



EAC/AMREF LAKE VICTORIA PARTNERSHIP (EALP) PROGRAMME

*“ADDRESSING MOBILITY, VULNERABILITY AND GAPS IN
INTEGRATED RESPONSE TO HIV&AIDS IN THE LAKE VICTORIA
BASIN”*

HIV SERO-BEHAVIOURAL STUDY AMONG FISHING COMMUNITIES IN LAKE VICTORIA, KENYA



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Participating study sites

Forty nine (49) landing sites in all the Kenyan districts on the shores of Lake Victoria riparian as detailed in the annex 6

EALP Programme Partners

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Table of Contents

Table of Contents	3
List of tables	5
List of figures	5
Acknowledgements	6
List of Abbreviations	7
Executive summary	9
CHAPTER 1: INTRODUCTION	12
1.1. Background	12
1.2. HIV and AIDS in the fishing community	13
1.3. Mobility and HIV vulnerability	14
1.4. HIV and AIDS Interventions and responses	15
1.5. Justification of the study	16
1.6. Study objectives	17
1.6.1. Broad objective	17
1.6.2. Specific objectives	17
2. CHAPTER 2. MATERIALS AND METHODS	18
2.1. Study design	18
2.2. Study site	18
2.3. Study population	19
2.3.1. Beach management unit (BMU)	19
2.3.2. Inclusion and exclusion criteria for the fishing community	19
2.3.2.1. Inclusion criteria	19
2.3.2.2. Exclusion criteria	19
2.4. Sampling	19
2.4.1. Sampling methodology	20
2.4.2. Sampling procedures	20
2.4.3. Enrollment into the study	21
2.5. Key informant interviews and focus group discussions	22
2.6. Laboratory procedures	22
2.6.1. Specimen collection	22
2.6.2. Specimen processing	22
2.6.3. Labeling of blood specimens in the field	23
2.6.4. Specimen shipment	23
2.6.5. Laboratory testing	23
2.7. Data management	25
2.7.1. Data collection, entry and storage	25
2.7.2. Data analysis	25
2.7.3. Data analysis of qualitative data	26
2.8. Implementation of the study	27
2.9. Ethical considerations	27
2.9.1. Ethical clearance	27
2.9.2. Consent	27
2.9.3. Confidentiality	28

2.9.4.	Risks.....	28
2.9.5.	Benefits.....	28
2.10.	Study limitation	29
CHAPTER 3: RESULTS		30
3.1.	Response rates.....	30
3.2.	Socio-demographic characteristics of the study population in the fishing sector.....	31
3.3.	Knowledge and attitude in the fishing sector.....	32
3.4.	Description of behavioural and other risks factors.....	40
3.5.	HIV and mobility.....	46
3.6.	HIV testing and willingness to disclose HIV status	48
3.7.	HIV prevalence in the fishing sector	49
3.7.1.	HIV prevalence by socio-demographic factors	49
3.7.2.	HIV prevalence by behavioural factors and other characteristics	51
3.8.	Demographic and behavioural risk factors for HIV infection	53
3.8.1.	Demographic factors.....	53
3.8.2.	Behavioural factors	55
3.8.3.	Drivers of risks and vulnerabilities to HIV infection.....	58
3.9.	Availability and utilization of health services in the fishing sector	60
3.10.	HIV and AIDS Policies, programs and coordination structures.....	68
CHAPTER 4: DISCUSSION		71
CHAPTER 5: CONCLUSION		77
CHAPTER 6: RECOMMENDATIONS		78
References		80
Appendices		83
a.	Appendix 1: Flow chart of laboratory analysis of DBS specimens.....	83
b.	Appendix 2: Laboratory standard operating procedures for HIV testing	84
c.	Appendix 3: Study implementation timeline.....	88
d.	Appendix 4: Consent Forms	89
e.	Appendix 5: Survey instruments.....	101
i.	Questionnaire.....	101
ii.	Focus group discussion guidelines	115
iii.	Mwongozo ya Majadiliano ya vikundi	116
iv.	Key informant interview guidelines.....	117
v.	Mwongozo wa Mahojiano ya kibinafsi	119
vi.	Blood transmittal sheet.....	121
f.	Appendix 6 : List of sampled landing sites, fishing community	124
g.	Appendix 7: Sample bar code labels.....	126

List of tables

Table 1. Response rates to interview and blood draw in the fishing sector, 2010.....	30
Table 2. Socio-demographic characteristics of the study population in the fishing sector, 2010 .	31
Table 3: Percentage of study participants who were aware of AIDS in the fishing sector, by background characteristics, 2010.....	33
Table 4: Percentage of study participants who had correct knowledge on HIV transmission, fishing community, 2010.....	34
Table 5. Percentage of study participants who rejected common misconceptions on HIV transmission, fishing community, 2010	36
Table 6: Percentage of participants who had comprehensive knowledge* about HIV and AIDS, fishing community, 2010.....	37
Table 7. Attitudes towards people who are HIV positive in the fishing sector, Kenya, 2010	39
Table 8: Behavioural characteristics of the study population in Fishing sector, 2010	41
Table 9: Distribution of Male circumcision among the study population, fishing sector, 2010 ...	42
Table 10: Distribution of sexually transmitted infections, fishing community, 2010	44
Table 11: Age at first sex among youth, fishing sector, 2010	45
Table 12: Mobility pattern by background characteristics, fishing sector, 2010	46
Table 13: HIV testing and willingness to disclose, fishing community, 2010.....	48
Table 14: HIV prevalence among the study population in the fishing sector, 2010.....	50
Table 15: HIV prevalence among the different age groups by sex, fishing sector, 2010	51
Table 16. HIV prevalence by behavioural and other characteristics, fishing sector, 2010.....	52
Table 17: Socio demographic risk factors associated with HIV infection, fishing sector, 2010...	54
Table 18: Behavioural and other risk factors for HIV transmission in the fishing sector, 2010...	56
Table 19: Service availability and utilization, fishing sector 2010.....	61
Table 20: Utilization of PMTCT services by women aged 15-54 years, fishing sector, 2010	63

List of figures

Figure 1. Map of the Lake Victoria Basin showing the landing sites on the shores of Lake Victoria, Kenya, 2010	18
Figure 2: Preparation of a DBS on a filter paper (BSS-0685-2010).....	23
Figure 3: Flow chart showing blood specimen and data handling procedures and linkages	26
Figure 4: Flow chart of study in the fishing Community, 2010	30
Figure 5: Provision of HIV services by ownership of health facility, fishing sector, 2010.....	62
Figure 6: Source of Condoms (%) in the fishing sector, 2010	63
Figure 7: Communication channels from which fishing Community respondents receive information on HIV/AIDS, 2010	67
Figure 8: Channel from which the study respondents had learnt most, fishing Community, 2010	67

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List of Abbreviations

AIDS	Acquired immunodeficiency syndrome
AIS	Aids indicator survey
AMREF	African Medical and Research Foundation
ART	Anti-retroviral therapy
ARV	Anti-retroviral
BMU	Beach Management Unit
CI	Confidence interval
CPT	Cotrimoxazole prophylaxis therapy
DBS	Dried Blood spot
EAC	East African Community
EALP	EAC/AMREF Lake Victoria Partnership Programme
FELP AA	Field Epidemiology and Laboratory programme Alumni Association
FGD	Focus Group Discussion
GLIA	Great Lakes Initiative
GOK	Government of Kenya
HAART	Highly active anti-retroviral therapy
IOM	International Organization for Migration
IQR	Interquartile Range
IUCEA	Inter-university Council for East Africa
JICA	Japan International Cooperation Agency
KAIS	Kenya Aids Indicator Survey
KDHS	Kenya Demographic Health Survey
KII	Key informant interview
KNASP	Kenya National AIDS Strategic Plan
KNBS	Kenya National Bureau of Statistics
HIV	Human immunodeficiency virus
KEMRI	Kenya Medical Research Institute
LVBC	Lake Victoria Basin Commission
LVCT	Liverpool VCT
LVFO	Lake Victoria Fisheries Organization
ml	milliliter

MMWR	Mortality Weekly Review
MTCT	Mother to Child Transmission
NASCOP	National AIDS and STI Control Programme
NACC	National AIDS Control Council
NHRL	National HIV reference laboratory
NP HLS	National Public Health Laboratory Services
OR	Odds ratio
OVC	Orphans and Vulnerable Children
PCR	Polymerase chain reaction
PEP	Post Exposure prophylaxis
PI	Principal Investigator
PITC	Provider initiated testing and counseling for HIV
PLWHA	People living with HIV and AIDS
PMTCT	Prevention of mother to child transmission of HIV
POR	Prevalence odds ratio
QA	Quality assurance
SAS	Statistical analysis software
SD	Standard Deviation
Se	Standard error of the mean
SPSS	Statistical Package for Social Scientists
STI	Sexually transmitted infections
UNAIDS	Joint United Nations programme on HIV and AIDS
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VCT	Voluntary counseling and testing for HIV
VMMC	Voluntary medical male circumcision
WHO	World Health Organization

Executive summary

The HIV and AIDS pandemic continues to be a global public health challenge. Globally, it is estimated that 33.3 million people were living with HIV as at the end of 2009 with an estimated 2.6 million new infections. Significant reduction in the number of AIDS related deaths has been realized as a result of effective prevention and treatment of HIV infection with antiretroviral therapy (ART) which is now available even in countries with limited resources. Currently, more than 5 million people are on anti-retroviral treatment and access to antiretroviral therapy for advanced HIV infection in low- and middle-income countries continues to grow. Although sub-Saharan comprises only 10% of the world population, Sub-Saharan Africa still bears a significant share of the global HIV burden of HIV. In 2009, Sub-Saharan Africa accounted for 68% (22.5 million) of people living with HIV and 69% of new HIV infections.

In Kenya, HIV prevalence is estimated to be 6.3% in the age group 15-49 years. The National AIDS Control Council (NACC), housed within the Office of the President leads the national response to HIV&AIDS by coordinating the multiple sectors. The Ministries of Health (MoH), through the National AIDS and STI Control Programme (NASCO) spearheads the interventions on the fight against HIV/AIDS by coordinating implementation of technical programs. The Kenya National AIDS Strategic Plan III (KNASP III), covering the period 2009/10 to 2012/13 that was developed by the NACC guides the implementation of HIV and AIDS interventions in Kenya. HIV and AIDS affects different population segments with different intensities. These differences arise from a combination of biological, socio-economic and cultural factors. Fishing communities are among specific population segments that have higher vulnerabilities than the average population. The combined impact of negative social, economic and labour conditions in the fishing community increases vulnerability to HIV infection. Kenya AIDS Indicator Survey carried out in 2007 showed that the prevalence in Nyanza province (which hosts the largest proportion of the fishing community in Kenya) was higher than the national average (15.3% compared to 7.4%). However, previous seroprevalence surveys in Kenya have not highlighted prevalence in the fishing community in the Lake Victoria basin and the drivers of HIV infection.

This cross-sectional study was carried out to determine the HIV seroprevalence, socio-demographic and behavioral risks, service availability and utilization, the existence of policies, programs and coordination structures in the fishing communities in Lake Victoria basin. The study sites were the fish landing sites along the shores of Lake Victoria and the study populations were the fishing folk. Quantitative methods were used to determine the knowledge, attitudes, practices and HIV sero-prevalence while qualitative methods like focus group discussions and key informant interviews were used to determine the availability and effectiveness of policies, programs and coordination structures relating to HIV and AIDS. A two stage cluster sampling technique was employed and each landing site was regarded as a cluster. Quantitative data was collected using questionnaires while audio tapes and note books were used to collect qualitative data. Blood specimens were collected from each study participant to prepare dry blood spots (DBS). DBS were transported to National HIV Reference for analysis to determine HIV prevalence. Laboratory results were linked to the questionnaires using bar coded unique identifiers. Data was analyzed using statistical package for social scientists (SPSS) and STATA. Qualitative data was transcribed, translated and triangulated to identify recurrent themes.

The overall response rate in the fishing sector was 95% and response to blood draw was 98%. Majority (72.5%) of the study respondents were from mainland. The mean age of the study respondents was 31.7 years (SD 13), age range 10-86 years and males were 56.5%. Thirteen percent of respondents had no formal education while 64.8% of the respondents had attained primary education. Most (67.5%) of the respondent were married. Regarding occupation, 27% were boat crew, 23.1% were fish mongers and 30.6% were non-fish traders.

Majority of the study respondents in the fishing sector were aware of HIV and AIDS and 97.1% had heard of HIV and AIDS while 90.8%, 85.4% and 86.2% responded that faithfulness among partners, use of condoms during sex and abstinence respectively were effective methods in prevention of HIV transmission. About half (50.9%) of the study participants had comprehensive knowledge on HIV and AIDS. There were misconceptions on transmission of HIV; 20.8%, 13.6% and 11.0% of study participants reported that mosquitoes, sharing of utensils and witchcraft respectively, transmit HIV virus. Seventy-nine percent had ever been tested for HIV. While between 20% and 57% of the respondents were unwilling to disclose their HIV status to partners, family, friends and community, 81% were willing to care for a HIV positive relative in their own households.

Among the youth sex debut was 15.9 years in males and 16.1 in females. About a quarter (24.4%) of study participants were in polygamous relationships and 7.4% reported that their wives were inherited. A third (33.9%) of the respondents were circumcised. 21.1% reported that they had multiple sexual partners and 62.6% used a condom when engaging in sexual intercourse with these partners. Six percent had paid for the services of a commercial sex worker. Most of the respondents (55.1%) had immigrated into their current locations and lived for varying periods ranging from less than 1 year (3.8%), 1-5 years (2.8) % and over 5 years (48.6%). Twenty two percent of the respondents had travelled in the previous 3 months. Of these, 9.4% reported having had sex while away from home and 65.2% of those who had sex while away reported not having used a condom.

This study showed that the prevalence of HIV was 26.2% (95% CI, 23.4-29.2) in the fishing sector. HIV prevalence among females was 28.2% (95% CI, 23.8-32.6) and 24.7% (95% CI, 21-28.4) in males. The highest HIV prevalence among females was in the age group 25-34 years (39.4%; 95% CI, 30.8-47.9) while in males was 35-44 years (46.1%; 95% CI, 36.3-55.8). HIV prevalence was 26.2% in the mainland and 26.3% in the Island. HIV prevalence among the married was 28.2% (95% CI, 24.6-31.7), 41.7% (95% CI, 21.5-61.8) among the divorced and 61.1% (95% CI, 48-74.3) among the widowed. Fish mongers had the highest prevalence (33.7%; 95% CI, 27-40.3) than all other occupations. HIV prevalence was lower among participants who had lived in their current areas of residence since birth compared to those who had moved in from elsewhere. HIV prevalence was 37.3% among those with multiple sexual partners, 32.4% in polygamous relationship and 26% in uncircumcised males. The main risk factors for HIV transmission in the fishing Community were; being divorced or separated (POR = 9.1, 95% CI 3.10-27.07, p value <0.001), being married (POR 4.82, 95% CI 2.53-9.37, p value <0.001). The fish mongers /traders were 2.7 times likely to contract HIV compared to other occupations (POR 2.7, 95% CI 1.2-6.7, p value 0.012).

Ninety one percent of the respondents reported that facilities that provide HIV services were available while 76.8% reported that they were accessible; 55.6% had utilized the services in the

previous 12 months. Government facilities were the main service providers while VCT was the most common service available (81%) and the most utilized (79%) among those who had used any service. On demand, condoms were always available to 80% of the fishing folk. Radio was the commonest medium for receiving information on HIV and AIDS.

Regarding existing programs, policies and coordination of HIV and AIDS services, the National AIDS & STI Control Program (NASCOP) has developed guidelines on most at risk populations (MARPs), but this does not include fisher folk. There are no specific policies and guidelines in the Ministries of health that target the fishing community. Implementation of specific interventions targeting the fishing community remains a challenge since no specific strategies or programs have been proposed.

This study shows that the HIV prevalence in the fishing community is about 3.5 times higher than the national average and 1.7 times higher than the average of Nyanza province. This calls for focus to address the specific risks and vulnerabilities of this special fishing population so as to stop transmission of HIV as well as availing quality and responsive services that are accessible and addressing the legitimate needs of these special groups. Special focus should be on the fish mongers and the divorced/separated that were at most risk of HIV transmission, taking into account the interrelationships among the various groups and actors that derive livelihoods from fish. Interventions against HIV and AIDS that mitigate the risks and vulnerabilities due to mobility need to be developed and implemented in this community. Moreover, existing services such as VCT, PMTCT, PITC, ART and circumcision should be expanded and made more responsive to the needs of the population taking into consideration the socio-cultural perceptions of the fishing folk and their needs. Specific programs and policies with tailored interventions targeting the fishing community should also be initiated.

CHAPTER 1: INTRODUCTION

1.1. Background

Since the first case of Acquired Immunodeficiency Syndrome (AIDS) in 1981, infection rate with human immunodeficiency virus (HIV) has grown to pandemic proportions and HIV and AIDS has remained a global public health challenge. Globally, it is estimated that 33.3 million people were living with HIV as at the end of 2009 with an estimated 2.6 million new infections (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2010). The number of new infections has decreased compared with 3.1 million new infections in 1999. Furthermore, AIDS related deaths have significantly reduced from 2.1million in 2004 to an estimated 1.8million deaths in 2009 (UNAIDS, 2010). This has been attributed to interventions through effective prevention and treatment of HIV infection with antiretroviral therapy (ART) which are now available, even in countries with limited resources (UNAIDS, 2010, Morbidity and Mortality Weekly Review (MMWR), 2006). More than 5 million people are now on anti-retroviral treatment and access to antiretroviral therapy for advanced HIV infection in low and middle-income countries continues to grow. Expanding access to treatment has contributed to a 19% decline in deaths among people living with HIV between 2004 and 2009 (UNAIDS, 2010). People aged 15-49 years have been shown to have the highest HIV prevalence in the population which is the economically active age category (JAIDS 2006).

Sub-Saharan Africa still bears a significant share of the global HIV burden. Although sub-Saharan comprises only 10% of the world population, 68% (22.5 million) of people living with HIV are in the Sub-Saharan African continent. Furthermore, of the estimated 2.6 million people newly infected with HIV in 2010 UNAIDS report, 1.8 million (69%) were in sub-Saharan Africa (UNAIDS, 2010). Additionally, in 2009, sub-saharan African accounted for 72 percent (1.3 million) of AIDS-related mortalities and the number of children living with HIV was estimated at 2.3 million in Sub-Saharan Africa. Despite the modest decline in HIV prevalence, the number of orphans (aged 0-17years) continues to increase. Children continue to suffer disproportionately the consequences of the epidemic, with an estimated 16.6 million children orphaned by AIDS In 2009 and Sub-Saharan Africa accounted for 90% of these orphans. According to the International Labor Organization (ILO), at least 26 million people infected with HIV worldwide are workers in this age group, contributing over 70% of all adults living with HIV (E. Buregyeya *et al*, 2008).

Kenya's HIV prevalence is estimated to be 6.3% for age group 15-49 years (KDHS, 2008/2009). However, females had a higher prevalence compared to males (8% vs 4.3%). The HIV prevalence in Kenya is higher than that of the sub-Saharan African region for the same age group (6.3% compared to 5.0%) (KDHS, 2008/2009; UNAIDS, 2010). In Kenya, the HIV epidemic presents a mixed picture. Although overall HIV prevalence is 6.3%, this belies great disparities across key high-risk populations. For example, sex workers, injecting drugs users, men who have sex with men and mobile populations such as fisher folk and truckers have prevalence ranging from 20-50% (Geibel, Reychaad Abdoul, 2008). Indeed the Modes of Transmission model (NACC, 2008) demonstrated that despite most recent infections being attributed to persons in steady relations, most-at-risk populations contribute a significant proportion of new infections. There are about 2.4 million orphans in Kenya, and the National AIDS Control Council and

National Plan of Action for OVC estimates approximately half of them have been orphaned due to HIV and AIDS (USAID HIV and AIDS Health Profile for Kenya - September 2010).

Comprehensive programs are needed to reach all persons who require treatment and to prevent transmission of new infections. Globally, sexual transmission is responsible for the majority of new HIV infections (UNAIDS, 2008). Behavior change programs seek to encourage people to adopt safer sexual behaviors that can reduce the risk of acquiring and transmitting HIV which include remaining sexually abstinent or delaying initiation of sexual activity, decreasing the number of sexual partners as well as using condoms consistently and correctly if sexually active. A number of studies have documented the effectiveness of behavior change programs among a broad range of populations at risk of HIV infection (Auerbach, J.D., et al. 2006). Effective behavior change programs are tailored to the needs and values of the groups they are designed to reach (UNAIDS, 2008).

1.2. HIV and AIDS in the fishing community

The fishing community in Kenya predominantly resides in the Lake Victoria region in Western Kenya. The Lake Victoria region has the highest HIV prevalence in Kenya (KAIS 2007). Of Kenya's eight provinces, Nyanza province, located in the Lake Victoria Basin, has been the most affected by the HIV epidemic. In Nyanza province, the HIV prevalence among adults aged 15-49 years is estimated to be 13.9 percent which is double the HIV prevalence of the second highest province (KDHS, 2008/09). The average HIV-infection rate in Nyanza Province, which falls within the lake basin, is currently documented at 15.3% compared with the national prevalence rate of 7.4% (Kenya Aids Indicator Survey 2007). According to KAIS, approximately 411,000 persons live with HIV in the Nyanza Province (age 15 – 64). Using an eligibility criteria of CD4<250 cells/ μ l, the ART coverage is estimated to be 43%, which means that approximately 234,270 (57%) of persons in need of ART are not receiving the drugs.

There is increasing global evidence that fishing communities are particularly vulnerable to HIV and AIDS (Social Science & Medicine 2011, Allison and Seeley 2004, Seeley and Allison, 2005). This vulnerability is attributed mainly to the fishing communities' mobility – migration, time away from home, access to cash income, commercial sex at landing sites as well as the subordinate economic and social position of women (Social Science & Medicine 2011, Allison and Seeley, 2004). There is also very high rate of sexual mixing within the fishing communities where fishermen have sexual intercourse with different partners who are either married to other men or engage in commercial sex (Health transition review, 1997).

Lake Victoria, the world's second largest freshwater lake is renowned for its rich harvests of tilapia and Nile perch. Sadly, the region has also gained a reputation for having the highest HIV-prevalence rate in Kenya. In the villages along the shores of Lake Victoria and on the isles that dot its surface, HIV and AIDS has taken a heavy toll. The likelihood of high prevalence in this specific population may pose a huge challenge to the rest of the population as fishermen are likely to have sex with local women when they bring their catch to the mainland, acting as a bridge for spreading the virus to the general population. Such lifestyle of people involved in the fish trade could be one of the reasons for the high prevalence rates in the region. In the past

decade, it has become evident that AIDS-related illness and mortality are devastatingly high in some fishing communities.

Surveys conducted since 1992 in ten low- or middle-income countries in Africa, Asia and Latin America for which data were available (Brazil, Cambodia, the Democratic Republic of the Congo, Honduras, Indonesia, **Kenya**, Malaysia, Myanmar, Thailand and Uganda) show that, in all except one (Brazil), HIV prevalence rates in fishing communities are between 4 and 14 times higher than the national average prevalence rate for adults aged 15 to 49 (HIV and AIDS in Fishing Communities, 2006). These considerable rates of HIV infection place fishing folk among groups more usually identified as being at high risk; they are greater than those for other mobile populations such as truck drivers and the military in all countries (again except for Brazil) for which relative data are available. Because fishing folk are numerous compared with people in other subpopulations with high HIV prevalence, such as injecting drug users, military personnel and prisoners, the number of fishing folk likely to be HIV positive may be very high, making them a priority for support for prevention, treatment and care programs for HIV and AIDS (HIV and AIDS in Fishing Communities, 2006).

1.3. Mobility and HIV vulnerability

Populations are engaged in a multiplicity of forms of movements which vary in terms of spatial, temporal and social characteristics as well as their motive and purpose. The inter-connectedness of population mobility and disease has long been recognized, and HIV may not be an exception (Jeeves A. 2001). Specifically, population mobility has been shown to be associated with risk of HIV infection. However, the individual's risk will depend on the context in which mobility occurs, although it may itself be confounded with other risk factors for HIV (Jeeves A. 2001). There are at least two key ways in which mobility is tied to the spread of HIV. These include vulnerability to risky sexual behavior and challenges in accessibility of the mobile populations for HIV intervention programs and services (Dodson B *et al.* 2003).

The risk situations that make mobile people vulnerable to HIV and AIDS are complex and must be determined through an understanding of particular situations. Being away from their family and community where social and sexual norms are prescribed and followed to varying degrees they often adapt to new situations (Development Bank and UNDP 2000). In their new setting they may have more freedom, new experiences and opportunities, and increased peer pressure, which influences their thinking and behaviour. On the other hand, their activities may be curtailed by remote living conditions, or otherwise restricted by their employers and local residents (Development Bank and UNDP 2000). They often live in crowded housing with little privacy and, outside of their community and difficulties in accessing information about health risks and health care. Out of boredom, and with few choices for rest and recreation, many young men, as well as older men, will choose whatever entertainment facilities are available. This will usually mean drinking and, sometimes, drugs as well as commercial sex and, when the opportunity arises, casual sex relationships.

Particular occupational groups and other internally mobile population groups, however, can certainly have a heightened risk for HIV and AIDS such as fisher-folk. For instance, a picture of the migrant farm workers' vulnerability to HIV emerges when one considers the combined

impact of negative social, economic and labour conditions, which exist on the farms (IOM, JICA 2004). Workers are confronted with difficult basic conditions: not only poor pay together with often exploitative working conditions, but also overcrowded accommodations, poor sanitation, long absences away from home, boredom, limited recreational opportunities, and a meager hand-to-mouth existence with little hope for the future. There is general lack of access to information, high levels of misconceptions about HIV and AIDS and high levels of reported risky sexual behavior (IOM, JICA 2004).

1.4. HIV and AIDS Interventions and responses

The demographic and other inherent biological characteristics, behavioral factors as well as availability and utilization of HIV and AIDS services influence the probability of being infected with HIV. Previous studies have demonstrated that persons with certain demographic characteristics are at a higher risk of HIV than others (JAIDS 2006). So far, it has been shown that the economically active age groups have the highest HIV prevalence in the population, whereas females in the reproductive age group are more likely to have HIV than males in the corresponding age group (JAIDS 2006). Studies conducted in Sub-Saharan Africa have revealed that due to a combination of biological, socio-economic and cultural factors, women become infected at younger ages than men (Twenty-second Regional Conference for Africa, 2002).

The most important determinants of the HIV status of individuals are the behavioral risk factors. These include multiple sexual partners, frequent change of sexual partners, having unprotected sex, presence of sexually transmitted infections and lack of circumcision among others. Having unprotected sex with multiple partners remains the greatest risk factor for HIV with large proportions (62%) of people living with HIV in long-term relationships in Kenya (UNAIDS 2010).

Effective prevention and control of HIV and AIDS hinges on a combination approach of behavioural, biomedical and structural interventions delivered in a targeted manner depending on one's epidemic. Available biomedical interventions that are relevant for the fishing folk include ART, male circumcision, HIV testing and counseling as well as treatment of sexually transmitted infections. Interventions through effective prevention and treatment of HIV infection with antiretroviral therapy (ART) are now available, even in countries with limited resources (UNAIDS, 2010). Although the availability of antiretroviral therapy for individuals infected with HIV is increasing worldwide, many more new infections are occurring for every additional person started on such treatment thus prevention of new infections is the only realistic hope of stemming the HIV pandemic (United States Government, State Department 2005).

Recent developments however raise the prospects of radically changing the HIV prevention landscape. The HPTN 052 recently released indicating a 96% reduction in transmission with early treatment (Cohen et al, 2011). Similarly results from pre-exposure prophylaxis trials are very promising. With the appropriate combination of large scale treatment and other prevention interventions, there is significant hope that HIV may be eliminated within a decade and the overall prevalence of HIV infection reduced to below 1% before the middle of century (Granich et al, 2008)

In Kenya, National AIDS Control Council (NACC), housed within the Office of the President coordinates the national response to HIV&AIDS by coordinating the multiple sectors. The Ministries of Health (MoH), through the National AIDS and STI Control Programme (NASCO) spearhead the interventions on the fight against HIV/AIDS by coordinating implementation of technical programs. The Kenya National AIDS Strategic Plan III (KNASP III), covering the period 2009/10 to 2012/13 that was developed by the National AIDS Control Council (NACC) guides the implementation of HIV and AIDS interventions in Kenya. Through the coordination efforts of the National AIDS Control Council (NACC) with strong support from the Ministries of Health, Kenya has scaled up HIV testing and counseling to reach 60% of the population; ART coverage is 60% at CD4<350, near universal PMCT coverage as well as a ray of other interventions (Universal Access Report 2010). For mobile populations, there are numerous partners providing community level. For example the Great Lakes Initiative (GLIA), the International Office on Migration (IOM) is providing support along the transport corridors in the region. However it is not clear as to the coverage and impact of these interventions targeting mobile populations. The KNASP also advocates for private sector engagement through implementation of workplace policies.

