about the role of circumcision in HIV prevention. In addition, the study found that level of knowledge about biomedical intervention for HIV prevention is higher in female participants than male participants. This study ascertained that the youth have good attitude towards biomedical intervention for HIV prevention though much mobilisation and education will still have to be done with regards to circumcision. The study also identified practices that may impede the use of biomedical strategies such as a lack of availability and accessibility to female condoms

The study recommends the need to educate and mobilise the community about biomedical strategies for HIV prevention such as condoms, circumcision, PMTCT, PEP, PrEP, HAART and VCT. The Umhlatuze municipality needs to create a massive awareness within Richards Bay about its available facilities and services like free circumcision and condom distribution outlets that can increase the uptake of biomedical strategies for HIV prevention. Also, the government needs to engage the faith based organisations and other NGOs to integrate biomedical strategies for HIV prevention in their awareness campaign. The study also recommends provision of female condoms in appropriate quantities like male condoms and that multimedia campaign against HIV-related stigma and discrimination should be intensified in Richards Bay.

## OPSOMMING

Ten spyte van verskeie strategieë soos onder andere biomediese, gedrags- en politiese strategieë om die verspreiding van die MIV-epidemie onder die jeug te vernietig, die onverantwoordelike seksuele gedrag onder die jeug en die gevolglikke toename in ongevraagde swangerskappe, veroorsaak 'n toenemende verspreiding van MIV onder die jeug van KwaZulu Natal (KZN). Hierdie studie beoog om die verskeie vlakke van bewusmaking van die naskoolse jeug wat in Richardsbaai (KZN) lewe te evalueer.

Die navorser het sy studie saamgestel op 'n paradigma gebaseer op kwaliteit. Die teikengroep vir hierdie studie is die naskoolse jeug in Richardsbaai. Die inligtingsbronne vir hierdie studie sal van die opname kom wat saamgestel is uit semi-gestruktureerde vraelyste en gefokusgroepe. Die data versamelingstechniek is versprei deur middel van 'n sneeuval effek.

Die studie het gevind dat die vlak van algemene kennis van bio-mediese strategieë vir MIV voorkoming laag is onder die jeug van Richardsbaai. Die meeste deelnemers het slegs geweet van die kondoom as voorsorg-strategie as 'n voorkoming vir MIV. Die studie het ook gevind dat 'n groot aantal deelnemers nie bewus was van die rol wat besnyding speel in die voorkoming van MHIV nie. Bykomend hier is gevind dat die vroulike deelnemers (in teenstelling met die mans) 'n hoër vlak van kennis gehad het rondom die bio-mediese rol in die voorkoming van MIV.

Die studie bevestig dat die jeug 'n goeie gesindheid het teenoor die mediese rol vir MIV-voorkoming, alhoewel heelwat kennisvaslegging en opvoeding gedoen moet word ten opsigte van besnyding. Die studie het ook verskeie praktyke geïdentifiseer wat die gebruik van bio-mediese strategieë kan belemmer soos 'n tekort aan en toegang tot vroulike kondome.

Die studie toon dat daar 'n behoefte is aan die opvoeding en mobilisering in 'n gemeenskap ten opsigte van die bio-mediese strategieë vir die voorkoming van MIV soos byvoorbeeld kondome, besnyding, PMTCT, PEP, PREP, HAART en VCT.

Daar bestaan 'n behoefte dat die Umhlatuze Munisipaliteit 'n massiewe bewusmakingsprogram moet loods binne die gemeenskap van Richardsbaai om beskikbare fasiliteite en dienste soos gratis besnyding en kondoomverspreidingspunte daar te stel.

Die staat het die taak om geloofsgebaseerde organisasies en ander NGO's betrokke te maak om bio-mediese strategieë en MIV-voorkoming te integreer.

Hierdie studie beveel die bevordering van die beskikbaarheid van vroulike kondome aan, soos in die geval van die manlike kondoom. Die studie ondersteun en beveel ook aan dat die multimedia veldtog teen MIV-verbode stigma en diskriminasie opgeskerp moet word in Richardsbaai.

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## Table of Contents

DECLARATION.....	i
ABSTRACT.....	ii
OPSOMMING.....	iii
ACKNOWLEDGEMENTS.....	v
TABLE OF CONTENTS.....	vi
LIST OF ABBREVIATIONS.....	ix
LIST OF TABLES.....	xi
LIST OF FIGURES.....	xii
LIST OF ADDENDUMS.....	xiii
CHAPTER ONE	
INTRODUCTION	
1.1 BACKGROUND.....	1
1.2 RESEARCH PROBLEM.....	2
1.3 RESEARCH QUESTION.....	3
1.4 SIGNIFICANCE OF THE STUDY.....	3
1.5 AIMS AND OBJECTIVES.....	4
1.6 STRUCTURE OF THE STUDY.....	4
1.7 SUMMARY.....	5
CHAPTER TWO	
LITERATURE REVIEW.....	6
2.1 CONDOMS.....	7
2.2 HIV VACCINES.....	8
2.3 MICROBICIDE.....	9
2.4 TREATMENTS AS PREVENTION.....	9
2.5 MEDICAL MALE CIRCUMCISSION.....	10
2.6 ACCEPTABILITY OF BIOMEDICAL INTERVENTION FOR HIV PREVENTION.....	11

2.7 KNOWLEDGE, ATTITUDE AND BEHAVIOUR TOWARDS BIOMEDICAL STRATEGIES.....	12
2.8 BENEFITS OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	12
2.9 BARRIERS TO BIOMEDICAL STRATEGIES FOR PREVENTION OF HIV.....	13
2.10 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	13
2.11 SUMMARY.....	14
CHAPTER THREE	
METHODOLOGY	
3.1 INTRODUCTION.....	15
3.2 RESEARCH SETTING.....	15
3.3 RESEARCH DESIGN.....	15
3.4 STUDY POPULATION.....	15
3.5 SAMPLING METHOD AND SAMPLE SIZE.....	16
3.5.1 SAMPLING METHOD.....	16
3.5.2 SAMPLE SIZE.....	16
3.6 DATA COLLECTION PROCESS.....	16
3.6.1 SURVEY.....	17
3.6.2 FOCUS GROUP.....	17
3.7 DATA ANALYSIS.....	17
3.8 VALIDITY AND RELIABILITY.....	18
3.9 ETHICAL CONSIDERATIONS.....	18
3.10 SUMMARY.....	18
CHAPTER FOUR	
RESULTS AND RESEARCH FINDINGS.....	20
4.1 INTRODUCTION.....	20



4.2 PART ONE: RESULTS OF THE QUESTIONNAIRE.....	20
4.2.1 DEMOGRAPHY.....	20
4.2.2 KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION.....	21
4.2.3 ATTITUDE TOWARDS BIOMEDICAL STRATEGIES.....	30
4.2.4 PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	39
4.2.5 OPEN QUESTIONS.....	51
4.2.6 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	55
4.3 PART TWO: RESULTS OF THE FOCUS GROUP SESSION	
4.3.1 BACKGROUND.....	56
4.3.2 KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION.....	57
4.3.3 ATTITUDE TOWARDS BIOMEDICAL STRATEGIES.....	58
4.3.4 PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	59
4.3.5 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION.....	60
4.4 SUMMARY.....	61
CHAPTER FIVE	
5.1 INTRODUCTION.....	62
5.2 DISCUSSION.....	62
5.3 CONCLUSION.....	67
5.4 RECOMMENDATIONS.....	67
5.5 LIMITATIONS OF THE STUDY.....	68
LIST OF REFERENCES.....	69
APPENDICES.....	74

## LIST OF ABBREVIATIONS

AIDS	Acquired immunodeficiency virus
APA	American Psychological Association
ARV	Antiretroviral
bNAbs	Broadly neutralising antibodies
CAPRISA	Centre for the AIDS programme of research in South Africa
CBD	Central business district
HAART	Highly active antiretroviral therapy
HIV	Human immune deficiency virus
HPTN	HIV prevention trial network
HSRC	Human Sciences Research Council
HSV2	Herpes simplex virus type 2
ICAD	Interagency coalition on AIDS and development
INAC	Italian National AIDS Centre
iPrEX	Pre exposure prophylaxis initiatives
MC	Medical male circumcision
NGOs	Non-governmental organisations
PEP	Post exposure prophylaxis
PLHIV	People living with HIV and AIDS
PMTCT	Prevention of mother to child transmission
PrEP	Pre exposure prophylaxis

SAAVI	South African AIDS vaccine initiative
SAMRI	South African microbicides research initiative
STI	Sexually transmitted infections
SU	Stellenbosch university
TasP	Treatment as prevention
Tat	Trans-Activator of Transcription
UNAIDS	Joint United Nations programme on HIV/AIDS

## LIST OF TABLES

Table 1: Combination HIV prevention

Table 2: Demography- Gender

Table 3: Demography- Qualifications

Table 4: Knowledge about biomedical intervention for HIV prevention

Table 5: Knowledge about biomedical intervention for HIV prevention (**Male**)

Table 6: Knowledge about biomedical intervention for HIV prevention (**Female**)

Table 7: Attitude towards biomedical strategies for HIV prevention

Table 8: Attitude towards biomedical strategies for HIV prevention (**Male**)

Table 9: Attitude towards biomedical strategies for HIV prevention (**Female**)

Table 10: Practices that may promote or impede the use of biomedical strategies for HIV prevention.

Table 11: Practices that may promote or impede the use of biomedical strategies for HIV prevention (**Male**)

Table 12: Practices that may promote or impede the use of biomedical strategies for HIV prevention (**Female**)

Table 13: Ways to prevent sexual transmission of HIV

Table 14: Ways to protect yourself from HIV infection

Table 15: Where to get condoms in Richards Bay

Table 16: Sources of information on biomedical strategies for HIV prevention

## LIST OF FIGURES

Figure 1: Recent Advances in Biomedical treatment for HIV prevention

Figure 2: Knowledge about biomedical intervention for HIV prevention

Figure 3: Knowledge about biomedical intervention for HIV prevention (**Male**)

Figure 4: Knowledge about biomedical intervention for HIV prevention (**Female**)

Figure 5: Attitude towards biomedical strategies for HIV prevention

Figure 6: Attitude towards biomedical strategies for HIV prevention (**Male**)

Figure 7: Attitude towards biomedical strategies for HIV prevention (**Female**)

Figure 8: Practices that may promote or impede the use of biomedical strategies for HIV prevention

Figure 9: Structures and community support that can facilitate the uptake of biomedical strategies for HIV prevention

Figure 10: Practices that may promote or impede the use of biomedical strategies for HIV prevention (**Male**)

Figure 11: Structures and community support that can facilitate the uptake of biomedical strategies for HIV prevention (**Male**)

Figure 12: Practices that may promote or impede the use of biomedical strategies for HIV prevention (**Female**)

Figure 13: Structures and community support that can facilitate the uptake of biomedical strategies for HIV prevention (**Female**)

Figure 14: Knowledge about prevention of HIV

Figure 15: Three ways to protect yourself from HIV infection

Figure 16: Where to get condoms in Richards Bay

Figure 17: Sources of information about new development in HIV epidemic

**LIST OF ADDENDUMS**

<b>Appendix 1:</b> Informed consent (Questionnaire).....	74
<b>Appendix 2:</b> Informed consent (Focus group).....	77
<b>Appendix 3:</b> Questionnaire.....	80
<b>Appendix 4:</b> Focus group discussion questions.....	84
<b>Appendix 5:</b> Letter of approval from SU's ethic committee.....	85

## CHAPTER ONE

### INTRODUCTION

#### 1.1 BACKGROUND:

It is largely believed that popular intervention strategies such as behaviour change strategies and political strategies are effective but not perfect in preventing HIV transmission (Cohen, 2000). These intervention strategies need to be complimented by biomedical interventions to prevent the spread of Human immunodeficiency virus (HIV).

Behaviour change strategies advocate the practice of safer sex and the use of condoms while political strategies include legislation, policy formulation and advocacy. Biomedical interventions for HIV prevention include the use of male and female condoms, topical microbicides and cervical barriers, HIV vaccines, Highly Active Antiretroviral Therapy (HAART), medical male circumcision (MC), prevention of mother to child transmission (PMTCT) and treatment of sexually transmitted infections (STI). It is important to complement the existing prevention strategies with biomedical interventions in Richards Bay due to observed increase in teenage and unintended pregnancy among the youth which indicates that unprotected sex is rife within the community. Several studies have shown that biomedical intervention for HIV prevention will be a useful complement to existing interventions in HIV prevention (Mayer, Skeer & Mimiaga, 2010). There is conclusive evidence that circumcision can reduce the risk of HIV infection among males (Gray, Serwadda, Kigozi & Wawer et al, 2007). Also, certain antiretroviral therapy can be used as Post exposure prophylaxis (PEP) which prevents transmission of HIV after sexual exposure to an infected individual (Gay, Kashuba & Cohen, 2009). The South African microbicides research initiative (SAMRI) and South African AIDS vaccine initiative (SAAVI) under the supervision of medical research council are working on the development of safe and effective topical microbicides and HIV vaccines respectively. For women whose sexual partners refuse to use condoms, microbicide usage can prevent HIV infection when it is available and subsequently have a substantial impact on the spread of HIV (Conrad, 2007).

It is imperative to integrate biomedical strategies for HIV prevention with existing prevention strategies to form an effective combination HIV prevention strategy among the sexually active

youth and this can be initiated by first determining the level of awareness of the post secondary school youths about biomedical intervention for HIV prevention.

## Combination HIV Prevention

Biomedical	Socio-behavioural	Structural
<ul style="list-style-type: none"> <li>• HIV counselling and testing (HCT)</li> <li>• Diagnosis and treatment of sexually transmitted diseases (STIs)</li> <li>• Voluntary medical male circumcision (VMMC)</li> <li>• Prevention of mother-to-child transmission (PMTCT)</li> <li>• Post-exposure prophylaxis (PEP)</li> <li>• Voluntary medical male circumcision</li> <li>• Condoms</li> </ul>	<ul style="list-style-type: none"> <li>• Promoting consistent and correct use of condoms</li> <li>• Changing patterns of sexual behaviour (e.g. young people who are abstinent must be encouraged to delay sexual debut, couples in same sex relationships must strive to reduce the number of sexual partners)</li> <li>• Undertaking communication for social and behaviour change</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate national policy and legislation</li> <li>• Advocacy at all levels of decision-making</li> <li>• Positive leadership</li> <li>• Appropriate budgeting and resource management</li> <li>• Addressing gender inequity and gender-based violence</li> <li>• Reducing stigma at facility and community level</li> </ul>

**Table 1:** Combination HIV Prevention Strategies. Source: National Department of Health, South Africa (2013)

### 1.2 RESEARCH PROBLEM

In the Kwazulu-Natal province of South Africa where Richards Bay is located; the prevalence of HIV among young people (aged between 15 to 24 years) is high (Harrison, et al; 2010). The spread of HIV is driven by heterosexual transmission of HIV in the province. Many youth engage in unprotected sex as evidenced by the rising number of teenage and un-intended pregnancies among the youth (Kwazulu-Natal department of education, 2013). Despite various strategies such as biomedical, behavioural and political strategies to stop the spread of HIV



epidemic among the youth, the risky sexual behaviour among the youth and the resultant increase in unwanted pregnancies is driving the spread of HIV transmission among the youth of the province. Biomedical strategies for HIV prevention along with other strategies are supposed to be taught in secondary schools' Life orientation curriculum but with high rate of unprotected sex resulting into unwanted pregnancies, HIV and other sexually transmitted infections (Kwazulu-Natal department of education, 2013). This study will attempt to evaluate the levels of awareness of post secondary school youth who are living in Richards Bay in Kwazulu-Natal.

Biomedical strategies for HIV prevention will offer novel opportunities to reduce the sexual transmission of HIV in Richards Bay. However, we do not know the level of awareness about biomedical intervention for HIV prevention among the post secondary school youth who are living in Richards Bay.

### 1.3 RESEARCH QUESTION

What is the level of awareness among post secondary school youth living in Richards Bay about the biomedical interventions for HIV prevention?

### 1.4 SIGNIFICANCE OF THE RESEARCH

This study will provide useful information for effective planning of biomedical intervention programmes for HIV prevention in Richards Bay so as to complement other existing intervention programmes in the community. The results of the research study will help governments at different levels in planning their HIV programme for the youth community of Richards Bay. In addition, private organisations that may be planning their corporate social investment to respond to the HIV epidemic in Richards Bay community will find the report of the research useful. Existing and new non-governmental organisations (NGOs) working in the Richards Bay will find the information helpful in planning towards rolling out intervention programmes for HIV prevention based on biomedical strategies.

## 1.5 AIM AND OBJECTIVES

AIM: To investigate the level of awareness of biomedical intervention for HIV prevention among the post secondary school youth living in Richards Bay.

### OBJECTIVES:

- To assess the knowledge of the post secondary school youth living in Richards Bay about biomedical intervention for HIV prevention.
- To ascertain the attitude of the youth towards biomedical intervention for HIV prevention.
- To identify practices and norms in the community that promotes or impedes the use of biomedical strategies for HIV prevention.
- To provide guidelines for planning an effective roll out of biomedical intervention programme for HIV prevention in Richards Bay.

## 1.6 STRUCTURE OF THE STUDY

The outline of the report is as follows:

### **Chapter one:** Introduction

This chapter explains the direction of the study. It describes the background and the research problem including the motivation for the study. In addition, aim and objectives of the study will be outlined in this chapter.

### **Chapter two:** Literature Review

Relevant literature, findings and conclusions of previous studies on biomedical strategies for HIV prevention will be reviewed in this chapter

### **Chapter three:** Methodology

This chapter describes the research methodology used for this study. It explains how the research participants were selected, data collection method, the characteristics of the sample population and ethical considerations.

**Chapter Four:** Results and research findings

The results and findings of the study and its analysis will be presented in this chapter.

**Chapter Five:** Discussion

The results of the study will be discussed in this chapter. In addition, the conclusion and recommendations are included in this chapter.