1.5. Justification of the study

HIV and AIDS remains one of the public health challenges in Kenya and especially among the vulnerable groups like the fishing communities a population that is quite dynamic. Such dynamism is likely to diversify associated risk factors as well as creating potential peer group influence. Any kind of profession involving migration and being away from home, such as fishing is much more likely to make the people more vulnerable to getting infected with HIV. There is evidence that some occupational groups such as migrant workers are more vulnerable in acquiring HIV infection than others possibly due to work-related factors (Franklyn L, 2002). Fishing communities have social, economic and lifestyle characteristics are likely to predispose them to higher risk of infection than the general population.

Although HIV and AIDS has taken a heavy toll on the general population, previous seroprevalence surveys have not highlighted the prevalence rates and associated risks in specific high risk rural groups such as the fishing communities in the Lake Victoria basin. Moreover, there were scanty published reports on HIV prevalence, the range, intensity and breadth of HIV prevention and control services available, available policies and their effectiveness, the prevalence of risk factors and drivers of risk factors for HIV infection among fishing communities in Kenya. HIV seroprevalence, socio-demographic and behavioral risks, service availability and utilization, the existence and effectiveness of policies, programs and coordination structures are interrelated and intricately linked to each other.

The findings of this study would generate an understanding of the impact of HIV and AIDS on these populations so as to guide appropriate interventions, determine and guide the designing of necessary specific interventions and programs that need to be put in place to reduce the risks and vulnerability of HIV transmission among the fishing communities. The findings would also be used to determine a framework for improving the effectiveness of HIV and AIDS responses among the fishing communities.

1.6. Study objectives

1.6.1. Broad objective

To determine the HIV prevalence, associated drivers of risks and vulnerability and the effectiveness of HIV and AIDS responses in the fishing communities in the Lake Victoria basin, Kenya

1.6.2. Specific objectives

- i. To determine the HIV seroprevalence in the fishing communities in the lake Victoria Basin, Kenya
- ii. To determine demographic risk factors of HIV transmission in the communities in the lake Victoria basin, Kenya
- iii. To determine the knowledge, attitude and practices regarding HIV transmission in the fishing communities in the lake Victoria basin, Kenya
- iv. To determine behavioral risk factors of HIV transmission in the fishing communities in the lake Victoria basin, Kenya
- v. To determine the availability, range and utilization of HIV and AIDS services in the fishing communities in the lake Victoria Basin, Kenya
- vi. To determine the existence and effectiveness of policies, programs and coordination structures on HIV and AIDS in the fishing Community

2. CHAPTER 2. MATERIALS AND METHODS

2.1. Study design

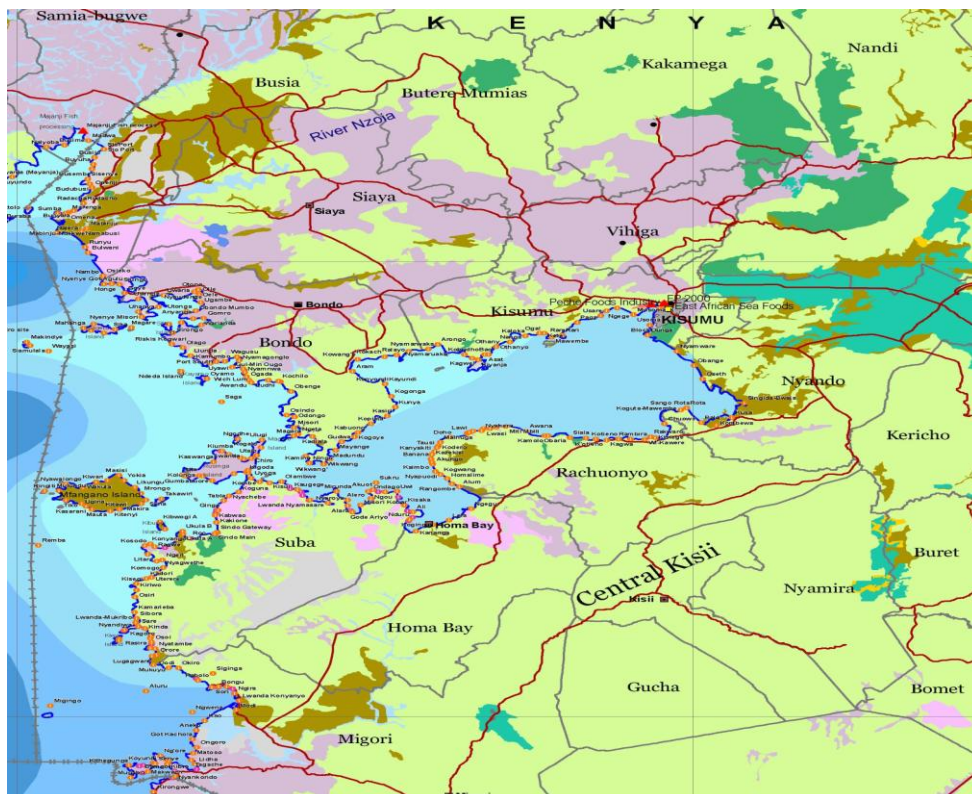
This was a cross-sectional population based survey that utilized both quantitative and qualitative data collection techniques. Quantitative methods were used to determine the knowledge, attitude, practices and HIV sero-prevalence among the fishing communities.

Qualitative methods like focus group discussions and key informant interviews were used to determine the availability and effectiveness of policies, programs and coordination structures relating to HIV and AIDS.

2.2. Study site

The study sites for the fishing communities were the fish landing sites along the shores of Lake Victoria. The landing site is a point at the shore of the lake where the fishing boats dock to offload fish for sale and small scale processing of fish. The landing sites are commonly known as the beaches. Other small scale businesses also flourish at the landing sites. There were 307 landing sites along the Kenyan shores of Lake Victoria registered and managed by the beach management units (BMU) as shown in figure 1. These landing sites were located in the following districts which border Lake Victoria: Busia, Bondo, Kisumu East, Kisumu West, Nyando, Rachuonyo, Homa bay, Migori, Rarieda and Suba districts.

Figure 1. Map of the Lake Victoria Basin showing the landing sites on the shores of Lake Victoria, Kenya, 2010



2.3. Study population

The study population was the fishing community who resided along the shores of Lake Victoria. The study population included both the fishermen and those who interface with the fishermen within a given geographical coverage along the shores of the lake i.e. those persons residing or working within the landing site (beaches) and earning their livelihoods from such activities. The fishing community therefore included members of Beach Management Units (BMU) namely boat owners, boat managers, boat crew, fish traders, fish processors, boat builders and repairers and the non-BMU members e.g. other non-fish traders (shopkeepers and bar owners etc) and students who do fishing when out of school. The fishing communities have similar social characteristics anchored by the economic thread of fish and are mobile persons who live away from their families hence prone to multiple sexual partners. Members of a fish landing site have a lot of similarities in their behaviors that may predispose them to HIV and STI. The fishing business also attracts a host of other business and people including food vendors, bar owners, commercial sex workers etc hence the presence of multiple actors with differential risks.

2.3.1. Beach management unit (BMU)

The BMUs are community based welfare organizations that brings together everyone involved in fishing at the beach. All stakeholders are reflected in the decision-making process and their diverse capacities are harnessed in implementation. The objective of the BMU is to improve the sustainability of fisheries resource exploitation, increase the efficiency of management and improve equity outcomes through engagement of the governmental bodies. Members of the BMU are boat crew/baria, boat owners, managers, charterers, fish processors, fish mongers, local gear makers or repairers and fishing equipment dealers. The members of a fish landing site are registered as members of the BMU. The BMU maintains a register of members which is regularly updated. The members include only those who are 18 years and above. The governance structure of the BMUs is made of the BMU Assembly, the BMU Committee and the BMU sub-committee. Two or more smaller fish landing sites are managed by one BMU, whereas large fish landing sites are run by one BMU. Due to the different types of fishing predominant in each landing site there are important differences in characteristic and behaviors of persons in different landing sites.

2.3.2. Inclusion and exclusion criteria for the fishing community

2.3.2.1. Inclusion criteria

- All persons aged 10 years and above living or working in the landing sites

2.3.2.2. Exclusion criteria

- Those who refused to give consent
- Those who could not be traced for the interview after 3 attempts

2.4. Sampling

Sample size for the fishing communities was determined using the formula below.
Total sample size = Number of person interviewed per cluster x number of clusters
Minimum numbers of person to be interviewed (n_{\min}) was calculated as:

$$= \frac{DE \times Z_{1-\alpha/2}^2 \times P \times (1-P)}{D^2}$$

Whereby

DE is Design effect =2

$Z_{1-\alpha/2} = 1.96$ with 95% confidence interval,

D is “desired precision” (the desired width of the confidence interval) ($\pm 5\%$).

P = Expected probability of variable of interest = 30%. The HIV prevalence in the fishing communities is not known but is thought to be much higher [4-14 times higher] than that of Nyanza province. (Fisheries and aquaculture, 2006)

- Hence sample size = 645
- Assuming that 20% of the participants would decline sample collection, the sample size required would therefore be 776.
- Assuming that 10% of the questionnaires were spoilt, the minimum sample size required would be 854.
- Sample size used was 1000.
- The number of participants to be interviewed per cluster was 20 from 50 clusters. However using probability proportional to size sampling (PPS) as stated below, Remba landing site was selected twice hence 49 landing sites were sampled.

2.4.1. Sampling methodology

A two stage probability proportional to size cluster sampling method was used to provide the best estimate of the knowledge, attitude and HIV prevalence for the fishing community. The first step was to sample the required landing sites and the second step was to sample the study participants from the study population. During this study, the fish landing site commonly referred as the beach was considered as a cluster.

2.4.2. Sampling procedures

A sampling frame was obtained from the Ministries of fisheries and Lake Victoria Fisheries Organization (LVFO). The sampling frame comprised a total of 307 landing sites and its population. Prior to the commencement of fieldwork, the sampling frame was updated by the Ministry of Fisheries and LVFO through its network of district and divisional fisheries officers and the BMUs. The updated list included both new BMU members who were aged ≥ 10 years and other non BMU members who lived and worked in the landing sites e.g. other non-fish traders, bar owners, local fish vendors etc. Two excel workbooks were obtained for sampling; one list of the landing sites and another detailing the population statistics of each landing site. Population for each landing site was clearly spelt out with requisite identifying details such as age, sex, address and occupation.

Fourty nine clusters were selected using probability proportional to size using the following steps.

1. Step 1: Determination of population of each landing site

A list of all landing sites was obtained, with their respective updated population.

2. Step 2: Ranking the clusters in a table

The landing sites were arranged in some order (here it was done alphabetically) with its population in the second column.

3. Step 3: Calculation of cumulative population

The cumulative population was calculated for each landing site and written in the 3rd column. For the first cluster, cumulative population was the population of that cluster. The cumulative population size for the second cluster was the population of cluster 1 + population of cluster 2. For cluster n, the cumulative population size was the population of cluster 1 + population of cluster 2 + (...) + population of cluster n. The total cumulative population was the sum of all the population of the clusters

4. Step 4: Calculation of the sampling interval

We then determined the sampling interval by dividing the total population with 50 (number of clusters that were sampled).

5. Step 5: Choosing of the random number

A random number was selected between one and the sampling interval

6. Step 6: identification of clusters

The first cluster was the one that the random number was within its cumulative population size i.e. the cumulative population size was greater than the random number r, while the random number r was greater than the cumulative population size of the preceding cluster. The next cluster were selected by adding the sampling interval to random number and the same procedure were repeated until all the 50 clusters were identified (cluster 1+ r, cluster 2 +r.....cluster n+ r). It did occur that the new number fell in the same county that was already selected. In this case, the cluster was selected twice as it happened in Remba.

The different job categories within a cluster (landing site) were Boat owners, fish processors, boat crews, fish mongers/factory agents, boat repairers, equipment dealers, boat transporters, traders (shopkeepers, bar owners etc) and children. In each cluster, members were stratified by the job categories. Thereafter, study participants were selected within the strata using simple random sampling. In each cluster we selected 20 members for interview and blood collection. The list of the sampled study participants was prepared and shared with the Ministry of Fisheries, Western Kenya who subsequently shared with the BMUs.

2.4.3. Enrollment into the study

The list of the sampled study participants was shared with the BMU members and the research assistants. During field work, the list of the study participants from each landing site was shared prior with the BMU leadership and the local administrators. The local leaders notified the study participants on the study and the planned date of interview and blood collection. The research assistants moved to each landing site with the list of sampled study population. The research assistants verified and confirmed the study participants before interview. The objective, benefits, risks etc of the study were explained to the participant and informed consent was obtained before enrollment into the study.

After obtaining informed consent the questionnaire was then administered by the research assistant. Thereafter a trained laboratory technician obtained dried blood spot on filter paper after obtaining a separate consent for blood draw. If the study participant wanted to know his/her HIV status, s/he was referred to the VCT counselors who were part of the mobile field work team provided by LVCT. Pre-testing, testing and post test counseling were done by a trained counselors using MOH standard guidelines and recommendations.

If a participant was not available, three attempts were made before the participant was declared as not traceable. In the event that a participant could not be traced after three attempts, or declined to provide consent, a replacement was done.

2.5. Key informant interviews and focus group discussions

A purposive sample of key informants and focus group discussion members were selected in order to determine the availability and effectiveness of policies, programs and coordination structures. A total of 4 FGDs were conducted in the fishing community. Each of the FGD was composed of 6-12 people. The composition of the participants was as follows: Two of the FGDs were composed of adult women stratified by age (18-24 years, 25-44 years, and 45 years and above) while the other two were composed of adult men (18-24 years, 25-44 years, and 45 years and above). They were selected purposively but in a manner that various job categories were included.

The FGDs were conducted both in *Swahili* and the local dialect especially in *dholuo*. The discussions were recorded through notes and audio taping. The audio tape recording facilitated accurate capturing of information. The researchers also observed the process of opinion formation, disagreement and conflict resolution, as respondents reacted to, and build upon, the responses of other group members.

Ten (10) Key Informants Interviews (KIIs) were conducted in the study sites. The key informants included the health administrators and the opinion community leaders. The interviewers took hand written notes during the interviews and recorded audio communication using an audio recorder for production of full report.

2.6. Laboratory procedures

The steps outlined below detail the laboratory procedures commencing with collection of specimen in the field, preparation of DBS, packaging, shipment and laboratory analysis of the specimen.

2.6.1. Specimen collection

When the study participant consented to blood specimen collection for HIV testing, the laboratory technologist prepared the equipment for specimen collection. A retractable lancet was used to take 10 drops of finger-prick (capillary) whole blood onto a filter paper (S&S 903) up to a maximum of 1ml, which was air-dried.

2.6.2. Specimen processing

From a set of pre-printed labels, the laboratory technologist pasted the same unique bar-code label on the filter paper, on the Blood Sample form provided by the interviewer, and on the transmittal sheet. The dried blood spots on the filter papers were packed on a glycine envelopes which were then transferred to a zip lock bag containing humidity indicator and desiccants. Transmittal forms containing dry blood spots information's were placed in the zip lock bags ready for shipment. The ziplock bags with the filter papers were kept at room temperature.



Figure 2: Preparation of a DBS on a filter paper (BSS-0685-2010)

2.6.3. Labeling of blood specimens in the field

Lab technologists pasted the unique number on the Blood Sample Transmittal sheet. The transmittal sheet provided a valuable control to ensure that all samples taken from the field were accounted for when the laboratory specimens were received at the laboratory. Data from these forms were computerized in the office and matched to the list of laboratory test results so as to allow response rates to be calculated and to control for missing data.

2.6.4. Specimen shipment

All the DBS were transported to National HIV Reference Lab (NHRL) at National Public Health Laboratories Services (NPHLS) in Nairobi. The health facilities of Ministries of Medical Services and Public Health and Sanitation provided temporary storage of the specimens during field work. All dried blood spot samples collected in the field were periodically collected and transported to the National Reference Laboratory for initial testing, but at the end of the field work in each site, specimens were shipped to the NHRL together with the questionnaires.

2.6.5. Laboratory testing

Prior arrangements were made with the National HIV Reference Laboratory (NHRL) for testing and storage of specimens. We carried out unlinked anonymous HIV testing of specimens where the laboratory was given only the unique identifiers. Worksheets containing the location of each sample on a micro titer plates were provided to the laboratory technologist performing the tests. The samples were then eluted by adding 200 ul of Phosphate Buffer Solution (PBS, pH 7.3-7.4) onto 6mm punch of dry blood in blank 96 well micro titer plates. The micro titer plates containing the samples were sealed and then incubated at 4°C overnight. The eluted specimens were tested according to the manufacturer's recommendations using a 4th generation (Vironostika HIV-1 / 2 antigen /antibody) as a screening and a 4th generation (Murex HIV.1.2.O) HIV EIA as a second confirmation test in a serial testing algorithm as indicated by Standard Operating Procedure in the appendix. Samples showing discordant results were repeated once

with the two assays. PCR (Roche v1.5) was carried out at the KEMRI lab to resolve specimens with twice-discordant results. For quality control, all positive and 10% of negative specimens were re-tested for quality assurance using the same testing algorithm; specimens with results discordant between the two laboratories were resolved by repeating the testing algorithm. After the analysis the samples were stored at the NHRL at -70°C for future analysis.

Samples were subjected to Vironostika HIV uniform II plus O Ag /Ab kit, all the positives were subjected to Murex HIV kit, All murex positives samples were concluded as positive while those that turned negative were retested using both kits. All positive and 10% of the negative were taken to KEMRI QA laboratory. The same testing algorithm was used by the QA lab. The discordant results samples between reference laboratory and QA laboratory were subjected to PCR as shown by the flow chart below.

2.7. Data management

This section provides a description of the data collection, data entry, storage and data analysis for both quantitative as well as qualitative data.

2.7.1. Data collection, entry and storage

Data was collected using a structured questionnaire and through FGDs and KI interview guides. The questionnaires were initially field tested during the pretest and pilot phases. The questionnaires were translated to Kiswahili. The choice of Kiswahili was informed by the diversity of the various ethnic groups in the fishing industry following the pre-field work visits carried out in the fishing sector. Moreover, Kiswahili was the commonest language for transaction of business in this sector.

Responses were written on a hard copy of the questionnaire in ink. The field supervisors periodically worked with and observed each interviewer (research assistants) conduct the interview. Also, routinely the field supervisors randomly sampled study participants who had been interviewed by the interviewer for verification of the data in the questionnaire in order to ensure that high quality data was collected. All questionnaires were reviewed by the field supervisor in the field before collecting them for safe custody and further processing.

Questionnaires were cleaned and double entered into a database using EPI INFO with Ms Access platform. The database was checked for errors and corrected through verification with the questionnaires before storage. The data for laboratory results were captured in a different file and these were later merged using the unique identifiers on the bar code labels.

The variables that were collected in the questionnaire included (but not limited to) identifier information (Location: District, division, location, village etc.), demographic information (Age, Sex, occupation, education, marital status, religion etc), economic factors, behavioural factors (sexual partners, polygamy, use of condoms, circumcision, wife inheritance etc), HIV and AIDS services and policies /programmes on HIV and AIDS

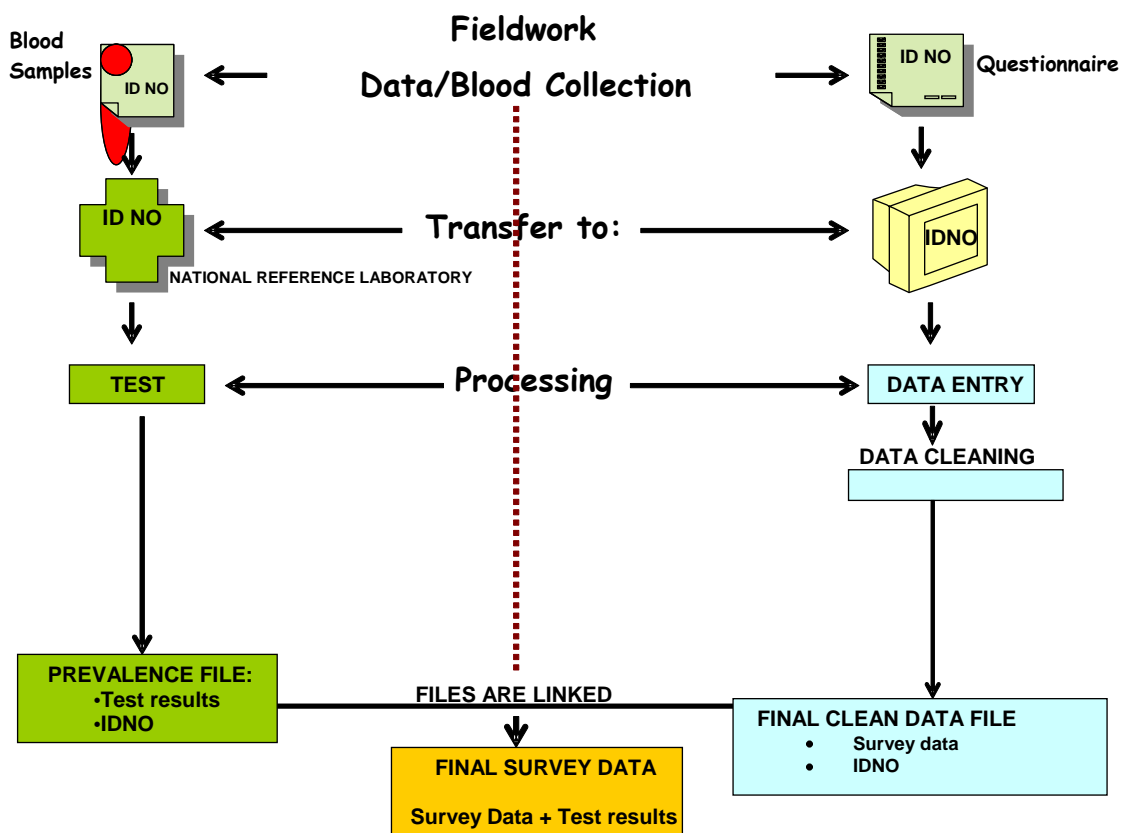
2.7.2. Data analysis

Questionnaire and laboratory data was merged using the unique codes that were assigned during field work using the bar code labels as shown in the flow diagram below (figure 3). Data analysis was done using SPSS and STATA software. Proportions of participants with HIV were reported with 95% confidence intervals. Similarly the level of knowledge, attitude and practice were reported with 95% confidence interval levels. Demographic, knowledge, attitudes and behavioural factors were analyzed and cross-tabulations were done. The dependent /outcome variable was HIV status whereas the independent variables were HIV risk factors and drivers of infection such as multiple sexual partners, frequent change of sexual partners, unprotected sex, STIs, circumcision, condom use etc.

The measure of association used was the prevalence odds ratio and calculated 95% confidence interval of the prevalence odds ratio. Statistical test of significance were done using chi square

with Yates correction or with Fisher's test if the expected frequencies in the cells are less than five. For the exposure variables that were continuous we compared means using student t test.

Figure 3: Flow chart showing blood specimen and data handling procedures and linkages



2.7.3. Data analysis of qualitative data

The data was analyzed by transcribing the audio records and then reading for content while noting quality and patterns. The emerging themes were labeled, coded and summarized in an analysis matrix. Triangulation of the different methods was done. The investigators coded and categorized the transcriptions from FGDs and reports from KIIs. Thematic areas were generated to compare notes so as to find out whether they have more or less assigned the same meaning to the data hence, maximizing inter-investigator reliability. During this process, a series of validity checks were performed. Where cases were found that did not fit with emergent theory, the theory were re-examined and evaluated in the light of those cases. The analysis was performed on the content and data interpretation done.

2.8. Implementation of the study

- 2.8.1. **Social mobilization:** Advocacy, communication and social mobilization was carried out before and during the study implementation. Separate mobilization was carried out independently for each study site. The BMU management played a key role in dissemination of information and identification of study participants. Moreover, sensitized mobilizers facilitated in accessing and informing the study participants.
- 2.8.2. **Training:** Field workers, supervisors, mobilizers were trained prior to commencement of the study. Fieldworkers and supervisors were trained in early August 2010.
- 2.8.3. **Pilot study:** After training, a complete pretest of the whole study was carried out. This included fieldwork, transport of specimen /questionnaires, laboratory testing, linking the questionnaire to the laboratory results and data analysis. Adjustments to the questionnaire and execution of the study was incorporated prior the conduct of the study. The pilot testing was done in early August 2010.
- 2.8.4. **Field work /definitive study:** The field work was carried out for four weeks during the period 29th August to 30th September 2010. The study commenced in Mumias, then Sony sugar plantation and lastly the fishing community. The study was conducted by multiple teams. Each team was composed of a site supervisor, two enumerators, one laboratory technologist and a VCT counselor. The field work was coordinated by a site coordinator assisted by the consultant or his representative.
- 2.8.5. **Laboratory analysis:** After fieldwork, the DBS were shipped to National HIV reference laboratory. Laboratory analysis commenced in October 2010 and ended in early March 2011
- 2.8.6. **Data analysis.** This activity was carried out in March and April 2011
- 2.8.7. **Report writing.** The report was drafted in April and May 2011.

The timeline of the implementation is presented as appendix 3.

2.9. Ethical considerations

2.9.1. Ethical clearance

Scientific and ethical clearance was requested from Kenya Medical Research Institute and the clearance was granted in May 2010 after responding to comments by the review committee. The ethical approval certificate was obtained.

2.9.2. Consent

The management of the fishing sector in the Western region was approached and they granted permission to for the study to be carried out. Furthermore, permission was sought from the national level Ministry of Public Health and Sanitation and Ministry of Fisheries.

After establishing eligibility of enrollment in to the study, the study purpose, risks and benefits were explained to the study participant and a written informed consent was obtained. For study participants less than 18 years, consent was sought from the parent or guardian or any legally

authorized representative and then assent was sought from the minor prior to interview and blood collection. For those aged 15 to 17, assent was sought from the participants in addition to the consent from the parents/guardian/legally authorized representatives. The legally authorized representative was the closest living family member (in order - parent, adult child). Both informed consent and assent forms were administered in Kiswahili, the commonly used language.

A separate consent was obtained to allow the study personnel to collect specimen from the participant to be tested for HIV (see annexed consent for blood draw). The participant's wish to decline HIV testing was respected, although attempts were made to ascertain the reasons for refusal. Similarly, those aged 15 to 17 years signed an assent form before HIV testing was done (see annexed assent form). A sample of the consent and assent form is provided in the annex which details reasons for conducting the study, the benefits and the risks associated with specimen collection. Study participants were informed that the HIV test was anonymous and that no names were attached to the blood specimen.

Any study participant could opt out of the study at any time during the study and there was no consequence to the participant as a result of that decision, and the voluntary nature of the study was explained to the participants at all times.

2.9.3. Confidentiality

All the information that was collected from the participants was treated with utmost confidentiality. Privacy was observed during data and specimen collection. Unique identifiers rather than names were used to label the questionnaires and DBS specimens. HIV testing was done at the national level at the HIV National Reference Laboratory and the results did not have the name of the participants on it. The study participants were identified only through unique identifiers contained in the bar code labels which were in the questionnaires and the DBS specimens.

2.9.4. Risks

There were no minimal risks associated with involvement in the study, except some inconvenience to the study participants while the questionnaire was being administered and the possible slight prick pain, bruising or bleeding that may have occurred during finger pricking. The laboratory technologist that collected finger stick capillary blood samples used disposable gloves, alcohol swabs, sterile gauze, and retractable lancets so as to eliminate risk of contamination. As part of the informed consent procedure, all eligible respondents were told that the supplies that were used were clean and sterile.

2.9.5. Benefits

The results of the survey would help fishing community; LVFO and LVBC gain the understanding on the factors that can lead to increased HIV transmission and the drivers of such risks in the fishing sector. Such information would help determine the relevant interventions that need to be implemented to reduce the prevalence of HIV.

All participants benefitted from verbal and written HIV and STI education and prevention messages provided by interviewers and health workers during the survey. Moreover, participants

were provided with mobile VCT services at the study sites. All participants who received their test results were given counseling and standard information regarding individual risk reduction on how to prevent infection or transmission of HIV and STI to and from their sexual partners. Those found to have HIV infection were properly counseled and referred for appropriate follow-up at HIV care and treatment facilities in the area. If a participant was found have an STI, the study participant was referred for medical attention at the nearest health facility.

2.10. Study limitation

Since this study was a prevalence study, it was not possible to measure incidence of HIV and to demonstrate cause-effect relationships. The design of the study may not have adequately powered the study to demonstrate potential risk or protective factors for HIV infection, but rather to estimate HIV prevalence. Thus, there was the likelihood of missing socio-demographic, cultural and behavioural risk factors to HIV infection. Given that the occupation in the fishing sector is male predominated, the number of females who were sampled and enrolled in the study was small and thus any potential difference between males and females may have been missed.