1.7 SUMMARY

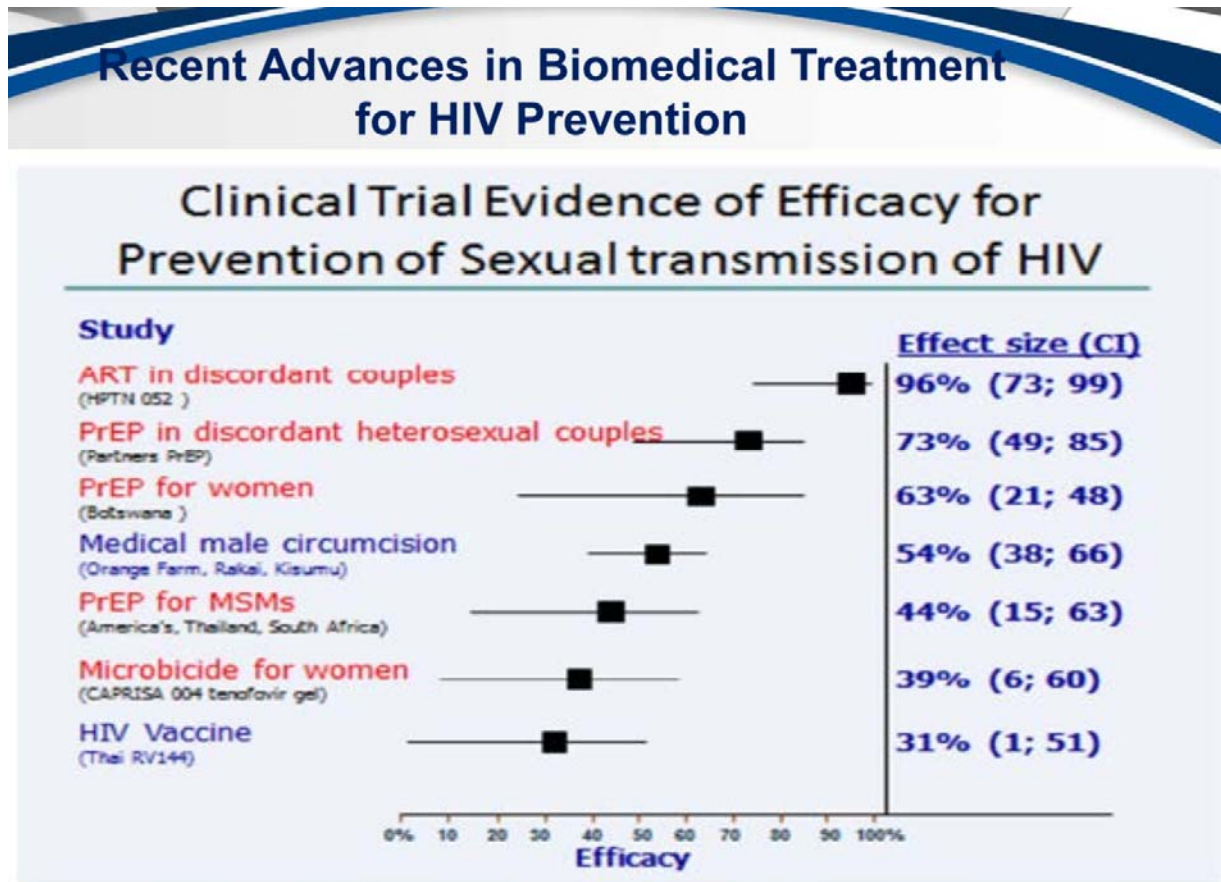
This chapter covers the background of the study, the research problem and question. The significance of the study, aim and the objectives of the research were also discussed in this chapter. In addition to this, the outline of the chapters in the study is described.

## CHAPTER TWO

### LITERATURE REVIEW

The concerted efforts to manage the HIV epidemic by governments, non-governmental organisations, the private sectors and international organisations in South Africa continue to yield positive results (UNAIDS, 2012). The response to stop the epidemic is making desirable impacts much more than in earlier years of the epidemic. Behavioural strategies coupled with political strategies have played important roles in the progress made so far in the management of the epidemic globally but they are insufficient. (Coates, Richter & Caceres, 2008). There is a need for innovative HIV prevention strategies to collaborate with these existing strategies. Biomedical strategies for HIV prevention are therefore needed to make other prevention efforts more effective. Political and structural efforts to prevent the spread of HIV address the factors that promote vulnerability and risk behaviours in term of policy, planning, legislation and advocacy. Behavioural strategies are targeted at individuals and social units by encouraging behavioural modification through the use of community mobilisation, educational, motivational, skill building strategies, peer groups approaches and so on. (Coates et al, 2008). These behavioural strategies include delayed sexual debut, practice of protected sex, abstinence, avoiding concurrent multiple sexual partners, using condoms correctly and consistently (Chan, 2012). However, biomedical HIV prevention strategies aim to decrease infectiousness or stop infection from one person to another.

This study intends to investigate the awareness of biomedical HIV prevention among the post secondary school youths in Richards Bay. Biomedical HIV prevention strategies include: The use of male and female condoms, topical microbicides and cervical barriers, HIV vaccines, Highly Active Antiretroviral Therapy (HAART), medical male circumcision (MC), prevention of mother to child transmission (PMTCT) and treatment of sexually transmitted infections (STI).



**Figure 1:** Recent Advances in Biomedical Treatment for HIV Prevention.

Source: DiClemente R., Wingwood G., Emory University (2012). Optimizing Biomedical HIV prevention with Complementary behavioral strategies. Page 5, Retrieved on December 2, 2013 from <http://www.hptn.org/web%20documents/AnnualMeeting2012/Plenary2/11DiClementeWingoodJun27.pdf>

## 2.1 CONDOMS

There are male and female condoms which serve as effective physical barriers for prevention of HIV. Male condoms were introduced in the early 1980's to prevent the transmission of HIV. The consistent and correct use of condoms can enhance its effectiveness in HIV prevention to about 95% (Padian, Buvé, Balkus, Serwadda & Cates jr, 2008). The usage of male condoms depends largely on the willingness of the male sexual partner and thus makes women vulnerable. This led to the design of female condom to protect women from exposure to semen that contains HIV. It

is believed that the female condom has similar effectiveness to the male condom. (Padian et al, 2008). The female condom is the first female initiated biomedical HIV prevention strategy though its uptake is not as widespread as male condoms. The major challenge to the effectiveness of this biomedical strategy is inconsistent and incorrect use of condoms and reported problem of acceptability and high cost of female condoms (Ramjee & Whitaker, 2011). Another physical barrier which can be covertly utilised by women is the diaphragm. The diaphragm protects the cervix which is known to be “rich in HIV target cells” (Ramjee, et al, 2011). The effectiveness of diaphragms in preventing HIV infection has not been proven though it could be used as a tool in the application of antimicrobial and antiretroviral products. (Ramjee et al, 2011; Padian et al, 2008).

## 2.2 HIV VACCINES

HIV vaccines are substances that train the body to recognise and defend itself against HIV infection. An HIV vaccine is not a cure but a substance to trigger the body immune system to prevent HIV infection (ICAD, 2010). There are several safety and efficacy trials of HIV vaccines underway in several countries all over the world. While there is no approved, safe and effective HIV vaccine yet, there is encouraging progress being made in the development of HIV vaccines. An efficacy trial in Thailand, RV144 showed that the combination of two HIV vaccines called ALVAC and AIDSVAX were safe and modestly effective, vaccine recipients produced a number of broadly neutralising antibodies (bNAbs) (ICAD, 2010 ; Chan, 2012). However, in South Africa, SAAVI is working on a therapeutic vaccine (Tat Vaccine) rather than preventive vaccine and it is currently carrying out clinical trial on this vaccine. Tat vaccine “aims to restore healthy functions of immune system of the infected individuals in order to reduce their HIV disease progression” (SAAVI, 2011). Novartis in collaboration with Italian national AIDS centre and SAAVI have launched therapeutic phase two clinical trial of the second generation Tat vaccine candidate in South Africa and Italy (INAC, 2013). This suggests that an effective HIV vaccine might be feasible in the foreseeable future.

### 2.3 MICROBICIDES

These are products that can be applied topically into the vagina and rectal mucosa to prevent sexual transmission of HIV and any other sexually transmitted infections. Microbicides may be formulated as tablets, gels, foams, intra-vaginal rings or films (Mayer et al, 2010; ICAD, 2010; Ramjee et al, 2011). This is an important biomedical intervention for HIV prevention which will allow vulnerable women to protect themselves against sexual transmission of HIV. Mayer et al, (2010) shows that microbicides work through various mechanisms:

- (1) Strengthening the vaginal defence by maintaining its acidic PH thus making it inhospitable to foreign pathogens like HIV.
- (2) By killing or making pathogens inactive by disabling the virus or inactivating key viral receptors or enzymes.
- (3) By inhibiting viral entry into the cell or preventing the pathogen from attaching itself to white blood cell.
- (4) By inhibiting the replication of HIV in the vagina. (Conrad, 2007).

Several microbicides candidates like nonoxynol-9, BufferGel, Cellulose sulphate, PRO 2000 and so on has been found to be ineffective for HIV prevention during trials (Mayer et al, 2010; ICAD, 2010). In South Africa, the Centre for the AIDS Programme of Research in South Africa (CAPRISA)'s clinical trial on tenovofir gel has shown that the microbicides are safe and that it is 39% effective in reducing the risk of HIV infection and 51% effective in the prevention of genital herpes infections (Mayer et al, 2010). Most microbicides studies now focus on the development of topical antiretrovirals to be used for microbicidal protection. While there are no microbicide candidates currently that have 100% effectiveness, the use of microbicides with partial efficacy may have benefits under certain circumstances. In 2005, researchers in the University of California projected that the introduction of an effective vaginal microbicides will reduce HIV risk for female sex workers substantially (ICAD, 2010).

### 2.4 TREATMENT AS PREVENTION (TasP)

HAART has been shown to reduce the infectiousness of an HIV infected individual on treatment (Mayer et al, 2010). Antiretroviral treatment of an infected individual may potentially benefit public health because it reduces the viral load of the infected person and consequently reduce

their infectiousness (Abbas, 2011). HAART regimens could be administered orally or topically as pre-exposure prophylaxis (PrEP) or post-exposure prophylaxis (PEP). (Abbas, 2011).

The success of HAART in PMTCT is a proof that antiretroviral PrEP medications can be effectively use to prevent vertical transmission of HIV to an unborn child (Padian et al, 2008). There is evidence that PEP can be used to reduce the risk of HIV transmission due to its ability to suppress viral load and replication after the exposure to HIV (Padian, et al, 2008). The pre-exposure prophylaxis initiative (iPrEx) study conducted in six countries has shown orally administered antiretroviral drugs like Truvada could be effective with strict adherence (Chan, 2012). The HIV Prevention Trial Network's clinical trial (HPTN052) shows that initiating people living with HIV (PLHIV) early on antiretroviral therapy reduced the rates of sexual transmission of HIV-1 (Cohen, Chen, McCauley, Gamble et al, 2011) However, HAART as prevention has its attendant challenges of side effects, toxicity adherence, and development of drug resistance by the virus. There are also concerns about the cost and increase in risky sexual behaviour. The effectiveness of biomedical intervention has been shown to be optimised by combining with positive behavioural interventions (APA, 2012). Additionally, treatment of sexually transmitted infections (STI) including herpes simplex virus type 2 (HSV-2) with antibiotics and viral suppressive medications reduce the risk of transmitting and acquiring HIV. While biological evidence shows that the treatment of STI has potential in HIV prevention, the efficacy has not being demonstrated in clinical trials (Ramjee et al, 2011).

## 2.5 MEDICAL MALE CIRCUMCISION

Circumcision removes the inner side of foreskin of the penis which is more susceptible to HIV. The removal of these HIV target cells on the foreskin of the penis through a circumcision procedure reduces the vulnerability to HIV infection (Ramjee et al, 2011). Three randomised controlled trials found that male circumcision substantially decreased the risk of HIV infection by at least 50% among men who are not yet infected by HIV (Chan, 2012; Mayer et al, 2010; ICAD, 2010). While there is a strong evidence for a reduced risk of HIV infection in men who are circumcised, circumcision seems not to protect women from getting infected by HIV from men who are already infected. Also, there is no proof of efficacy of circumcision in HIV prevention among men who have sex with men (MSM) (Abbas, 2011; Chan, 2012).



Medical male circumcision services should be made available and accessible as a complementary prevention strategy to other existing and effective strategies for preventing the spread of HIV.

The concept of “Highly active HIV prevention” is a synergy of different prevention strategies that includes: Strong political leadership showing commitment by scaling up treatment and prevention efforts combined with behavioural change strategies, social justice and human right framework complemented by biomedical HIV prevention strategies. Of equal importance is the community involvement in all the HIV prevention strategies (Coates et al, 2008). This study aim to investigate the awareness of the Richards Bay youth community about biomedical prevention strategies of HIV and the report of the study will be a useful guide in planning the future roll out of biomedical HIV prevention programmes in the community.

## 2.6 ACCEPTABILITY OF BIOMEDICAL INTERVENTION FOR HIV PREVENTION

For biomedical strategies for HIV prevention to be effective, the strategies and the services must be acceptable and accessible. There are promising efforts being made to develop effective biomedical interventions to stop the spread of HIV in the South Africa and before the roll out of some of the biomedical strategies still being developed, it is important to consider the acceptability of these interventions by the public. According to the study by Human Sciences Research Council (HSRC), 78.9% of the youth in South Africa used condoms in their last sexual intercourse (Matseke G., et al, 2012). HSRC also reported a decline in the usage of condom in 2012 across all age groups in South Africa. Female condoms has lower acceptance than male condoms and there is a problem of discontinuation after the first use among women (Beksinska M.E., et al, 2001).

In Rural Kwazulu-Natal, 51% of uncircumcised men will accept medical circumcision while 68% of women will agree to their partners to be circumcised (Scott B.E, et al, 2005). In addition, 50% of men and 73% of women will allow their sons to undergo medical circumcision. In South Africa, low acceptability of medical male circumcision is rife within the communities that practices traditional circumcision (Mark D., et al, 2012). While there is growing acceptability of biomedical strategies, factors such as stigma, discrimination, cultural norms, side effect, lack of trust in health care workers and cost may have negative impact on the

acceptability of these strategies. (Galea J.T., et al, 2011). The study by van der Straten, A., et al, (2012) confirmed that vaginal ring which may be used as delivery device for topical microbicides in future was accepted by 97% of the women who participated in the study.

## 2.7 KNOWLEDGE ATTITUDE AND BEHAVIOUR TOWARDS BIOMEDICAL STRATEGIES

Most South African youth aged between 15years to 24years have high levels of awareness and knowledge about HIV prevention (Kaiser family foundation, 2008). Lissouba P. et al (2011) reported that adult male circumcision uptake in the South African community of Orange Farm is very high and the knowledge and attitude towards male circumcision is good. The knowledge and attitude about condom use among the youth in South Africa is high (Matseke G., et al, 2012). The number of pregnant women that access PMTCT services improved and it reached 57% in 2007 (Kaiser family foundation, 2008). However, a small percentage of the youth has misconceptions about HIV epidemic (Kaiser family foundation, 2008). Other studies elsewhere have shown that despite adequate knowledge about different aspects of HIV and AIDS prevention among youth, certain misconceptions, risky practices and negative attitude still exist toward HIV epidemic in general (Thanavanh B., et al, 2013), (Ghojavand G., et al, 2013).

## 2.8 BENEFITS OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION

Biomedical strategies are crucial and important in our strategic response to HIV epidemic. While we await the development of effective and safe HIV vaccines and microbicides, core biomedical prevention methods like male and female condoms, medical male circumcision, antiretroviral prophylaxis (PMTCT , PrEP and PEP) and treatment of sexually transmitted infections and HIV are potent, effective and proven methods to prevent the transmission of HIV in our communities (Padian N., et al, 2008). More than 30% of children born to mothers who are HIV positive will acquire HIV infection without PMTCT (AIDSTAR-one, 2013). Also, when HIV positive pregnant women are given ART, it reduces the chance of HIV transmission from mother to unborn child by 75%. The well being and quality of life of the mother is also enhanced (AIDSTAR-one, 2013).

Medical male circumcision is a once-off surgical procedure and not expensive, it is effective in reducing HIV transmission to the circumcised individual by 58% (Padian N., et al, 2008). In addition, studies have shown that the acceptability of MC is high generally (Matseke G., et al, 2012). Female condoms provide opportunity for female-initiated protection against HIV transmission. Microbicide is another female-initiated biomedical product that will empower vulnerable women when it becomes available. PEP is helpful in protecting rape victims, health workers who suffer occupational exposure or suspected exposure to HIV. In addition, PEP will be useful in case of breakage of condom during sex among serodiscordant couples (AIDSTAR-one, 2013). TasP reduces HIV infectiousness in the communities, thus reducing the spread of the epidemic and consequently promoting the wellbeing of the public. (Abbas U.L., 2011).

## 2.9 BARRIERS TO BIOMEDICAL STRATEGIES FOR PREVENTION OF HIV

There are certain factors that prevent the uptake of biomedical services and products for HIV prevention and these include stigma, discrimination and structural factors. These factors hinder the acceptability or the accessibility of biomedical strategies for preventing the transmission of HIV (Gourlay A., et al, 2013), (Galea J.T., et al, 2011). In addition, fear of pain and death discourages some people from going for MC (Scott B.E, et al, 2005). MC uptake is also being hindered by shortage of personnel and facilities since it can only be carried out by a trained doctor (Scott B.E, et al, 2005). Side effects of the HAART also constitute a barrier to uptake of PEP, PrEP, and PMTCT and TasP.

## 2.10 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION

The most popular sources of information on biomedical strategies for HIV prevention are Radio and Television in South Africa (Peltzer K., et al, 2012). Programmes on Television and radio are watched or heard most by the youth who are aged between (15-24years old). 81.7% get their information from Television, 83.6% from radio, 66.9% from newspaper, 60.7% from magazines and 17.7% of the participants get their information from internet (Scott B.E, et al, 2005). Life orientation's curriculum in schools also makes provision for dissemination of information on various ways to prevent HIV transmission. Posters, Billboards, health workers, parents and

churches are some of the sources through which youth can access information on HIV prevention.

## 2.11 SUMMARY

This chapter discussed different biomedical strategies for HIV prevention such as Male and female condoms, treatment as prevention, highly active antiretroviral therapy, medical male circumcision, the potential development of vaccines and microbicides and their benefits. The acceptability of these strategies in the community along with the barriers to uptake of the biomedical strategies for HIV prevention was also discussed. The chapter highlights findings from previous studies on knowledge, attitude and behaviour towards these strategies and the sources of information on about these strategies.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 INTRODUCTION

This chapter discuss the research methodology that was used to carry out the study. It explains the style and instruments used to develop research techniques used for this study. The chapter provides detail information about the characteristics of the sample population, the research setting, sampling method used, ethical consideration, data collection process and data analysis.