CHAPTER 3: RESULTS

3.1. Response rates

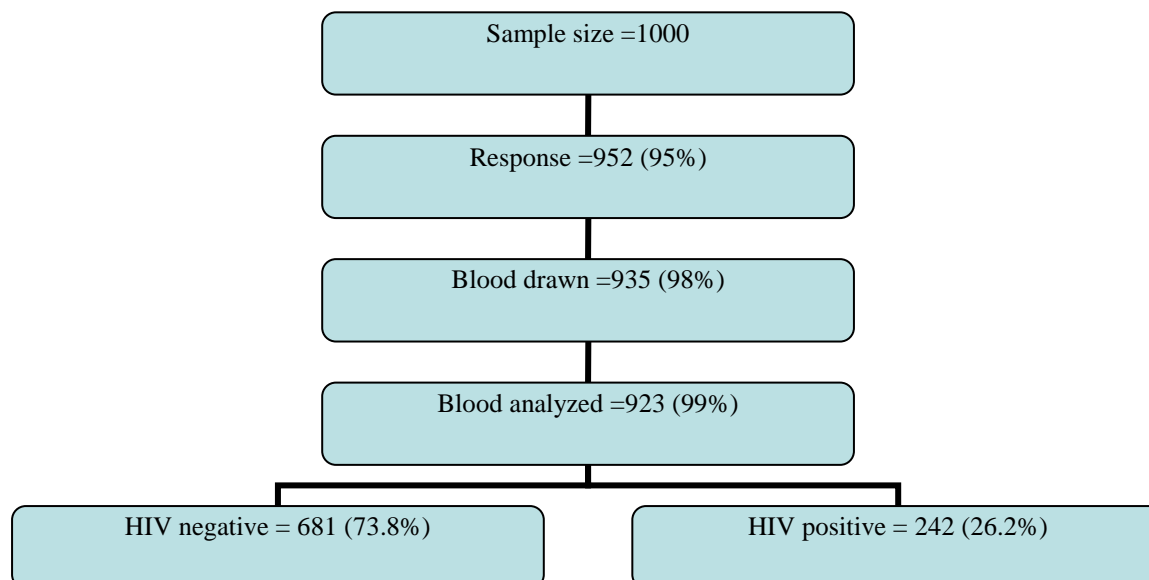
A total of 952 study participants were recruited in the survey. The overall response rate for those who consented for interview was 95%. Response to blood draw was 98% (935 respondents) and 1.2% (12) of the DBS specimens collected were spoilt and could not be analyzed in the laboratory. These DBS could not be analyzed because some had clots, serum rings and over saturation and were discarded in line with the laboratory standard criteria for rejection of DBS specimens. The details of the response rates are illustrated in table 1 and figure 4.

Table 1. Response rates to interview and blood draw in the fishing sector, 2010

Fishing	n	Percent
Target Sample	1000	-
Interviewed	952	95.2
Blood drawn	935	98.2
Blood Analyzed	923	98.7

Figure 4 below is a flow diagram that details the sample size for this sero-survey, interview and blood draw response rates and HIV sero-positivity of the DBS specimens that were analyzed at the National HIV Reference Laboratory.

Figure 4: Flow chart of study in the fishing Community, 2010



3.2. Socio-demographic characteristics of the study population in the fishing sector

This section provides a profile of the study population who were interviewed in the HIV baseline survey in the fishing sector along the Lake Victoria basin i.e., males and females aged above 10 years in the fishing sector. The information is presented on a number of basic characteristics, including age at the time of the survey, sex, marital status, religion, occupation and education level. This information is useful to understand the socio-demographic factors of the study population and the associated with HIV infection.

The mean age of the study respondents was 31.7 years (95% CI, 30.9-32.5; SD \pm 13; standard error 0.42); median age was 30 years with an age range of 10-85 years and inter-quartile range (IQR) of 23-39 years. Majority of the study participants (72.5%) were from the mainland.

Regarding other socio demographic characteristics of the study population, majority of the study population were in the age group 25- 34 years. However, there was no difference in the distribution of this age category by location i.e. mainland or island as shown in table 2. The age group above 55 years was the least accounting for 7.4% of the study population. Generally, no significant variation was noted in the age group categories between the mainland and the island. Males accounted for 56.5% of the study population. The distribution of respondents by religion showed that protestant were 58.2% of the study population, while 1.6% reported that they practiced no religion. A small proportion (4%) did not state the religious affiliation that they belonged to. As shown in table 2, majority (40.4%) of study respondents had not completed primary education while only 13.1% reported having no basic education. Twenty-one percent of the study respondents had attained secondary and post secondary education.

Sixty-seven percent of the study respondents were married or living with a partner, compared with 6% who reported as being divorced or separated. Those who were single were the second largest contributing 20% of the study respondent as shown in table 2. Boat crews (27%) were the majority of the study respondents while the least were the boat maker (0.8%). Non fish traders contributed a significant proportion (30.6%) of the study respondent as shown in table 2.

Table 2. Socio-demographic characteristics of the study population in the fishing sector, 2010

Background characteristics	Location			Total
	Mainland	Island		
	Percent	Percent	No.	
Age Group				
< 15	8.8	8.8	84	8.8
15 – 24	22.9	20.6	212	22.3
25 – 34	33.3	34.7	321	33.7
35 – 44	17.8	20.2	176	18.5
45 – 54	9.3	9.5	89	9.3
54+	7.8	6.1	70	7.4

Sex				
Male	53.0	65.6	538	56.5
Female	47.0	34.4	414	43.5
Religion				
Muslim	4.8	4.6	45	4.7
Catholic	20.6	22.9	202	21.2
Protestant	58.1	58.4	554	58.2
No Religion	1.7	1.1	15	1.6
Other	10.3	10.3	98	10.3
Not Stated	4.5	2.7	38	4.0
Education Level				
None	13.0	13.4	125	13.1
Primary Incomplete	42.8	34.4	385	40.4
Primary Complete	22.9	28.2	232	24.4
Secondary +	21.3	24.0	210	22.1
Marital Status				
Married	66.7	69.8	643	67.5
Single	20.3	19.1	190	20.0
Divorced/Separated	2.3	3.1	24	2.5
Widowed/Widower	7.2	2.7	57	6.0
Other	1.3	1.1	12	1.3
Not Stated	2.2	4.2	26	2.7
Occupation				
Boat Crew	26.1	29.1	243	27.0
Boat Owner	8.9	11.7	87	9.7
Fish Monger/Trader	23.4	22.3	208	23.1
Fish Processor	4.6	8.9	52	5.8
Boat Maker	.6	1.2	7	.8
Student	2.4	1.6	20	2.2
Non-Fish Traders	33.0	24.3	276	30.6
Other	.9	.8	8	.9
Total	72.5	27.5	952	

3.3. Knowledge and attitude in the fishing sector

The objective of this section was to establish the level of relevant knowledge, perceptions, and attitudes towards HIV and AIDS in the fishing community in the Lake Victoria Basin.

Findings on level of knowledge and attitudes are useful for HIV and AIDS control programs to target individuals and groups of individuals most in need of information and those who are at

risk of contracting the disease for various interventions. Findings on knowledge and attitudes for the fishing sector are presented in the subsequent section.

Awareness of AIDS

Participants in the HIV and AIDS baseline study in fisheries sector in the Lake Victoria Basin, Kenya were asked whether they had heard of an illness called AIDS.

Out of 952 participants who responded to the question on whether they had heard of an illness called AIDS, 924 (97.1%) responded having heard of AIDS. The age group with the lowest level of awareness was those less than 15 years of age (79.8%) while the highest was age group 45-54 years (100%). There was no difference in awareness among male and female participants. Similarly, there was marked difference between different religions, education level, marital status and occupation as shown in the table 3.

Table 3: Percentage of study participants who were aware of AIDS in the fishing sector, by background characteristics, 2010

Background characteristic	Percent
Age Group	
< 15	79.8
15 – 24	98.1
25 – 34	98.8
35 – 44	98.9
45 – 54	100.0
54+	98.6
Sex	
Male	97.0
Female	97.1
Religion	
Muslim	95.6
Catholic	98.5
Protestant	96.8
No Religion	100.0
Other	99.0
Not Stated	89.5
Education Level	
None	92.8
Primary Incomplete	96.9
Primary Complete	98.7
Secondary +	98.1
Marital Status	
Married	98.9

Single	91.1
Divorced/Separated	100.0
Widowed/Widower	100.0
Other	75.0
Not Stated	96.2
Occupation	
Boat Crew	97.1
Boat Owner	98.9
Fish Monger/Trader	99.0
Fish Processor	100.0
Boat Maker	100.0
Student	85.0
Non-Fish Traders	96.0
Other	100.0
Total	97.1

Knowledge of HIV Prevention

Table 4 below shows that, in overall, the level of knowledge of HIV prevention by limiting sexual intercourse to one uninfected partner who has no other partners was 90.7%, prevention by use of condoms was 85.2% while prevention by abstinence was 86.1%. Generally, those below 15 years had the lowest level of knowledge of all the three methods of HIV prevention compared to the other age groups. Males had a higher knowledge of methods of HIV prevention than females. The level of knowledge of all the three methods of HIV prevention seemed to increase with increase in education level where those with no education had the lowest knowledge while those with post-secondary education had the highest.

Compared to the other occupations, boat makers and students had a lower level of knowledge of HIV transmission by limiting sexual intercourse to one uninfected partner who has no other partners and use of condoms while boat makers and non-fish traders had a lower level of knowledge of HIV prevention by abstinence.

Table 4: Percentage of study participants who had correct knowledge on HIV transmission, fishing community, 2010.

Background characteristic	Limiting sexual intercourse to one uninfected partner	Using a condom every time during sexual intercourse	Abstaining from sexual intercourse
Age Group			
< 15	57.4	43.3	53.2
15 - 24	92.3	88.9	86.5
25 - 34	94.3	88.0	88.9
35 - 44	92.0	91.3	89.0

45 - 54	92.1	84.1	89.8
54+	97.1	84.1	89.7
Sex			
Male	92.0	89.3	88.0
Female	89.1	79.9	83.6
Religion			
Muslim	90.9	88.1	93.0
Catholic	86.4	80.2	80.8
Protestant	92.4	87.1	89.3
No Religion	93.3	86.7	66.7
Other	91.8	84.4	84.4
Not Stated	85.3	83.9	69.7
Education Level			
None	83.9	74.5	79.3
Primary Incomplete	88.2	81.4	82.4
Primary Complete	92.6	90.7	89.4
Secondary +	97.1	91.7	92.6
Marital Status			
Married	94.0	88.3	88.5
Single	79.3	76.5	78.1
Divorced/Separated	95.8	75.0	83.3
Widowed/Widower	93.0	86.0	91.1
Other	55.6	55.6	37.5
Not Stated	88.0	84.0	84.6
Occupation			
Boat Crew	92.4	89.4	88.0
Boat Owner	98.8	94.2	90.7
Fish Monger/Trader	93.7	82.8	89.8
Fish Processor	92.3	96.1	92.2
Boat Maker	71.4	71.4	57.1
Student	76.5	70.6	88.2
Non-Fish Traders	89.5	81.2	81.9
Other	87.5	100.0	100.0
Total	90.7	85.2	86.1

Rejection of Misconceptions about HIV and AIDS

Common misconceptions about HIV transmission include the belief that HIV-infected people appear physically ill and that the HIV virus can be transmitted through mosquito or other insect bites, by sharing food with someone who is infected, or by witchcraft or other supernatural

means. Study participants were asked about these misconceptions and the findings are presented in the table 5 below.

A high proportion of study participants rejected the common misconceptions that a healthy-looking person cannot have the HIV virus (90.3%), and that HIV virus can be transmitted by mosquito or other insects' bites (71.2%), sharing utensils with an infected person (80.5%) and by witchcraft or other supernatural means (84.7%). Compared to other age groups, study participants below 15 years of age had the lowest level of rejection of the above misconceptions. Males were more likely to reject all the above misconceptions than the females. The level of rejection seemed to follow the level of education where those with no formal education having the lowest level while those with post-secondary education having the highest. Among the various occupations in the fishing community, boat makers reported the lowest level of rejection of all the common misconceptions compared to the other occupations.

Table 5. Percentage of study participants who rejected common misconceptions on HIV transmission, fishing community, 2010

Background characteristic	A healthy-looking person can have the HIV virus	HIV virus cannot be transmitted by mosquito bites	A person cannot become infected by sharing utensils with a person infected with HIV virus	HIV virus cannot be transmitted by supernatural means
Age Group				
< 15	66.1	62.5	57.8	60.9
15 - 24	90.3	70.2	86.3	88.9
25 - 34	92.4	76.6	82.6	86.4
35 - 44	93.8	71.7	82.6	87.4
45 - 54	92.0	63.6	79.8	85.1
54+	90.3	66.7	71.0	78.8
Sex				
Male	92.4	75.3	81.2	86.9
Female	87.5	65.9	79.7	81.9
Religion				
Muslim	95.1	73.3	80.0	86.4
Catholic	87.8	68.5	77.7	82.1
Protestant	91.9	73.1	83.4	86.6
No Religion	100.0	80.0	71.4	73.3
Other	84.9	68.8	75.0	80.2
Not Stated	83.9	58.8	71.9	85.3
Education Level				
None	84.5	55.3	65.5	74.5
Primary Incomplete	85.6	65.2	74.9	79.5
Primary Complete	94.9	78.9	88.0	91.2
Secondary +	96.4	82.5	90.8	92.3

Marital Status

Married	92.0	72.4	81.2	86.7
Single	83.2	70.6	80.5	80.0
Divorced/Separated	100.0	65.2	69.6	79.2
Widowed/Widower	90.6	64.9	84.2	82.1
Other	55.6	66.7	55.6	55.6
Not Stated	95.8	69.2	76.0	88.5

Occupation

Boat Crew	90.5	72.9	78.0	82.5
Boat Owner	93.8	75.3	82.8	91.9
Fish Monger/Trader	92.8	72.8	84.7	88.7
Fish Processor	95.9	69.2	88.5	86.5
Boat Maker	71.4	57.1	71.4	57.1
Student	94.1	88.2	82.4	88.2
Non-Fish Traders	87.1	67.7	79.8	83.1
Other	100.0	87.5	75.0	100.0

Total	90.3	71.2	80.5	84.7
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Comprehensive knowledge of HIV and AIDS

Comprehensive knowledge was assessed among the study respondents as composite measure HIV transmission and prevention. It was defined as having correct knowledge of 3 methods of HIV transmission and rejecting two common misconceptions. Comprehensive knowledge was thus defined as knowing that persistent use of condoms during sexual intercourse, practicing abstinence and that having just one uninfected faithful partner can reduce the chance of getting the HIV as well as rejecting the misconceptions that a healthy-looking person cannot have the AIDS virus, and that AIDS can be transmitted by mosquito bites or by sharing utensils with a person who has AIDS. Overall, the level of comprehensive knowledge was 50.9 %. Those below 15 years of age had a low level of comprehensive knowledge (23.9%) compared to the other age groups who had a level of between 49.0% and 59.0%. Males had a higher comprehensive knowledge than females, 57.3% and 45.5% respectively. Comprehensive knowledge increased consistently from those with no education (34.2%) to those with post-secondary education (68.5%). There was no marked difference in comprehensive knowledge among the different occupations. Table 6 below shows the level of comprehensive knowledge against background characteristics.

Table 6: Percentage of participants who had comprehensive knowledge* about HIV and AIDS, fishing community, 2010

Background characteristic	Percentage
Age Group	
< 15	23.9
15 – 24	50.0
25 – 34	59.2

35 – 44	54.5
45 – 54	48.9
54+	53.0
Sex	
Male	57.3
Female	45.5
Religion	
Muslim	55.6
Catholic	48.7
Protestant	55.4
No Religion	53.8
Other	45.2
Not Stated	36.4
Education Level	
None	34.2
Primary Incomplete	42.9
Primary Complete	62.2
Secondary +	68.5
Marital Status	
Married	56.4
Single	43.5
Divorced/Separated	30.0
Widowed/Widower	45.5
Other	11.1
Not Stated	53.8
Occupation	
Boat Crew	52.4
Boat Owner	57.8
Fish Monger/Trader	57.6
Fish Processor	56.0
Boat Maker	42.9
Student	50.0
Non-Fish Traders	48.0
Other	50.0
Total	50.9

* Comprehensive Knowledge means knowing that consistent use of condoms during sexual intercourse, practicing abstinence and also that having just one uninfected faithful partner can reduce the chance of getting the AIDS virus and rejecting two most common misconceptions; that a healthy-looking person cannot have the AIDS virus, and that AIDS can be transmitted by mosquito bites or by sharing utensils with a person who has AIDS

Attitudes towards HIV-infected people

To assess on the attitude and level of stigma, participants were asked if they would be willing to care for a sick HIV-infected family member in their own households and if they knew of someone who had been denied involvement in social events, religious services or community events on suspicion of being HIV positive. Table 7 below shows that overall, 73.5% were willing to care for a HIV infected family member in their own household while 24.3% knew of someone who had been denied involvement in social events, religious services or community events on suspicion of being HIV positive. Those participants who were less than 15 years were less willing to care for a sick family member in their own household than the other age groups. More males than females as well as those with higher education compared to those with no education were willing to care for a sick family member in their own household.

Across the background characteristics, there was no marked difference in information among the study participants of people denied involvement in social events, religious services or community events on suspicion of being HIV positive.

Table 7. Attitudes towards people who are HIV positive in the fishing sector, Kenya, 2010

Background characteristic	Willingness to care for a sick family member in one's own household	Knowledge of someone who has been denied involvement in the social events, religious services or community events on suspicion of being HIV positive
Age Group		
< 15	41.5	21.6
15 - 24	73.9	21.7
25 - 34	77.2	27.5
35 - 44	76.3	22.6
45 - 54	73.9	27.4
54+	72.9	20.9
Sex		
Male	76.6	25.7
Female	69.5	22.6
Religion		
Muslim	72.7	38.1
Catholic	78.2	25.7
Protestant	71.8	22.8
No Religion	100.0	40.0
Other	69.5	22.6
Not Stated	72.4	20.0
Education Level		
None	61.1	31.1
Primary Incomplete	69.9	23.1
Primary Complete	78.0	26.3

Secondary +	81.5	21.1
Marital Status		
Married	76.0	24.5
Single	68.6	22.1
Divorced/Separated	66.7	37.5
Widowed/Widower	68.4	21.8
Other	25.0	25.0
Not Stated	76.0	28.0
Occupation		
Boat Crew	74.5	27.1
Boat Owner	75.0	28.4
Fish Monger/Trader	81.3	20.1
Fish Processor	73.1	40.0
Boat Maker	85.7	28.6
Student	86.7	.0
Non-Fish Traders	66.4	22.5
Other	87.5	12.5
Total	73.5	24.3

Attitudes towards transmission of HIV

Attitudes towards persons living with HIV and AIDS were assessed using focus group discussions (FGD) and key informant interview. It was a recurring theme that the fishing folk had a fatalistic approach towards life. Discussants revealed that there were those who were indifferent and do not understand why HIV and AIDS is such a big deal. They consider it a disease just like any other. Some participants explained that considering the risks involved when fishing in the deep waters, the chances of one dying while fishing is nothing compared to dying from AIDS, thus making HIV and AIDS least of their worries. It was reported that even one does not get infected with HIV and died of AIDS, eventually all will die, even through other causes such as accidents. It emerged from FGD that some members of the community believe that death will stop them from having sex.

Similarly, ignorance also came out as a contributing factor to the spread of HIV and AIDS. There was the report of lack of knowledge on proper use of condoms with some participants indicating that condoms often break when they use them. Girls were also reported to believe that the lubricant on the condom would destroy ova and thus interfere with future fertilization. While some male participants reported that their peers believe, that the free condoms supplied by the government leak and are of poor quality.

3.4. Description of behavioural and other risks factors

Behaviours and lifestyles of the fishing folk were assessed. A high proportion of study participants (71.4%) were either married or cohabited. Ninety-one percent of these persons lived with together with their partner. A small proportion of participants (7.4%) reported that their wives were inherited. Twenty-one percent reported that they had multiple sexual partners and

62.6% of these respondents used a condom when engaging in sexual intercourse with these partners. A small proportion (6.3%) had paid for the services of a commercial sex worker.

Twenty-four percent of participants were in polygamous relationships. Among the religious affiliations, 38.2% of Muslims were in a polygamous marriages union while those with no formal education reported higher proportion of polygamous marriages (34.6%) than the other education categories. Boat owners had the highest proportion compared with other occupations.

Overall, 21.1% of the study participants reported having multiple sexual partners. Age group 15-24 years had the highest proportion of those who reported having multiple (32.2%) compared to other age groups. Males reported a higher proportion having multiple sexual partners than females while singles and the divorced/separated had a higher proportion of having multiple sexual partners compared to other marital status. Boat crew and students reported the highest proportion of having multiple sexual partners compared to other occupations.

Among the study participants, 6.3% responded that they had paid for the services of a commercial sex worker.

Table 8: Behavioural characteristics of the study population in Fishing sector, 2010

Background characteristic	Living together with someone as if married	Living together with spouse	Spouse staying elsewhere	Polygamous	Wife inherited	Multiple sexual partners	Paid for the services of a commercial sex worker
Age Group							
< 15	8.3	25.0	75.0	25.0	15.4	5.8	2.0
15 – 24	57.7	92.0	8.0	10.9	6.2	32.2	4.4
25 – 34	84.9	93.3	6.7	19.0	5.8	24.4	6.9
35 – 44	83.8	90.0	10.0	31.6	7.4	13.4	9.0
45 – 54	85.1	87.5	12.5	26.6	9.0	16.9	4.8
54+	82.5	94.2	5.8	57.1	14.5	7.7	8.1
Sex							
Male	74.5	91.8	8.2	21.7	6.2	22.0	8.7
Female	67.4	90.6	9.4	27.8	9.2	19.8	2.9
Religion							
Muslim	61.5	88.9	11.1	38.2	11.1	35.6	20.5
Catholic	71.4	90.1	9.9	24.3	10.6	23.0	7.5
Protestant	74.2	92.8	7.2	25.0	5.5	20.0	4.4
No Religion	53.8	62.5	37.5	22.2	.0	9.1	.0
Other	69.9	93.8	6.2	13.9	9.5	20.4	8.6
Not Stated	50.0	75.0	25.0	21.1	16.7	11.1	7.1
Education Level							

None	59.8	83.1	16.9	34.6	15.2	20.2	8.0
Primary	67.2	92.8	7.2	22.8	9.8	18.7	5.5
Incomplete							
Primary	77.2	92.6	7.4	24.6	3.7	24.7	5.5
Complete							
Secondary +	79.0	91.1	8.9	21.2	4.1	21.6	7.6
Marital Status							
Married	93.5	93.9	6.1	24.5	5.2	15.7	6.8
Single	12.7	76.9	23.1	17.6	11.1	37.8	5.0
Divorced/Separated	45.8	70.0	30.0	38.9	29.4	36.4	5.6
Widowed/Widower	37.3	40.0	60.0	17.9	32.4	31.4	.0
Other	16.7	.0	100.0	.0	.0	33.3	.0
Not Stated	75.0	77.8	22.2	25.0	5.0	11.1	16.7
Occupation (Fishing)							
Boat Crew	78.7	92.0	8.0	17.7	6.3	28.7	10.3
Boat Owner	92.9	97.6	2.4	37.5	6.3	12.9	7.7
Fish Monger/Trader	77.7	89.5	10.5	21.4	10.4	16.6	2.8
Fish Processor	83.3	95.3	4.7	29.5	12.2	14.0	8.3
Boat Maker	83.3	75.0	25.0	25.0	16.7	14.3	.0
Student	5.6	.0	.0	.0	.0	30.0*	.0
Non-Fish Traders	59.2	88.4	11.6	26.2	5.2	23.2	4.0
Other	100.0	100.0	.0	28.6	14.3	12.5	25.0
Total	71.4	91.4	8.6	24.2	7.4	21.1	6.3

Male circumcision

Although only 23% of the fishing community practiced male circumcision, 33.9% of the male study participants were circumcised as shown in table 9 below. The age group with the highest proportion of circumcised males was 15-24 years (40.4%). Among all religions, Muslims had the largest proportion (57.1%) of the circumcised males.

Table 9: Distribution of Male circumcision among the study population, fishing sector, 2010

Background characteristic	No.	Percentage
Age Group	9	27.3
15 - 24	40	40.4
25 - 34	57	31.8
35 - 44	35	37.2
45 - 54	11	26.2
54+	14	33.3

Religion		
Muslim	12	57.1
Catholic	28	28.6
Protestant	104	35.1
No Religion	6	54.5
Other	12	25.0
Not Stated	4	26.7
Education Level		
None	12	27.3
Primary Incomplete	64	33.5
Primary Complete	37	30.8
Secondary +	53	39.6
Marital Status		
Married	119	32.6
Single	41	39.8
Divorced/Separated	2	28.6
Widowed/Widower	0	.0
Other	1	25.0
Not Stated	3	33.3
Occupation		
Boat Crew	70	34.7
Boat Owner	18	28.1
Fish Monger/Trader	16	32.7
Fish Processor	9	22.5
Boat Maker	3	60.0
Student	6	46.2
Non-Fish Traders	36	39.6
Other	1	33.3
Total	166	33.9

Sexually transmitted infections (STI)

A small proportion of participants reported having had experienced unusual or smelly genital discharge and genital ulcer disease (12.0% and 8.0% respectively). Males and females reported similar rates of unusual or smelly genital discharge (11.4% and 12% respectively) and genital ulcer disease (7.8% and 7.6% respectively). Details of distribution of STIs are illustrated in table 10 below.

Table 10: Distribution of sexually transmitted infections, fishing community, 2010

Background characteristic	Unusual/smelly genital discharge		Genital Ulcer Disease	
	No.	Percent	No.	Percent
Age Group				
< 15	1	7.7	0	.0
15 - 24	10	12.3	9	11.7
25 - 34	13	11.6	9	8.3
35 - 44	3	5.9	3	5.9
45 - 54	3	13.0	0	.0
54+	4	33.3	1	8.3
Total	34	11.6	22	7.7
Sex				
Male	19	11.4	13	7.8
Female	15	12.0	9	7.6
Total	34	11.6	22	7.7
Religion				
Muslim	2	15.4	2	13.3
Catholic	5	8.3	4	7.5
Protestant	19	11.1	10	6.1
No Religion	1	16.7	0	.0
Other	6	18.8	5	15.2
Not Stated	1	10.0	1	8.3
Total	34	11.6	22	7.7
Education Level				
None	4	10.3	2	5.6
Primary Incomplete	9	8.3	11	10.3
Primary Complete	10	13.3	5	6.8
Secondary +	11	15.7	4	5.9
Marital Status				
Married	21	12.0	15	8.8
Single	8	10.8	4	5.8
Divorced/Separated	2	16.7	0	.0
Widowed/Widower	2	9.5	1	4.8
Other	1	50.0	1	50.0
Not Stated	0	.0	1	11.1
Marital Status				
Married	21	12.0	15	8.8

Single	8	10.8	4	5.8
Divorced/Separated	2	16.7	0	.0
Widowed/Widower	2	9.5	1	4.8
Other	1	50.0	1	50.0
Not Stated	0	.0	1	11.1
Occupation				
Boat Crew	14	14.4	12	11.9
Boat Owner	2	7.1	4	14.8
Fish Monger/Trader	4	7.0	2	3.5
Fish Processor	0	.0	0	.0
Boat Maker	0	.0	0	.0
Student	0	.0	0	.0
Non-Fish Traders	14	16.7	4	5.3
Other	0	.0	0	.0
Total	34	12.0	22	8.0

Age at first sex

The mean age at sexual debut was 16 years. The age at sexual debut was 15.9 years for males and 16.1 years for females. Majority of the study participants (53.5%) aged less than 24 years had the first sex debut at age 15-18 years as shown in table 11.

Table 11: Age at first sex among youth, fishing sector, 2010

	Age at first Sex			Total No.
	< 15 Percent	15 - 18 Percent	19 - 24 Percent	
Age Group				
< 15	100.0	.0	.0	8
15 - 24	37.3	55.9	6.8	177
Sex				
Male	42.2	52.2	5.6	185
Female	37.9	54.7	7.4	90
Religion				
Muslim	11.1	88.9	.0	95
Catholic	30.2	60.5	9.3	9
Protestant	46.1	47.1	6.9	43
No Religion	20.0	80.0	.0	102
Other	38.9	55.6	5.6	5
Not Stated	62.5	37.5	.0	18
Education Level				

None	48.0	52.0	.0	8
Primary Incomplete	52.2	44.8	3.0	25
Primary Complete	23.5	72.5	3.9	67
Secondary +	35.7	45.2	19.0	51
Marital Status				
Married	34.3	58.1	7.6	42
Single	45.1	49.3	5.6	105
Divorced/Separated	33.3	66.7	.0	71
Widowed/Widower	100.0	.0	.0	3
Other	100.0	.0	.0	1
Not Stated	66.7	33.3	.0	2
Occupation				
Boat Crew	29.8	59.6	10.6	47
Boat Owner	57.1	42.9	.0	7
Fish Monger/Trader	45.2	54.8	.0	31
Fish Processor	60.0	40.0	.0	10
Student	100.0	.0	.0	4
Non-Fish Traders	41.7	48.6	9.7	72
Other	.0	100.0	.0	3
Total	40	53.5	6.5	185

3.5. HIV and mobility

As shown in the table 12 below, 44.9% of the respondents had resided in the current locations since birth, 3.8% had lived for less than 1 year while 48.6% had lived in the current residences for more than 5 years. Most of these had lived for over 20 years (24.5%) in their current locations. Among the widows or widowers, 84.4% were immigrants who had resided in their current locations for more than 5 years.