#### 3.2 RESEARCH SETTING

This study was conducted in Richards Bay in the province of KwaZulu-Natal, South Africa. Richards Bay is a small urban settlement with daily influx of people from surrounding informal settlements and rural townships. The town has a population of 57387 people. It is a multiracial town with 48% of the population are Black Africans, 30.1% are White, 18.22% are Indians and 3.25% are Coloured. (Adrian Frith, Census, 2011).

#### 3.3 RESEARCH DESIGN

According to Christensen, Johnson and Turner (2011), research design consists “the outline, plan or strategy used to investigate the research problem”

This research study was carried out using a quantitative approach by selecting the participants from the target group randomly. Sibanda (2009) defines quantitative research as “gathering of numerical data and generalising it across groups of people”. The researcher choose quantitative paradigm for the study because according to Matveev (2002), quantitative inquiry allows the researcher to follow set goals for the research and to obtain a highly reliable data as a result of mass surveying.

#### 3.4 STUDY POPULATION

Christensen et al (2011) defines study population as a large group that the researcher intends to generalise the findings of the study. The population for this study are the post secondary school

youth in Richards Bay. Post secondary school youth are youth between the age of 18 and 24 years and who have finished at least secondary school education.

### 3.5 SAMPLING METHOD AND SAMPLE SIZE

#### 3.5.1 SAMPLING METHOD

A sample consists of elements selected for a study from the population (Christensen et al, 2011) while sampling method means the process of selecting the sample from the target population (Christensen et al, 2011). The samples for this study were selected using a snowball sampling technique where the sampled individual refers another potential participant who falls within the study population (Christensen et al, 2011). The stratification variables that were used in sampling include post secondary school education and age. The participants assist to locate other potential participants that meet the stratification criteria. The data collection tool was distributed by referral using snowball sampling technique. The locations identified for initial distribution of the questionnaires are outside the churches, youth groups and recreational facilities in central business districts (CBD), Arboretum and Veldenvlei suburbs in Richards Bay.

#### 3.5.2 SAMPLE SIZE

For the survey, 35 people out of 50 people that initially agreed to take part in the survey returned the questionnaires. So, the sample size for the survey is 35.

For the focus group, 8 participants who met the stratification criteria participated in the focus group session.

### 3.6 DATA COLLECTION PROCESS

The data sources for this study will come from the survey conducted using questionnaires and from the focus group session. A semi structured questionnaire and focus group were used as data collection tools.

Christensen et al, (2011) defines a questionnaire as a self-report instrument for gathering data and it is usually filled out by study participants.

Focus groups allow the researcher to collect data from a group of people being led by a moderator (Christensen et al, 2011). The group size should consist of between 6 to 12 homogeneous participants (Christensen et al, 2011).

3.6.1 SURVEY: The survey questionnaire consists of both open and closed questions (Appendix 3). The questionnaire was designed in the English language because the target population are required to have at least secondary education so there is no need for interpretation. The questionnaire was divided into five sections. The aim and the objectives of the study provide the basis for the sections in the questionnaire.

Section A: Back ground (Demographic details of the participants).

Section B: Knowledge about biomedical intervention for HIV prevention.

Section C: Attitude towards biomedical strategies for HIV prevention.

Section D: Practices that may promote or impede the use of biomedical strategies for HIV prevention

Open questions: Free response questions

The collection of data took place from September 2013 to November 2013.

3.6.2 FOCUS GROUP: Eight participants from the target population who agreed to participate in the focus group discussion attended the session. A conducive, comfortable and safe venue was used for the session that last about two hours. The researcher acted as the moderator. There was an assistant who wrote down the contributions of the participants during the proceeding. Pre-determined questions in line with the aim and objectives of the study were used for discussion. Light refreshment was provided at the end of the session.

### 3.7 DATA ANALYSIS

The data from the questionnaire was systematically transformed and organised into numerical data while the responses of the participants in the focus group were quoted verbatim with minor relevant editing. The collected data was analysed using descriptive statistical methods such as frequency tables and bar graphs

### 3.8 VALIDITY AND RELIABILITY

Twycross and Sheilds (2004) defines validity as the extent to which the study design is suitable and appropriate for the research question and extent to which the results of the study can be generalised beyond the study sample and setting. Simple vocabularies were used to design the survey questionnaire and the questionnaire was perused by the experts and the researcher supervisor. The questionnaire was modified based on the feedbacks received. This was done to ensure internal validity. The findings of this study may not be generalised to youth who do not have formal education since the sample was taken strictly from post secondary school youth in Richards Bay.

### 3.9 ETHICAL CONSIDERATIONS

The researcher sought and obtained ethical approval from SU's Research Ethics Committee (Appendix 5). Detailed information was provided to the participants in the survey questionnaire and focus group session about the nature of the study, the objectives of the study and the anticipated benefits of the results of the research study. The questionnaire respondents and the focus group participants were assured that their responses will be confidential and anonymous and the questionnaire did not contain questions seeking identity information.

The informed consent of all participants were sought and obtained before their active participation (Appendix 1 and Appendix 2). All participants were 18years old and above. The participants were informed that they are free to withdraw from participating in the survey if they want to. The participants were not asked to disclose their HIV status in the survey questionnaires and the focus group session. In addition, all the returned and filled survey's questionnaires, consent forms and transcribed focus group contributions are kept in a private locked safe to ensure the privacy and confidentiality of participants' contributions to the study.

### 3.10 SUMMARY

This chapter discussed the research design, setting, study population and research methodology used for this study which is quantitative paradigm. Data collection process and analysis were



also discussed. Additionally, the internal and external validity of the study coupled with ethical considerations were discussed in the chapter.

## CHAPTER FOUR

### RESULTS AND THE RESEARCH FINDINGS

#### 4.1 INTRODUCTION

This chapter will discuss the interpretation and analysis of the findings of the study. It will use descriptive statistic to present the reports of the survey and focus group session. The results will be divided into two parts: Part one will present the results of the survey questionnaire and Part two will present the results of the focus group discussion. Each part is further subdivided into four sections based on the objectives of the study:

- Back ground (Demographic details of the participants).
- Knowledge about biomedical intervention for HIV prevention.
- Attitude towards biomedical strategies for HIV prevention.
- Practices that may promote or impede the use of biomedical strategies for HIV prevention

The results of the survey questionnaire and the focus group presented will be discussed simultaneously in the next chapter.

#### 4.2 PART ONE: RESULTS OF THE QUESTIONNAIRE

##### 4.2.1 DEMOGRAPHY

More than 50 people agreed to take part in the study but 35 participants completed and returned the questionnaire. Therefore the sample size (N) was 35 with 70% response rate. There were 20 male participants and 15 female participants. 89% of the participants had national senior certificate (grade 12) qualifications while the remaining 11% had diploma certificate. The demographic characteristics of the participants are represented in the tables below:

TABLE 2

## GENDER

	NUMBER =35	PERCENTAGE (%)
MALE	20	57
FEMALE	15	43

TABLE 3

## QUALIFICATIONS

	NUMBER =35	PERCENTAGE (%)
GRADE 12	31	89
DIPLOMA	4	11

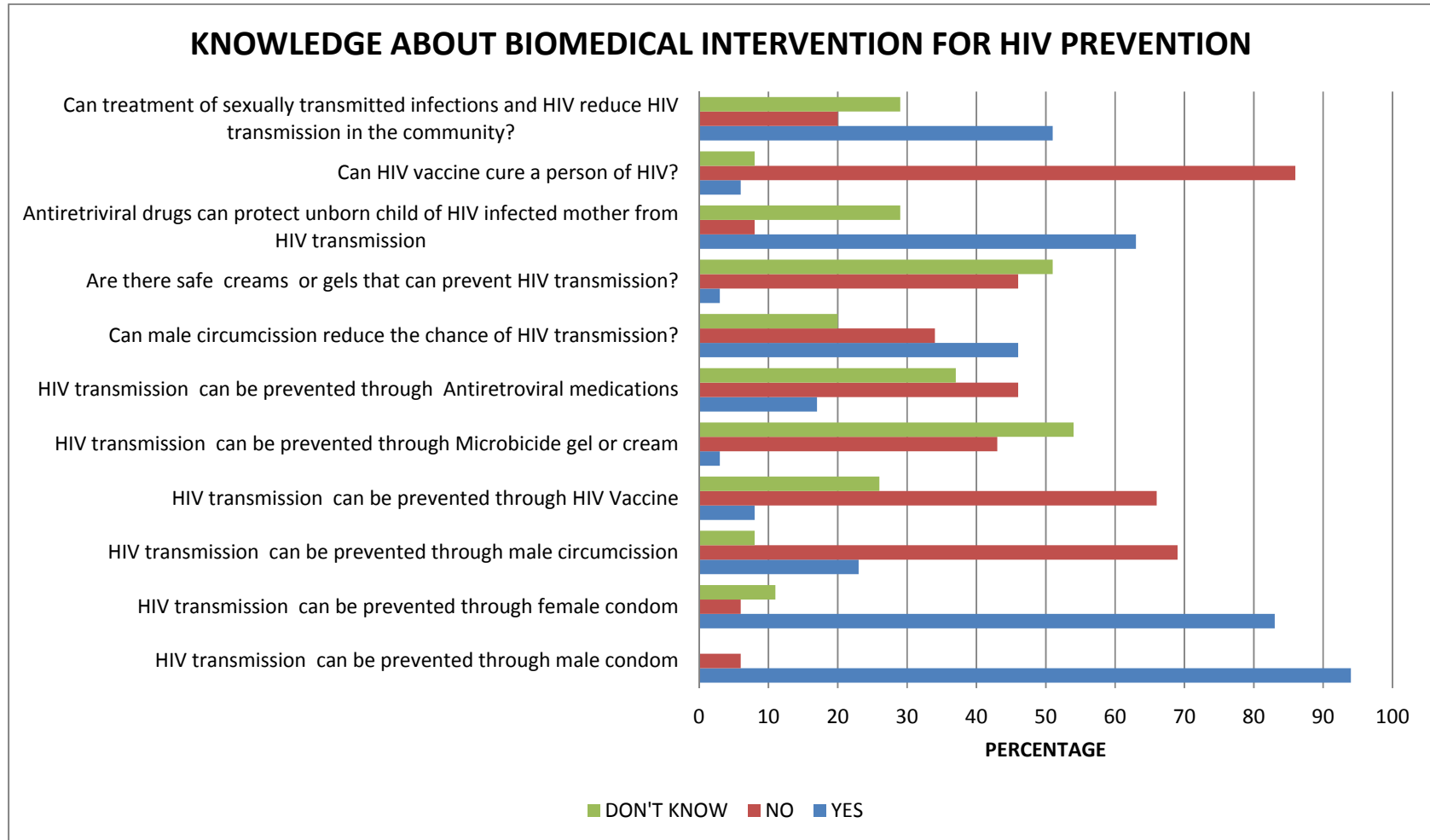
## 4.2.2 KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION

This study intends to assess the knowledge of the post secondary youth living in Richards Bay about biomedical intervention for HIV prevention. Eleven closed questions asked the study participants to assess this objective under the section B of the questionnaire. The results were displayed in table 4 and figure 2 below:

TABLE 4

KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION						
	YES	% YES	NO	% NO	DON'T KNOW	% DON'T KNOW
<b>N =35</b>						
HIV transmission can be prevented through male condom	33	<b>94</b>	2	<b>6</b>	0	<b>0</b>
HIV transmission can be prevented through female condom	29	<b>83</b>	2	<b>6</b>	4	<b>11</b>
HIV transmission can be prevented through male circumcision	8	<b>23</b>	24	<b>69</b>	3	<b>8</b>
HIV transmission can be prevented through HIV Vaccine	3	<b>8</b>	23	<b>66</b>	9	<b>26</b>
HIV transmission can be prevented through Microbicide gel or cream	1	<b>3</b>	15	<b>43</b>	19	<b>54</b>
HIV transmission can be prevented through Antiretroviral medications	6	<b>17</b>	16	<b>46</b>	13	<b>37</b>
Can male circumcision reduce the chance of HIV transmission?	16	<b>46</b>	12	<b>34</b>	7	<b>20</b>
Are there safe creams or gels that can prevent HIV transmission?	1	<b>3</b>	16	<b>46</b>	18	<b>51</b>
Antiretroviral drugs can protect unborn child of HIV infected mother from HIV transmission	22	<b>63</b>	3	<b>8</b>	10	<b>29</b>
Can HIV vaccine cure a person of HIV?	2	<b>6</b>	30	<b>86</b>	3	<b>8</b>
Can treatment of sexually transmitted infections and HIV reduce HIV transmission in the community?	18	<b>51</b>	7	<b>20</b>	10	<b>29</b>

Figure 2



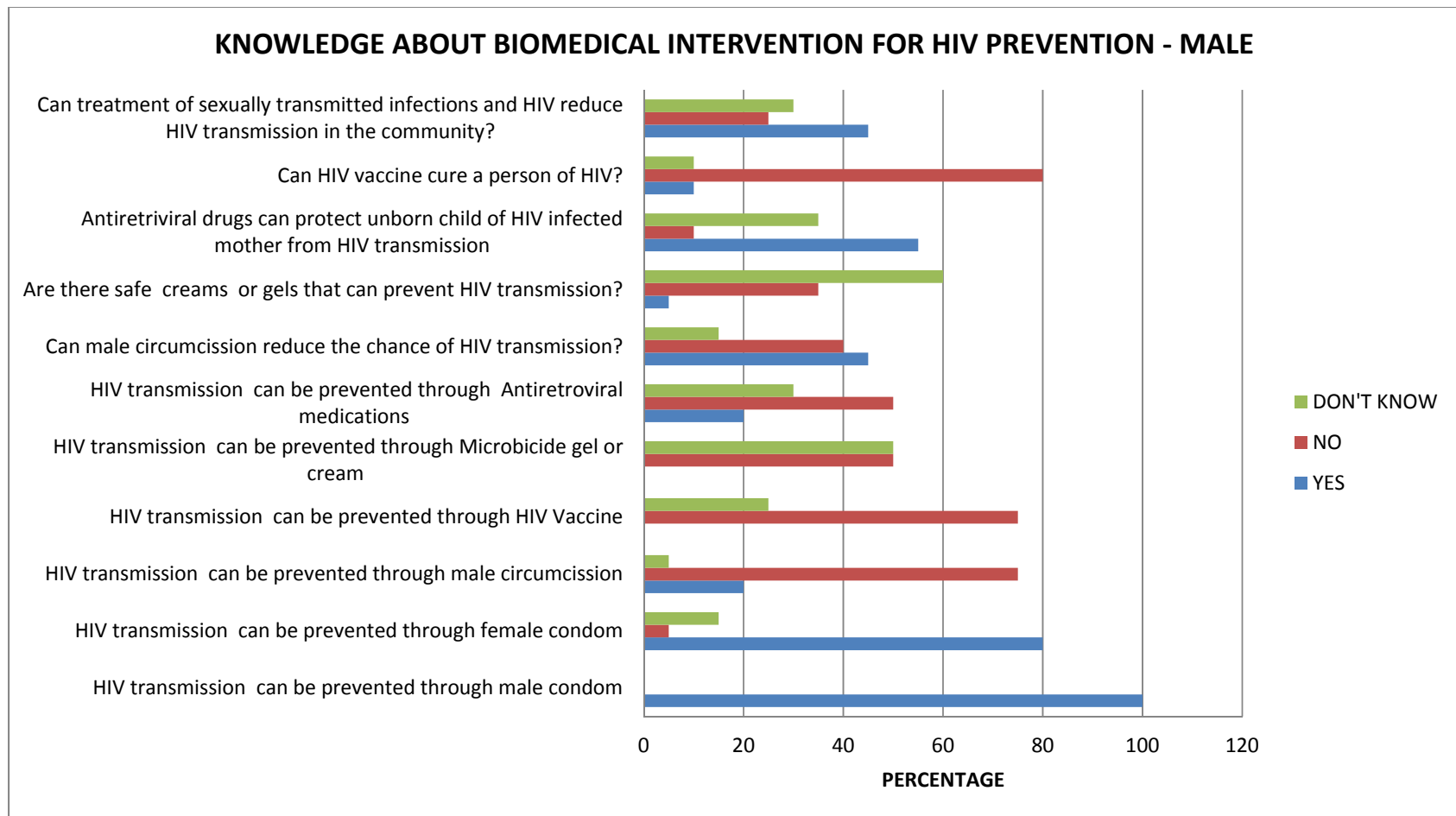
Condoms are the most recognised biomedical prevention strategy by the participants with the majority of the respondents (94%) claimed that the use of male condom can prevent the transmission while 83% of the participants said that female condom can be effective in prevention of HIV transmission. In contrast, 46% of the participants said that circumcision will reduce the chance of HIV transmission. Also, more than half of the participants did not know whether microbicides can prevent HIV transmission or not and about half of the survey participants (51%) did not know about the availability status of microbicides. In addition, almost a half of the total respondents (49%) did not know treatment of STI and HIV reduces HIV infectiousness in the community. However, most participants showed high level of awareness with regards to the effectiveness of vaccine and ARV drugs in PMTCT. While 66% of the participants said HIV vaccine cannot be used to prevent HIV transmission, 63% said ARV is effective in PMTCT.

The results were further analysed based on the gender of the survey participants as shown in tables 5 and 6. It is further represented in the charts on figures 3 and 4.

Table 5

<b>SECTION B MALE</b>						
<b>KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION</b>						
<b>N=20</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
HIV transmission can be prevented through male condom	20	<b>100</b>	0	<b>0</b>	0	<b>0</b>
HIV transmission can be prevented through female condom	16	<b>80</b>	1	<b>5</b>	3	<b>15</b>
HIV transmission can be prevented through male circumcision	4	<b>20</b>	15	<b>75</b>	1	<b>5</b>
HIV transmission can be prevented through HIV Vaccine	0	<b>0</b>	15	<b>75</b>	5	<b>25</b>
HIV transmission can be prevented through Microbicide gel or cream	0	<b>0</b>	10	<b>50</b>	10	<b>50</b>
HIV transmission can be prevented through Antiretroviral medications	4	<b>20</b>	10	<b>50</b>	6	<b>30</b>
Can male circumcision reduce the chance of HIV transmission?	9	<b>45</b>	8	<b>40</b>	3	<b>15</b>
Are there safe creams or gels that can prevent HIV transmission?	1	<b>5</b>	7	<b>35</b>	12	<b>60</b>
Antiretroviral drugs can protect unborn child of HIV infected mother from HIV transmission	11	<b>55</b>	2	<b>10</b>	7	<b>35</b>
Can HIV vaccine cure a person of HIV?	2	<b>10</b>	16	<b>80</b>	2	<b>10</b>
Can treatment of sexually transmitted infections and HIV reduce HIV transmission in the community?	9	<b>45</b>	5	<b>25</b>	6	<b>30</b>

Figure 3



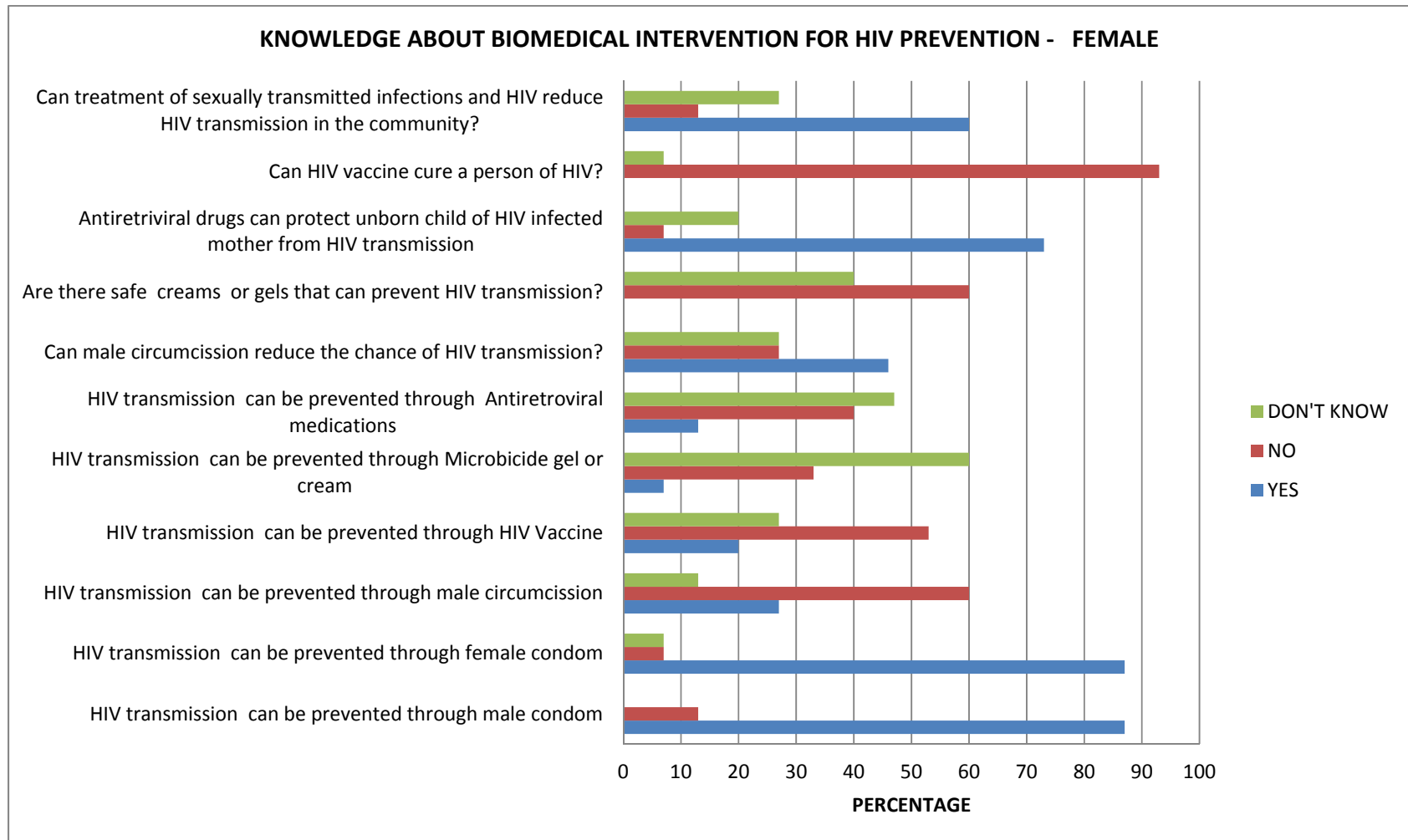


All the male respondents knew that the use of male condoms can prevent the transmission while most of them (80%) said that female condom can also be effective in prevention of HIV transmission. Also, 75% of the males knew there is no HIV vaccine that can prevent HIV transmission. However, significant number (55%) of male participants did not know about the role that male circumcision plays in prevention of HIV transmission. The least known biomedical strategy for HIV prevention among male participants is microbicide. A half of the male participants did not know whether microbicides can prevent HIV transmission or not and 60% of the males did not know about the availability status of microbicides.

Table 6

<b>SECTION B FEMALE</b>						
<b>KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION</b>						
<b>N=15</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
HIV transmission can be prevented through male condom	13	<b>87</b>	2	<b>13</b>	0	<b>0</b>
HIV transmission can be prevented through female condom	13	<b>87</b>	1	<b>7</b>	1	<b>7</b>
HIV transmission can be prevented through male circumcision	4	<b>27</b>	9	<b>60</b>	2	<b>13</b>
HIV transmission can be prevented through HIV Vaccine	3	<b>20</b>	8	<b>53</b>	4	<b>27</b>
HIV transmission can be prevented through Microbicide gel or cream	1	<b>7</b>	5	<b>33</b>	9	<b>60</b>
HIV transmission can be prevented through Antiretroviral medications	2	<b>13</b>	6	<b>40</b>	7	<b>47</b>
Can male circumcision reduce the chance of HIV transmission?	7	<b>47</b>	4	<b>27</b>	4	<b>27</b>
Are there safe creams or gels that can prevent HIV transmission?	0	<b>0</b>	9	<b>60</b>	6	<b>40</b>
Antiretroviral drugs can protect unborn child of HIV infected mother from HIV transmission	11	<b>73</b>	1	<b>7</b>	3	<b>20</b>
Can HIV vaccine cure a person of HIV?	0	<b>0</b>	14	<b>93</b>	1	<b>7</b>
Can treatment of sexually transmitted infections and HIV reduce HIV transmission in the community?	9	<b>60</b>	2	<b>13</b>	4	<b>27</b>

Figure 4



The most popular biomedical strategy for HIV prevention among female participants is condom. Most female participants (87%) claimed that the use of male and female condoms can prevent HIV transmission. In addition, 73% of the females knew ARV is effective in PMTCT. About 60% of the female participants also knew there are no safe and effective microbicide for preventing the transmission of HIV. While most female participants (93%) knew that ARV cannot cure a person of HIV, 73% of them said ARV is effective in PMTCT. Also, 60% of female respondents claimed that treatment of STI and HIV reduces HIV infectiousness in the community.

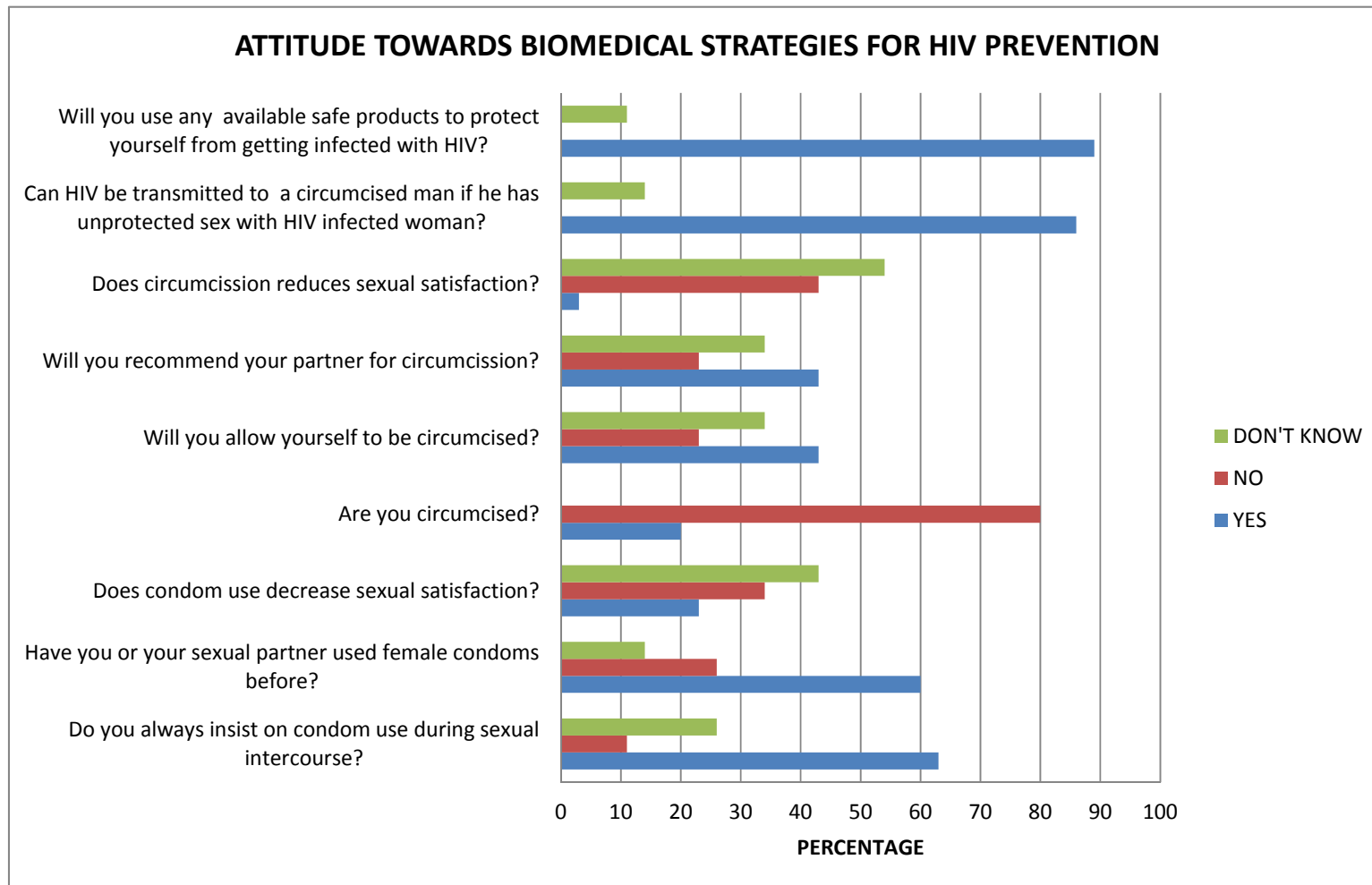
#### 4.2.3 ATTITUDE TOWARDS BIOMEDICAL STRATEGIES FOR HIV PREVENTION

This study also attempted to ascertain the attitude of the youth towards biomedical strategies for HIV prevention by asking ten closed questions under this section. The results are presented in table 7 and figure 5. These results will be analysed further based on the gender of the respondents.

Table 7

<b>SECTION C</b>						
<b>ATTITUDE TOWARDS BIOMEDICAL STRATEGIES FOR HIV PREVENTION</b>						
<b>N =35</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
Do you always insist on condom use during sexual intercourse?	22	<b>63</b>	4	<b>11</b>	9	<b>26</b>
Have you or your sexual partner used female condoms before?	21	<b>60</b>	9	<b>26</b>	5	<b>14</b>
Does condom use decrease sexual satisfaction?	8	<b>23</b>	12	<b>34</b>	15	<b>43</b>
Are you circumcised?	7	<b>20</b>	28	<b>80</b>	0	<b>0</b>
Will you allow yourself to be circumcised?	15	<b>43</b>	8	<b>23</b>	12	<b>34</b>
Will you recommend your partner for circumcision?	15	<b>43</b>	8	<b>23</b>	12	<b>34</b>
Does circumcision reduces sexual satisfaction?	1	<b>3</b>	15	<b>43</b>	19	<b>54</b>
Can HIV be transmitted to a circumcised man if he has unprotected sex with HIV infected woman?	30	<b>86</b>	0	<b>0</b>	5	<b>14</b>
Will you use any available safe products to protect yourself from getting infected with HIV?	31	<b>89</b>	0	<b>0</b>	4	<b>11</b>

Figure 5



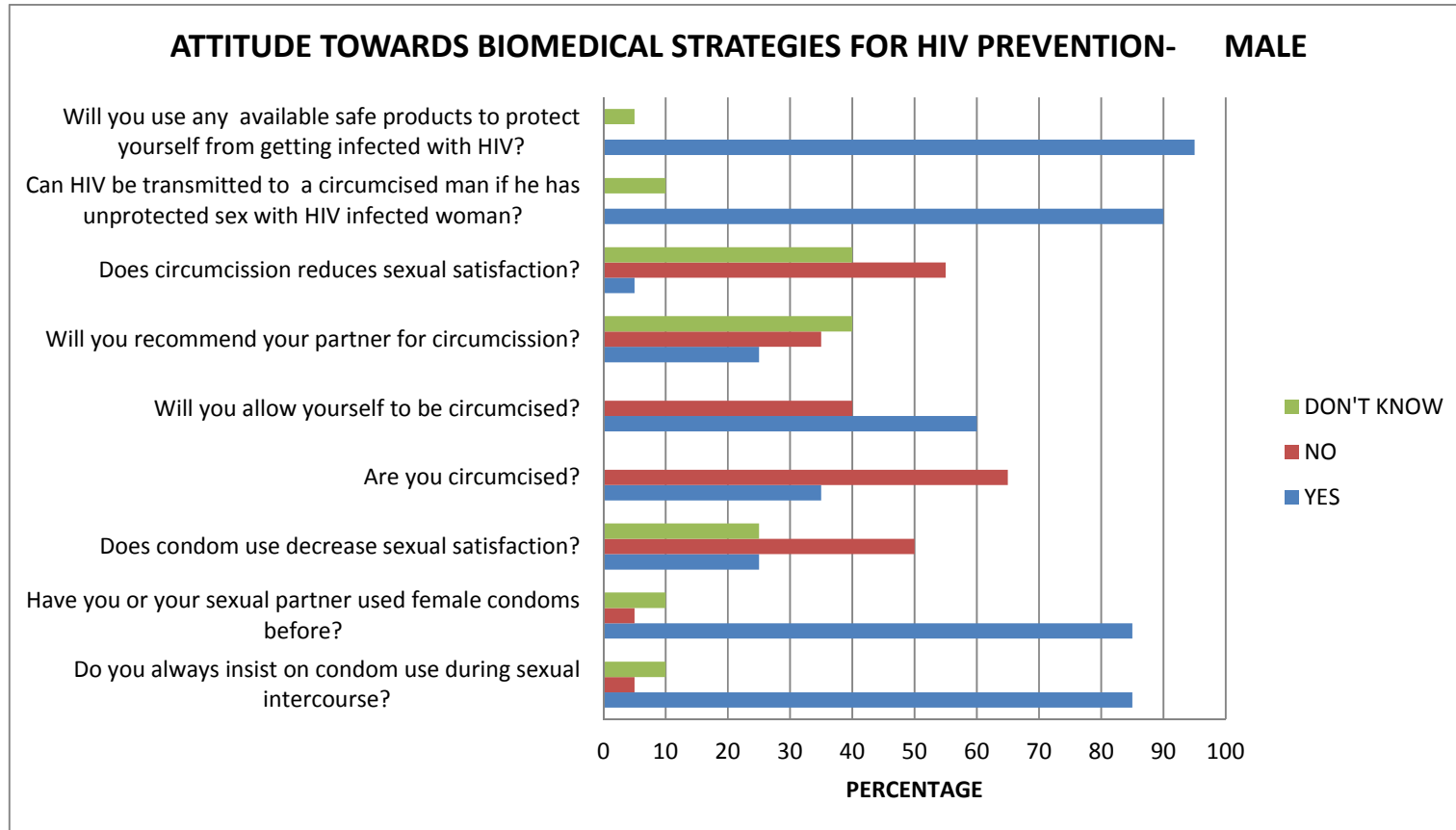
The majority of the survey participants (89%) will readily use any available safe and effective products to protect themselves from HIV infection. A sizeable number of the participants (63%) claimed they always insist on the use of condom during sexual intercourse. Circumcision is not a popular biomedical strategy for HIV prevention among the participants, only 43% said they will recommend circumcision to other people.