Table 12: Mobility pattern by background characteristics, fishing sector, 2010

Background characteristics	Resident by birth	< 1 year	1-5 years	> 5 years
	Percent	Percent	Percent	Percent
Age Group < 15	80.3	.0	9.8	9.8
15 – 24	51.3	7.3	2.6	38.7
25 – 34	40.4	4.4	2.7	52.5
35 – 44	35.1	2.6	.7	61.6
45 – 54	40.8	.0	1.3	57.9
54+	45.2	1.6	3.2	50.0

Sex	Male	56.1	3.9	2.7	37.3	
	Female	30.3	3.7	2.8	63.2	
Religion	Muslim	34.9	7.0	4.7	53.5	
	Catholic	44.2	3.3	2.2	50.3	
	Protestant	46.6	3.5	2.5	47.4	
	No Religion	57.1	7.1	.0	35.7	
	Other	41.1	4.4	3.3	51.1	
	Not Stated	51.7	3.4	6.9	37.9	
	Education Level	None	38.1	3.8	6.7	51.4
	Primary	49.2	3.9	1.8	45.0	
	Incomplete					
	Primary Complete	39.1	4.3	3.4	53.1	
	Secondary +	48.7	3.1	1.6	46.6	
Marital Status	Married	41.9	2.7	2.2	53.2	
	Single	66.0	8.2	5.0	20.8	
	Divorced/Separated	38.9	.0	5.6	55.6	
	Widowed/Widower	15.6	.0	.0	84.4	
	Other	70.0	10.0	10.0	10.0	
	Not Stated	38.1	9.5	.0	52.4	
	Marital Status	Married	41.9	2.7	2.2	53.2
	Single	66.0	8.2	5.0	20.8	
	Divorced/Separated	38.9	.0	5.6	55.6	
	Widowed/Widower	15.6	.0	.0	84.4	
	Other	70.0	10.0	10.0	10.0	
	Not Stated	38.1	9.5	.0	52.4	
Occupation	Boat Crew	51.2	6.5	1.4	41.0	
	Boat Owner	48.1	.0	1.3	50.6	
	Fish	28.1	2.7	3.8	65.4	
	Monger/Trader					
	Fish Processor	60.4	.0	2.1	37.5	
	Boat Maker	57.1	.0	.0	42.9	
	Student	78.6	.0	14.3	7.1	
	Non-Fish Traders	44.7	4.5	3.3	47.5	
	Other	75.0	.0	.0	25.0	
	<hr/>					
	Total		44.9	3.8	2.8	48.6

Twenty two percent of the respondents had travelled in the previous 3 months. Of these, 9.3% reported having had sex while away and 34.8% of these respondents reported who had sex while away from home reported using condoms.

3.6. HIV testing and willingness to disclose HIV status

Overall, 78.8% of the participants had been tested for HIV and out of these, 85.7% had received their results. A higher proportion (76.7%) of the participants would be willing to disclose their HIV status to their partners compared to those who would be willing to disclose to family, friends and colleagues as well as to the community. A substantial proportion (71.2%) reported that they would want the status of a member of their household who is HIV positive to remain a secret.

Table 13: HIV testing and willingness to disclose, fishing community, 2010

Background characteristic	Ever been tested for HIV	Received result of that test	Willingness to disclose HIV status if it is positive to your partner	Willingness to disclose to family your HIV status	Willingness to disclose to friends /colleagues about your HIV status	Willingness to disclose to community members your HIV status	Willingness to disclose if a member of your house hold is HIV positive
	%	%	%	%	%	%	%
Age Group							
< 15	41.7	40.0	26.5	30.9	23.6	17.6	43.1
15 – 24	83.0	86.9	76.4	52.7	31.7	42.9	75.4
25 – 34	83.8	89.2	78.5	57.0	46.0	45.5	75.1
35 - 44	81.8	88.2	87.3	61.1	44.7	50.0	66.5
45 - 54	77.5	88.4	77.3	58.0	40.4	44.3	72.4
54+	81.4	84.2	78.6	68.1	52.2	61.8	72.1
Sex							
Male	78.4	85.3	78.3	60.2	43.0	46.9	72.4
Female	79.2	86.3	74.6	50.8	38.4	43.2	69.6
Religion							
Muslim	86.7	84.6	79.1	72.1	44.4	29.5	76.7
Catholic	78.7	83.6	79.5	56.1	45.5	51.3	69.3
Protestant	78.7	87.8	74.7	52.8	37.8	44.1	72.4
No Religion	73.3	90.9	93.3	66.7	26.7	42.9	66.7
Other	81.6	82.5	81.1	66.3	51.0	48.4	68.8
Not Stated	65.8	72.0	66.7	53.6	37.9	41.4	63.3
Education Level							
None	76.8	76.0	73.6	54.6	35.5	38.1	69.5

Primary Incomplete	73.5	82.7	74.4	55.0	39.1	45.7	72.1
Primary Complete	82.3	90.6	76.9	54.5	44.3	47.4	70.9
Secondary +	85.7	90.6	82.0	60.5	43.7	46.0	70.8
Marital Status							
Married	82.9	88.2	81.9	57.6	40.6	46.6	73.6
Single	65.8	76.0	57.7	46.6	36.0	36.8	65.8
Divorced/Separated	91.7	95.5	79.2	60.9	56.5	29.2	68.2
Widowed/Widower	82.5	87.2	75.4	61.4	57.9	66.1	71.4
Other	25.0	66.7	57.1	50.0	37.5	37.5	50.0
Not Stated	76.9	70.0	70.8	66.7	32.0	36.0	52.0
Occupation							
Boat Crew	81.1	86.3	74.9	50.7	36.1	43.6	68.4
Boat Owner	82.8	88.9	83.5	58.8	40.5	47.6	71.6
Fish	81.7	90.0	81.6	60.1	46.6	50.8	77.5
Monger/Trader							
Fish Processor	80.8	88.1	91.8	80.4	63.5	66.0	90.2
Boat Maker	85.7	66.7	85.7	71.4	57.1	14.3	71.4
Student	35.0	100.0	53.3	43.8	35.3	35.3	62.5
Non-Fish Traders	77.5	81.3	71.3	50.4	35.9	42.0	68.3
Other	100.0	100.0	87.5	75.0	62.5	37.5	87.5
Total	78.8	85.7	76.7	56.1	41.0	45.3	71.2

3.7. HIV prevalence in the fishing sector

This section provides information on the level of HIV infection among the fishing community living along the Lake Victoria basin. The subsequent sub-sections below describe the overall HIV prevalence and distribution by the socio-demographic, behavioural, mobility and other characteristics of the study population.

3.7.1. HIV prevalence by socio-demographic factors

In the fishing sector, 242 study respondents tested positive for HIV giving an overall HIV prevalence of 26.2% (95% CI, 23.4-29.2). HIV prevalence among the females was 28.2% (95% CI, 21.0-28.4) whereas for males was 24.7% (95% CI, 23.8-32.6) as shown in table 14. There was no difference in HIV prevalence between the mainland and island as indicated in table 14. HIV prevalence did not vary significantly among the study respondents by religious affiliation. Respondents identifying themselves as Muslim, Catholic or Protestant had a prevalence of 26.7%, 23.8% and 27.6% respectively.

Regarding occupation, Fish mongers/traders had the highest prevalence of 33.7% and the prevalence of the different occupations are shown in table 14. Prevalence among the fish processors was the lowest among all the occupation categories. Regarding mobility those who moved to the region more than five year ago (32.3%) and less than 1 year (31.2%) had the higher prevalence compared to those who were born in that region (20.8%) as shown in table 14

Table 14: HIV prevalence among the study population in the fishing sector, 2010

	Prevalence	95% CI
Overall	26.2	23.4-29.2
Location		
Mainland	26.2	22.9-29.6
Island	26.3	20.9-30.6
Age Group		
< 15	0	-
15 – 24	14.9	10.0 - 19.8
25 – 34	30.5	25.4 - 35.7
35 – 44	42.1	34.7 - 45.9
45 – 54	36.1	25.7 - 46.6
54+	20.6	10.9 - 30.2
Sex		
Male	24.7	21 - 28.4
Female	28.2	23.8 - 32.6
Religion		
Muslim	26.7	13.6 - 39.8
Catholic	23.8	17.8 - 29.9
Protestant	27.6	23.8 - 31.4
No Religion	26.7	3.4 - 49.9
Other	25.0	16.3 - 33.7
Not Stated	20.6	6.8 - 34.4
Education Level		
None	18.2	11.3 - 25.1
Primary Incomplete	23.9	19.5 - 28.3
Primary Complete	32.3	26.2 - 38.4
Secondary +	28.3	22.1 - 34.5
Marital Status		
Married	28.2	24.6 - 31.7
Single	7.0	3.3 - 10.7
Divorced/Separated	41.7	21.5 - 61.8
Widowed/Widower	61.1	48.0 - 74.3
Not Stated	42.3	22.9 - 61.7
Occupation (Fishing)		
Boat Crew	29.2	23.4 - 35.1
Boat Owner	31.8	21.8 - 41.7
Fish Monger/Trader	33.7	27.0 - 40.3
Fish Processor	15.7	5.6 - 25.9

Boat Maker	33.3	0.0 - 74.7
Non-Fish Traders	22.1	17.2 - 27.1
Other	12.5	0.0 - 37.0
Years lived in the current Residence		
Resident since birth	20.8	16.7 - 24.9
< 1 year	31.2	12.9 - 47.6
1 – 5 year	21.7	4.5 - 39.0
5+ year	32.3	27.7 - 36.9

The overall HIV prevalence was highest in the age-group 35-44 years and the prevalence among the different sexes and age-groups varied as shown in table 15. The highest prevalence among females was in the age group 25-34 years, whereas for males was age group 35-44 years. In both males and females, the lowest prevalence was noted among the age-group 15-24 years and above 55 years old; however prevalence among females of age group 15-24 was higher than same age-group of males. HIV prevalence among young females of age group 15-24 years was 2 times more compared to male of the same age (Prevalence 20.4% vs 9.5% respectively). This is consistent with the qualitative data that suggested that the most affected community members in the fishing communities were the males below 30 years and females 15-25yrs.

Table 15: HIV prevalence among the different age groups by sex, fishing sector, 2010

HIV Prevalence (95% CI)						
Age group	Overall		Male		Female	
	n	%	n	%	n	%
< 15	84	0	41	0	43	0
15-24	112	14.9 (10.0-19.7)	106	9.5 (3.8-15.2)	106	20.4 (12.5-28.2)
25-34	321	30.5 (25.1-35.6)	192	24.5 (18.2-30.7)	129	39.4 (30.8-47.9)
35-44	176	42.1(34.6-49.5)	104	46.1 (36.3-55.8)	72	36.3 (24.8-47.7)
45-54	89	36.1(25.7-46.5)	45	39.5 (24.7-54.4)	44	32.5 (17.8-47.2)
55+	70	20.5(10.8-30.2)	50	20.8 (9.2-32.5)	20	20.0 (2.0-38.0)

3.7.2. HIV prevalence by behavioural factors and other characteristics

In this sub-section, prevalence of HIV is disaggregated by behavioural factors, male circumcision and mobility patterns of the study population. Study respondents who were polygamous had a higher prevalence level (32.4%) compared to non polygamous union (28.8%). HIV prevalence was 30.8% among respondents who reported having inherited wives, 30%

among those who had multiple sexual partners and 37.3% among those who used condom when engaging in sexual intercourse with their multiple sexual partners.

HIV prevalence among uncircumcised males was 26% and 19.1% among the circumcised males; 36.4% among those with genital ulcer disease and 29.4% among those who paid for services of a commercial sex worker. Study respondents who reported using alcohol had a prevalence of 32.2%. Those respondents who had 2-3 wives (prevalence 34.6 %) and > 3 wives (50.0%) had a considerably higher HIV prevalence compared to those who had 1 wife (28.8%). HIV prevalence among those who had their first Sexual intercourse at age of < 15 year was 26.9% while those that had 2-3 wives had a prevalence of 34.6%. HIV prevalence for these behavioural and cultural characteristics is shown in table 16.

Table 16. HIV prevalence by behavioural and other characteristics, fishing sector, 2010

		Results		
		n	Prevalence	Total.
Currently living together with someone as if married	Yes	178	28.7	621
	No	47	18.7	251
Living with wife/husband	Living together	169	28.9	584
	Staying elsewhere	20	36.4	55
Polygamous	Yes	55	32.4	170
	No	150	28.8	521
Wife inherited	Yes	16	30.8	52
	No	193	30.1	641
Multiple sexual partners	Yes	54	30.0	180
	No	171	25.5	670
Condom when engaging in sexual intercourse with multiple sexual partners	Yes	44	37.3	118
	No	18	26.0	68
Condom use with regular partner	Yes	32	46.4	69
	No	34	29.0	117
Frequency of condom with a regular partner	Always	26	44.1	59
	Rarely	9	37.5	24
	Never	14	38.9	36
Unusual/smelly genital discharge	Yes	10	29.4	34
	No	81	32.7	248
Genital Ulcer Disease	Yes	8	36.4	22
	No	78	31.1	251
Male circumcision	Yes	32	19.6	163
	No	81	26.0	313

Travel and sleeping away from home in the last three Months	Yes	69	33.5	206
	No	173	24.1	717
Had sex while away in the last three months	Yes	7	31.8	22
	No	75	34.1	220
Use of Condoms when having sex while away in the last three months	Yes	3	37.5	8
	No	4	28.6	14
Paid for the services of a commercial sex worker	Yes	15	29.4	51
	No	187	25.5	732
Ever been given a gift for sex by a non regular partner	Yes	13	29.5	44
	No	196	26.6	736
Use of alcohol	Yes	46	32.2	143
	No	192	25.9	741
How often do you engage in sex with a non regular partner after drinking alcohol?	Always	1	7.7	13
	Rarely	13	44.8	29
	Never	16	32.0	50
Use of drugs like bhang or cocaine	Yes	8	25.0	32
	No	209	26.6	785
Sexual intercourse after taking any of these drugs	Yes	0	.0	0
	No	0	.0	0
Ever been forced to have sex against will	Yes	10	23.8	42
	No	227	27.1	837
Age at first Sex	< 15	53	26.9	197
	15 – 18	132	30.3	435
	19 – 24	32	25.8	124
No of wives/partner	1 wife	140	28.8	486
	2 - 3 wives	44	34.6	127
	> 3 wives	3	50.0	6

3.8. Demographic and behavioural risk factors for HIV infection

3.8.1. Demographic factors

Although females in the fishing sector had a higher HIV prevalence compared with males (28.2% vs 24.7%), there was no statistical difference in the HIV prevalence among the two sexes (POR 0.8, 95% CI 0.6-1.1, p value 0.235). Regarding males, the age group 25-34 years (POR 3.1, 95% CI 1.4-6.9, p value <0.001) and age group 34-44 year (POR 8.12, 95% CI 3.6-18.7, p

value <0.001) had the highest risk for HIV infection compared to all the other age group. For females the age group 24-25 year (POR 1.34-4.82, 95% CI 1.3-4.8, p value <0.002). Twenty four percent (24%) of HIV positive respondents had attained secondary education and above compared to 22% of the HIV negative, but this was not statistically significant (POR 0.8 , 95% CI (0.6-1.2), p value 0.444). Being of a specific religious affiliation (protestant, catholic, Islam and being non-religious) was not demonstrated to be a risk factor to getting HIV.

The divorced/separated (POR = 9.1, 95% CI 3.10-27.07, p value <0.001) and widowed/widower (POR = 12.4, 95% CI 5.47-28.05, p value <0.001) were more likely to be infected with HIV compared to those who were single. Being married was also found to be a risk factor for contracting HIV (POR 4.82, 95% CI 2.53-9.37, p value <0.001).

Among all the various occupations in the fishing sector, fish mongers/traders were more likely to be infected than the other occupations (POR 2.7, 95% CI 1.2-6.7, p value 0.012). Being from the mainland or island was not associated with HIV positivity (POR 0.99, 95% CI 0.7-1.4, p value <0.988) in this study. The socio-demographic risk factors are shown in table 17.

Table 17: Socio demographic risk factors associated with HIV infection, fishing sector, 2010

		HIV Status		OR (95%CI)	p-value	
		HIV+, n (%)	HIV-, n (%)			
Sex	Male	129 (53.3)	393 (57.7)			
	Female	113 (46.7)	288 (42.2)	0.8 (0.6-1.1)	0.235	
Age group	< 15	0	40 (10.2)	-		
	Male	15-24	10 (7.8)	95 (24.2)	reference	
		25-34	45 (34.9)	139 (35.4)	3.1 (1.4-6.9)	<0.001
		35-44	47 (36.4)	55 (14.0)	8.12 (3.6-18.7)	<0.001
		45-54	17 (13.2)	26 (6.6)	0.5 (0.2-1.1)	0.046
		55+	10 (7.8)	38 (9.7)	1.2 (0.5-2.9)	0.737
	Female	< 15	0	42 (14.6)		
		15-24	21 (18.6)	82 (28.5)	reference	
		25-34	50 (44.2)	77 (26.7)	2.5 (1.3-4.8)	0.002
		35-44	25 (22.1)	44 (15.3)	0.5 (0.2-1.0)	0.033
		45-54	13 (11.5)	27 (9.4)	0.5 (0.2-1.3)	0.19
Education	55+	4 (3.5)	16 (5.6)	1.0 (0.3-4.1)	0.79	
	Primary & below	184 (76.0)	534 (78.4)	1		
	Secondary & above	58 (23.9)	147 (21.6)	0.8 (0.6-1.2)	0.444	
Occupation	Fish Processor	8 (3.4)	43 (6.7)	reference	-	

	Boat Crew	69 (29.6)	167 (26.1)	0.5 (0.2 - 1.1)	0.048
	Boat Owner	27 (11.6)	57 (8.9)	2.5 (1.9 – 6.8)	0.034
	Fish monger	66 (28.3)	130 (20.3)	2.7 (1.5 – 6.8)	0.012
	Boat Maker	1 (0.4)	2 (0.3)	0.4 (0.0 - 11.8)	0.428
	Boat Repairer	1 (0.4)	2 (0.3)	0.4 (0.0 - 11.8)	1.428
	Boat Manager	0	1 (0.2)	0	0
	Other	1(0.4)	3 (0.5)	0.6 (0.0 - 15.8)	0.521
	Student	0	20 (3.1)	0	
	Farmer	0	4 (0.6)	0	
	Non-Fish Trader	60 (25.8)	211 (33.0)	0.7 (0.3 - 1.6)	0.3
Marital Status	Single	12 (7.5)	149 (92.5)	ref	
	Married	175 (28.0)	451 (72.0)	4.82 (2.5-9.4)	<0.001
	Separated/Divorced	11 (42.3)	15 (57.7)	9.1 (3.1-27.1)	<0.001
	Widowed/Widower	33 (50)	33(50)	12.4 (5.5-28.6)	<0.001
	Other	0	13 (100.0)	0	
Location	Main	174 (26.2)	490 (73.8)	0.99 (0.7 - 1.4)	0.988
	Island	68 (26.3)	191 (73.7)		

3.8.2. Behavioural factors

Behavioural characteristics were assessed as potential protective or risk factors to HIV infection using bivariate analysis. Despite the varied prevalence among different population groups, the risk estimate (prevalence odds ratio) among those who responded affirmatively was not statistically different to those who answered negatively. Two cultural practices were assessed as possible risk factors for HIV infection. Although wife inheritance was reported to be a common practice among the study population (84%) in the fishing sector, 7.4% of males reported living with at least one inherited wife. The proportions of those with inherited wives were not significantly higher among HIV infected compared to HIV negative participants (8% vs 7%, p-value 0.873). Male circumcision was not widely practiced among the study population and only a small proportion of the male participants were circumcised 33.9%. Although the proportion of uncircumcised males was higher among HIV infected persons compared to HIV negative, this was not statistically different (24% vs 33%, POR 0.9, 95% CI 0.3-2.5, p-value 0.75).

Twenty one percent (21%) of the study participants reported having more than one sexual partner. The proportion of those having more than one sexual partner was higher among HIV infected persons than HIV negative persons (24% vs 20%, p-value 0.19), but not statistically different. There was no significant difference in the proportions if the person lived with the spouse (81% vs 90%, p-value 0.137) or lived elsewhere. Extramarital affairs was common among the study population (24%); however there was no significant statistical difference in the proportions of this practice among HIV infected compared to negative persons (24% vs 20%, p-value 0.19). A small proportion of the participants (4.8%) had been forced to have sex at some point, however the proportion of participants who had had forced sex was not significantly higher among HIV infected compared to negative individuals (4% vs 5% p-value 0.62)

Sixty three percent of the respondents reported using a condom always during sexual contact while 24% used condoms rarely and 16% never used a condom. Eighty percent (80%) reported that they always got condoms whenever they needed them and the most common type of condom used was the male condom (90%) while only 2.8% of the participants used female condoms. The proportion of those who used a condom when engaging in sex was not significantly higher among HIV negative persons compared to HIV infected persons (88% vs 77%, p-value 0.091). Condom use during extramarital affairs however, was significantly higher among the HIV infected compared to negative persons (63% vs 59%, p-value 0.048).

In this study population, 8% and 12% had experienced genital ulcer disease (GUD) and urethral discharge respectively in the past 6 months. However, there was no significant difference in the prevalence of GUD among HIV infected compared to negative persons (9% vs 8%, p-value 0.289). Similarly, there was no significant difference in the prevalence of unusual discharge among HIV infected respondents compared to HIV negative persons (11% vs 13%, p-value 0.73).

Regarding use of drugs, drinking of alcohol (16.3%) was more common among the study population than use of drugs like Bhang or cocaine (3.9%). Among those who used alcohol, 45% engage in sexual activities with non regular partners after drinking alcohol. The proportions of those who drink alcohol was significantly higher among HIV infected persons than negative persons (19% vs 15%, p-value 0.123) although this was not statistically significant. Moreover, there was no statistical difference in the proportions of those who take drugs among HIV infected compared to negative persons (4% vs 4%, p-value 0.48).

Table 18: Behavioural and other risk factors for HIV transmission in the fishing sector, 2010

Risk/Protective factors	n	HIV Positive	HIV Negative	OR (95% CI)	p-value
Currently married or living together as if married?					
Yes	598	173 (76.9)	425 (69.6)	1.5 (1.0-2.1)	0.037
No	238	52 (23.1)	186 (30.4)		
Living with wife or she is elsewhere					

Yes	112	29 (81)	83 (90)	0.5 (0.1-1.9)	0.137
No	16	7 (19)	9 (10)		
Having more than one wife/woman that you live with as if married?					
Yes	170	55 (26.8)	115 (23.7)	1.2 (0.8-1.8)	0.377
No	521	150 (73.2)	371 (76.3)		
Are you/any of your wives inherited?					
Yes	52	16 (7.7)	36 (7.4)	1.1 (0.5-2.0)	0.873
no	636	189 (91.3)	447 (92.0)		
Other sexual partners other than regular partner					
Yes	180	54 (24)	126 (20)		
No	664	168 (75)	496 (79)	1.3 (0.9-1.9)	0.19
Condom use when engaging in sex					
Always	135	46 (76.7)	89 (88.1)	0.4 (0.1 – 1.1)	0.091
Not always	26	14 (23.3)	12 (11.9)		
Urethral discharge in the last 6 months?					
Yes	34	10 (11.0)	24 (12.5)		
No	248	81 (89.0)	167 (87.5)	0.9 (0.4-2.0)	0.733
Genital ulcer disease in the last 6 months?					
Yes	22	8 (9.2)	14 (7.5)		
No	251	78 (89.7)	173 (92.5)	1.3 (0.5-3.4)	0.289
Are you circumcised?					
Yes	178	37 (23.6)	111 (32.8)	0.9 (0.3-2.5)	0.747
No	402	137 (76.3)	349 (67.2)		
Have you had sex when away from home in the last three months?					
Yes	22	7 (8.5)	15 (9.4)	0.9 (0.3-2.5)	0.83
No	220	75 (91.5)	145 (90.6)		
Condom use while away from home					
Yes	8	3 (42.9)	5 (33.3)	1.5 (0.2 – 13.8)	0.966
No	14	4 (57.1)	10 (66.7)		
Do you drink alcohol?					
Yes	143	46 (19.3)	97 (15.0)	1.4 (0.9-2.0)	0.123
no	741	192 (80.7)	549 (85.0)		
Do you take any drugs?					
Yes	42	10 (4.2)	32 (5.0)	0.9 (0.4-2.2)	0.487
no	837	227 (95.8)	610 (95.0)		

Forced sex					
Yes	42	10 (4.2)	32 (5.0)		
no	227	227 (95.8)	610 (95.0)	0.8 (0.4-1.8)	0.619

3.8.3. Drivers of risks and vulnerabilities to HIV infection

The socio-behavioural determinants that influenced transmission of HIV in the fishing community emerged during the qualitative analysis. Such determinants include the abundance of money in the fishing trade, rampant poverty among adolescents, young women and widows, the practice of exchange of fish trade for sexual favours commonly referred as *'jaboya'* among the fishing folk i.e. 'sex for fish' and or 'fish for sex', alcohol abuse and use of drugs, the migratory pattern of the fishing crew and negative cultural practices. One negative cultural practice that was elicited from the qualitative analysis was widow inheritance ritual called "tero" which is often done without using condoms even if it is known publicly that the husband died of AIDS. This has resulted to the emergence of professional migratory widow inheritors called "*Jakowiny*". These professional widow inheritors have emerged to cope with the community's demand for this sexual ritual /cleansing for material gain. These cultural practices have been worsened by the migration of HIV infected widows to new areas especially beaches in search of a means for economic survival and hence interact with the unsuspecting public and the emergence of celebrations during burials commonly referred as called 'Matanga Discos'. Detrimental belief systems such as "*chira*" (bad consequence resulting from breach of socio-cultural norms and taboos) and witchcraft were identified as a driver to HIV transmission. AIDS is still perceived and associated with witchcraft and other supernatural causes, and therefore infected widows are still perceived as not the possible risk for HIV infection.

Other important catalytic drivers to HIV spread among the fishing folk are:

- Migratory pattern of the lifestyle of the fishing crew
- Perceived low risk of HIV compared to the risks of fishing in deep lake waters.
- Lack of adequate capacity to use condoms appropriately
- Ignorance, myths and false beliefs regarding use of condoms
- Predominant cross-generational sexual relationships where older women prefer young men and young men prefer older women.
- Peer pressure

There is a general perception among the fishing-folk that money from sale of fish is jinxed and should be spent on luxuries like alcohol and women rather than investment. The fish for sex trade often involves a young fisherman commonly referred '*madhar*' and an older woman who is likely to be a widow that has moved to landing sites for economic gain. Below is a quote from the focused group discussion regarding sex for fish.

"... this is now normal along the lake here, for you to get fish you must have some connection with the 'madhar'".

Fish for sex or sex for fish is worsened by the dwindling fish and the increasing number of fish mongers and the norm is that fishermen tend to sell the fish to the woman that they have a sexual

relationship with and hence the fish mongers often engage in a system of multiple sexual relationships with the migrant fishermen. Below is an explanation from FGD on this trade.

“-----After the fishing trip, when ‘Madhar’ gets to the beach, all the women fish mongers are interested in buying the fish, however, there is usually not enough fish for every one of them so the women really scramble for the fish. Therefore the only way to secure her daily supply of fish is to look for ways to make and retain the ‘Madhar’s’ interest in her and ensure that she always gets the fish. That’s how they begin to forge a relationship between the two of them..... and in turn the Madhar makes it known to the woman that he has given her the fish because of her beauty and in turn asks for what he wants from her. Now, they form a sexual relationship.....that is Jaboya.”

Widow inheritance ritual is still a common practice among the fishing communities. This culture is observed so that the widows could set their children culturally free to marry and construct houses and also as a strategy to get a bread winner for the widow and her children. Furthermore, the widows known to be infected with HIV move to the beaches to seek for men to cleanse them sexually so as to psychologically free themselves from the assumed fear of supernatural punishment as a consequence of not observing widowhood rites. This culture has been internalized as a part of life and they do it because it is their culture and they are supposed to do it.

The emergence of professional widow inheritors called “Jakowiny”. Professional widow inheritors emerged in order to cope with the community's demand for this sexual ritual despite the fact that they make widows vulnerable to HIV and AIDS infections. They migrate from one beach to another providing service to widows in need of cleansing for material gain. It was also observed that young men are now turning to “Tero” as a means to gain property.