Table 8

<b>SECTION C MALE</b>						
<b>ATTITUDE TOWARDS BIOMEDICAL STRATEGIES FOR HIV PREVENTION</b>						
<b>N =20</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
Do you always insist on condom use during sexual intercourse?	17	<b>85</b>	1	<b>5</b>	2	<b>10</b>
Have you or your sexual partner used female condoms before?	17	<b>85</b>	1	<b>5</b>	2	<b>10</b>
Does condom use decrease sexual satisfaction?	5	<b>25</b>	10	<b>50</b>	5	<b>25</b>
Are you circumcised?	7	<b>35</b>	13	<b>65</b>	0	<b>0</b>
Will you allow yourself to be circumcised?	12	<b>60</b>	8	<b>40</b>	0	<b>0</b>
Will you recommend your partner for circumcision?	5	<b>25</b>	7	<b>35</b>	8	<b>40</b>
Does circumcision reduces sexual satisfaction?	1	<b>5</b>	11	<b>55</b>	8	<b>40</b>
Can HIV be transmitted to a circumcised man if he has unprotected sex with HIV infected woman?	18	<b>90</b>	0	<b>0</b>	2	<b>10</b>
Will you use any available safe products to protect yourself from getting infected with HIV?	19	<b>95</b>	0	<b>0</b>	1	<b>5</b>



Figure 6

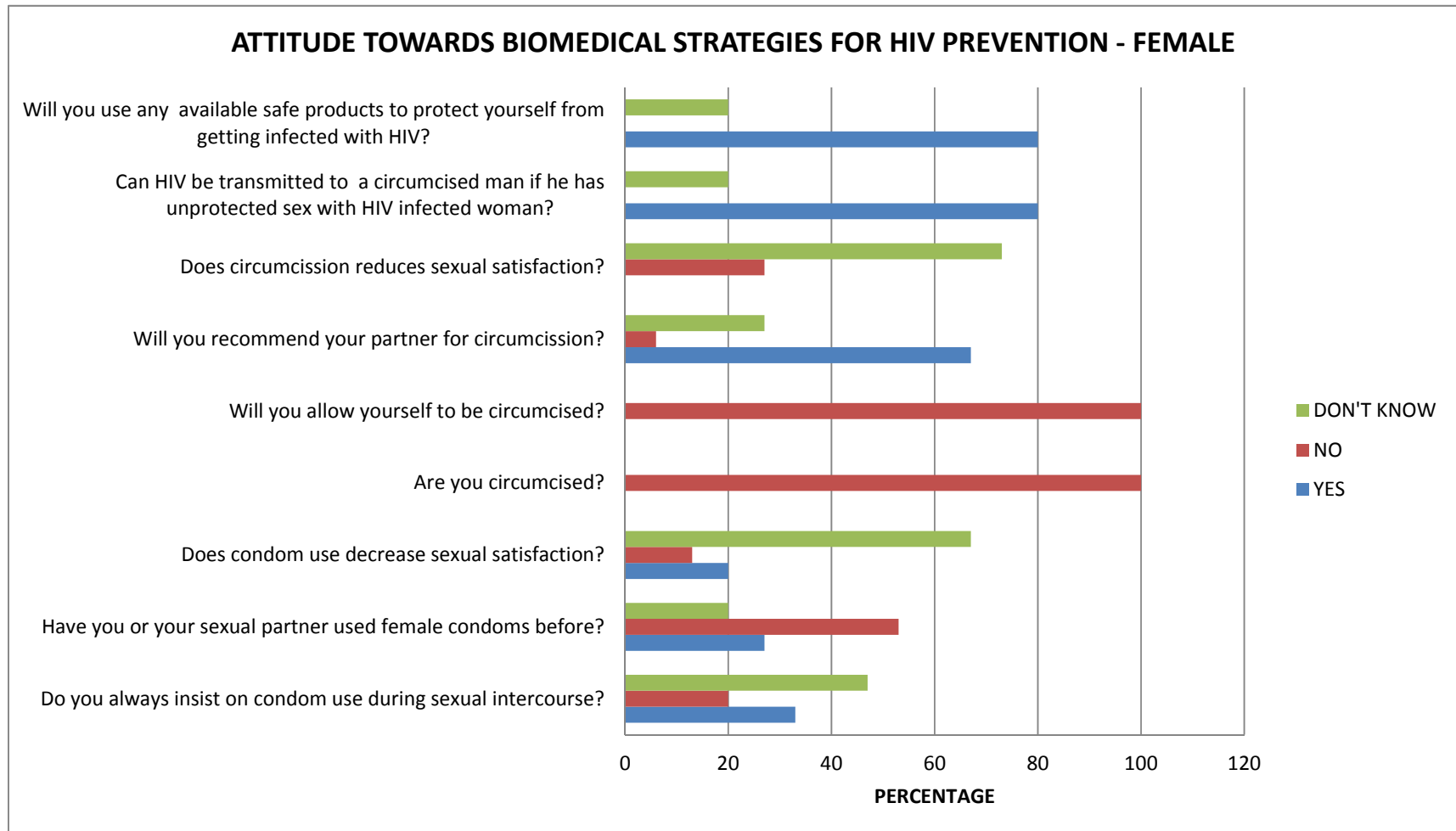


Medical male circumcision is not a popular biomedical strategy for HIV prevention among the male participants. The majority of males (65%) were not circumcised and only a quarter of the male participants will recommend circumcision for others. However, 60% of males said they will accept circumcision services. In addition, the uptake of condoms for HIV prevention is higher than other biomedical strategies among the male participants. 85% of the male participants claimed they always insist on the use of condom during sexual intercourse. Most males (95%) will readily use any available safe and effective biomedical products to protect themselves from HIV infection.

Table 9

<b>SECTION C</b>	<b>FEMALE</b>					
<b>ATTITUDE TOWARDS BIOMEDICAL STRATEGIES FOR HIV PREVENTION</b>						
<b>N =15</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
Do you always insist on condom use during sexual intercourse?	5	<b>33</b>	3	<b>20</b>	7	<b>47</b>
Have you or your sexual partner used female condoms before?	4	<b>27</b>	8	<b>53</b>	3	<b>20</b>
Does condom use decrease sexual satisfaction?	3	<b>20</b>	2	<b>13</b>	10	<b>67</b>
Are you circumcised?	0	<b>0</b>	15	<b>100</b>	0	<b>0</b>
Will you allow yourself to be circumcised?	0	<b>0</b>	15	<b>100</b>	0	<b>0</b>
Will you recommend your partner for circumcision?	10	<b>67</b>	1	<b>6</b>	4	<b>27</b>
Does circumcision reduces sexual satisfaction?	0	<b>0</b>	4	<b>27</b>	11	<b>73</b>
Can HIV be transmitted to a circumcised man if he has unprotected sex with HIV infected woman?	12	<b>80</b>	0	<b>0</b>	3	<b>20</b>
Will you use any available safe products to protect yourself from getting infected with HIV?	12	<b>80</b>	0	<b>0</b>	3	<b>20</b>

Figure 7



The uptake of condoms among female participants is low. A third of the female participants (33%) claimed they always insist on the use of condoms during sexual intercourse, while 47% said they did not know. These 47% could be sexually inactive members of the female participants.

The female participants showed better attitudes towards circumcision with 67% of the females claiming they will recommend their sexual partners for circumcision as opposed to 25% of males.

#### 4.2.4 PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION

Another major objective of this study is to identify practices and norms within Richards Bay that may promote or impede the use of biomedical strategies for HIV prevention. In addition, the availability of structures and community support that facilitate the uptake of biomedical strategies in the community was also investigated. The survey participants were asked nine closed questions under this section and the results are represented in the tables 10, figure 8 and figure 9. The results under this section will also be discussed using the gender of the participants.

Table 10

<b>SECTION D</b>						
<b>PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION</b>						
<b>N=35</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
Are male condoms accessible and readily available in Richards Bay?	32	<b>91</b>	1	<b>3</b>	2	<b>6</b>
Are female condoms accessible and readily available in Richards Bay?	5	<b>14.3</b>	5	<b>14.3</b>	25	<b>71.4</b>
Can you use condom correctly?	24	<b>69</b>	1	<b>3</b>	10	<b>28</b>
Do you know where circumcision can be done in Richards Bay?	22	<b>63</b>	13	<b>37</b>	0	<b>0</b>
There are following structures in Richards Bay to help people protect themselves against the spread of HIV:						
Condoms distribution outlets	16	<b>46</b>	6	<b>17</b>	13	<b>37</b>
Circumcision clinics	15	<b>43</b>	20	<b>57</b>	0	<b>0</b>
HIV counseling and testing facilities	20	<b>57</b>	4	<b>11</b>	11	<b>31</b>
Treatment options for those living with HIV or expose to HIV	23	<b>65.7</b>	2	<b>5.7</b>	10	<b>28.6</b>
Is the community doing enough to support people who are infected and affected by HIV?	5	<b>14</b>	14	<b>40</b>	16	<b>46</b>

Figure 8

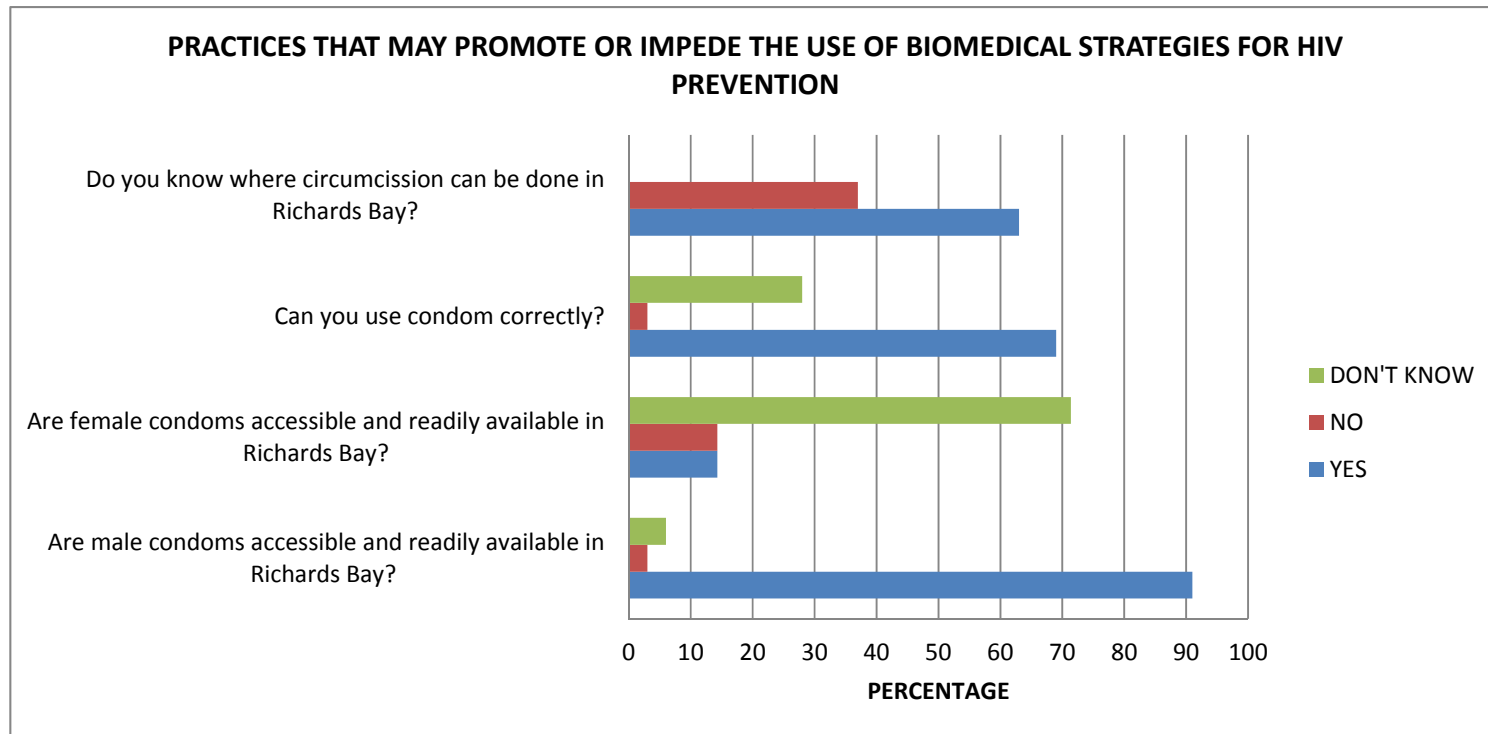
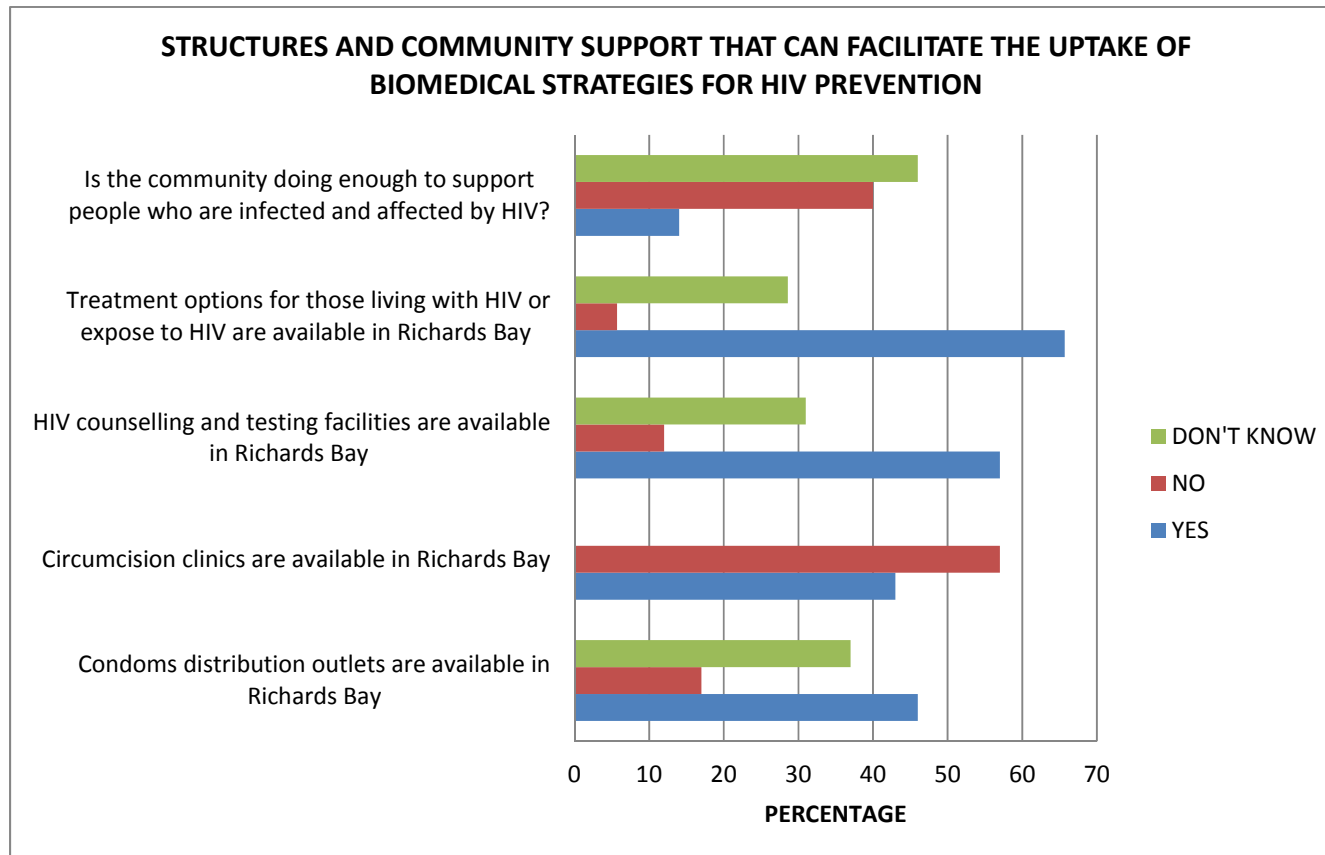


Figure 9





Female condoms are less accessible in Richards Bay compared to male condoms with 91% of the participants saying that male condoms are accessible in contrast to 14.3% of the respondents who said that female condoms are accessible and readily available. About two-third of the participants (63%) claimed to know where circumcision can be done in Richards Bay. However, 57% of the respondents said that there was no circumcision clinic in Richards Bay. This suggests that there could be some places where non-medical circumcision is taking place since 63% of the participants claimed earlier that they knew where circumcision can be done in Richards Bay. Two-thirds of the survey participants knew there are treatment options for those living with HIV or those who are expose to HIV in Richards Bay. The community response to HIV support is not visible enough with 40% of the participants claiming that the community is not doing enough to support those who are infected and affected by HIV in Richards Bay.

Table 11

<b>SECTION D</b>						
<b>PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION (MALE)</b>						
<b>N=20</b>	<b>YES</b>	<b>% YES</b>	<b>NO</b>	<b>% NO</b>	<b>DON'T KNOW</b>	<b>% DON'T KNOW</b>
Are male condoms accessible and readily available in Richards Bay?	19	<b>95</b>	0	<b>0</b>	1	<b>5</b>
Are female condoms accessible and readily available in Richards Bay?	1	<b>5</b>	3	<b>15</b>	16	<b>80</b>
Can you use condom correctly?	18	<b>90</b>	0	<b>0</b>	2	<b>10</b>
Do you know where circumcision can be done in Richards Bay?	14	<b>70</b>	6	<b>30</b>	0	<b>0</b>
There are following structures in Richards Bay to help people protect themselves against the spread of HIV:						
Condoms distribution outlets	11	<b>55</b>	2	<b>10</b>	7	<b>35</b>
Circumcision clinics	9	<b>45</b>	11	<b>55</b>	0	<b>0</b>
HIV counseling and testing facilities	9	<b>45</b>	1	<b>5</b>	10	<b>50</b>
Treatment options for those living with HIV or expose to HIV	13	<b>65</b>	1	<b>5</b>	6	<b>30</b>
Is the community doing enough to support people who are infected and affected by HIV?	3	<b>15</b>	7	<b>35</b>	10	<b>50</b>