“Young men have become inheritors because they are attracted by the nice bomas, semi-permanent houses and wealth left by the deceased man. Most are going into inheriting because of the wealth”

The prolonged funeral celebrations that last for weeks have been noted to favour illicit unprotected sex. These rites bring many different people together in a ceremonial atmosphere. Funeral rites occur at night and a lot of dancing and drinking of alcohol takes place and provides an opportunity especially for the youth to meet and sexually interact with new partners of different generations.

The fishing folk perceive the risks of dying from HIV as rather low compared to other risks like boats capsizing or hunger and therefore are indifferent and do not understand why HIV and AIDS is such a big deal. HIV and AIDS is considered as a disease just like any other disease that kills. There is the view that the risks and probabilities of death involved while fishing in the deep waters are much higher than those from HIV and AIDS, so HIV and AIDS and therefore HIV is the least of their worries.

“....even if you escape from HIV and AIDs you will eventually die..... Now, that makes people not to get scared of HIV and AIDS.”

The migratory nature of the fishers in search of fish predisposes them to increased HIV since they stay away from their spouses. Thus, the fishermen end up having multiple sexual partners in every beach they land to sell fish without taking any regard of their HIV status. This is also true for the bachelors who have multiple sexual partners. Since fishing and sex are often a nocturnal activities, when the fishing crew are away fishing, their wives are left vulnerable to risky sexual behavior by other men who prey on them taking advantage of the long working hours of their husbands. The boat owners who are the employers take advantage of the fishermen's long hours and have illicit sexual relations with the fishermen's wives and this is not questioned by the fishers since it is their 'boss' lest they loose their jobs.

Ignorance, myths, false beliefs and lack of knowledge were reported as factors contributing to HIV transmission. HIV and AIDS have been interpreted to be a manifestation of "chira". This is because of the wasting associated with AIDS which is has been interpreted to be as "chira" Proper use of condoms was not a universal practice and this was worsened by the fears that condoms often break when they are used. Girls also believed that the lubricant on the condom will destroy their ova and thus interfere with future reproduction. Moreover, there was the belief that free condoms supplied by the government leak and are of poor quality. Other forms of misinformation included the belief that so long as an individual was on ART, that individual cannot infect another partner.

A unique feature among the fishing community is the predominant cross-generational sexual relationships where older women prefer young men and young men prefer older women. The preference for young men is because of they are more hard working and are able provide for unlike the older men who expect to be provided for. The young men also want the older women since they are more reliable unlike the younger females who would want to try out other relationships before settling for one.

Indulgence in alcohol and drugs drives the fishing folks to engage in illicit casual relationships and this is worsened by virtue that condoms are seldom used under the influence of alcohol or drugs. *"In most cases the guy has already shown you the cash and at that moment both of you have already had some alcohol, when you get to bed condoms issues are forgotten."*

Use of drugs like bhang, marijuana is common among the fishing crew who report that the drugs give them the courage, strength and morale to accomplish difficult task like omena fishing and to venture into the deep waters. Moreover, the drug makes them alert and helps them to fight demons in the lake.

3.9. Availability and utilization of health services in the fishing sector

Majority of the participants (91.2 %; n=952) reported that facilities that provide HIV services are available around their area of residence (Table 19). The health facilities were reported to be accessible by 76.8% of the respondents. During FGDs, most participants reported that most of the HIV related services were available, but mostly based in health facilities thus distance and transport cost would potentially reduce their utilization. Regarding utilization of services, VCT was the most utilized (79%) whereas PMTCT, ART and PICT were the least utilized; 7%, 7% and 2% respectively.

Within the previous twelve months, 55.6% (n=528) had used any of the HIV services within the facilities. As shown in table 19, the quality of services offered by the facilities were reported to be good by 36.5 %, while at 63.1% considered the quality to be fair. Almost all (99%) the respondents reported that the services were free or affordable.

Table 19: Service availability and utilization, fishing sector 2010

		Proportion reporting availability of services	Proportion reporting that services are accessible	Proportion that had used HIV services in the previous 12 months	Quality of services offered			Affordability of services		
					Good	Fair	Poor	Free	Affordable	Not affordable
		%	%	%	%	%	%	%	%	%
Age Group	< 15	79.8	72.7	17.9	21.4	78.6	.0	38.5	53.8	7.7
	15 – 24	87.3	72.9	57.1	41.7	58.3	.0	73.5	25.7	.9
	25 – 34	93.5	76.9	59.2	37.2	62.3	.5	71.8	27.7	.6
	35 – 44	93.8	80.4	61.9	34.0	66.0	.0	64.7	34.3	1.0
	45 – 54	95.5	82.1	60.7	36.5	61.5	1.9	61.5	36.5	1.9
	54+	94.3	76.2	57.1	43.6	56.4	.0	52.6	44.7	2.6
Sex	Male	91.6	77.5	55.9	37.9	61.7	.3	67.7	30.8	1.4
	Female	90.6	76.2	55.1	37.0	62.6	.5	66.7	32.4	.9
Religion	Muslim	95.6	79.5	66.7	44.4	55.6	.0	65.5	31.0	3.4
	Catholic	91.6	71.8	52.5	47.1	51.0	2.0	71.7	27.3	1.0
	Protestant	90.3	79.1	55.6	35.5	64.5	.0	68.5	30.1	1.4
	No Religion	100.0	71.4	60.0	11.1	88.9	.0	87.5	12.5	.0
	Other	93.9	74.2	59.2	30.9	69.1	.0	54.5	45.5	.0
	Not Stated	86.8	79.3	47.4	40.0	60.0	.0	53.3	46.7	.0
Education Level	None	92.0	78.4	48.0	53.7	46.3	.0	52.8	43.4	3.8
	Primary Incomplete	88.8	74.3	49.9	35.1	63.8	1.1	65.9	32.4	1.7
	Primary Complete	93.1	77.1	59.9	31.6	68.4	.0	71.1	28.9	.0
	Secondary +	92.9	80.2	65.7	40.3	59.7	.0	71.0	28.2	.8
Marital Status	Married	92.4	76.9	58.8	40.3	59.4	.3	70.2	29.0	.9
	Single	86.3	76.4	42.6	38.0	62.0	.0	67.1	31.5	1.4
	Divorced/Separated	100.0	87.0	62.5	40.0	60.0	.0	66.7	26.7	6.7
	Widowed/Widower	93.0	79.2	68.4	15.8	81.6	2.6	52.6	44.7	2.6
	Other	58.3	28.6	16.7	.0	100.0	.0	100.0	.0	.0
	Not Stated	100.0	78.3	53.8	23.1	76.9	.0	33.3	66.7	.0
Occupation	Boat Crew	88.9	75.2	53.1	43.1	56.1	.8	72.9	26.3	.8
	Boat Owner	97.7	84.7	67.8	42.4	57.6	.0	65.5	34.5	.0

Fish Monger/Trader	92.3	76.3	61.1	34.1	65.0	.8	70.7	26.0	3.3
Fish Processor	96.2	80.0	71.2	20.6	79.4	.0	65.6	34.4	.0
Boat Maker	100.0	71.4	71.4	50.0	50.0	.0	33.3	66.7	.0
Student	90.0	61.1	25.0	40.0	60.0	.0	60.0	40.0	.0
Non-Fish Traders	89.5	76.9	48.6	33.9	66.1	.0	58.9	41.1	.0
Other	100.0	62.5	100.0	25.0	75.0	.0	87.5	12.5	.0
Total	91.3	76.8	55.9	36.5	63.1	.4	66.9	32.1	1.1

As shown in figure 5, government-run health facilities provided services to 90% (n=784) of respondents, private health facilities to 20% (171) while NGO facilities provided services to 4% (n=35).

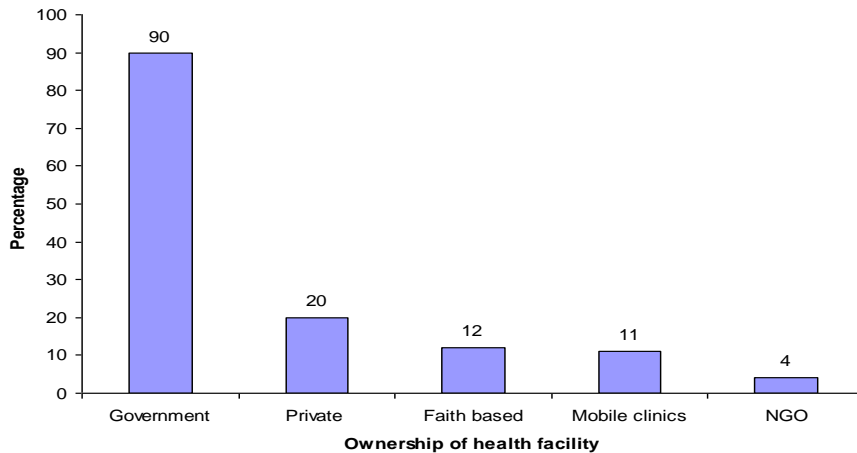


Figure 5: Provision of HIV services by ownership of health facility, fishing sector, 2010

Counseling and Testing

Voluntary Counseling and Testing services were reported to be available by 81% of the respondents. During the previous 12 months, 79% of those who had used any HIV & AIDS service reported having used VCT services.

During FGDs, acceptance of counseling and testing services was reported to be picking up by the informants. However, participants' acknowledged that there were still barriers to HIV testing including fears that knowledge of one's HIV status if positive could negatively affect the individual's mental health. They said;

"Others claim that everyone will eventually die and the type of death does not really matter. Getting tested and testing positive only adds to one's stress levels."

Several groups explained that some community members would still prefer to remain ignorant of their HIV status rather than face the fact that they are HIV positive. Some participants also had concerns about confidentiality. They felt that some health workers disclose the HIV status of those who have taken the test.

It also emerged that some stereotypes in the community were also impeding utilization of counseling and testing services e.g. the perception that people seeking VCT services are promiscuous. In the islands, the main reason reported to inhibit testing was the absence of VCT services in the islands.

Prevention of mother to child transmission (PMTCT)

PMTCT services were reported to be available by 38% (n=330) of the respondents. PMTCT use within the last one year was 12.7% and 10.1% among the HIV positive and HIV negative women respectively.

Table 20: Utilization of PMTCT services by women aged 15-54 years, fishing sector, 2010

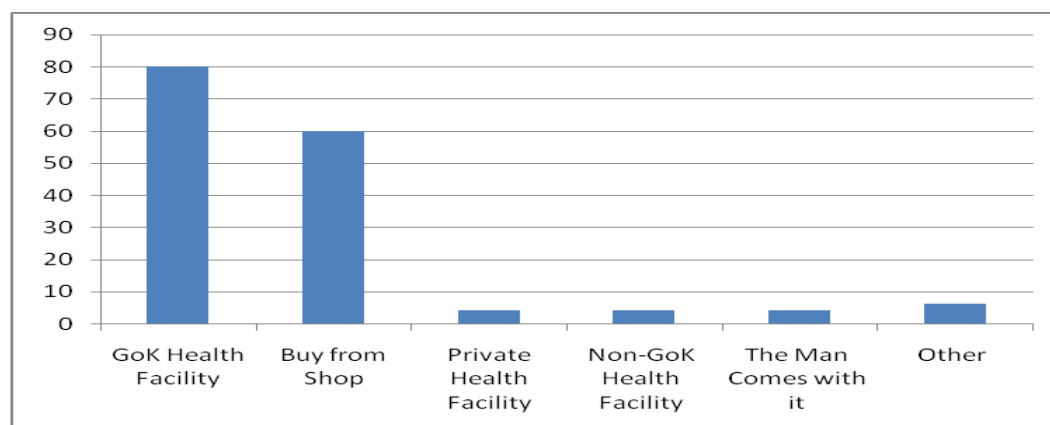
		HIV POSITIVE				HIV NEGATIVE			
		PMTCT use				PMTCT use			
		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%
Age group	15 - 24	2	15.4	11	84.6	5	11.6	38	88.4
	25 - 34	4	14.8	23	85.2	5	9.6	47	90.4
	35 - 44	2	10.5	17	89.5	2	8	23	92
	45 - 54	0	0	4	100	1	11.1	8	88.9
	Total	8	12.7	55	87.3	13	10.1	116	89.9

During the FGDs, PMTCT was reported to be available in most health facilities. Female discussants confirmed this but indicated those who were scared of the testing were delivering at home.

Condom Availability and Use

Eighty percent (80%) of the study participants in the fishing sector always accessed condoms when they needed. As shown in the figure 6 below, the main sources of the condoms were Government of Kenya (GoK) health facilities followed by shops.

Figure 6: Source of Condoms (%) in the fishing sector, 2010



During FGDs, all groups of participants except those in islands reported that there had been abundant supplies of free male condoms before July 2010. However, all sites visited reported having had no supplies since July 2010. This was corroborated by the health sector informants who confirmed that there had been a countrywide shortage of condoms in the previous three months. Those residing in the islands said they had never received any free condoms for distribution but the local shops retailed some at Ksh.30 each.

Despite the abundant supplies especially in the mainland beaches, most participants reported that acceptability and use of condoms were still low. Use of condoms is further impeded by the attitudes and lack of knowledge among the community members. Female participants pointed out that;

“Here most men are not keen on using condoms. You are attracted to each other but when you come with a condom, the relationship ends there and then.”

Additionally, women participants felt that the government should consider supplying the female condom instead of the male condom. They said that this will give women more control on the use of condoms.

Male participants explained that they do not use condoms due to:

“fear that the lubricant on the condom would destroy their partner’s ova”

“condoms distributed freely by the government were of poor quality”

“using a condom is akin to admitting that one has multiple sexual partners, lacks trust or has an extra marital affair”

Others said:

“Some people say that when they use the condom, they do not feel anything, so they do not like to use them.”

“Even the women here do not like to use condoms.....What they say, is that when you use condoms it is because you do not trust them.”

“They claim that the lubricant actually kills ova and therefore fertilization cannot occur.”

“Others just want flesh to flesh”

It was also apparent that most male discussants appeared to underestimate their risk of HIV infection; they said that they only use condoms when they think their partner has HIV. This they will know by choosing carefully considering the physical look.

Voluntary Male Medical Circumcision (VMMC)

Thirty-four percent of the male participants reported having undergone male circumcision. FGDs and Key Informant Interviews revealed that acceptability of the VMMC is low. Discussants suggested that some of the factors hindering uptake were:

- i. Lack of knowledge on why circumcision should be done. There were reports that the community do not understand the 60% reduction in risk that circumcision is reported to confer. Those who were already positive do not understand why they should have the procedure done. One discussant made it clear that the NGOs giving the service had not taken time to explain to the locals the importance of VMMC but were instead just crisscrossing the location looking for clients.

“I have never been circumcised. An elderly man like this one has never been circumcised, and then someone abruptly stops a vehicle and tells you to get on. I don’t understand why I am supposed to be circumcised”

- ii. Cultural issues
The fisher folk were reported to be hesitant in embracing VMMC because the practice was not part of their culture.
- iii. Personal issues
Personal concerns that were reported to affect uptake of VMMC included: pain, healing period, bleeding, feeling shy and questions on where the foreskin goes to. They said:
 - “...the duration it takes to heal; one may feel that the procedure interferes with his routine sexual services and that the duration is too long.”*
 - “...they therefore justify that God had a purpose for the foreskin so they do not see the need of removing it.”*
 - “I am an adult and I will not allow anyone to touch my private parts; like he is just having fun looking at it and turning it this way and that way.”*

“There some people who were wondering what the service providers do with foreskin after circumcision, because the service providers do not even allow one to look at it.
- iv. Others felt that this might be a strategy by the government to “finish” the Luo community.

Care and Treatment

Among those who disclosed their positive HIV status, 73% reported availability of some form of support system and 22% reported being on ART. The key barriers to utilization and provision of care and treatment services that were reported during FGDs and KIIs included

- i. Stigma
It was noted that although testing is done, seeking care and treatment was hampered by the fact that the PSCs (Patient Support Centers) were isolated from the other outpatient services and people fear being seen there and identified as being HIV positive.
- ii. Distances and transport costs
Distance from the hospitals and transport costs were considered a big barrier to utilization of care and treatment services. Most of the participants reported that the facilities were situated very far from their communities and poverty made access to services almost impossible, as people were unable to meet travel costs to the service delivery points.
- iii. Denial
This was also reported to hamper treatment. The clinicians noted that there are those who do not accept the result when they test positive others just say that they are still healthy and will come for care and treatment when they get sick and these results in clients seeking care when it is too late
- iv. Delay
Delay in initiating treatment in the smaller facilities since all base line tests and CD4 counts are done centrally at the district hospital was impeding service provision. Additionally, delays in being attended to in the health facilities were cited as a drawback. Most informants stated that the waiting time in most health facilities was long and indicated it was mainly due to staff shortage and high demand for the services. In one FGD the participants reported having one HCW managing two public health facilities

single handedly. They complained that in some cases clients who go to any of the two health facilities to seek treatment go back home without being seen.

“The problem with that place is that it is very difficult for a patient to get a chance to be seen, you will wait till midday and by then you will be exhausted.”

“You wait for so long, get tired and leave without being seen”

- v. Confidentiality issues hinder service utilization. There were still some allegations on breach of confidentiality by the CCC staff. There also appeared to be reluctance among people to use CCC services where they are known by HCWs for fears that the confidentiality of their status would be compromised.

- vi. Cultural beliefs

This was also mentioned as a barrier to seeking health care since the Luo community believes in witchcraft and supernatural causes of illnesses. Participants explained that:

“There are those who will not seek medical attention when they are ill and will instead come here to the Island claiming that someone from his/her village is killing them using witchcraft and hence their illness. With such claims you can’t really tell whether it is HIV related or what the real cause is.”

- vii. Poor staff attitudes

The informants reported that staff attitude towards their work was poor. This was mainly because they were poorly motivated; have low salaries and are over worked.

Support services

Some of the social services reported to be available included psychosocial support groups and other mitigation services that help combat effects of HIV and AIDS e.g. income generating activities. However, these were noted to be insufficient. HBC services were nonexistent while only a few areas had nutrition programs.

Channels of communication

Regarding channels of communication, 84% of the respondents reported that radios, followed by health workers (50%) were the main channels through which they received HIV/AIDS information (*Figure 7*).

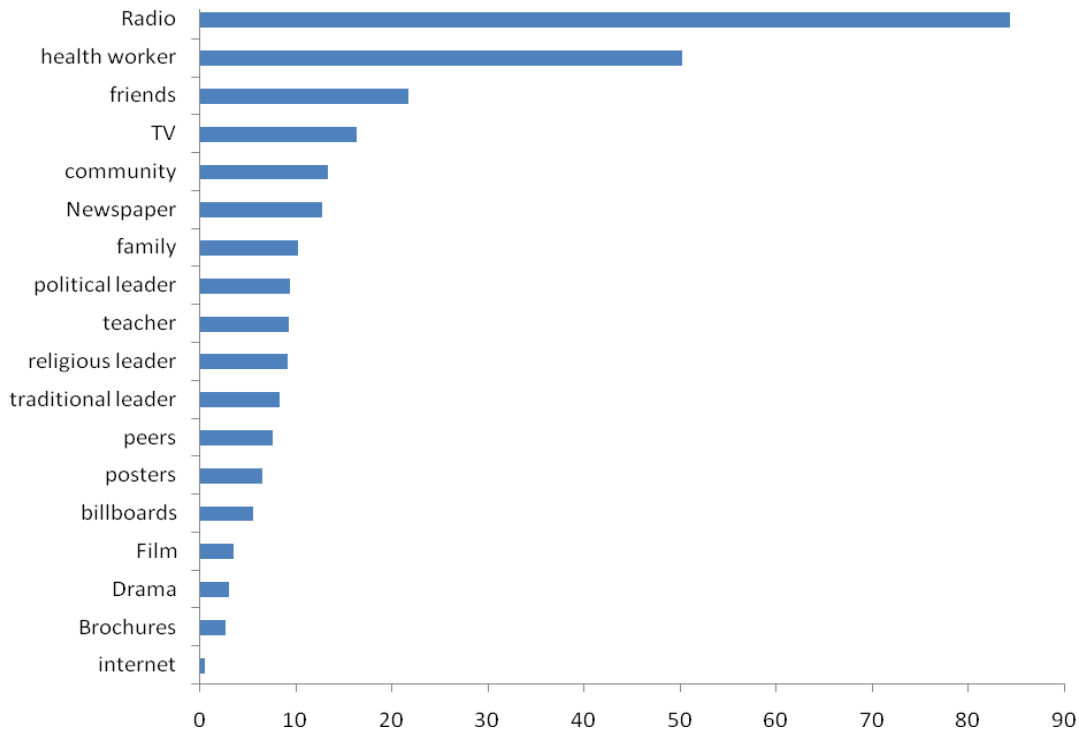


Figure 7: Communication channels from which fishing Community respondents receive information on HIV/AIDS, 2010

Most (74.9%) respondents reported that radios were the communication channel through which they had learnt the most about HIV and AIDS while 13.9% reported that they had learned the most from health workers.

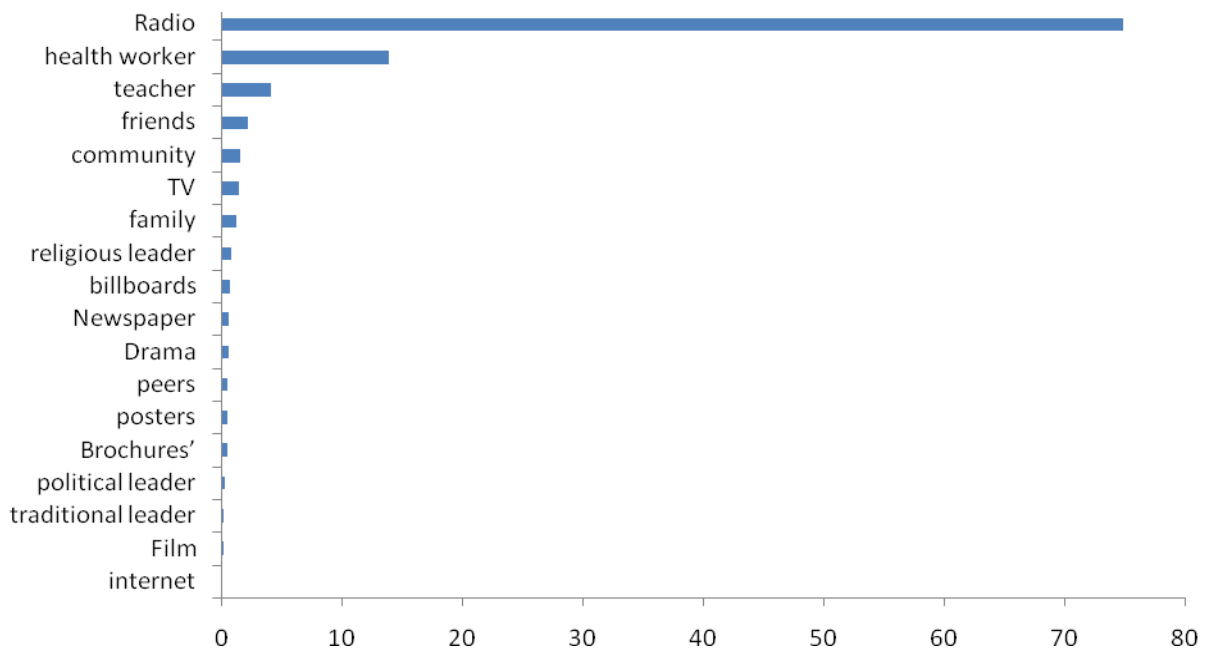


Figure 8: Channel from which the study respondents had learnt most, fishing Community, 2010

3.10. HIV and AIDS Policies, programs and coordination structures

Desk review was done to assess the existence of policies and programs on the fishing community.

POLICIES

The existence of policies was assessed at different levels namely: national, district and community.

National level

At the national level, there are no specific policies and guidelines in the Ministries of health that target the fishing community. However, they benefit from guidelines and policies available to the general public. The National AIDS & STI Control Program (NAS COP) has developed guidelines on most at risk populations (MARPs). These are groups of people who are disproportionately at higher risk for acquiring or transmitting HIV. This is because they engage in behaviors that predispose them to acquiring HIV. However fisher folk were not included as part of the MARPS. The Kenya National AIDS Strategic Plan III (KNASP III), covering the period 2009/10 to 2012/13 is in place. This plan was developed by the National AIDS Control Council (NACC), working in collaboration with development partners, implementing partners, and the “wananchi” to deliver a better framework for a strengthened national HIV response. A key crosscutting focus in this plan is on most-at-risk and vulnerable populations. Fisher folk are included as part of the vulnerable populations. One of the outcomes this Strategic Plan aims to achieve is reduced risky behavior among the general, infected, most-at-risk and vulnerable populations. Some of the planned interventions for this outcome include:

- i. Communication for social behavior change and character formation, community outreach to reinforce accurate knowledge and demand for services in the general population
- ii. Increased condom use
- iii. Delayed sexual debut
- iv. National and local behavior change communication campaigns to reinforce partner reduction, supported by condom use, HIV Testing and Counseling, community mobilization in the general population
- v. Scaling up of tested interventions for MARPs

However, there are no specific strategies that have been proposed on how they will target the fishing communities.

At the national level the Ministry of Fisheries Development did develop a five year strategic plan for the period 2008 to 2012. In this strategy one of the objectives are to reduce the impact of HIV and AIDS pandemic in the fisheries sector. This is to be achieved by incorporating HIV and AIDS issues in their core programs and activities. Some of the activities include promoting condom use and training the lead fisher folk community members on behavior change communication.

In order to implement successfully the HIV and AIDS programmes the policies have been articulated into specific guidelines. Such guidelines include, but not limited to the following:

- i. Ante Retroviral Therapy
- ii. Post Exposure Prophylaxis

- iii. Prevention of Mother To Child Transmission
- iv. Home Based Care
- v. Voluntary Medical Male circumcision (VMMC)
- vi. Voluntary Counseling and Testing
- vii. Opportunistic Infections
- viii. TB Treatment
- ix. National Code of Practice of HIV
- x. Care and Treatment
- xi. Provider Initiated Testing and Counseling
- xii. TB/HIV management

District level

The districts where the fishing folk reside do not have their own policies, but implement the national level policies, strategic plans and programs in collaboration with other partners. It is important to note that not all the national guidelines were available at the districts health facilities that were visited.

Community level (fishing community)

This element, has largely been left to NGOs, and is not yet part of a comprehensive national response, even within the health sector’s community strategy. Funding is undertaken directly by donors and their implementing partners most of which occurs without prior assessments. Beach management units partner with these NGOs and provide services to their members. There are no specific fishing folk tailored policies that deliberately address the unique challenges of this community.

PROGRAMS AND COORDINATION

The existence of and coordination of programs addressing HIV and AIDS among the fishing communities were assessed at different levels.

National level

At the national level HIV/AIDs response in Kenya is coordinated by the National AIDS Control Council (NACC) housed within the Office of the President. NACC is charged with the task of coordinating multi-sectoral national HIV and AIDS response in the country. It is mandated to “provide policy and a strategic framework for mobilizing and coordinating resources for prevention of HIV transmission and provision of care and support to the infected and affected in Kenya”. The Ministries of Health (MoH), through the National AIDS and STI Control Program (NASCO) spearheads the interventions on the fight against HIV/AIDS. It coordinates implementation of technical programs in Kenya.

Provincial level

The Provincial Medical Officer (PMO) works through the Provincial Health Management Team (PHMT), with technical support from the Provincial AIDS/STI Coordinator (PASCO), to carry out the following activities at the provincial level:

- Interpreting, disseminating, and implementing policy
- Coordinating and supervising service performance

- Capacity building, including staff deployment, training, and certification
- Monitoring and evaluating
- Facilitating reporting from district to national level

District level

The District Medical Officer of Health (DMOH) works through the District Health Management Team (DHMT), with technical support from the District AIDS/STI Coordinator (DASCO) and in collaboration with the District Technical Committees and the Constituency AIDS Control Committees (CACC), to ensure appropriate implementation of HIV/AIDS activities at all levels within the district. District Technical Committees (DTCs) form the technical arm of the District Development Agenda on HIV and AIDS programs. This ensures that HIV and AIDS is mainstreamed in the district development programs. The district heads of departments report on their sector-specific HIV and AIDS activities initiated by their sectors. The Committee brings together a district multi-sectoral team to ensure that HIV and AIDS programs take into account all the aspects of development in the district. DTCs meet monthly and report to the Field Office in the Region and NACC Secretariat on quarterly basis. The District Development Officer (DDO) is expected to report to NACC all HIV and AIDS issues and should liaise closely with all Heads of Departments to compile multi-sectoral information on HIV and AIDS in the respective districts.

Constituency level

NACC established 210 CACCs (Constituency AIDS Control Committees) in the country to coordinate and supervise HIV and AIDS activities at the community/constituency level. CACCs are operational and each has 5 (five) members of secretariat. With the declaration of Total War against HIV and AIDS, CACCs play an important role in the fight against HIV and AIDS as they are the entry points to the community.

EFFECTIVENESS OF THE POLICIES AND PROGRAMS

The KNASP is being used to guide the planning and implementation of HIV/AIDS activities among vulnerable populations, however implementing this on the ground in the fishing community remains a challenge since no specific strategies or programs have been proposed on how they will target the fishing communities.

At community level a coordination and implementation gap exists despite the presence of CACC and the DASCO. Most HIV related activities are left to NGOs. Existing structures like the Community-based Beach Management Units (BMUs) are by-passed and most HIV related activities are implemented without a needs assessment.

CHAPTER 4: DISCUSSION

This study sought to determine the prevalence, knowledge, drivers and vulnerabilities of HIV infection in the fishing community. Social mobilization utilized the elaborate network of the fishing folk through the beach management units to enhance the overall response rate. The network of beach management units facilitated identification of the sampled study participants and enrollment into the study.

Previous studies in Kenya have focused on national and regional HIV sero-prevalence however this study concentrated on the fishing community in western region of Kenya. The data from this cross-sectional study cannot provide evidence of HIV situation in Kenya, but we are able to gain a general understanding of HIV situation along the Lake Victoria basin. Previous population based studies conducted in Kenya have shown that there was pronounced regional variation of HIV prevalence with Nyanza region (Kaiser et.al., 2011) having the highest. However, the results of this survey showed that, the HIV prevalence in the fishing community is much higher (26.2%) than what was observed in Kenya Aids Indicator survey (KAIS, 2007) and Kenya Demographic Health Survey (KDHS, 2003/2008) where the HIV prevalence for Nyanza region was 15.4% and 15.1% respectively. This high disparity in prevalence could be explained by the fact that KAIS 2007 and KDHS 2003 were national surveys and the prevalence was for the entire region where as sero-survey concentrated on fishing community living along the Lake Victoria basin.

Several studies carried out in Asia have shown that fishermen communities have high prevalence of HIV infection compared to the general population (Soskolne, 2000). In Malaysia, HIV prevalence among fishermen was found to be than more three times higher as compare to the general population (Malaysian AIDS Council on Huang, 2002). Higher prevalence of HIV was also noted among the fishermen in Thailand and Cambodia in the year 2000 and 2004 respectively (Soskolne, 2000 and Samnang, 2004). The fishermen communities are regarded as mobile population and studies have shown that their risk of contracting HIV is high (Manjunath et al, 2002). This could be explained by the fact that this population spent more time away from their home which may lead to them indulging in risky sexual behaviour. It's well understood that the fishermen usually get access to daily cash income in an overall context of poverty hence increase their vulnerability to HIV infection. Background characteristics of the fishing community, the ready availability of commercial sex in fishing ports and risk taking behaviors have also been blamed for high prevalence of HIV in the fishing community (Allison, 2004).

Several risky sexual behaviors were associated with high HIV infection in this study. Fisher-folk specific drivers and vulnerabilities for HIV infection that were evident from this study include mobility, multiplicity of sexual partners and socio-cultural practices. Uncircumcised males were shown to have a greater risk of HIV infection compared to those who were circumcised. This finding was consistent with 2003 KDHS and the 2007 KAIS which showed that uncircumcised men were more than four times as likely to have HIV as circumcised men (13 percent and 3 percent). This study showed that the higher the number of lifetime sexual partners, the higher the likelihood of having HIV. This finding is consistent with what was observed in 2007-2008 KDHS. Other sexual behaviors that have been associated with much higher level of HIV infection in this study include wife inheritance (30.8%), multiple sexual partners (37.3%), drug

use (25%) and multiple wives. Findings from this study showed that prevalence among study respondents who used condom when engaging in sexual intercourse was higher than among those who did not used condoms compared to those who used condoms. It is known that having sexual intercourse without condom poses a risk of contracting HIV infection, however this study revealed that those who used condoms had a higher HIV infection. It is clear, however, that more and more people are recognizing the risk of unprotected sex and are taking steps to protect themselves and their partners. It is probable that those who tested positive in this study knew their HIV positive status and were regular users of condoms in order to protect their casual or regular partners or may be as a result of their high risk sexual behaviours thus the use of condoms as a means of protection.

Knowledge of HIV and AIDS and its transmission as well as perceptions of risk for HIV infection are essential for making behavioral choices that determine the risk of acquiring and transmitting the virus. Globally, comprehensive and correct knowledge about HIV among both young men and young women has increased slightly since 2008 (UNAIDS, 2010). In this study, awareness of HIV and AIDS was generally high (97.1%) among the study participants in the fishing community. However, this proportion was slightly lower than the overall national awareness level of 98.3% and 99.0% observed in 2007-08 (KAIS 2007 and KDHS, 2008 respectively). While there was no marked difference in the level of awareness among the different age groups in the previous surveys, the level of awareness in the <15 years age group was substantially lower in this study (79.8%). Comprehensive knowledge in this study was higher (50.9%) compared to survey data from several countries which indicates that, on average, 40% of males and 38% of females ages 15–24 had accurate and comprehensive knowledge about HIV (UNAIDS 2008).

Awareness of methods of preventing or reducing transmission of HIV is one of the key milestones towards winning the fight against HIV and AIDS locally, regionally and globally. This is because, hypothetically, if transmission is brought to the bare minimum and efforts are beefed up in improving the lives of those living with HIV and AIDS, the globe can become an AIDS-free zone and eventually, through natural attrition, a HIV-free space may be realized. In this study, knowledge was generally high, but the comprehensive was about 50%. Knowledge that chances of transmitting the HIV virus can be reduced by having sex with one uninfected faithful partner (90.7%), that transmission of HIV can be reduced by using a condom every time people had sex (85.2%) and that transmission can be reduced by abstaining from sexual intercourse (86.1%) is an indication that, with beefed up awareness efforts, the rate of HIV transmission can be reduced drastically. However, there is need to urgently beef up awareness strategies on methods of preventing or reducing transmission of HIV in the <15 years age group.

There have been many misconceptions and widespread myths over the years as to how HIV is transmitted. Unfortunately, these misconceptions and myths have often led to unfounded fears, stigma against people living with HIV and AIDS, unnecessary and punitive restrictions, and discriminatory practices. Misconceptions on transmission of HIV virus and cure for AIDS are a major setback towards any successful battle against HIV and AIDS. This is either by slowing or derailing strategies and efforts made towards combating the HIV scourge thus diminishing on the gains achieved so far. Though any misconceptions on transmission of a scourge of such global significance as HIV and AIDS is risky, it is worrying to emerge that some proportion of the

population still don't think that a healthy-looking person can have HIV or transmit the virus. This is serious risk factor that should be addressed promptly and with urgency.

The substantial proportion in the <15 years age group who reported that they did not know whether a healthy-looking person can have HIV virus (33.9%) is of great concern considering that some of this population is sexually active and is likely to be ignorantly lured into risky sexual behavior by the older age groups. There is still a huge stigma towards HIV infection especially in disclosure of one's HIV status to partners, family, friends and community as well as negative attitude towards caring for those who are infected. The attitude towards HIV infection was generally similar among males and females. There was also indifferent attitude towards HIV and AIDS just like any other illness as well as ignorance on use of condoms.

Over half of the respondents in this study indicated that they had not been born in their areas of residence. Slightly over one fifth also reported that they had spent at least one night away from home during the previous 3 months. These findings are indicative of the mobile nature of the population and fluidity in movements of the fishing community. In this study, HIV prevalence was lower among participants who had lived in their current areas of residence since birth compared to those who had moved in from elsewhere. This finding is consistent with several studies that have demonstrated the role of mobility as a risk factor for HIV and AIDS transmission (Lydie N et al, 2004, Lurie MN et al, 2003, Coffee MP et al, 2005).

Majority of our study respondents were young people aged 15 - 34 years old, this cohort represents not only one of the highest risk groups for HIV acquisition and transmission, but also are the group most likely to have become HIV-infected during the period in which ART became available in Lake Victoria region hence may also explain the high HIV prevalence in the region. Several hypotheses may account for the high prevalence of HIV in this community. In this era of Antiretroviral Treatment; it would be expected that fewer infected individuals succumb to infection hence possible increase in the population of people living with HIV. Studies have shown that individuals who are aware of ART think that HIV was a less serious threat (Cohen et.al. 2009) hence may end up engaging in unsafe sexual practices; as a result of this more people get infected hence increasing HIV prevalence. Moreover, results from focus group discussions suggest that HIV the risks of dying in the waters of Lake Victoria during fishing expeditions far outweighs the risks of HIV transmission and hence HIV is not a major threat to the fishing crew. The fishermen have been known to be involved in hazardous business that leads to frequent drowning and may not appreciate very much the risk of death due to HIV since death from HIV will take long to occur compared to the sudden nature of drowning.

In this sero-survey young women were found to be more vulnerable to HIV infection as compared to young men of similar ages. The difference may be attributed to the several reasons accounts of gender related risks. In Kenyan culture, as in many cultures worldwide, men are more able to act on their attitudes and beliefs than women especially in regards to sexual activity (Shisana and Davids, 2004). Thus, for women the risk of acquiring HIV may be more a marker of their sexual partner's attitudes and beliefs than of their own (Ferguson et.al., 2004, Luke, 2005) and the indirect effect of economic deprivation (Dodoo.,2007). The highest prevalence (39.5%) among men was noted in the age group 45- 54 while in women the age group with the highest prevalence was (39.4%) 25 -34.

The results showed the prevalence among men increase with age, while high prevalence was noted in young women. However prevalence among women tend to reduce as the age increase which consistent with what was observed in KDHS 2003, KAIS, 2007 and KDHS, 2009. In terms of occupation high prevalence (33.7%) was noted among the fish monger while those who process fish had the lowest prevalence. This could be explained by the fact that people in the fishing especially women may exchange fish for sex or sexual favours provided to the fishing crew in order to gain favours in purchase of fish commonly referred as 'jaboya' in the local dialect. Studies have shown that this phenomenon is increasingly being reported in many different developing countries, with the largest number of cases observed in Sub-Saharan African inland fisheries. Women are more likely to be influenced and exchange sex for fish hence making the entire fish traders at risk of contracting HIV.

Data from this survey has revealed that married respondents were found to be more vulnerable to HIV than those who are not in any form of relationship. Studies have shown that one out of ten married couples in Kenya; at least one partner is living with HIV. Among married people who are living with HIV, 45 percent have a partner who is uninfected (National AIDS and STI Control Programme 2008). This is not unique to Kenya in a study that was conducted in Rwanda and Zambia, it was estimated that over half of new infections occur within marriage or in cohabitating relationships, and just under half in Uganda (Stephenson et.al. 2008; UNAIDS, 2008). Having multiple concurrent sexual partners (having more than one partner during the same time period) plays a major role in fueling the HIV epidemic, particularly in sub-Saharan Africa (Halperin et.al, 2004). Married men consistently report higher number of extramarital partner than their wives. This put both couples at risk of contracting HIV infection. For example, in Kenya, 11% of married men reported having an extramarital partner in the past year, as opposed to just over two percent of women. Cultural factors such polygamy marriage may also increase the risk of HIV infection among the married couples. This could explain why those who were married were at risk of contracting HIV infection in this study.

The age at sexual debut in this study was lower than that of the general population (KDHS 2008/2009). Nevertheless marriage or cohabiting was more common in HIV infected than negative persons. This suggests that cohabiting or marriage tended to be a risk factor for HIV infection and is consistent with previous findings of increased HIV transmission among married persons (Dunkle KL SR et al, Guthrie BL DBG et al, Kaiser R BR). Previous studies have shown that in Kenya and Malawi over 80% of unprotected sex occur in cohabiting or married couples (Anand A SR et al). Despite the high condom availability and accessibility of male condoms, female condoms were rarely used. The high condom use in this community is not consistent with previous findings in among the fishing community in Kenya (Z A Kwena EAB et al. Int Journal of STD and AIDS, Zachary A. Kwena CRC).

Commercial sex work was common in the fishing community; this was probably driven by high poverty levels and income arising from fishing industry. Our finding however is lower than what has been reported in previous studies(Zachary A. Kwena CRC). This poses a real threat as new HIV infections may increase especially if condom use was to reduce due to one reason or another. Programs should therefore be initiated to improve livelihood and alternative sources of income for the commercial sex workers.

Some cultural practices like sex for fish, wife inheritance and widow cleansing are likely to result in spread of the virus thus frustrating major gains made in HIV and AIDS prevention programs. Given that the fishing community is a highly mobile population, there is real risk of HIV transmission when the fish mongers “*jaboya*” engage in multiple sexual relationships with migrant fishermen in order to increase their chances of getting enough fish to sell since the more relationships one has, the more likely one is likely to obtain fish. During wife inheritance and widow cleansing rituals, use of condoms may not be practiced since, usually, there is an effort to conform to historic norms thus contributing to spread of HIV. This is habitually done without going for VCT sessions, even in situations where it was already suspected that the husband may have died of AIDS.

Although wife inheritance was a reportedly common practice within the fishing community only a small proportion still practiced it. Similarly there was no increased prevalence of this practice among HIV infected compared to negative persons. This suggests that the community may have been already sensitized enough about this practice and its effect on HIV infection and as a result majority of the community members may have moved away from this practice. This change in behavior should be sustained if long term results are to be realized. The finding that lack association between wife inheritance and increased HIV transmission may be either due to high condom use in this community or the small numbers who practice it and therefore lack of power to detect significant differences. Similarly despite the high prevalence of extramarital affairs in this population, it did not appear as a driver of HIV in this population probably due to high condom use.

Only a small proportion of the participants were circumcised since male circumcision is not traditional practiced in this population. Male circumcision has been shown in previous studies to reduce significantly the risk of HIV infection (Guthrie BL dBG). The baseline study was not powered enough as only few participants had been circumcised and therefore may have failed to demonstrate significant difference in the prevalence of male circumcision among HIV infected compared to uninfected person. Moreover high condom use in this setting may have also masked any significant differences.

Drinking of alcohol in the fishing community unlike smoking bhang was more common social activity. Engagement in sexual activities was also after drinking alcohol. The association between drinking alcohol and engagement in sexual activities may result in increased risk of HIV infection consequently drinking of alcohol is a driver of HIV infection. The prevalence of sexually transmitted infections in among the fishing folk was low in contrast to previous studies (Z A Kwena EAB et al. Int Journal of STD and AIDS) and this is probably partly explained by the high use of condoms.

This study assessed the availability, range and utilization of HIV/AIDS services in the fishing communities in the lake Victoria Basin, Kenya. While most of the respondents in the fishing population reported that HIV/AIDS services are available, accessibility was reported as a challenge by almost a third of the respondents. It has been reported that availability does not always imply accessibility. The extent to which a population gains access also depends on other factors related to financial, organizational and social or cultural barriers that limit the utilization of services (Gulliford *et al*). There seem to be a somewhat limited role of private health care

providers who can also be crucial in bridging the gaps that cannot be filled by the public health institutions.

VCT services were the most widely available and utilized services. This may be linked to the aggressive roll out of VCT services by the government and the expansion of mobile VCT services which have continued to be an important program in the fight against HIV in Kenya (Grabbe K. *et al*). As reported during most of the focus group discussions, the high utilization rate of VCT services could also be attributed to the high quality of services by counselors in the VCT clinics. However, an important observation made in this study was the remarkably low number of people who reported inadequate access to HIV care and treatment. Fewer respondents had access to the care clinics or ARVs than those with access to VCTs. Only a third of the estimated HIV positive respondents were on HIV care/ARVs. The contribution of VCT services can only be maximized if its provision is intricately linked to other essential components of HIV programs like care and treatments (Nuwaha H. *et al*). Utilization of the other HIV/AIDs services was low. Although the country has reported progress in PMTCT, the use of PMTCT services among the fishing community respondents was low.

CHAPTER 5: CONCLUSION

In conclusion, HIV prevalence in the fishing community is about 3.5 times higher than the national average and 1.7 times higher than the average of Nyanza province. Prevalence was similar among males and females. The highest HIV prevalence was among the fish mongers. The fish mongers and the divorced /separated were more at risk of HIV transmission and thus the need to focus on these groups taking into account the interrelationships among the various groups and actors that derive livelihoods from fish. The findings of this study showed that awareness and knowledge on prevention or reduction of transmission of HIV was generally high. Knowledge of prevention or reduction of transmission of HIV was lowest in the <15 years age group. There were misconceptions about HIV transmission such as sharing of utensils with an infected person, transmission by insect bites and witchcraft as well as a healthy-looking person having HIV or transmitting the virus. Stigma, negative attitudes towards HIV and discrimination were also reported and there are binding cultural practices that predispose the community to HIV.

There are specific HIV drivers that facilitate HIV transmission among the fishing folk. Such drivers include polygamous relationships, wife inheritance, low prevalence of circumcision, engagement of multiple sexual partners, migratory and travel patterns of the fishing folk and the negative cultural practices like “*tero*”. This study demonstrated that the fishing communities in the Lake Victoria basin are mobile and move from one beach to another. Male condom was the more available than female condom. Condom use was high and it is an important and necessary method of reducing both HIV and sexually transmitted infections. Voluntary medical male circumcision was still low among the fisher folk and limited male circumcision is still a driver of HIV infection in this community.

HIV related services were available in these communities even though most were health facility based. Government of Kenya was the main service provider of HIV and AIDS services. Whereas VCT services were the most available and utilized, utilization of ART services was low. Home based care and nutrition services were conspicuously lacking. The main barriers to service utilization were distance and transport costs. Stigma still existed although this had reduced considerably over the years. Staff shortage and centralized services were the main barriers to provision of HIV related services. Moreover, social support for widows, orphans and those infected with HIV was lacking.

CHAPTER 6: RECOMMENDATIONS

The high HIV prevalence among the fishing folk calls for focus to address the specific risks and vulnerabilities of the fishing population so as to stop transmission of HIV as well as availing quality and responsive services that are accessible and addresses the legitimate needs of this special population. Furthermore, efforts need to be made to develop and implement interventions against HIV and AIDS that mitigate the risks and vulnerabilities due to the mobility.

In light of the risk factors for HIV transmission, the following are suggested:

- i. Programs should therefore be initiated to ensure continuous availability and access to condoms by expanding condom outlets beyond government health facilities and shops.
- ii. Fisher-folk specific services should be initiated to address the mobile lifestyles and the migratory pattern of the fishing folk. It is suggested that mobile HIV and AIDS services be availed through use of boats and ships.
- iii. Health education targeting < 15 years age group for awareness of existence as well as social and public importance of HIV and AIDS. This can be done using co-curricula schools programs since some of these respondents were pupils and students. The age group with the lowest knowledge of prevention of and highest level of misconception on HIV transmission was <15 years. Teen and youth programs such as one dubbed “*mimi nime-chill, je wewe?*” should be initiated locally to promote abstinence from sex for pupils, teens and youths. These programs should also be used as forums to educate them that once they are of age; faithfulness and use of condoms are some of the most effective methods of preventing or reducing HIV transmission.
- iv. Programs should be initiated to delay age at sexual debut.
- v. Health education on purpose and benefits of using ARVs should be promoted focusing on the BMU officials. The officials can be trained and facilitated to act as peer educators.
- vi. The elite community leaders should be sensitized to dissuade the community to abandon some cultural practices that predispose them to HIV infection
- vii. Comprehensive and targeted enhanced community education on HIV transmission and the methods of control. The main categories to be targeted are the fish mongers, fish crew and the divorced or widows. Awareness creation and sensitization should be focused on the negative perceptions and cultural factors that facilitate HIV transmission
- viii. Expansion of existing services such as VCT, PMTCT, PITC, ART and circumcision and making them more responsive to the needs of the population taking into consideration the socio-cultural perceptions of the fishing folk and their needs. Specific innovative programs should be initiated to increase access to male medical circumcision.
- ix. The high use of condoms should be sustained and expanded as there are other possible drivers of HIV infection existing in the community that would lead to increased new infections if condoms are unavailable. New outlets for condom distribution should be set up in the various landing sites through consultation with the community.
- x. With the dwindling fish in Lake Victoria that has increased competition for fish resulting to ‘sex for fish’ or ‘fish for sex’, there is need to design innovative approaches for other alternative income generating activities for the fishing community. These approaches should especially target vulnerable groups like widows.
- xi. Financial education of the fisher community on diverse investment options beyond dependence on fish.

- xii. Economic empowerment of the economically disadvantage persons in order to limit migration of widows to beaches.
- xiii. Increase accesss and utilization of HIV care and treatment services including psycho-social support of PLWHA, widows and orphans at community level
- xiv. Programs should be started targeting reduction in alcohol use among the fishing community.

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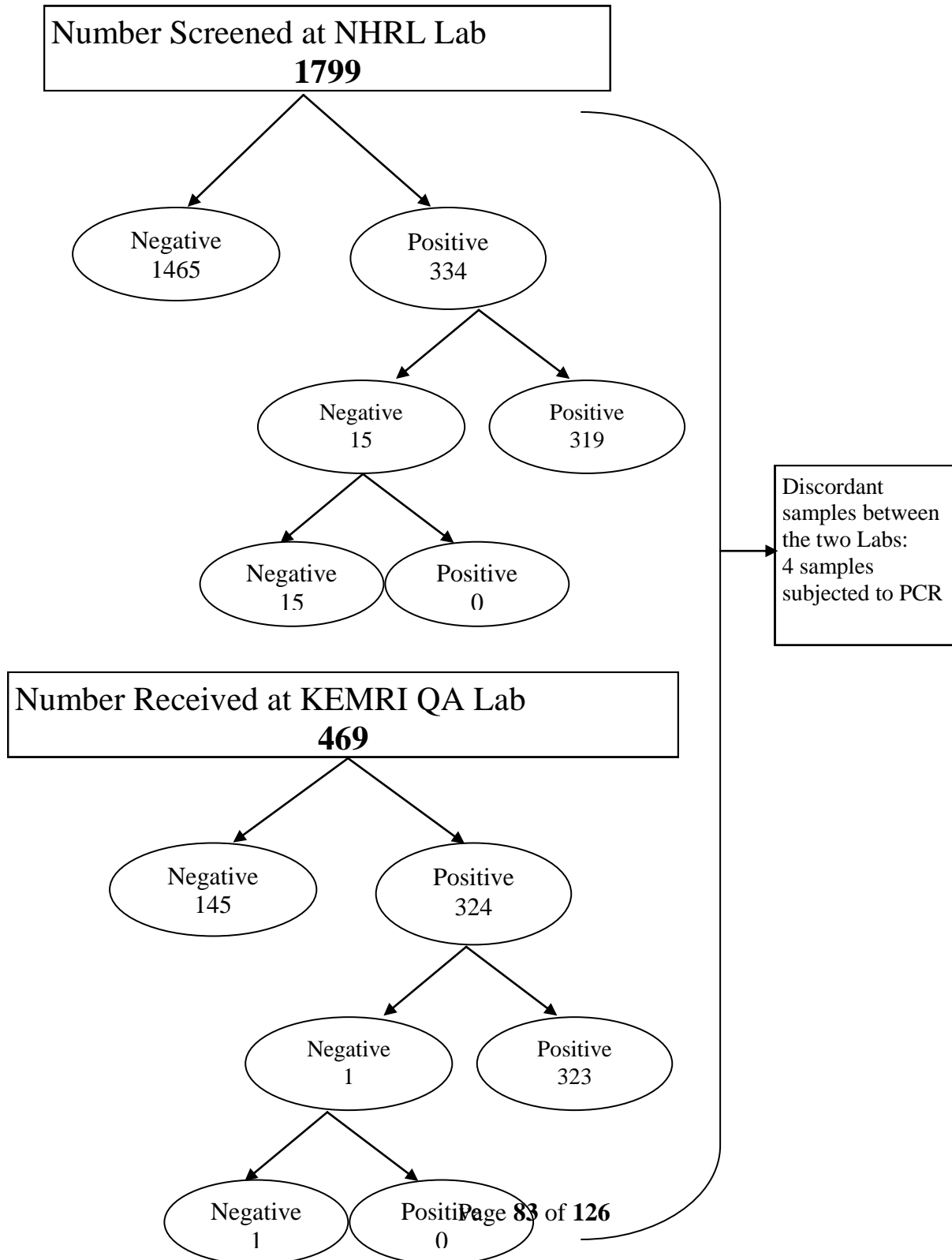
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 - 54) WHO/UNAIDS/UNICEF: Significant growth in access to HIV treatment in 2006

Appendices

a. Appendix 1: Flow chart of laboratory analysis of DBS specimens



b. Appendix 2: Laboratory standard operating procedures for HIV testing

Laboratory Standard Operating Procedures	
TITLE: Evaluation of Vironostika HIV uniform II plus O and Ag/ Ab for use with dried blood spot (DBS)	
Lab SOP Number:	Version Number:
Date Prepared:	Date Adopted:
Prepared by:	Verified by:

1.0 Purpose:

This study evaluates the ability of vironostika uniform II plus O assay to detect human immunodeficiency virus (HIV) antibodies in dried blood spots (DBS) on filter paper

2.0 Principle:

Vironostika HIV uniform II plus O is an ELISA based on one step “sandwich” principle. A mixture of HIV antigens coupled to horseradish peroxidase (HRP) serves as the conjugate with tetramethylbenzidine (TMB) and peroxidase as the substrate. Upon completion of the assay, the development of the colour indicates the presence of antibody to HIV-1, HIV-2 and HIV-1 group O, while no or low colour developments suggests the absence of antibody to HIV-1, HIV-2 and HIV-1 group O.

3.0 Assay Procedure

Day before Assay

(Punching and Elution)

- a) Use supplied worksheet to make a plate layout indicating the location of each sample on the plate. Leave wells A1 to EI for kit serum controls. Use wells FI to HI for Negative, Low positive and High Positive DBS controls respectively.
- b) Label each plate with your name date and plate number
- c) Use ¼ inch (6mm) punch to punch one disk for each client in the blank 96 well micro titer plate. Make sure the spot is adequately filled and completely soaked with blood (revisit rejection criteria)
- d) Using a multichannel pipette, add 200ul of PBS, 0.05% tween 20 and 5% skim milk (or PBS with tween 20 only depending with the protocol) to elute blood spot from the disk. Please ensure that each disk is submerged in PBS. If not use an applicator stick to push the disk into the PBS.
- e) Carefully seal the plate to prevent evaporation.
- f) Incubate plate overnight at 4 degree C to elute

Day of the Assay

- 1) Remove the vironostika kit from and micro titer plate containing DBS elution from the refrigerator at least 30min before the start of the assay to allow kit components to come to room temperature
- 2) Prepare the following reagents before beginning the test procedure;
 - a) Wash buffer (Dilute the phosphate concentrate 1:25 with DH2O e.g (1ml concentrated buffer with 24ml water)

- b) 5min before adding TMB substrate, prepare the substrate by combining the required amount of TMB solution in equal parts with urea peroxide solution according to the number of wells being run (see chart below). Keep away from direct sunlight.

Number of wells	TMB solution	Urea peroxide solution
1-16	1.5ml	1.5ml
17-32	2.5 ml	2.5 ml
33-48	3 ml	3 ml
49-64	4 ml	4 ml
65-80	5 ml	5 ml
81-96	6 ml	6 ml

- 3) Remove the test plate from the air tight foil pack (any unused strips should be resealed with the clamp and rod provided)
- 4) Add 75ul of Specimen diluent into all samples and DBS control wells
- 5) Using multichannel pipette (set at 75ul) gently pipette up and down 4-5times DBS elute, taking care not to generate bubbles. Add 75ul of the DBS elute to corresponding wells in the plate. Use clean tips for each sample to avoid cross contamination. Final dilution of the serum contained in the DBS is 1:80
- 6) Add 100ul of sample diluent to the kit control (serum) wells.
- 7) Add 50ul of kit negative control to wells A1 to C1, and positive controls to well D1 and E1 (add control after the sample)
- 8) Seal the plate with plate sealer
- 9) Incubate the plate at 37⁰ C for 60-+5minutes
- 10) Remove the place cover; take care not to dislodge any of the plate strips. Wash each plate six times with previously prepared Phosphate buffer.
- 11) Blot the plate with absorbance tissue to remove any remaining fluid.
- 12) Add 100ul of previously prepared TMB substrate in ti each well.
- 13) Incubate the plate at 15 to 30⁰ C for 30+- 2minutes
- 14) Stop the reaction by adding 100ul 1mol / 1 sulphuric acid to each. Ensure thorough mixing by tapping the side of the plate. Read the plate within 15 minutes.
- 15) Read the plate using 450nm (single wave length)

4.0 Quality Control.

Examine serum controls and reject the assay if not according to manufacturer instruction.

If the serum controls are within specifications, examine the blood spot controls. Accept the assay if all blood spot controls are correctly classified as Negative, low positive and high positive. If the blood spot control is incorrectly classified reject the entire plate and repeat the EIA on the original elutes produced for this EIA plate or create fresh elute from blood spot controls and specimens. If the blood spot controls are still incorrectly classified, troubleshoot the method before proceeding.

Record in the quality control log the absorbance values of the dried blood spot control.

Laboratory Standard Operating Procedures	
TITLE: Evaluation of Murex HIV 1.2.0 for use with dried blood spot (DBS) sample	
Lab SOP Number:	Version Number:
Date Prepared:	Date Adopted:

Prepared by:	Verified by:
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1.0 Purpose

This study evaluates the ability of Murex 1.2.0 assay to detect human immunodeficiency virus (HIV) antibodies in dried blood spots (DBS) on filter paper.