Figure 10

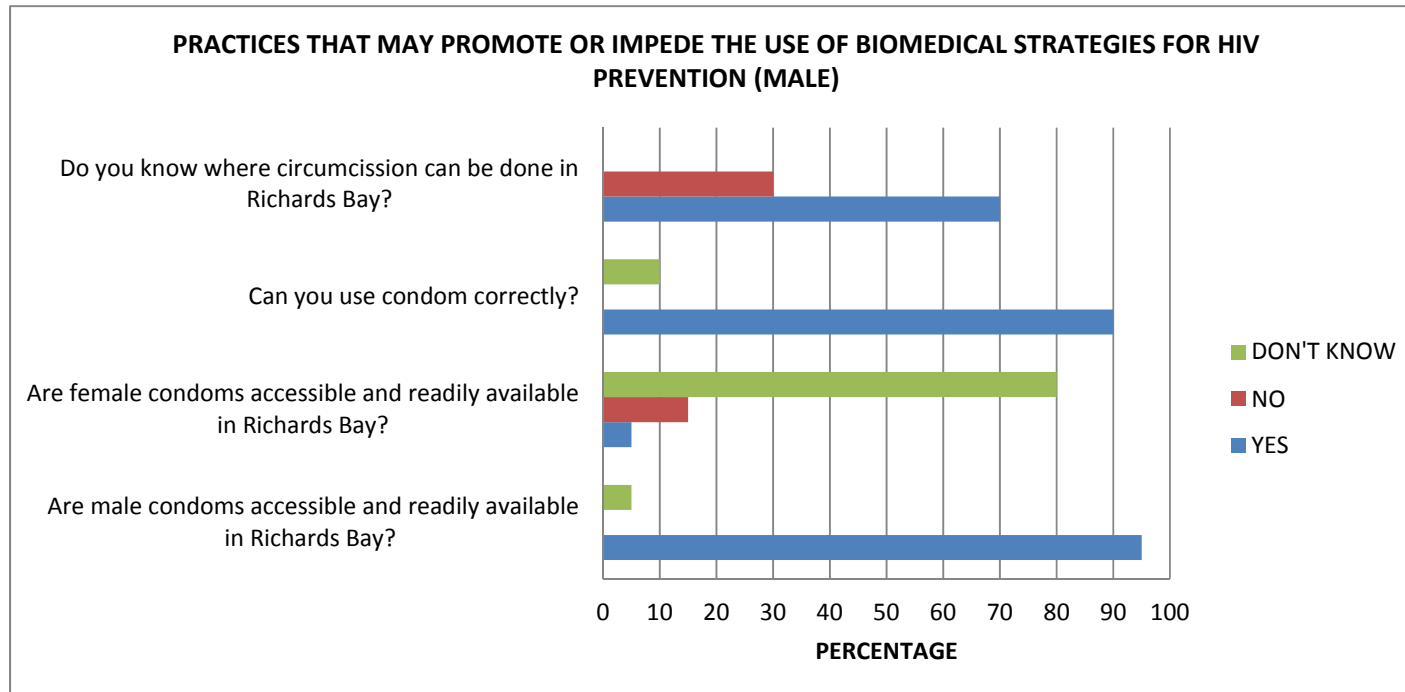
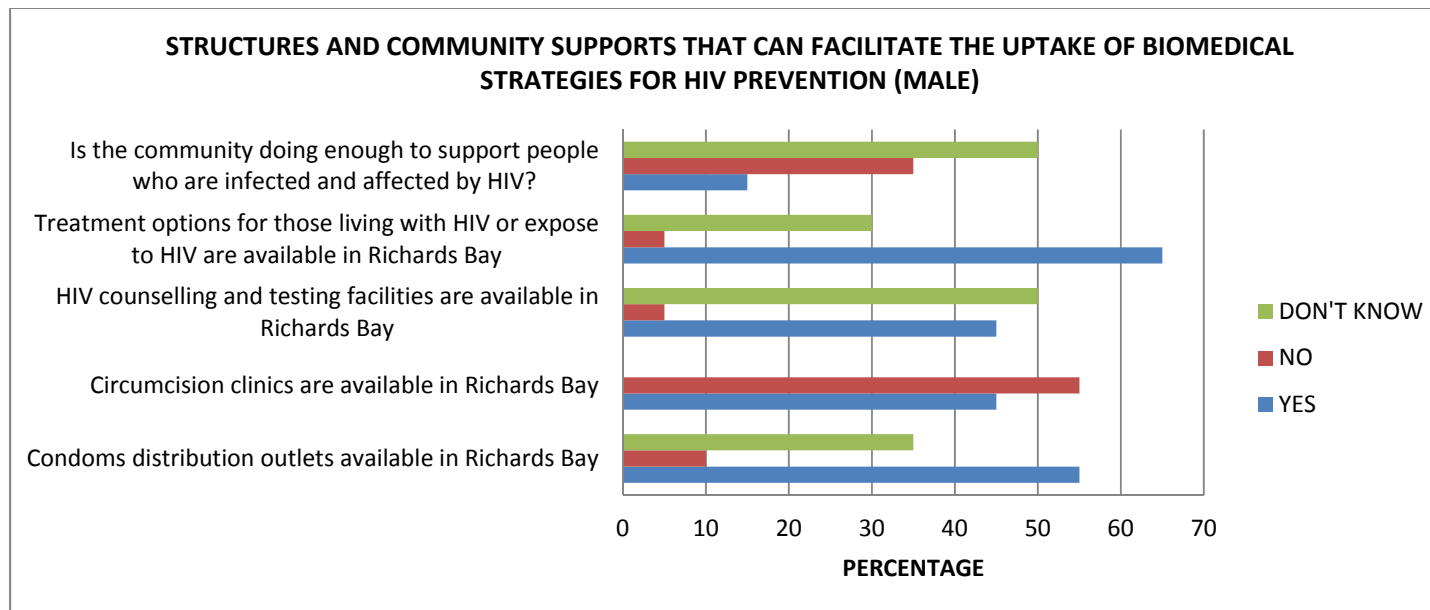


Figure11



Male condoms continue to be the most utilised preventive device with 95% of the male respondents knowing they were accessible, 90% claiming knowledge of their use and 55% being aware of distribution points. In contrast only 5% of males knew where to access female condoms, (compared with 27% of female respondents as described on page 49). While 70% of the males knew circumcision was available, less than half (45%) knew where circumcision clinics were. Treatment points remain the most well known (65%). Interestingly only 15% of the male respondents felt that the community response to HIV support was adequate.

Table12

<b>SECTION D</b>						
<b>PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION (FEMALE)</b>						
N=15	YES	% YES	NO	% NO	DON'T KNOW	% DON'T KNOW
Are male condoms accessible and readily available in Richards Bay?	13	<b>86</b>	1	<b>7</b>	1	<b>7</b>
Are female condoms accessible and readily available in Richards Bay?	4	<b>27</b>	2	<b>13</b>	9	<b>60</b>
Can you use condom correctly?	6	<b>40</b>	1	<b>7</b>	8	<b>53</b>
Do you know where circumcision can be done in Richards Bay?	8	<b>53</b>	7	<b>47</b>	0	<b>0</b>
There are following structures in Richards Bay to help people protect themselves against the spread of HIV:						
Condoms distribution outlets	5	<b>33</b>	4	<b>27</b>	6	<b>40</b>
Circumcision clinics	6	<b>40</b>	9	<b>60</b>	0	<b>0</b>
HIV counseling and testing facilities	11	<b>73</b>	3	<b>20</b>	1	<b>7</b>
Treatment options for those living with HIV or expose to HIV	10	<b>66</b>	1	<b>7</b>	4	<b>27</b>
Is the community doing enough to support people who are infected and affected by HIV?	2	<b>13</b>	7	<b>47</b>	6	<b>40</b>

Figure 12

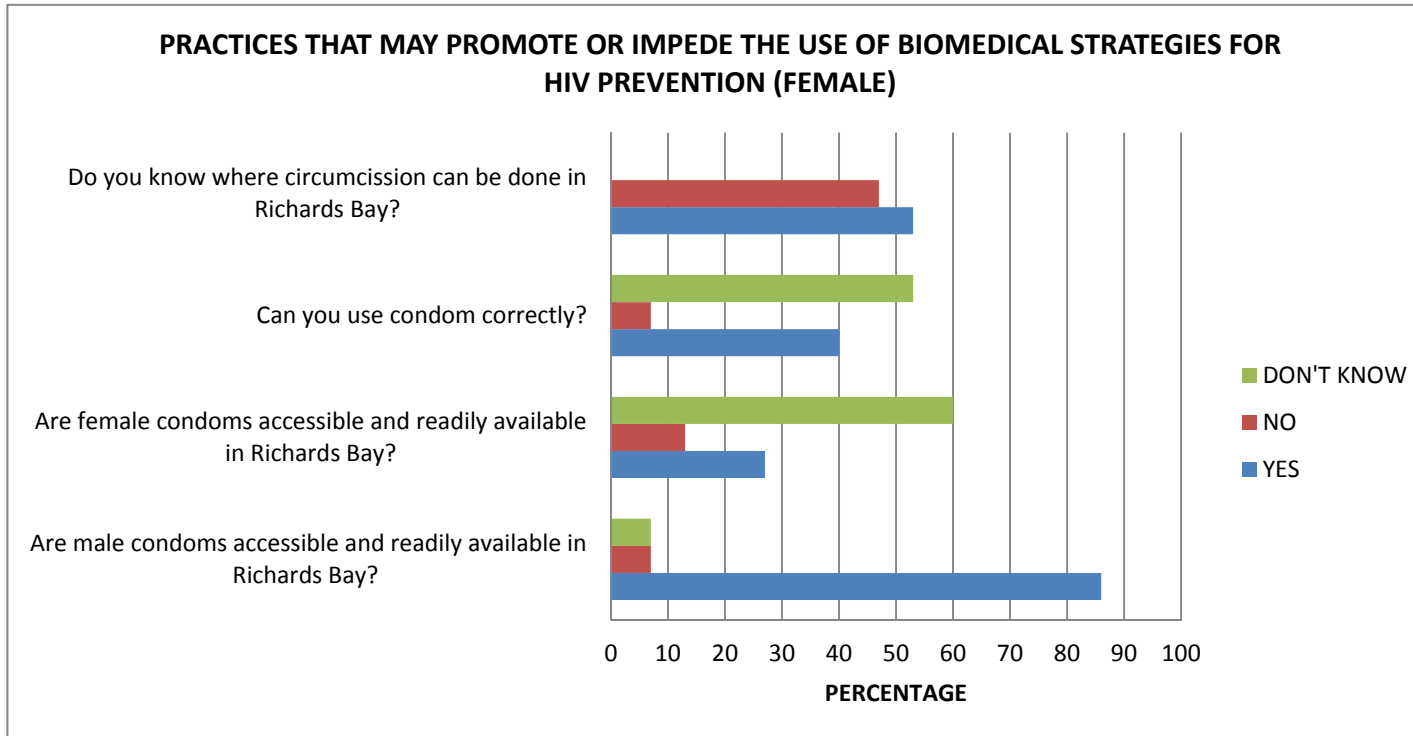
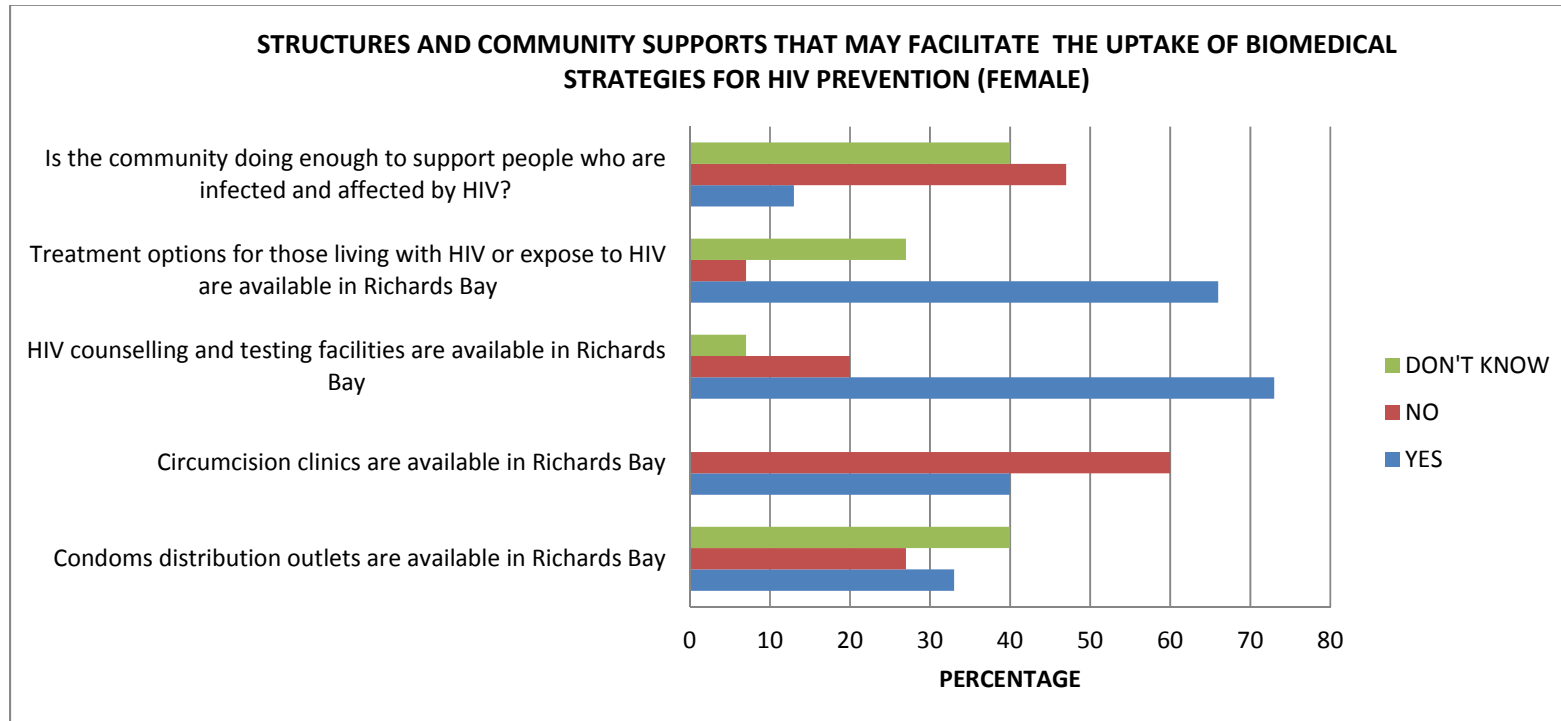


Figure 13





The most well known facility among the female participants was HIV counselling and testing facilities (73%). In addition, most female participants (86%) knew male condoms are accessible and readily available in Richards Bay and 33% being aware of the distribution outlets. In contrast, the utilisation of female condoms remains low with only 27% of the girls claiming that female condoms are accessible and readily available. About two- third (66%) of the female participants like male participants(65%) knew there are treatment options for those living with HIV or those who are expose to HIV in Richards Bay.

#### 4.2.5 OPEN QUESTIONS

To achieve the objectives of this study, eight free response questions were included in the questionnaire. The results will be discussed below:

**1) *How did you know the role of circumcision in prevention of HIV transmission?***

The respondents that knew about the role of circumcision in HIV prevention said they obtained this information from their parents, television, school, health workers, radio, and pamphlets. There were eleven respondents (31%) who did not know about the role of circumcision in HIV prevention

**2) *Why were you circumcised?***

20% of the participants were circumcised and they claimed they were motivated by their parents to reduce HIV infectiousness

**3) *Where was the circumcision performed?***

Seven male respondents that claimed to be circumcised had their circumcision done in the clinic.

**4) *What is the best way to prevent sexual transmission of HIV?***

The survey participants mentioned abstinence, using condoms, regular HIV testing, sticking to one sexual partner as different ways to prevent sexual transmission of HIV.

Table 13: WHAT IS THE BEST WAY TO PREVENT SEXUAL TRANSMISSION OF HIV?

N=35	FREQUENCY	PERCENTAGE
Abstinence	21	<b>60</b>
Using condom	23	<b>63</b>
Regular HIV testing and counseling	3	<b>9</b>
Sticking to one sexual partner	1	<b>3</b>

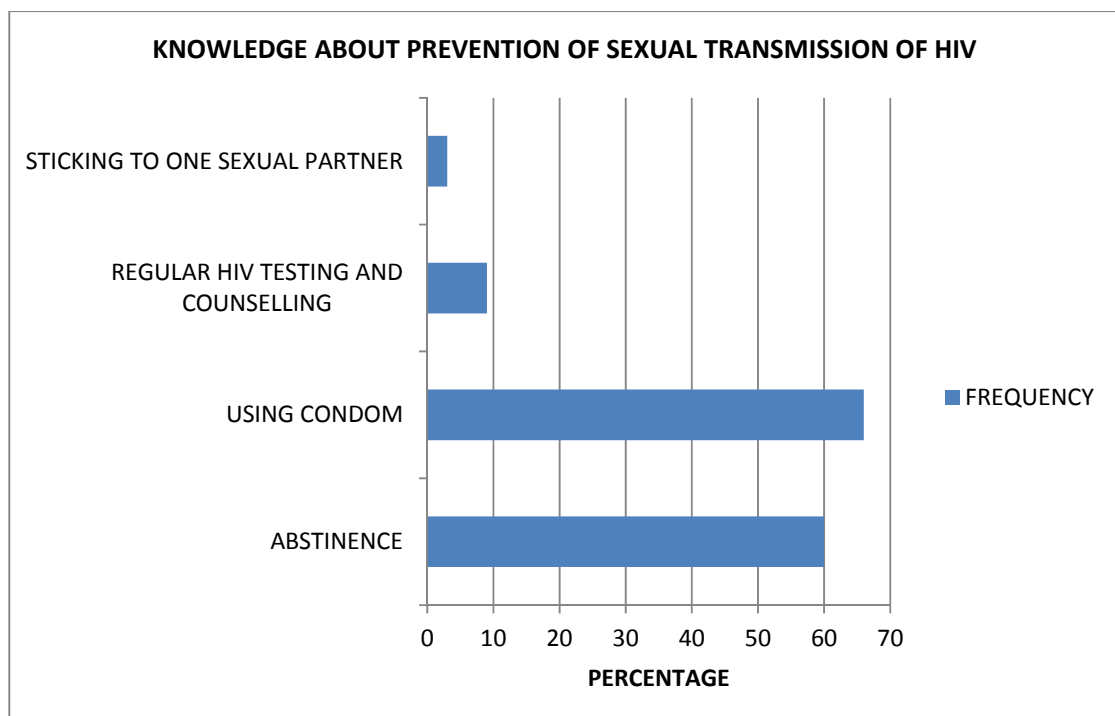


Figure 14

5) *Three ways you can protect yourself from HIV infections are:* Most respondents mentioned usage of condom, abstinence, protection and treatment of open wounds, HIV testing and

counseling, No sharing of needles and sharp objects as ways of protecting themselves from HIV infection.