2.0 Principle

Murex HIV 1.2.0 is based on micro wells coated with a synthetic peptide representing an immunodominant region of HIV-1 (O), recombinant protein derived from the envelop proteins of HIV-1 and HIV-2 and an HIV core protein.

Test specimens and control sera are incubated in the wells and antibodies to HIV in the sample or control sera binds to the antigen on the microwell; sample and any excess antibodies are then washed away. In a subsequent step, conjugated is added which in turn binds to any specific antibody already bound to the antigen on the well. Samples not containing specific antibody will not cause the antibody to bind to the well. Unbound conjugate is washed away and solution containing TMB and hydrogen peroxide is added to the wells. Wells with bound conjugate develop colour which turns orange when the reaction is stopped with sulphuric acid. The amount of conjugate and hence colour, in the wells is directly related to the concentration of the antibody to HIV in the sample.

3.0 Assay procedure

Day before Assay-Punching and Elution

- a) Use supplied worksheet to make a plate layout indicating the location of each sample on the plate. Leave wells A1 to E1 for kit serum controls. Use wells F1 to H1 for Negative, Low positive and High positive DBS controls respectively.
- b) Label each plate with your name, date and plate number.
- c) Use a ¼ inch (6mm) punch to punch one disk for each client in a blank 96 well micro titre plate. Make sure the spot is adequately filled and completely soaked with blood.
- d) Using a multichannel pipette, add 200ul of PBS, 0.05% tween 20 and 5% skim milk to elute the blood spot from each disk. Please ensure that each disk is submerged in the PBS. If not use an applicator stick to push the disk into PBS.
- e) Carefully seal the plate to prevent evaporation
- f) Incubate plate overnight at 4° C

Day of the Assay.

- 1) Remove the murex 1.2.0 kit and the microtitre containing DBS elution from the refrigerator at least 30min before the assay to allow kit components to come to room temperature
- 2) Prepare the following before beginning the procedure; a) Wash fluid (Dilute the phosphate concentrate 1:20 with DH₂O e.g (1ml concentrated buffer with 19 ml water (b) Conjugate. Pour the whole contents of the bottle of conjugate diluent into a bottle of conjugate, recap and mix by gentle inversion. Allow to stand for atleast 30 minutes with occasional swirling. (C) 5 minutes before adding substrate prepare the working solution depending on the number of wells as indicated on the table below.

Number of wells	Substrate concentrate	Substrate diluent
1-8	0.5ml	0.5ml
9--16	1 ml	1 ml
17--24	2 ml	2 ml

25-40	2.5 ml	2.5 ml
41-48	3.0 ml	3.0 ml
49-56	3.5 ml	3.5 ml
57-64	4.0	4.0ml
65-72	4.5	4.5
73-80	5	5
81-96	6	6

- 3) Remove any strips from the microwell plate that are not needed for the assay and replace with null strips.
- 4) **Dispense 50ul of specimen diluents to kit control wells only.** Also dispense 25ul of the same specimen diluents to all the remaining wells (DBS control and sample wells).
- 5) Using a multichannel pipette (set at 75ul) gently mix the DBS elution 4-5 times and transfer 75ul to test plate and mix well 4times. Discard the pipette tips and continue until all DBS elutes have been transferred. Final dilution is 1:53. Cover the elution tray and store appropriately.
- 6) **Add 50ul of kit negative controls to wells A1 to C1 and positive control to well D1 and E1 (add control after the samples)**
- 7) Seal the plate with plate sealer
- 8) Incubate the plate for 30min at 37°C,+1 minutes
- 9) Remove the plate cover taking care not to dislodge any plate strips. Wash the plate five times with previously prepared wash fluids. Blot the plate with an absorbance tissue to remove any remaining fluid.
- 10) Add 50ul of previously prepared conjugate to each well.
- 11) Cover the plate with the lid and incubate for 30 minutes at 37°C
- 12) At the end of the incubation, wash the plate as described in 9 above
- 13) Immediately after washing the plate, add 100ul of substrate solution to each well
- 14) Cover the plate with the lid and incubate for 30min at 37oC +-1. Keep away from direct sunlight. A purple colour should develop in wells containing reactive samples.
- 15) Stop the reaction by adding 50 ul stop solution (0.5 to 2m sulphuric acid) to each well.
- 16) Read the plate at 450 nm within 15 minutes.
- 17) Qualify all kit control values

4.0 Quality Control.

Examine serum controls and reject the assay if not according to manufacturer instruction.

If the serum controls are within specifications, examine the blood spot controls. Accept the assay if all blood spot controls are correctly classified as Negative, low positive and high positive. If the blood spot control is incorrectly classified reject the entire plate and repeat the EIA on the original elutes produced for this EIA plate or create fresh elute from blood spot controls and specimens. If the blood spot controls are still incorrectly classified, troubleshoot the method before proceeding.

Record in the quality control log the absorbance values of the dried blood spot control.

c. Appendix 3: Study implementation timeline

Activity Time	2010								2011				
	May	June	July	August	September	October	November	December	January	February	March	April	May
Ethical clearance	█												
Mobilization		█	█	█	█	█	█	█					
Pretesting		█											
Sampling		█	█	█	█	█	█	█					
Training				█									
Pilot test	█	█											
Field work				█	█	█	█	█					
Lab analysis						█	█	█	█	█	█	█	█
Data merging											█		
Data analysis												█	█
Report writing												█	█
Dissemination of findings													█

d. Appendix 4: Consent Forms

HIV and AIDS Baseline Survey: Informed Consent

(Flesch-Kincaid readability score – 7.5) – English

Today's date	□□/□□/□□		
Name of Estate or factory or landing site			

Introduction

It is important that the following explanation about the survey is either read to you, or you read it yourself before agreeing to participate in the study. It describes the purpose, procedures, benefits and risks of participating in the study. It also states that you have right to refuse to participate and this will not in any way take away any access rights and privileges that the participant was receiving before from the beach management unit.

The Lake Victoria Basin (LVBC) would like to establish a framework of improving effectiveness of the HIV and AIDS responses among the fishing and plantation workers in the lake Victoria Basin. In order to establish such a framework the organization seeks to determine the prevalence of HIV and the drivers of risks of HIV transmission among the fishing or plantation workers.

You were randomly selected to participate in this survey. We are asking questions about your knowledge, attitude and practice regarding HIV transmission. We would also like to know some of the factors that make people at risk of HIV in this area. We would like to reduce such risks.

If you choose to be part of this survey, it will take about 40 minutes of your time. It is your free choice to be part of your study.

What we would like to do:

If you agree to be part of this survey, we will ask you some questions. The questions were about your knowledge, attitude and behaviors regarding HIV and AIDS. We will also ask questions about availability of HIV and AIDS services (preventive, treatment and support)

As part of this survey, we would like to find out if you have HIV or STI. A trained laboratory technologist will talk to you about the collection of blood for HIV testing. He will seek your permission to collect the specimen. The results of the HIV test were kept private to the extent allowed by the laws. You may agree to be in the survey today and refuse the blood draw when the laboratory technician comes.

Benefit from being in this study:

The results of the survey will help understand the factors that can lead to increased HIV transmission and the drivers of such risks among the fishing and plantation workers. Such information will help determine the relevant interventions that need to be implemented to reduce the risk of HIV transmission.

If you agree to be part of this survey, you will get detailed information on HIV and if you would like to know your HIV status you were provided with counseling services at VCT centers that we had made arrangements with or at a mobile VCT. You will also be able to know your HIV status and lead to initiation of early treatment. If you test positive for HIV and you know it, you will have reduced chances of transmitting the virus to your partner.

Risks from being in this study:

There are no risks to you in being part of this survey today.

You are free to choose to be part of this survey. You have the right to refuse or stop at any time. If you stop the survey, you will still enjoy the rights and privileges you had. You will not be treated differently by the management of the plantation or the fisheries.

The facts about you from this survey were kept private as allowed by the local laws. No names were used on any of the survey reports. Should any more questions arise, if you feel like you or your family might have been harmed by being in the survey, or if you want to quit the survey, please contact SUPERVISOR NAME at the XXXXX location or Dr. Kibet Sergon (0722 659568). If you have questions or concerns about your rights or your child's rights as a research participant or the treatment of research participants contact Dr. Yeri Kombe, the KEMRI Ethical Review Committee contact person at 020-2722541.

Consent signing:

The consent form has been explained to me and I agree (for NAME of CHILD) to take part in the study. I understand that I am free to choose not to take part in this study at any time and that saying "NO" will have no effect on my family or me.

Participant		Signature:	Date □□/□□/□□
Witness*	Name:	Signature:	Date □□/□□/□□

* Subject may sign or provide verbal consent in the presence of a witness. The witness (by his / her signature) verifies that the consent form has been accurately translated to the subject and this is the subject's signature or that he / she has provided verbal consent

Fomu ya Kutoa Idhini

Uchunguzi wa Kimsingi wa Virusi vinavyoondosha kinga ya mwili (HIV and AIDS)

Tarehe
Jina la eneo la kiwanda

Ufahamisho

Ni muhimu uelewe ufahamu huu kwa njia ya kusomewa au kujisomea kabla uamue kushiriki kwa huu uchunguzi. Kusudi, taratibu, manufaa na hatari za kushiriki zimo hapa. Utashiriki kwenye uchunguzi huu kwa hiari yako. Hakuna atakaye kudhulumu usiposhiriki.

Ziwa la Victoria Basin (Lake Victoria Basin) lina mpango wa kuboresha hisia za wavuvi na wafanyikazi wa maeneo ya viwanda kuhusu usambazaji wa virusi vya Ukimwi. Kwa ajili ya uchunguzi huu yatafikana wajue kadiri ya kuenea kwa virusi hivi na nini haswa huimarisha ueneaji wa Ukimwi.

Umechaguliwa kwa kubahatisha kushiriki kwa uchunguzi huu. Unayo fahamu, mtazamo au desturi gani kuhusu usambazaji wa virusi vya Ukimwi? Uchunguzi huu utafichua tabia zinazo sababisha kuongozeka kwa uenezaji wa Ukimwi kisha kupunguza hatari hizi.

Kushiriki kwa uchunguzi utakuchukua dakika arubaini. Kumbuka sio lazima, ni kwa hiari yako.

Masharti

Ukikubali kushiriki kwenye uchunguzi huu, tutakuuliza maswali kuchunguza ufahamu, mtazamo na desturi zako kuhusu Ukimwi. Pia, utaulizwa maswali kuhusu njia za kupata kinga, tegemeza na matibabu.

Tutahitaji kujua hali yako ya HIV na kama una ugonjwa wa zinaa. Kwa hii sababu, fundi wa maabara atakupa mawaidha na kukuomba ruhusa kabla utolewe damu. Matokeo hayo yatakuwa siri kulingana na stakabadhi na sheria. Sio lazima damu itolewe ili ushiriki kwenye uchunguzi huu.

Manufaa Ya Kushiriki

Matokeo ya uchunguzi huu utasaidia kufichua njia zinazo sababisha kuenea kwa virusi vya Ukimwi kwenye eneo hii. Ufahamu huu utasaidia kusuluhisha shida hii na kupunguza ueneaji wa Ukimwi.

Ukikubali kushiriki kwa uchunguzi huu, utapata maelelezo kamili kuhusu virusi vya Ukimwi na ukitaka kujua hali yako utapewa mawaidha kwenye vituo vyetu vya VCT. Ukipatikana kuwa na virusi, ufahamu huu utakusaidia kuamua kuanza matibabu mapema. Pia, itapunguza uwezekano wa kuendelea kumuambukiza mpenzi wako na virusi.

Hatari Ya Kushiriki

Hakuna hatari za kushiriki kwenye uchunguzi huu.

Una huru wakushiriki au kukataa kushiriki kwenye uchunguzi huu. Hakuna atakayekudhulumu kwa njia yeyote ukiwacha kushiriki. Ufahamu kukuhusu itakuwa siri kulingana na stakabadhi za sheria. Ukiwa na maswali yeyote au ukiwa na hatari ya jamii yako kupata madhara kwa ajili ya kushiriki kwa utafiti huu au ukitaka kukoma kushiriki, tafadhali mpigie simu msimamizi wako kazini namba _____ au Daktari Kibet Sergon (0722659568). Ukiwa na maswali kuhusu haki zako au za watoto wako kama mshiriki wa uchunguzi tafadhali mpigie Daktari. _____, wa Kamati ya Maadili nambari _____.

Sahihi ya Kutoa Idhini:

Nimeelewa ufahamu huu na nimekubali (Jina La Mtoto) kushiriki kwenye uchunguzi. Naelewa yakwamba hili ni tendo la hiari yangu na kukataa hakutaidhuru jamii yangu kwa njia yeyote

Mshiriki		Sahihi	Tarehe
Shahidi	Jina	Sahihi	Tarehe

HIV and AIDS Baseline Survey: Assent form for children 15-17 years old
(Flesch-Kincaid readability score 2.8) – English

Today's date	□□/□□/□□		
Name (plantation or factory or landing site)			

We are looking to find out new ways of improving the HIV and AIDS responses among fishing and plantation workers. To be able to do this we would like to find out the reasons why people get HIV in this area.

You were randomly picked to be in the survey from a list of all the possible participants in this tea / sugarcane plantation.

You can help us out if you want. It is your choice. If you don't want to help it is OK. Nobody were angry at you.

We are asking questions about what you know, how this has changed the way you think and also any things you do about transmission of HIV. It will take about 40 minutes.

We would also like to find out if you have HIV as part of the survey. Someone trained in the collection of blood for this test will talk to you in details about this. He will ask for your permission to draw blood. The results of this test were kept private as allowed by the local laws. I will not know the results of this test.

You may be in the survey today and refuse the blood draw when this person comes.

Benefits from the survey.

The information we collect can help us learn more about why people get HIV in this area. This will help us know what we need to do to reduce the transmission and control the disease in this area.

Risks of being in the survey

There are no risks of being in the survey today. If you agree to be in the study today but change your mind later it is OK. You can stop at anytime.

We asked your parents and they said it was okay to ask if you wanted to do this. If you have any more questions, please ask your parents or me.

Will you be a part of this study? Yes No

Child Signature (Signature or mark of consent) _____

To be signed by witness:

The above statement has been read to the child who agrees to participate in the study.

Name of witness (Print) _____ Date _____

Witness Signature (Signature or mark of consent) _____

Assent form for children 15-17 years old in Kiswahili

*Mshiriki anaweza kutia sahihi au kutoa idhini kivingine miongoni mwa mashahidi. Mshaidi (Kwa sahihi yake) anahakikisha kwamba ameelewa fomu ya idhini na amekubali masharti.

Tarehe
Jina la eneo la kiwanda

Matokeo ya uchunguzi huu utasaidia kufichua njia zinazo sababisha kuenea kwa virusi vya Ukimwi kwenye eneo hii. Ufahamu huu utasaidia kusuluhisha shida hii na kupunguza ueneaji wa Ukimwi.

Umechaguliwa kwa kubahatisha kushiriki kwa uchunguzi huu miongoni mwa washiriki katika mashamba haya.

Waweza kutusaidia. Ni chaguo lako. Kumbuka sio lazima, ni kwa hiari yako. Hakuna atakayekudhulumu ukikoma.

Twataka kuchunguza ufahamu wako kuhusu Ukimwi na jinsi imebadili mawazo yako na matendo yako kuhusu kuenea kwa virusi vya Ukimwi. Itakushukua dakika arobaini.

Uchunguzi huu wahitaji tujue kama una virusi vya Ukimwi.

Masharti

Ukikubali kushiriki kwenye uchunguzi huu, tutakuuliza maswali kuchunguza ufahamu, mtazamo na desturi zako kuhusu Ukimwi. Pia, utaulizwa maswali kuhusu njia za kupata kinga, tegemeza na matibabu.

Tutahitaji kujua hali yako ya HIV na kama una ugonjwa wa zinaa. Kwa hii sababu, fundi wa maabara atakupa mawaidha na kukuomba ruhusa kabla utolewe damu. Matokeo hayo yatakuwa siri kulingana na stakabadhi na sheria. Sio lazima damu itolewe ili ushiriki kwenye uchunguzi huu.

Manufaa Ya Kushiriki

Matokeo ya uchunguzi huu utasaidia kufichua njia zinazo sababisha kuenea kwa virusi vya Ukimwi kwenye eneo hii. Ufahamu huu utasaidia kusuluhisha shida hii na kupunguza ueneaji wa Ukimwi. Kwa hii sababu, fundi wa maabara atakupa mawaidha na kukuomba

ruhosa kabla utolewe damu. Matokeo hayo yatakuwa siri kulingana na stakabadhi na sheria. Hata mimi sitajua matokeo haya.

Manufaa Ya Kushiriki

Matokeo ya uchunguzi huu utasaidia kufichua njia zinazo sababisha kuenea kwa virusi vya Ukimwi kwenye eneo hii. Ufahamu huu utasaidia kusuluhisha shida hii na kupunguza ueneaji wa Ukimwi.

Hatari Ya Kushiriki

Hakuna hatari za kushiriki kwenye uchunguzi huu.

Una huru wakushiriki au kukataa kushiriki kwenye uchunguzi huu. Hakuna atakayekudhulumu kwa njia yeyote ukiwacha kushiriki. Waweza kuwacha saa yeyote.

Tuliwaomba wazazi wenu ruhosa ya kuwahoji na walikubali. Mukiwa na maswali yeyote, waulize wazazi wenu au mimi.

Utashiriki kwenye uchunguzi hu N La

Sahihi Ya mtoto (Sahihi au alama ya kutoa idhini)_____

Itiwe sahihi na shaidi:

Maagizo haya yamesomewa mtoto na amekubali kushiriki kwa uchunguzi huu.

Jina la shahidi _____ Tarehe _____

Sahihi ya shahidi (Sahihi au alama ya kutoa idhini) _____

Informed Consent for Blood Draw

Today's date	□□/□□/□□		
Name (plantation or factory or landing site)			

Hello. My name is and I am working with the _____

As explained to you earlier, we are doing a survey about HIV and AIDS and other health related issues among the fishing and plantation community along the Lake Victoria basin. As part of this survey, we are asking people to give a small amount of blood to test for HIV infection. This information will help the EAC, LVBC, LVFO and Ministry of Health plan programs to take care of this disease.

Procedure

If you agree to take part, I will ask you for five drops of blood which we will take from a finger prick. Your blood specimen were taken to Nairobi where it were tested for HIV.

Confidentiality

I will put a study number, but not your name on the blood filter paper. Utmost privacy is observed and no one will know your results.

We may use the specimen in future for other tests and therefore we would like to store some of the blood that you provide today for future testing. We do not yet know what these future tests were. Also, since all identifiers were removed from your blood before any future tests are conducted, we cannot tell you the results of these tests, and the results can never be traced back to you. You may take part in the study without having your blood stored for future testing. However, if you let us use your blood for future testing this may help improve health programs in the region.

Risks of being in the survey

The risk to you if you take part in testing is minimal. All the instruments that we use to take the blood are clean and safe. They have never been used before and were thrown away after each use. You may experience pain on your finger when we take the blood. If you have any pain, bleeding, or swelling from taking blood, please contact our study staff or your health worker.

Benefits from the survey

If you want to know your HIV results we will refer you to the nearest VCT site where you shall be tested free of charge. Here is a list of nearby places where you (and your partner if you want) can get tested. You were given free HIV testing, with counseling from trained health workers. You will also get information on how to prevent HIV and sexually transmitted diseases. If you have HIV, you were referred to a nearby health facility for follow-up. The information from your tests were used to make health programs stronger in the region.

Do you want to ask me anything about the survey? If you have any questions we want you to tell us. If you feel that you have been harmed by taking part you should contact the Ministry of Health. If you have any questions on your rights in the study you can contact the chairman on the Ethical Review Committee at the Kenya Medical Research Institute (KEMRI)

Signature / mark of consent _____ Date _____

Kutoa Idhini ya kutoa damu

Tarehe
Jina la eneo la kiwanda

Habari. Jina langu ni _____ ninafanya kazi _____

Kama ulivyoarifiwa tunafanya uchunguzi kuhusu usambazaji wa virusi vya Ukimwi na hali ya afya ya wavuvi na wafanyi kazi wa viwanda wa eneo hili la Ziwa la Basin Ya Victoria. Kwa ajili ya utafiti huu tunaomba kujua hali zenu za HIV kwa kuwaomba kutoa matone kidogo ya damu ili tupime. Ufahamu huu utasaidia kuleta suluhisho za kutatua shida zinazoletwa na hali hii.

Hatari Ya Kushiriki

Hatari za kushiriki kwenye uchunguzi huu ni kidogo tuu. Vyombo vyetu vyote ni vipya, visafi na salama. Utahisi uchungu kidogo kidoleni mwako. Damu pia itatoka na waweza kuvimba kidogo. Unaweza kumwona mfanyikazi wa afya.

Utaratibu

Ukikubali, nitakuomba kutoa matone matano ya damu ambayo tutatoa tukidunga kidole chako. Sampuli hii ya damu itapelekwa Nairobi ambapo itafanywa uchunguzi.

Usiri

Hatutaweka jina lako kwenye sampuli hii; tutaweka nambari. Tunakuhakikishia ya kwamba taarifa hii itakuwa siri kulingana na stakabadhi za kisheria.

Tunaweza kutumia sampuli hii kwa utafiti mwingine ambazo hatujui kwa sasa. Nilazima ufahamu ya kwamba kwa ajili tumetoa jina lako kwenye sampuli hii, hauwezi kupata matokeo ya utafiti huu.

Kukubali damu yako iwekwe kwenye akiba ni kwa hiari yako. Sio lazaima. Lakini itatusaidia kuboresha kampeni za kiafya kwa eneo hii.

Manufaa Ya Kushiriki

Ukitaka kujua hali yako ya HIV unaweza kutembelea kituo cha VCT. Kupimwa ni bure.

Wewe na mpenzi wako waweza kutembelea vituo hivi mkapimwe:

Pia, utapata mawaidha yatakoyokusaidia kuamua kama utanza matibabu ikiwa utapatikana na virusi. Pia, utafunzwa jinsi utajikinga kupata au kueneza virusi vya Ukimwi na magonjwa ya zinaa. Matokeo ya utafiti huu utasaidia kuimarisha kampeni za kiafya nchini.

Una swali lolote? Kuwa na uhuru wa kutuambia. Ukiwa na hatari ya kuadhiriwa kwa ajili ya kushiriki kwenye uchunguzi huu julisha Wizara ya Afya. Ukiwa na maswali yeyote kuhusu haki zako kwenye uchunguzi huu waweza kuwasiliana na kamati ya maadili ya Kenya Medical Research Institute (KEMRI).

Sahihi ya Kutoa Idhini: _____ *Tarehe* _____

Assent form for Blood Draw

HIV and AIDS Baseline Survey: Assent form for children 15-17 years old (Flesch-Kincaid readability score 2.8) – English

Today's date	□□/□□/□□		
Name (plantation or factory or landing site)			

Hello. My name is and I am working with the _____

As explained to you earlier, we are doing a survey about HIV and AIDS and other health related issues among the fishing and plantation community along the Lake Victoria basin. As part of this survey, we are asking people to give a small amount of blood to test for HIV infection. This information will help the EAC, LVBC, LVFO and Ministry of Health plan programs to take care of this disease.

What will we do?

If you agree to take part, I will ask you for five drops of blood which we will take from a finger prick. Your blood specimen were taken to Nairobi where it were tested for HIV.

Confidentiality

I will put a study number, but not your name on the blood filter paper. Utmost privacy is observed and no one will know your results.

We may use the specimen in future for other tests and therefore we would like to store some of the blood that you provide today for future testing. We do not yet know what these future tests were. Also, since all identifiers were removed from your blood before any future tests are conducted, we cannot tell you the results of these tests, and the results can never be traced back to you. You may take part in the study without having your blood stored for future testing. However, if you let us use your blood for future testing this may help improve health programs in the region.

Risks of being in the survey

The risk to you if you take part in testing is minimal. All the instruments that we use to take the blood are clean and safe. They have never been used before and were thrown away after each use. You may experience pain on your finger when we take the blood. If you have any pain, bleeding, or swelling from taking blood, please contact our study staff or your health worker.

Benefits from the survey

If you want to know your HIV results we will refer you to the nearest VCT site where you shall be tested free of charge. Here is a list of nearby places where you (and your partner if you want) can get tested. You were given free HIV testing, with counseling from trained health workers. You will also get information on how to prevent HIV and sexually transmitted diseases. If you have HIV, you were referred to a nearby health facility for follow-up. The information from your tests were used to make health programs stronger in the region.

You are free to ask me or your parents any question. If you feel that you have been harmed by taking part you should contact the Ministry of Health. If you have any questions on your rights in the study you can contact the chairman on the Ethical Review Committee at the Kenya Medical Research Institute (KEMRI).

Will accept for blood specimen to be collected? Yes No

Child Signature (Signature or mark of consent) _____

To be signed by witness:

The above statement has been read to the child who agrees to participate in the study.

Name of witness (Print) _____ Date _____

Witness Signature (Signature or mark of consent) _____

Signature _____ Date _____

Kutoa Idhini ya kutoa damu

**Mshiriki anaweza kutia sahihi au kutoa idhini kivingine miongoni mwa mashahidi. Mshaidi (Kwa sahihi yake) anahakikisha kwamba ameelewa fomu ya idhini na amekubali masharti*

Tarehe
Jina la eneo la kiwanda

Habari. Jina langu ni _____ ninafanya kazi _____

Kama ulivyoarifiwa tunafanya uchunguzi kuhusu usambazaji wa virusi vya Ukimwi na hali ya afya ya wavuvi na wafanyi kazi wa viwanda wa eneo hili la Ziwa la Basin Ya Victoria. Kwa ajili ya utafiti huu tunaomba kujua hali zenu za HIV kwa kuwaomba kutoa matone kidogo ya damu ili tupime. Ufahamu huu utasaidia kuleta suluhisho za kutatua shida zinazoletwa na hali hii.

Tutafanyaje?

Ukikubali, nitakuomba kutoa matone matano ya damu ambayo tutatoa tukidunga kidole chako. Sampuli hii ya damu itapelekwa Nairobi ambapo itafanywa uchunguzi.

Usiri

Hatutaweka jina lako kwenye sampuli hii; tutaweka nambari. Tunakuhakikishia ya kwamba taarifa hii itakuwa siri kulingana na stakabadhi za kisheria.

Tunaweza kutumia sampuli hii kwa utafiti mwingine ambazo hatujui kwa sasa. Nilazima ufahamu ya kwamba kwa ajili tumetoa jina lako kwenye sampuli hii, hauwezi kupata matokeo ya utafiti huu.

Kukubali damu yako iwekwe kwenye akiba ni kwa hiari yako. Sio lazaima. Lakini itatusaidia kuboresha kampeni za kiafya kwa eneo hii.

Hatari Ya Kushiriki

Hatari za kushiriki kwenye uchunguzi huu ni kidogo tuu. Vyombo vyetu vyote ni vipya, visafi na salama. Utahisi uchungu kidogo kidoleni mwako. Damu pia itatoka na waweza kuvimba kidogo. Unaweza kumwona mfanyikazi wa afya.

Manufaa Ya Kushiriki

Ukitaka kujua hali yako ya HIV unaweza kutembelea kituo cha VCT. Kupimwa ni bure. **Wewe na mpenzi wako waweza kutembelea vituo hivi mkapimwe:**

Pia, utapata mawaidha yatakoyokusaidia kuamua kama utaanza matibabu ikiwa utapatikana na virusi. Pia, utafunzwa jinsi utajikinga kupata au kueneza virusi vya

Ukipatikana na Ukimwi, utawasilishwa na kituo cha afya kilichokaribu nawe. Pia, utafunzwa jinsi utajikinga kupata au kueneza virusi vya Ukimwi na magonjwa ya zinaa. Matokeo ya utafiti huu utasaidia kuimarisha kampeni za kiafya nchini.

Una uhuru wa kuniuliza au kuwauliza wazazi wako maswali yeyote. Ukiwa na hofu ya kuadhiriwa kwa ajili ya kushiriki kwa uchunguzi huu, wasiliana na Wizara ya Afya. Ukiwa na maswali yeyote kuhusu haki zako kwa ajili ya kushiriki kwa uchunguzi huu waweza kuwasiliana na kamati ya maadili ya Kenya Medical Research Institute (KEMRI).

Utakubali kutolewa damu ipimwe? Ndio La

Sahihi Ya Mtoto (Sahihi ya kutoa idhini)_____

Sahihi ya shahidi:_____

Maagizo haya yamesomewa mtoto na amekubali kushiriki kwa uchunguzi huu.