Table 14: THREE WAYS YOU CAN PROTECT YOURSELF FROM HIV INFECTION

N=35	FREQUENCY	PERCENTAGE
Abstinence	25	71
Using condom	33	94
Regular HIV counseling and testing	10	29
Be faithful to one sexual partner	10	29
circumcision	1	3
Do not share needles or any sharp object	4	11
Proper wound management	2	6
Avoid contact with blood	8	23

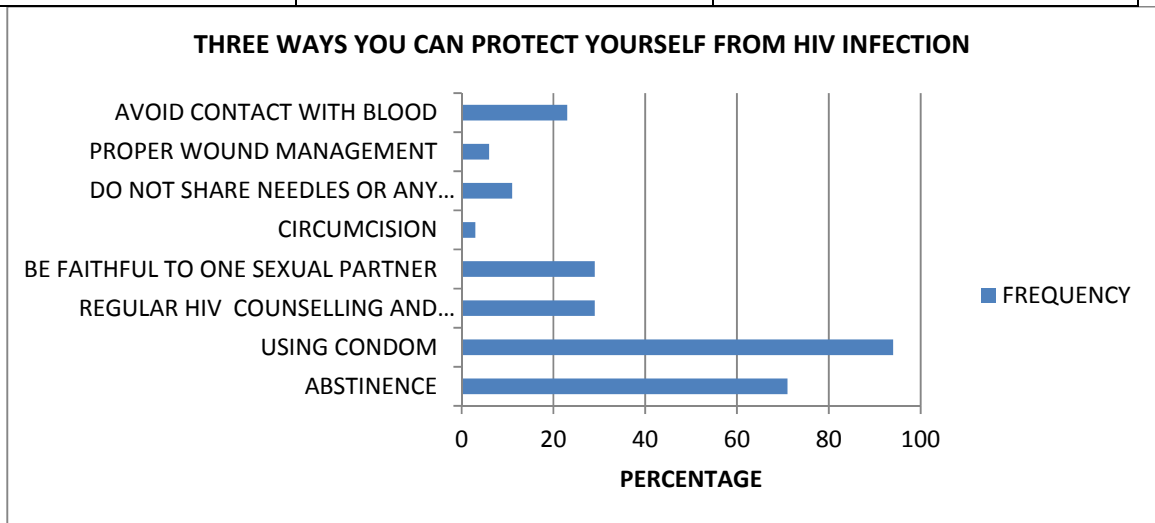


FIGURE 15

6) *Where do you normally get condoms?*

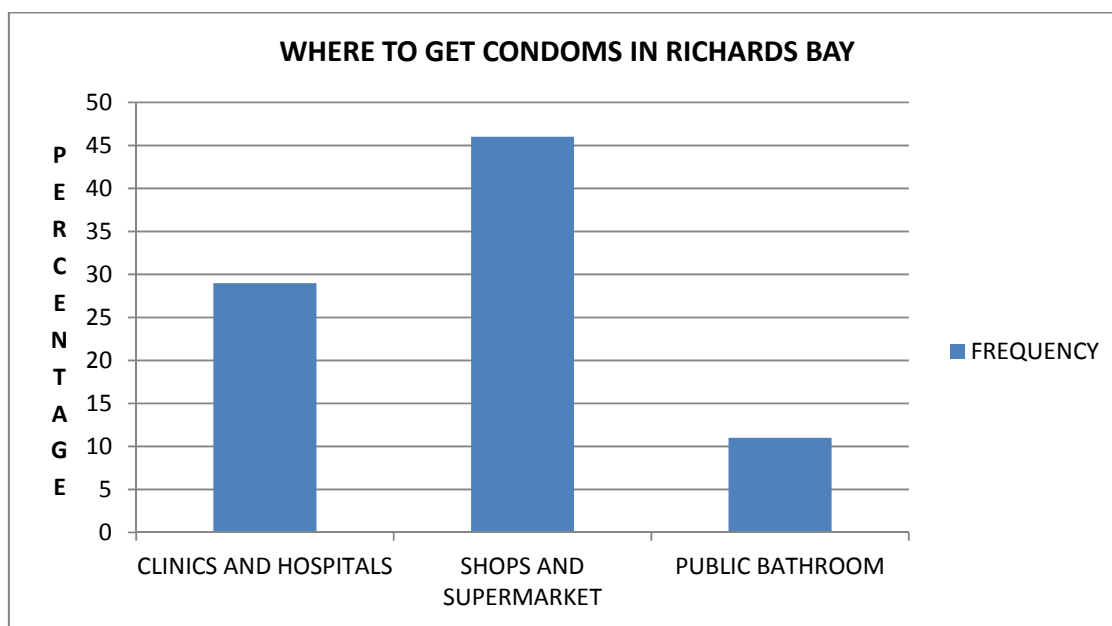
Clinics and hospitals, shops and supermarkets and random bathrooms are the places mentioned by the participants

These results are represented table 15 and figure 16

Table 15: WHERE DO YOU GET CONDOMS FROM IN RICHARDS BAY?

N=35	FREQUENCY	PERCENTAGE
Clinics and hospitals	10	<b>29</b>
Shops and supermarkets	16	<b>46</b>
Public bathroom	4	<b>11</b>

Figure 16



**7). Why do people have sex without condoms?**

Different reasons were given by the participants on why youth engage in sexual activities without using condoms. The reasons includes: Belief by some people that sex without condoms is more satisfying and enjoyable and lack of sex education. “Spontaneity” is also mentioned as a reason why youth have sex without using condoms according to one of the respondents: “sometimes people are caught in the moment”. In addition, participants also mentioned that youth can be vulnerable as a result of substance abuse, poor decision making skills, and weak negotiation skills aggravated by poverty. Also, lack of access to condom, irritation by condom users, tradition, customs, myths and peer pressure are reasons why people have unprotected sex.

Another participant said “unprotected sex may be used to express mutual trust” between two sexual partners.

#### 4.2.6 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION

##### 8) *How do you get new information and development about HIV?*

Table 16

N=35	FREQUENCY	PERCENTAGE
NEWSPAPER	15	<b>43</b>
RADIO	16	<b>46</b>
TELEVISION	25	<b>71</b>
SCHOOL	26	<b>74</b>
INTERNET	16	<b>46</b>
FRIENDS	13	<b>37</b>
LEAFLETS	6	<b>17</b>
BILLBOARDS	6	<b>17</b>
HEALTHCARE WORKERS	11	<b>31</b>
MAGAZINES	19	<b>54</b>
PARENTS	4	<b>11</b>
CHURCH	1	<b>3</b>

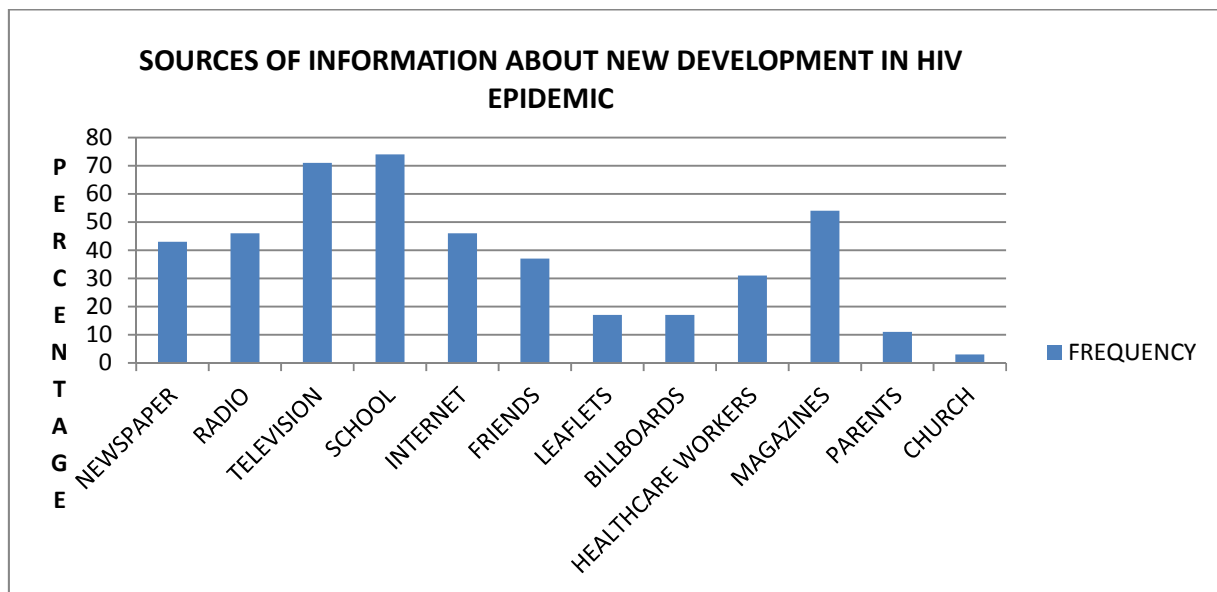


Figure 17

Majority of the respondents learnt new information about the new development in HIV epidemic through their schools and television.

#### 4.3 PART TWO: RESULTS OF THE FOCUS GROUP SESSION

This section presents the findings of the focus group discussion. Eight participants who met the sampling criteria took part in the focus group session. Another volunteer served as the secretary to take the notes. The investigator served as the moderator of the session.

##### 4.3.1 BACKGROUND

Four of the participants were male and the remaining four were female. All the participants have completed secondary education and they can speak fluent English language. The first question was “how long have you being staying in Richards Bay?” From the responses of the participants,

all of them have been staying in Richards Bay for more than five years. This question established that the participants knew Richards Bay very well.

#### 4.3.2 KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION

- ***How would you protect yourself from HIV infection?*** Most of the participants mentioned that not sharing needles or sharp objects is one way of preventing HIV infection. A female participant said “I will not share used needles”. Also, regular HIV testing was mentioned by majority of the participants. One of the participants said “getting regularly tested with my sexual partner”. A male participant said “by using protection”. This means using both male and female condoms during sex. Three of the eight participants mentioned abstinence as a way to protect them against HIV infection.
- ***Are condoms really effective in preventing HIV transmission?*** All the participants said that the use of condom is not 100% effective in HIV prevention.
- ***Does male circumcision have any effect on HIV transmission?*** A half of the participants did not know whether circumcision has any effect on HIV transmission. A male participant said “circumcision has nothing to do with HIV transmission”. Another participant said “circumcision reduces the chance of getting sexually transmitted infections” Three of the participants learnt from Life science when they were in school that “it may help to reduce transmission of HIV to circumcised male”
- ***Have you heard of antiretroviral drugs? Do they have any role in prevention of HIV transmission?*** All the eight participants have heard about ARV drugs. Two of the participants only understood the question when the acronym “ARV” was used. Most of the participants (six) did not believe that ARV drugs have any influence on HIV transmission. A participant said “ARV drugs are to treat those who are already infected with HIV and not to prevent HIV infection”. Two participants claimed to have heard of ARV drugs being given to rape victims. A participant said “treating a rape victim with ARV drugs within 72 hours of the rape incident can be effective” One of the two

participants who believe that ARV medications has a role in HIV prevention also mentioned how ARV drugs can be used by HIV infected pregnant mother to prevent the HIV transmission to the unborn baby. Another participant said that “HIV is too powerful, so ARV drugs cannot prevent HIV transmission”. These responses indicate that some participants have heard about PMTCT and PEP though those acronyms were not mentioned during the focus group discussion.

- ***Is there any HIV-prevention method that is female initiated?*** All the participants have heard about female condom but only two of the participants have seen a female condom before. A participant considered abstinence as an option which a female individual can use for HIV prevention. A female participant mentioned “female circumcision” as a female initiated prevention method. Three of the participants mentioned negotiation as a tool that women can use by demanding that men should use condom before sex

#### 4.3.3 ATTITUDE TOWARDS BIOMEDICAL STRATEGIES

- ***Does condom affect sexual satisfaction?*** Seven of the participants said that condom use decrease sexual satisfaction. A female participant claimed that “using condom during sexual intercourse without lubricant may be painful for girls”. A male participant said “sex without condom is fun because it allows skin to skin contact”.
- ***What are the barriers to usage of condom among youth?*** All the participants gave various barriers to usage of condom among youth such as: Substance abuse (alcohol in particular) lead to poor judgment and poor decision making. A participant said “Alcohol abuse can lead to sexual intercourse without using condom”. Another participant said “Some people may not use condom just to express mutual trust to each other”. Also, a female participant said “other partner may felt being accused of having HIV if the female partner demands for the usage of condom before sex”. One participant mentioned that “people may think you are immoral if you carry condom around” and this discourages certain people from using condom because of the



associated stigma. Another participant said “people may feel ashamed of going to the shops to buy condom”.

- ***Does circumcision affect sexual satisfaction?*** Most participants did not know the effect of male circumcision on sexual satisfaction. One male participant however said that circumcision prevents premature ejaculation. He said that “if you are not circumcised, you ejaculate faster than if you are circumcised”.
- ***Will you encourage your partner or friends to do circumcision?*** Three participants said they will encourage their others to do circumcision because it will help them against HIV transmission. Another participant said “with circumcision, they have less chance of contracting sexually transmitted diseases” Four participants said they will not encourage others to do circumcision because they think it is painful. One participant said “No, because it will be painful especially if the person is old”.
- ***Would you use any new product that is safe to protect yourself against HIV infection?*** Most participants were not sure whether they will use any safe product or not if it is available. One male participant however said he “will only use a new product for HIV prevention if it is prescribed by a medical doctor”.

#### 4.3.4 PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION

- ***Where can male circumcision be performed in Richards Bay?*** Five participants mentioned clinics and hospitals as the places where medical male circumcision can be done in Richards Bay. None of the participants know where traditional circumcision can be done in Richards Bay. One participant said “Initiation is not a cultural practice in Zululand”.
- ***Do you think circumcision is too expensive?*** Five participants said circumcision is free in government hospitals and clinics. A participant said “In government clinics, they do it for free”.

- ***Can a circumcised male be infected if he has unprotected sex with an HIV infected female?*** The eight participants replied that a circumcised male may be infected with HIV if he has unprotected sex with an HIV infected female.
- ***How can government help in preventing the spread of HIV in Richards Bay?*** One participant said government needs to mobilise the community and the parents continuously and relentlessly. Two participants claimed government has done enough to prevent HIV in Richards Bay and that the community should take responsibility. A female participant said “Government should emphasise abstinence rather than distribution of condoms to youth”. Another participant said government “should promote and sponsor social groups” to mobilise and educate the community on HIV.
- ***How can community support people infected and affected by HIV?*** Some participants said that the community can offer its support by forming social and support groups to care for those already infected with HIV and to educate the community on HIV prevention and stigma through advocacy. A participant said “talking about HIV helps people to know more about it and it also help people that surround HIV infected person to act normal and not to be scared of them”. Another participant said community can support PLHIV by “helping them to adhere to their medication”. Another participant wants the community to support the PLHIV financially. He said “Financial contribution for local clinics to help people that are HIV infected”. One participant said the community should “ask people who has tested positive to HIV but living positively to share their experience with other people”.

#### 4.3.5 SOURCES OF INFORMATION ON BIOMEDICAL STRATEGIES FOR HIV PREVENTION

- ***How do you get new information and development about HIV?*** All the participants gave different ways they acquire new information about HIV epidemics. These include Television news and drama, Posters, Hospitals. Some claimed to have learnt about HIV when they were in secondary school through Life orientation and life science lessons.

#### 4.4 SUMMARY

This chapter presented and discussed the results of this study. These findings will be discussed along with the objectives of the study in the next chapter. The conclusions drawn from the study results will then be extrapolated to make recommendations.

## CHAPTER FIVE

### 5.1 INTRODUCTION

The results of this study presented in chapter four will be discussed in the context of the set objectives of this study. In addition to this, an informed conclusion will be drawn from the study, followed by recommendations.

### 5.2 DISCUSSION

The formulated objectives for this study are:

- To assess the knowledge of the post secondary school youth living in Richards Bay about biomedical intervention for HIV prevention.
- To ascertain the attitude of the youth towards biomedical intervention for HIV prevention.
- To identify practices and norms in the community that may promotes or impedes the use of biomedical strategies for HIV prevention.
- To provide guidelines for planning an effective roll out of biomedical intervention programme for HIV prevention in Richards Bay.

**OBJECTIVE ONE: To assess the knowledge of the post secondary school youth living in Richards Bay about biomedical intervention for HIV prevention.**

This study found that post secondary youth living in Richards Bay are partially knowledgeable about biomedical interventions for HIV prevention. The study showed that most of the participants knew that condoms are the major available biomedical strategies for prevention of HIV transmission. 94% of the participants that answered the questionnaire knew that HIV can be prevented through the use of male condom while 83% knew that it can be prevented through female condom. 63% of the respondents to the open questions said condom is the best way to prevent sexual transmission of HIV while 94% of the participants also mentioned condom as one

of the three ways to protect themselves against HIV infection. The participants in the focus group discussion also mentioned “using protection” during sexual intercourse to prevent transmission of HIV. In the focus group, the participants unanimously said that condoms are not 100% effective and this agreed with study of Padian et al (2008) that said correct and consistent use of condoms has 95% effectiveness. Most of the study participants knew that at present HIV infection cannot be prevented through a vaccine, 66% of the participants said that HIV cannot be prevented through vaccine. The study also found that a significant number of the study participants did not know about role of circumcision in HIV prevention. 20% of the participant said they did not know the role of circumcision in reduction of HIV transmission while 34% said male circumcision cannot reduce the chance of HIV transmission. 51% of the participants did not know whether microbicides exist or not while 3% of the participants said there is an effective and safe microbicide that can prevent HIV transmission. 37% of the participants did not know about PMTCT. 50% of the focus group participants did not know the role of circumcision in prevention of HIV and only 25% of the focus group participants knew about the role of ARV medications in HIV prevention. Most focus group participants see ARV drugs as a treatment tool for PLHIV rather than a strategy for prevention. This study found that the level of general knowledge about biomedical strategies for HIV prevention is low among the youth in Richards Bay since most participants knew only about condom as a strategy for HIV prevention.

In addition, the study found that the level of knowledge about biomedical intervention for HIV prevention is higher in female participants than male participants. 60% of female respondents said treatment of transmitted infections and HIV will reduce HIV infectiousness in the community as opposed to 45% of male respondents. 73% of female respondents knew the role of ARV drugs in PMTCT as opposed to 55% of boys. 60% of the female participants knew there is no effective and safe microbicide to prevent HIV infection as opposed to 35% of male participants. However, 75% of male participants knew there are no vaccines that can prevent HIV transmission compared to 53% of female. Both male and female participants knew about the role of condoms in prevention of HIV transmission. 87% of female participants knew HIV transmission can be prevented by using male and female condoms while 100% of male

participants knew male condom can be used to prevent HIV infection and 80% of male participants knew female condoms can be used to prevent HIV transmission.

**OBJECTIVE TWO: To ascertain the attitude of the youth towards biomedical intervention for HIV prevention**

The study found that the participants have good attitudes toward the use of condom during sex. More than 60% said they always insist on condom use during sexual intercourse. 88% of the focus group participants said condom use decreases sexual satisfaction and this may affect the uptake of condoms as a strategy for HIV prevention. However, the attitude toward circumcision was found to be poor. Only 20% of the participants were circumcised and with 40% of the male participants said they will not allow themselves to be circumcised. 43% of the study participants said they will recommend others for circumcision. Also 38% of the focus group participants said they will encourage others to do circumcision. 89% of the survey participant will be willing to use any safe and effective product that can prevent HIV transmission. This implies that the participants are open to new products to combat the transmission of HIV as long as the effectiveness and the safety profile of the products are established.

This study ascertained that the youth have good attitudes towards biomedical interventions for HIV prevention though much mobilisation and education will still have to be done with regards to circumcision.

The study also found that male participants have better attitudes to use of condom than the female participants. 85% of the male participants always insist on condom use as opposed to 33% of the female participants. This also indicates that more works should be done to equip young girls with good negotiation and communication skills. 67% of the female participants will encourage others to take up circumcision compared to 25% of the male participants. This shows that female participants have better attitudes toward circumcision compared to male participants. 95% of male and 80% of female participants are open to new biomedical strategies to prevent the

transmission of HIV which implies that both groups have good attitudes towards new biomedical strategies to prevent the spread of HIV epidemic.

**OBJECTIVE THREE: To identify practices and norms in the community that may promote or impede the use of biomedical strategies for HIV prevention**

The study identified certain practices that promote the use of biomedical strategies for HIV prevention in Richards Bay such as:

- Accessibility and availability of male condom: 91% of the study participants said that male condoms are available and accessible in Richards Bay. 95% of male participants and 86% of female participants said male condoms are accessible and available.
- The focus group participants said circumcision is free in government hospitals and clinics. This availability of this infrastructure definitely will promote the uptake of medical male circumcision.
- 69% of the participants can use condom correctly and 90% of male participants can use condom correctly.
- The respondents that knew the role of circumcision in HIV prevention heard from their parents, television programmes, health workers, pamphlets, radio and schools. The media campaign, parental supports, school curriculum and other platforms such as hospitals and pamphlets are identified as infrastructures and practices that will promote the use of biomedical strategies for HIV prevention.

The identified practices that may impede the use of biomedical strategies are:

- Lack of availability and accessibility to female condoms. About 14% of the survey participants said female condoms are available and are accessible. 5% of male participants and 27% of female participants said that female condoms are available and accessible in Richards Bay. This lack of accessibility and availability will impede the uptake of this biomedical strategy for HIV prevention.

- The respondents in the open questions and in the participants in the focus group mentioned stigma as one of the reasons why people do not use condoms during sex. Only 14% of the participants said the community is doing enough to support those who are infected and affected. Lack of community support and awareness could hinder the uptake of biomedical strategies for HIV prevention.
- Cultural practices: The participants in the in the focus group said that circumcision is not part of Zulu traditional practices and this may be the reason why there are just 35% of the male participants that were circumcised. The community will need to be mobilised and educated on the importance of medical male circumcision to HIV prevention to increase the uptake.
- Lack of awareness: Less than half of the study participants knew where condom distribution outlets (46) and circumcision clinics (43%) are in Richards Bay. 57% of the participants knew where to access HIV testing and counselling services and about 29% did not know that there is availability of treatment options for those living with HIV or expose to HIV. Also 46% of those who used condoms got it from shops and supermarket as opposed to 11% who accessed condom through public bathrooms. There is need to create massive awareness about the existence of facilities that can promote the uptake of available biomedical strategies for prevention. This study showed that such is lacking among the youth.
- According to WHO (2007) study, faith based organisations are important in combating the HIV epidemic in sub-Saharan African. However, this study revealed that there is less involvement of the faith based organisations in mobilising the community of Richards Bay with regards to biomedical strategies for prevention of HIV. The study shows that only 3% of the participants get new information about HIV from the church.



**OBJECTIVE FOUR: To provide guidelines for planning an effective roll out of biomedical intervention programme for HIV prevention in Richards Bay**

The guidelines for planning an effective roll out of biomedical strategies for HIV prevention will be discussed under the recommendations (5.4).

### 5.3 CONCLUSION

The study sought to evaluate the level of awareness about biomedical intervention for HIV prevention among post secondary school youth living in Richards Bay. The study showed that there is low level of knowledge generally about biomedical strategies for HIV prevention. Also, the survey results indicated that girls are more knowledgeable about biomedical prevention of HIV than boys. The findings of the study showed that the youth have positive attitudes to biomedical strategies for HIV prevention in general but a negative attitude towards circumcision. The study ascertained that the post secondary youth in Richards Bay are open to new biomedical products and strategies to prevent HIV infection provided the safety profile and the efficacy has been established.

The study also identified the practices within Richards Bay community that may promote the use of condoms and uptake of medical male circumcision as a strategy in reducing HIV infectiousness. In addition, the study identified practices and norms within Richards Bay that may impede the uptake of biomedical strategies.

### 5.4 RECOMMENDATIONS

The following recommendations are proposed based on the findings of the study. These recommendations will achieve the fourth objective which is to provide guidelines for the planning of effective roll out of biomedical strategies in Richards Bay.

- The municipal government, community leaders and NGOs in Richards should acknowledge the need to educate and mobilise the community about biomedical strategies for HIV prevention such as condoms, circumcision, PMTCT, PEP, PrEP, HAART and VCT
- The Umhlatuze municipality needs to create increased awareness within Richards Bay about its available facilities and services like free circumcision and condom distribution outlets that can increase the uptake of biomedical strategies for HIV prevention. This will make the existing biomedical interventions more visible and more accessible to the residents of Richards Bay.
- The government needs to engage the faith based organisations and other NGOs to integrate biomedical strategies for HIV prevention in their awareness campaign.
- Provision of female condoms in larger quantities. This must be preceded by creating awareness about female condom utilisation in Richards Bay.
- Multimedia campaign against HIV-related stigma and discrimination should be intensified in Richards Bay.
- Organised private sector in Richards Bay should be mobilised to support the roll out of biomedical strategies for HIV prevention through their corporate social investment.
- Integrating biomedical strategies for HIV prevention into existing HIV intervention programmes to build sustainable combination strategies to combat HIV epidemic.
- Setting up an effective and efficient monitoring and evaluation framework so as to improve the quality of impact made by adopted biomedical strategies.
- Build an efficient communication network to constantly update the residents of Richards Bays about new development about biomedical strategies for HIV prevention.

## 5.5 LIMITATIONS OF THE STUDY

There are 35 participants that took part in the survey and 8 participants in the focus group discussion and these participants were selected using convenient sampling method. This implies

that the findings of this study may not be generalised for all the youth and residents that lives in Richards Bay.

The participants in the study were aged between 18 years to 24 years old and they had a minimum of secondary school education. Therefore, the findings of the study may not reflect the true awareness among the youth do not fall within this age bracket or who do not have the same level of education.

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## APPENDICES

### Appendix 1: Informed consent (Questionnaire)



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#### STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

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AN EVALUATION OF THE LEVEL OF AWARENESS ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION AMONG THE POST SECONDARY SCHOOL YOUTH LIVING IN RICHARDS BAY.

#### SURVEY BY QUESTIONNAIRE

You are asked to participate in a research study conducted by Mr. Adekola Ayobami Precious from the African Centre for HIV/AIDS management at Stellenbosch University. The results of the study will contribute to the research paper for the award of Mphil in HIV/AIDS management by Stellenbosch University. You were selected as a possible participant in this study because you are a resident of Richards Bay; you have a minimum of secondary school education and your age fall between 18 years to 24 years.

**1. PURPOSE OF THE STUDY** :To investigate the level of awareness of biomedical intervention for HIV prevention among the post secondary school youths living in Richards Bay.

#### **2. PROCEDURES**

If you volunteer to participate in this study, we would ask you to do the following things:

- To complete a questionnaire.
- You do not have to declare your personal and identifiable information.
- It will take about thirty minutes to complete the questionnaire.
- Your participation is by choice, confidential and private.

### 3. POTENTIAL RISKS AND DISCOMFORTS

The risk in this study is minimal and it is not greater than those ordinarily encountered in daily life or in performance of routine physical and psychological activities.

### 4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

There is no financial benefit to the participants. The participants may benefit from awareness of new HIV prevention strategies. The study itself will provide useful information to stakeholders in HIV epidemic management on effective planning of biomedical intervention programmes for HIV prevention in Richards Bay so as to complement other existing intervention programmes in the community.

### 5. PAYMENT FOR PARTICIPATION

You will not be paid for your involvement in the survey.

### 6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by presenting the result of the study in group form and no individual will be identified. The returned questionnaires will be kept in the locked safe accessible to the researcher only. The result of the study will also be made available to Stellenbosch University which may be accessible by other researchers and academics.

### 7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. Should you require counseling as a result of your participation in the survey, feel free to contact the following organizations for professional HIV counseling services:

Lifeline Zululand, 14, Bauhinia bend, Arboretum, Richards Bay, 3900, Phone number: 0357892472.

Richards Bay Civic Centre Clinic, Corner Mark Strasse and Lira Link street, Richards Bay, 3900.

Phone number: 0359075303

### 8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

Researcher: Mr. Adekola Ayobami Precious. Cellphone: 0825348095, email: [payobami@gmail.com](mailto:payobami@gmail.com)

Study Leader: Dr. Greg Munro. Cellphone: 0836292567, email: [greg@sybaweb.co.za](mailto:greg@sybaweb.co.za)

9. **RIGHTS OF RESEARCH SUBJECTS** : You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding

your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

**SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE**

The information above was described to me by Adekola Ayobami P in English and I am in command of this language. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

\_\_\_\_\_

Name of Participant

\_\_\_\_\_

Signature of Participant

\_\_\_\_\_

Date

**SIGNATURE OF INVESTIGATOR**

I declare that I explained the information given in this document to \_\_\_\_\_. He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

\_\_\_\_\_

**Signature of Investigator**

\_\_\_\_\_

**Date**

## Appendix 2: Informed consent (Focus group)



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### STELLENBOSCH UNIVERSITY CONSENT TO PARTICIPATE IN RESEARCH

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AN EVALUATION OF THE LEVEL OF AWARENESS ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION AMONG THE POST SECONDARY SCHOOL YOUTH LIVING IN RICHARDS BAY.

#### FOCUS GROUP

You are asked to participate in a research study conducted by Mr. Adekola Ayobami Precious from the African Centre for HIV/AIDS management at Stellenbosch University. The results of the study will contribute to the research paper for the award of Mphil in HIV/AIDS management by Stellenbosch University. You were selected as a possible participant in this study because you are a resident of Richards Bay, you have a minimum of secondary school education and your age fall between 18 years to 24 years.

#### 1) PURPOSE OF THE STUDY

To investigate the level of awareness of biomedical intervention for HIV prevention among the post secondary school youths living in Richards Bay.

#### 2) PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

- To attend a focus group session. This is a participatory group discussion of eight participants who fall within the same age range with you and who are residents of Richards Bay. There will be a moderator for the session.
- You do not have to declare your personal and identifiable information. The focus of discussion is on the awareness of biomedical prevention of HIV among post secondary school youths living in Richards Bay.
- It will take about two hours to complete the session
- The audio of the session will be recorded.
- The venue of the focus group session will be accessible, secured and comfortable.
- Your participation is by choice, confidential and private.

- You will undertake to respect the confidentiality of all information divulged in the focus group and that you will not discuss such information outside the focus group.

**3) POTENTIAL RISKS AND DISCOMFORTS**

The risk in this study is minimal and it is not greater than those ordinarily encountered in daily life or in performance of routine physical and psychological activities.

**4) POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

There is no financial benefit to the participants. The participants may benefit from awareness of new HIV prevention strategies discussed during the focus group session. The study itself will provide useful information to stakeholders in HIV epidemic management on effective planning of biomedical intervention programmes for HIV prevention in Richards Bay so as to complement other existing intervention programmes in the community.

**5) PAYMENT FOR PARTICIPATION**

Participants will not be paid for their involvement in the survey. Light refreshment will be served during the focus group session.

**6) CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by presenting the result of the study in group form and no individual will be identified. The recorded audio will be kept in the locked safe accessible to the researcher only. The result of the study will also be made available to Stellenbosch University which may be accessible by other researchers and academics.

- 7) PARTICIPATION AND WITHDRAWAL :** You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. Should you require counseling as a result of your participation in the focus group, feel free to contact the following organizations for professional HIV counseling services:

Lifeline Zululand, 14, Bauhinia bend, Arboretum, Richards Bay, 3900, Phone number: 0357892472.

Richards Bay Civic Centre Clinic, Corner Mark Strasse and Lira Link street, Richards Bay, 3900. Phone number: 0359075303

**8) IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact:

Researcher: Mr. Adekola Ayobami Precious. Cellphone: 0825348095, email: [payobami@gmail.com](mailto:payobami@gmail.com)

Study Leader: Dr. Greg Munro. Cellphone: 0836292567, email: [greg@sybaweb.co.za](mailto:greg@sybaweb.co.za)

**9) RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you

have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

**SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE**

The information above was described to me by Adekola Ayobami P in English and I am in command of this language. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

\_\_\_\_\_

Name of Participant

\_\_\_\_\_

Signature of Participant

\_\_\_\_\_

Date

**SIGNATURE OF INVESTIGATOR**

I declare that I explained the information given in this document to \_\_\_\_\_. He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

\_\_\_\_\_

Signature of Investigator

\_\_\_\_\_

Date

### Appendix 3

#### THE SURVEY QUESTIONNAIRE

Dear participant, thank you for joining in filling this questionnaire. Kindly provide honest and true answers to these questions. It will take about 30 minutes to complete the questionnaire. Please do NOT write your name or any identification details on the questionnaire. The information you provide to the researcher is anonymous and confidential and will only be used to prepare the final report of this study. Your participation is highly appreciated.

#### SECTION A: BACKGROUND

Please fill in the blank and tick the most appropriate answer for each question where necessary.

1. Gender: MALE  FEMALE
2. What is your highest academic qualification?  
Grade 12  Diploma  Degree  Postgraduate degree

#### SECTION B: KNOWLEDGE ABOUT BIOMEDICAL INTERVENTION FOR HIV PREVENTION

Please tick the appropriate answer for each question.

NO	QUESTIONS	YES	NO	DON'T KNOW
<b>1</b>	HIV transmission can be prevented through:			
1.1	Male condom			
1.2	Female condom			
1.3	Male circumcision			
1.4	HIV Vaccine			
1.5	Microbicide gel or cream			
1.6	Antiretroviral medications			
<b>2</b>	Can male circumcision reduce the chance of HIV transmission?			

<b>3</b>	Are there safe creams or gels that can prevent HIV transmission?			
<b>4</b>	Antiretroviral drugs can protect unborn child of HIV infected mother from HIV transmission			
<b>5</b>	Can HIV vaccine cure a person of HIV?			
<b>6</b>	Can treatment of sexually transmitted infections and HIV reduce HIV transmission in the community?			

## SECTION C

**ATTITUDE TOWARDS BIOMEDICAL STRATEGIES FOR HIV PREVENTION**

<b>NO</b>	<b>QUESTIONS</b>	<b>YES</b>	<b>NO</b>	<b>DON'T KNOW</b>
<b>1</b>	Do you always insist on condom use during sexual intercourse?			
<b>2</b>	Have you or your sexual partner used female condoms before?			
<b>3</b>	Does condom use decrease sexual satisfaction?			
<b>4</b>	Are you circumcised?			
<b>5</b>	Will you allow yourself to be circumcised?			
<b>6</b>	Will you recommend your partner for circumcision?			
<b>7</b>	Does circumcision reduces sexual satisfaction?			
<b>8</b>	Can HIV be transmitted to a circumcised man if he has unprotected sex with HIV infected woman?			
<b>9</b>	Will you use any available safe product to protect yourself from getting infected with HIV?			



## SECTION D

**PRACTICES THAT MAY PROMOTE OR IMPEDE THE USE OF BIOMEDICAL STRATEGIES FOR HIV PREVENTION**

NO	QUESTIONS	YES	NO	DON'T KNOW
1	Are male condoms accessible and readily available in Richards Bay?			
2	Are female condoms accessible and readily available in Richards Bay?			
3	Can you use condom correctly?			
4	Do you know where circumcision can be done in Richards Bay?			
5	There are following structures in Richards Bay to help people protect themselves against the spread of HIV:			
5.1	Condoms distribution outlets			
5.2	Circumcision clinics			
5.3	HIV counseling and testing facilities			
5.4	Treatment options for those living with HIV or expose to HIV			
6	Is the community doing enough to support people who are infected and affected by HIV?			

**FREE RESPONSE QUESTIONS**

(1) How did you know about the role of circumcision in prevention of HIV transmission?

\_\_\_\_\_

(2) Why were you circumcised? \_\_\_\_\_

(3) Where was it performed?

CLINIC  TRADITIONAL  DON'T KNOW

(4) What is the best way to prevent sexual transmission of HIV?

\_\_\_\_\_

(5) Write three ways you can protect yourself from HIV infection

5.1 \_\_\_\_\_

5.2 \_\_\_\_\_

5.3 \_\_\_\_\_

(6) Where do you normally get condoms? \_\_\_\_\_

(7) In your opinion, why do people have sex without condom?

\_\_\_\_\_

(8) You get new information and development about HIV epidemic through:

NEWSPAPER  RADIO  TELEVISION  SCHOOL

INTERNET  FRIENDS  LEAFLETS  BILLBOARDS

HEALTH CARE WORKERS  MAGAZINES

OTHERS \_\_\_\_\_

**THANK YOU**

**Appendix 4: Focus group discussion questions**

1. Background.
  - 1.1 How long you have being staying in Richards Bay?
2. Knowledge about Biomedical Strategies for HIV prevention.
  - 2.1 How would you protect yourself from HIV infection?
  - 2.2 Are condoms really effective in preventing HIV transmission?
  - 2.3 Does male circumcision have any effect on HIV transmission?
  - 2.4 Have you heard of antiretroviral drugs? Do they have any role in prevention of HIV transmission?
  - 2.5 Is there any prevention method that is female initiated?
3. Attitudes toward Biomedical strategies for HIV prevention.
  - 3.1 Does condom affect sexual satisfaction?
  - 3.2 What are the barriers to usage of condom among youths?
  - 3.3 Does circumcision affect sexual satisfaction?
  - 3.4 Will you encourage your partner or friends to do circumcision?
  - 3.5 Would you use any new product that is safe to protect yourself against HIV infection?
4. Practices that may promote or impede the use of biomedical strategies for HIV prevention.
  - 4.1 Where can male circumcision be performed in Richards Bay?
  - 4.2 Do you think circumcision is too expensive?
  - 4.3 Can a circumcised male be infected if he has unprotected sex with an HIV infected female?
  - 4.4 How can government help in the preventing the spread of HIV in Richards Bay?
  - 4.5 How can the community support people infected and affected by HIV in Richards Bay?
  - 4.6 How do you get new information and development about HIV?

## Appendix 5: Letter of approval from SU's ethic committee



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### Approval Notice Stipulated documents/requirements

26-Aug-2013  
ADEKOLA, Ayobami Precious

**Proposal #:** HS947/2013

**Title:** An evaluation of the level of awareness about biomedical intervention for HIV prevention among the post secondary school youth living in Richards Bay

Dear Mr Ayobami ADEKOLA,

Your **Stipulated documents/requirements** received on **26-Aug-2013**, was reviewed by members of the **Research Ethics Committee: Human Research (Humanities)** via Expedited review procedures on **26-Aug-2013** and was approved.  
Sincerely,

Susara Oberholzer  
REC Coordinator  
Research Ethics Committee: Human Research (Humanities)