Jina la shahidi (Herufi Kubwa) _____Tarehe _____

Sahihi ya shahidi (Sahihi ya kutoa idhini)_____

Sahihi _____Tarehe _____

e. Appendix 5: Survey instruments

i. Questionnaire

EALP HIV and AIDS BASELINE STUDIES IN FISHERIES AND PLANTATIONS IN THE LAKE VICTORIA BASIN, KENYA 2010

Introduction

SECTION 2: DEMOGRAPHICS			
2.1 Residence			
	Usual residence		Origin
	Country (<i>Taifa la makao</i>) _____		Country (<i>Taifa ya asili</i>) _____
	Province (<i>Mkoa wa makao</i>) _____		Province (<i>Mkoa wa asili</i>) _____
	District (<i>Wilaya ya makao</i>) _____		District (<i>Wilaya ya asili</i>) _____
	Division (<i>Tarafa ya makao</i>) _____		
	Sub-location (<i>Katandogo ya makao</i>) _____		
	Village (<i>Tarafa ya makao</i>) _____		
2.2	Gender	<input type="checkbox"/> Male (<i>Mume</i>)	<input type="checkbox"/> Female (<i>Mwanamke</i>)
2.3	Date of Birth (dd / mm / yyyy) _____ / _____ / _____ <i>Tarehe ya Kuzaliwa (ss / mm / mm) (Siku mwezi, mwaka)</i>		
2.4	Age in years ____ <i>Miaka</i>		
2.5	How many people live in your household? _____ <i>Watu wangapi wanaishi nyumbani kwako?</i>		
2.6	Are you the head of the household? <i>Wewe ndiwe mzee wa nyumba?</i>	<input type="checkbox"/> Yes (<i>Ndio</i>) <input type="checkbox"/> No (<i>La</i>) <input type="checkbox"/> Don't know	<i>(Skip to 2.8 if the answer is no)</i>

2.7	<p>If yes, how many dependants do you have? _____</p> <p>Kama jibu lako ni ndio ni wangapi wanaokutegemea?</p>									
2.8	<p>How many of the dependants live with you? _____</p> <p>Ni wangapi wanaokutegemea wanaishi na wewe?</p>									
2.8	<p>What is the highest level of education attained?</p> <p>Umesoma hadi kiwango kipi cha elimu?</p> <p><input type="checkbox"/> None (<i>Hakuna</i>)</p> <p><input type="checkbox"/> Informal education (<i>Elimu ambao sio rasmi</i>)</p> <p><input type="checkbox"/> Primary- not completed (<i>Haujomaliza Masomo ya msingi</i>)</p> <p><input type="checkbox"/> Primary-completed (<i>Umomaliza masomo ya msingi</i>)</p> <p><input type="checkbox"/> Secondary-not completed (<i>Haujomaliza shule ya upili</i>)</p> <p><input type="checkbox"/> Secondary-completed (<i>Umomaliza shule ya upili</i>)</p> <p><input type="checkbox"/> Post secondary (<i>Elimu baada ya shule ya upili</i>)</p> <p><input type="checkbox"/> Literacy classes only (<i>Elimu ya gumbaru</i>)</p>									
2.9	<p>Religion? (<i>Dini?</i>)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Muslim (<i>Muisilamu</i>)</td> <td><input type="checkbox"/> Catholic(<i>Mkatoliki</i>)</td> </tr> <tr> <td><input type="checkbox"/> Protestant (<i>Mprotestani</i>)</td> <td><input type="checkbox"/> No Religion (<i>Bila Dini</i>)</td> </tr> <tr> <td colspan="2"><input type="checkbox"/> Other (<i>ingine</i>) If others Specify (<i>ngine (Dharisha)</i>) _____</td> </tr> </table>	<input type="checkbox"/> Muslim (<i>Muisilamu</i>)	<input type="checkbox"/> Catholic(<i>Mkatoliki</i>)	<input type="checkbox"/> Protestant (<i>Mprotestani</i>)	<input type="checkbox"/> No Religion (<i>Bila Dini</i>)	<input type="checkbox"/> Other (<i>ingine</i>) If others Specify (<i>ngine (Dharisha)</i>) _____				
<input type="checkbox"/> Muslim (<i>Muisilamu</i>)	<input type="checkbox"/> Catholic(<i>Mkatoliki</i>)									
<input type="checkbox"/> Protestant (<i>Mprotestani</i>)	<input type="checkbox"/> No Religion (<i>Bila Dini</i>)									
<input type="checkbox"/> Other (<i>ingine</i>) If others Specify (<i>ngine (Dharisha)</i>) _____										
2.10	<p>Marital status? (<i>Umeoa au kuolewa</i>)</p> <table style="width: 100%;"> <tr> <td><input type="checkbox"/> Married <i>Ndio</i></td> <td><input type="checkbox"/> Single <i>La</i></td> <td><input type="checkbox"/> Divorced <i>Nimtaliki</i></td> </tr> <tr> <td><input type="checkbox"/> Separated</td> <td colspan="2"><input type="checkbox"/> Widowed / Widower <i>Mjane</i></td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Others (Specify) <i>Ingine (Dharisha)</i> _____</td> </tr> </table>	<input type="checkbox"/> Married <i>Ndio</i>	<input type="checkbox"/> Single <i>La</i>	<input type="checkbox"/> Divorced <i>Nimtaliki</i>	<input type="checkbox"/> Separated	<input type="checkbox"/> Widowed / Widower <i>Mjane</i>		<input type="checkbox"/> Others (Specify) <i>Ingine (Dharisha)</i> _____		
<input type="checkbox"/> Married <i>Ndio</i>	<input type="checkbox"/> Single <i>La</i>	<input type="checkbox"/> Divorced <i>Nimtaliki</i>								
<input type="checkbox"/> Separated	<input type="checkbox"/> Widowed / Widower <i>Mjane</i>									
<input type="checkbox"/> Others (Specify) <i>Ingine (Dharisha)</i> _____										

Thank you for accepting to be interviewed. The interview should not take more than one (1) hour. However, you can stop the interview at any time. You are also not obliged to answer all the questions. I'll start by asking you some general questions about yourself. Let me assure you that this information were treated in utmost confidentiality.

SECTION 1: IDENTIFIER INFORMATION			
AFFIX BAR CODE HERE	1.1 Interviewer code	1.2 DATE OF INTERVIEW	1.3 SECTOR:
		_____ / _____ / _____ (dd / mm / yy)	<input type="checkbox"/> FISHING <input type="checkbox"/> PLANTATION <div style="text-align: right; font-size: small;"><i>(if plantation, then Skip to 1.7)</i></div>

1.4 Name of BMU	1.5 No of people registered in BMU	1.6 Job category
	1.5.1: All people registered _____ 1.5.2: Number of people aged above 10 years _____	1.6.1 Specific job category _____ 1.6.2 Number of people in the job category _____ 1.6.3 Number of people aged above 10 in that job category _____

1.7 Name of Plantation	1.8 Number of people in plantation	1.9 Name of factory	1.10 Number of people in factory	1.11 Name of estate	1.12 Job category

SECTION 3: SOCIAL ECONOMIC FACTORS

The next set of questions relate to the socio-economic status of your family

3.1	3.1.1 What do you do to earn a living (Occupation respondent)? <i>Kazi ya mtahiniwa</i> (Fishing) (Uvuvi)	<input type="checkbox"/> Boat crew <i>Mfanyakazi melini</i> <input type="checkbox"/> Boat owner <i>Mmiliki waboti</i> <input type="checkbox"/> Fish monger / trader <i>Muuzaji wa samaki</i> <input type="checkbox"/> Fish processors <input type="checkbox"/> Boat maker <i>Mkarabati wa mashua</i> <input type="checkbox"/> Factory agents <input type="checkbox"/> Boat repairer <i>Mtayarishaji wa samaki</i> <input type="checkbox"/> Transporters <i>Wasafirishaji</i> <input type="checkbox"/> Boat manager / supervisor <i>Msimamiaji wa mashua</i> <input type="checkbox"/> Fish equipment dealer <i>Muuzaji wa vyombo vya uvuvi</i> <input type="checkbox"/> Other traders (bar owners, shopkeepers, charcoal dealers etc) <i>Wanabiashara wengine (wamiliki wa baa, wauzaji dukani, wauzaji wa makaa, na kadhalika)</i>
	3.1.2 What do you do to earn a living (Occupation respondent)? <i>Kazi ya mtahiniwa</i> (Shambani) (Plantation) (Shambani)	<input type="checkbox"/> Clerical officer <i>karani</i> <input type="checkbox"/> Manager <i>Meneja</i> <input type="checkbox"/> Farmer <i>Mkulima</i> <input type="checkbox"/> Cane cutter <i>Mkataji wa miwa</i> <input type="checkbox"/> Weeder <i>Mpalilaji</i> <input type="checkbox"/> Driver <i>Dereva</i> <input type="checkbox"/> Auxiliary staff <i>Mfanyikazi wa ziada</i> <input type="checkbox"/> Tea plucker <i>Mchuma chai</i> <input type="checkbox"/> Field supervisor / superintendent <i>Msimamizi</i> <input type="checkbox"/> Others (specify) <i>Mwingine (Adhirisha)</i>
3.2	Job category of respondent (Aina ya Kazi ya Mtahiniwa) (Plantation only) (<i>Mfanyikazi wa shambani peke yake</i>)	<input type="checkbox"/> Permanent (<i>Kazi ya kudumu</i>) <input type="checkbox"/> Temporary (<i>Kibarua</i>) <input type="checkbox"/> Contractual (<i>Kandarasi</i>)
3.3	Approximately how much money do you earn in a month? <i>Mshahara wako ni kam ngapi kwa mwezi?</i>	KES _____ <i>Shilingi</i>
3.4	In your opinion, are your earnings from the plantation enough to take care of most of your basic needs? <i>Kwa maoni yako, mshahara huu unatosha kukutana na mahitaji yako?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Somehow <i>Nikama</i> <input type="checkbox"/> Other <i>Nyingine</i> (specify) _____

3.5	<p>How many of each of the items does your household have at the moment? (Indicate number of items)</p> <p><i>Nyumba yako ina vyombo ngapi vilivyotajwa hapa? redio baiskeli kiti taa runinga ngombe mbuzi kuku kondoo armchair gari dau nyavu</i></p>	<p>Radio Redio _____ Bicycle Biskeli _____</p> <p>Sofa _____ Lantern Taa / Fanusi _____</p> <p>TV Runinga _____ Cow Ngombe _____</p> <p>Goats Mbuzi _____ Chickens Kuku _____</p> <p>Sheep Kondoo _____ Vehicle Gari _____ Boats</p> <p>Mashua _____ Fishing nets Nyavu _____ Fishing hooks _____</p> <p>Arm chairs Kiti chenye mikono _____</p>	
3.7	<p>Does your family own a piece of land? <i>Jee, jamii yako inamiliki kipande cha shamba?</i></p>	<p><input type="checkbox"/> Yes Ndio <input type="checkbox"/> No La <input type="checkbox"/> Don't Know Ni kama</p>	
3.8	<p>How big is the land? <i>Ni shamba ya kiasi gani?</i></p>	<p>State acreage _____ Eleza ekari</p>	
3.9	<p>Which crops do you grow? Unapanda mimea ipi?</p>		
3.10	<p>Do you sell any of the above crops for money <i>Je, unauza mimea hii yeyote?</i></p>	<p><input type="checkbox"/> Yes Ndio <input type="checkbox"/> No La <input type="checkbox"/> Don't Know Ni kama</p>	<p><i>If No, Skip to 3.12</i></p>
3.11	<p>If you sell crops for money, specify? <i>Adhirisha / Eleza</i></p>		
3.12	<p>Do you have any savings in a bank account <i>Una akiba yeyote kwa benki?</i></p>	<p><input type="checkbox"/> Yes Ndio <input type="checkbox"/> No La <input type="checkbox"/> Don't Know Ni kama</p>	
3.13	<p>Do you have access to any loan from a financial institution <i>Una njia za kupata mkopo kutoka kwa shirika lolote la kifedha?</i></p>	<p><input type="checkbox"/> Yes Ndio <input type="checkbox"/> No La <input type="checkbox"/> Don't Know Ni kama</p>	

<p>SECTION 4: MARRIAGE AND SEXUAL ACTIVITY <i>I'm now going to ask you a number of questions regarding marriage, relationships and sexual activity in order to gain a better understanding of some important life issues. Let me reassure you again of utmost confidentiality in handling this information. Furthermore your name will not be recorded anywhere.</i></p>		
<p>MALES <input type="checkbox"/></p>	<p>FEMALES <input type="checkbox"/></p>	

4.1	Are you currently living together with someone as if married?	Are you currently living together with someone as if married?	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i>	<i>If yes, skip to 4.4</i>
4.2	Have you ever been married or lived together with a woman as if married <i>Umeshawahi kuoau kuishi pamoja na mwanamke kama mumeoana?</i>	Have you ever been married or lived together with a man as if married <i>Umeshawahikuolewa au kuishi na mtu kama mumeoana?</i>	<input type="checkbox"/> Yes, formerly married <i>Ndio, nimeshawahi kuoau / kuolewa</i> <input type="checkbox"/> Yes, lived with a man / woman <i>Ndio, nimeshawahi kuishi na mtu/ mwanamke</i> <input type="checkbox"/> No <i>La</i>	<i>If no skip to 4.9</i>
4.3	What is your marital status now; are you widowed, divorced or separated <i>Hivi sasa, hali yako ni ipi? Mjanie, mtaliki au mumetengana?</i>	What is your marital status now; are you widowed, divorced or separated <i>Hali yako ya kuishi sasa au wewe ni mjane? Mtaliki au umetengana na mpenzi wako?</i>	<input type="checkbox"/> Widowed (<i>Mjane</i>) <input type="checkbox"/> Married <input type="checkbox"/> Divorced (<i>Mtaliki</i>) <input type="checkbox"/> Single <input type="checkbox"/> Separated (<i>Tumetengana</i>)	<i>Skip to 4.9</i>
4.4	Is your wife living with you or she is elsewhere <i>Unaishi na mke wako au anaishi peke yako?</i>	Is your husband living with you or she is elsewhere <i>Unaishi na mume wako au anaishi peke yake?</i>	<input type="checkbox"/> Living together (<i>Tunaishi pamoja</i>) <input type="checkbox"/> Staying elsewhere (<i>Mwanzangu anaishi kwingine</i>)	
4.5	Do you have more than one wife / woman you live with as if married? <i>Unawake zaidi ya mmoja unayeishi nao kama bibi yako</i>	Does your husband have other wives or does he live with other women as if married? <i>Bwana yako ana wanawake wengine anaishi nao kama mabibi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't know <i>sijui</i>	
4.6	Altogether, how many wives do you have or other partners do you live with as if married <i>Wote pamoja, una bibi wangapi au wapenzi unaoishi nao kama umeoa?</i>	Including yourself, in total, how many wives or other partners does your husband live with now as if married <i>Nikihesabiwa pia, mabibi wote na wanawake mumewangu anaishi nao</i>	Number of wives / live in partners _____ <input type="checkbox"/> Don't know <i>sijui</i>	
4.7	Is wife inheritance practiced in your community? <i>Jumuiya yako ina desturi ya kuridhi wajane?</i>	Is wife inheritance practiced in your community? <i>Jumuiya yako ina desturi ya kuridhi wajane?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
4.8	Are any of your wives inherited? <i>Miongoni mwa mabibi zako, kuna wale uliowaridhi?</i>	Including yourself, are any of your husband's wives inherited <i>Ukijihesabu, kuna wake wenzako walio ridhiwa?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
4.9	Do you have any sexual partners (if married, other than your married partner(s)) <i>Una uhusiano wa kimapenzi na mwanamke mwingine kando ya bibi zako?</i>		<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	<i>If No, skip to 4.23</i>
4.10	What is the relationship between you and these partners? <i>Unauhusiano gani na wapenzi hawa?</i>	<input type="checkbox"/> Business partner <i>Mwanabiasharamwenza</i> <input type="checkbox"/> Workmate <i>Tunafanya kazi pamoja</i> <input type="checkbox"/> Friend <input type="checkbox"/> Others (specify) _____		

4.11	How often do you engage in sexual intercourse with these partners? <i>Unashiriki ngono mara ngapi na wapenzi hawa?</i>	<input type="checkbox"/> Weekly <i>Kiwik</i> <input type="checkbox"/> Monthly <i>Kimwezi</i> <input type="checkbox"/> Once every Three monthly <i>Maramoja kwa miezi tatu</i> <input type="checkbox"/> Occasionally <i>Maramojamoja</i>	
4.12	Do you use a condom when engaging in sexual intercourse with these partners? <i>Jee, unatumia mpira wa kiume / kondomu kushiriki ngono na wapenzi hawa?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	If No skip to 4.14
4.13	How often do you use condoms when engaging in sexual intercourse with these partners? <i>Jee, unatumia mpira wa kiume marangapi Ukishiriki ngono / mpira wa kiume na wapenzi hawa?</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i>	
4.14	Do you use a condom with your regular partner <i>Jee, unatumia mpira wa kiume/ kondomu unaposhiriki ngono na mpenzi wako wa kawaida?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	If no skip to 4.16
4.15	How often do you use a condom with a regular partner <i>Jee, unatumia mpira wa kiume marangapi Ukishiriki ngono / mpira wa kiume na mpenzi wako wa kawaida?</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i>	
4.16	Where do you get the condoms from? <i>Jee unatoa wapi mipira hii?</i>	<input type="checkbox"/> Government Health Facility (<i>Kituo cha serikali</i>) <input type="checkbox"/> Buy from a shop (<i>Nanunua dukani</i>) <input type="checkbox"/> Private health facility (<i>Kituo cha afya cha kibinafsi</i>) <input type="checkbox"/> Non GOK health facility (<i>Kituo cha afya ambacho sio Serikali</i>) <input type="checkbox"/> The man comes with condoms <input type="checkbox"/> Others (specify) <i>Zingine (adhirisha)</i> _____	
4.17	Do you always get the condoms when you need them? <i>Jee unapata mipira hii/ kondomu unapohitaji?</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i> <input type="checkbox"/> Not applicable (explain) _____	
	What type of condom do you get?	<input type="checkbox"/> Male condom <input type="checkbox"/> Female condom	
4.18	Have you ever experienced an unusual or smelly discharge from your private parts in the last 6 months? <i>Umeshawahi kutokwa na uchafu wa harufu mbaya kwenye sehemu zako za siri kwa muda wa miezi sita zilizopita?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
4.19	Have you ever had an ulcer in your private parts in the last 6 months? <i>Umeshawahi kuwa na kidonda kwenye sehemu zako za siri kwa muda wa miezi sita zilizopita?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	If no skip to 4.22
4.20	Did you obtain treatment for above <i>Ulipata matibabu kwa ajili ya kidonda hii?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
4.21	If yes, where did you get the treatment? <i>Kama ndio, ulipata matibabu haya wapi?</i>	<input type="checkbox"/> Self <i>Nilijitibu</i> <input type="checkbox"/> Government health facility <input type="checkbox"/> Company clinic <input type="checkbox"/> Chemist <input type="checkbox"/> Private clinic <i>Hospitali ya kibinafsi</i> <input type="checkbox"/> Herbalist <i>Daktari wa mitishamba</i> <input type="checkbox"/> Traditional healer <i>Mganga</i> <input type="checkbox"/> Others (specify) _____	
4.22	Is male circumcision traditionally practiced in your community? <i>Ni desturi yenu kupasha tohara wanaume ?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
4.23	Are you circumcised? – Note:-Apply this	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	

question to male respondents only		
4.24	For how long have you lived here <i>Umeishi hapa kwa muda gani?</i>	_____ years <i>Miaka</i> _____ months <i>Miezi</i> _____ days <i>Siku</i>
4.25	Where were you living before you came here? <i>Ulikuwa unaishi wapi kabla uhame hapa?</i>	District _____ Plantation / Landing site _____ Other(specify) _____
4.26	Why did you relocate? (State reason) <i>Kwa nini ulihama (toa sababu)</i>	
4.27	In the last three months, did you travel and sleep away from home (usual residence)? <i>Kwa miezi tatu iliyopita, ulisafiri au kukosa kulala nyumbani?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
		<i>If no, skip to 4.34</i>
4.28	Where did you travel to <i>Ulisafiri wapi?</i>	District _____ Plantation / Landing site _____ Other(specify) _____
4.29	What was the reason for your travel <i>Jee, ulisafiri sababu gani?</i>	
4.30	What is the maximum duration you were away from home (usual residence) in the last 3 months <i>Kwa miezi tatu iliyopita, ni muda gani murefu sana umekosa kulala nje ya nyumba yako?</i>	_____ days
4.31	How many occasions in the last three month did you sleep away from home? <i>Kwa miezi tatu iliyopita, sherehe ngapi zilikulazimu ukose kulala nje ya nyumba yako?</i>	_____ (Indicate 00 if not travelled) <i>Dhahirisha kama hukusafiri</i>
4.32	Have you had sex when away from home (usual residence) in the last three months? <i>Umeshiriki katika ngono ulipokuwa mbali na nyumbani?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
		<i>If no skip to 4.34</i>
4.33	Did you use a condom? <i>Ulitumia mpira wa kiume / kondomu?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i> <input type="checkbox"/> Not applicable
4.34	Have you paid for the services of a commercial sex worker? <i>Jee, umewahi kulipia kuduma ya kahaba?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
4.35	Have you ever been given a gift for sex by a non regular partner? <i>Jee, umeshawahi kupewa zawadi na mtu asiye mpenzi wako wa kawaida kwa sababu ya kufanya ngono?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
		<i>If no, skip to 4.37</i>

4.36	If yes, what was the nature of the gift <i>Kama jibu lako ni ndio zawadi hiyo ilikuwa nini?</i>	<input type="checkbox"/> Money <i>Pesa</i> <input type="checkbox"/> Fish <i>Samaki</i> <input type="checkbox"/> Household commodities like sugar, cooking oil <i>Bidhaa vya nyumba kama sukari, Mafuta ya kupikia</i> <input type="checkbox"/> Meat <i>Nyama</i> <input type="checkbox"/> Others (specify) _____	
4.37	Do you drink alcohol? <i>Jee, unatumia pombe?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	If no, skip to 4.39
4.38	How often do you engage in sex with a non regular partner after drinking alcohol? <i>Unashiriki ngono mara ngapi baada ya kunywa pombe?</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Kamwe</i> <input type="checkbox"/> Not applicable (explain) _____	
4.39	Do you take any drugs like bhang or cocaine? <i>Unatumia madawa ya kulevywa yoyote?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	If no, skip to 4.44
4.40	If yes, which ones <i>Kama jibu lako ni ndio unatumia madawa gani?</i>		
4.41	Have you engaged in sex after taking any of these drugs? <i>Ushawahi kushiriki kwa ngono baada ya kutumia madawa haya?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	If no skip to 4.44
4.42	Which ones did you use before sex? Please specify <i>Madawa gani ulitumia kabla kufanya ngono? Tafadhali adhirisha</i>	Drug 1 <i>Dawa ya kwanza</i> Drug 2 <i>Dawa ya pili</i> Drug 3 <i>Dawa ya tatu</i>	
4.43	How often do you engage in sex after taking the said drugs? <i>Jee, unashiriki ngono marangapi baada ya kutimia madawa haya?</i>		
	Drug 1 <i>Dawa ya kwanza</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i> <input type="checkbox"/> Not applicable (explain) _____	
	Drug 2 <i>Dawa ya pili</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i> <input type="checkbox"/> Not applicable (explain) _____	
	Drug 3 <i>Dawa ya tatu</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i> <input type="checkbox"/> Not applicable (explain) _____	
	Others (specify) <i>Ingingine (Dhahirisha)</i>	<input type="checkbox"/> Always <i>Kilawakati</i> <input type="checkbox"/> Rarely <i>Marachache</i> <input type="checkbox"/> Never <i>Situmii</i> <input type="checkbox"/> Not applicable (explain) _____	
4.44	Have you ever been forced to have sex against your will? <i>Umeshawahi kulazimishwa kushiriki kwa ngono?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	If no, skip to 4.46
4.45	If Yes, what was the relationship of the person <i>Kama jibu lako ni ndio, ulikuwa na uhusiano gani na mtu huyu?</i>	<input type="checkbox"/> Husband, <i>Bwana</i> <input type="checkbox"/> wife <input type="checkbox"/> Boyfriend, <i>Mchumba</i> <input type="checkbox"/> Girlfriend <input type="checkbox"/> Teacher, <i>Mwalimu</i> <input type="checkbox"/> Employer <i>Mwajiri</i> <input type="checkbox"/> Business partner, <i>Mwanabiashara mwenza</i> <input type="checkbox"/> Other Specify _____	
4.46	How old were you when you first had sexual		If never

	intercourse for the very first time? <i>Jee, ulishiriki ngono kwa mara yako ya kwanza ukiwa umri gani?</i>	_____Years <i>Miaka</i> <input type="checkbox"/> Never had sexual intercourse <i>Sijawahi</i>	<i>had sexual intercourse, skip to 4.56</i>
4.47	Compared to your age at that time, would you say the person you first had sexual intercourse with was____(<i>Ukilinganisha na miaka yako, uliyefanya ngono naye alikuwa</i>)	<input type="checkbox"/> Older by more than 5 years (<i>Amekupita na miaka kumi</i>) <input type="checkbox"/> Younger by less than 5 years (<i>Mchanga kwako na miaka kumi</i>) <input type="checkbox"/> About the same age group (<i>Umri kama wako</i>)	
4.48	When was the last time you had sexual intercourse <i>Nilini mwisho ulifanya ngono?</i>	LAST PARTNER Days ago / <i>Siku ngapi zilizopita</i> _____ Weeks ago / <i>wiki ngapi zilizopita</i> _____ Months ago / <i>miezi ngapi zilizopita</i> _____ Years ago / <i>miaka ngapi zilizopita</i> _____	2ND LAST PARTNER Days ago _____ Weeks ago _____ Months ago _____ Years ago _____
4.49	What was the relationship to the said person <i>Nilini mwisho ulifanya ngono?</i>	<input type="checkbox"/> Husband / Wife <i>Bwana / Bibi</i> <input type="checkbox"/> Live-in Partner <i>Rafiki niliyeishi naye</i> <input type="checkbox"/> Boyfriend/ Girlfriend Not living with respondent <i>Mchumba ambaye sikuwa naishi naye</i> <input type="checkbox"/> Casual acquaintance <i>Rafiki tuu</i> <input type="checkbox"/> Commercial sex worker <i>Kahaba</i> <input type="checkbox"/> Other (specify) <i>Mwingine (adhirisha)</i> _____	<input type="checkbox"/> Husband / Wife <input type="checkbox"/> Live-in Partner <input type="checkbox"/> Boyfriend / Girlfriend Not living with respondent <input type="checkbox"/> Casual acquaintance <input type="checkbox"/> Commercial sex worker <input type="checkbox"/> Other (specify) _____
4.50	Was a condom used every time you had sexual intercourse with the said person in the last 12 months <i>Ulitumia mpira wa kiume kila wakati ulipokuwa unafanya ngono na aliyekuwa mpenzi wako kabla ya mpenzi wako wa mwisho?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know
4.51	For how long have you had / did you have a sexual relationship with the said person <i>Uhusiano wako na mpenzi huyu ulidumu muda gani?</i>	Days / <i>siku</i> _____ Months / <i>miezi</i> _____ Years / <i>miaka</i> _____	Days / <i>siku</i> _____ Months / <i>miezi</i> _____ Years / <i>miaka</i> _____
4.52	How old is this person <i>Mtu huyu ana umri gani?</i>	Age of partner / <i>Umri wa mpenzi</i> _____ <input type="checkbox"/> Don't know / <i>sijui</i>	Age of partner _____ <input type="checkbox"/> Don't know / <i>sijui</i>
4.53	Is this person older than you, younger than you or about the same age <i>Mtu huyu ni mzee kukuliko, mdogo wako kwa umri au muna umri moja</i>	<input type="checkbox"/> Older / <i>Mzee</i> <input type="checkbox"/> Younger / <i>Mdogo wangu</i> <input type="checkbox"/> Same age / <i>Umri moja</i> <input type="checkbox"/> Don't know / <i>Siju</i>	<input type="checkbox"/> Older / <i>Mzee</i> <input type="checkbox"/> Younger <input type="checkbox"/> Same age <input type="checkbox"/> Don't know / <i>Siju</i>
4.54	Would you say this person is ten or more years older than you or	<input type="checkbox"/> Ten or more years older <i>Mzee na miaka kumi au zaidi</i>	<input type="checkbox"/> Ten or more years older

	less than 10 years older <i>Unaweza kusema kwamba mtu huyu amekupita na miaka kumi au zaidi au ni mdogo wako na miaka kumi au zaidi?</i>	<input type="checkbox"/> Less than 10 years older <i>Mdogo wangu na miaka kumi au zaidi</i> <input type="checkbox"/> Older, unsure how much <i>Mzee kwangu, sijui kwa miaka ngapi</i>	<input type="checkbox"/> Less than 10 years older <input type="checkbox"/> Older, unsure how much
4.55	In total, how many different people have you had sexual intercourse in the last 12 months? <i>Ukihesabu, umefanya ngono na wapenzi wangapi mwaka huu?</i>		
4.56	Do you intend to wait until you are married to have sexual intercourse for the first time? <i>Unakusudia kusubiri hadi uolewe ili ufanye ngono?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <input type="checkbox"/> Not applicable	

SECTION 5: HIV and AIDS Knowledge and attitudes			
<i>Now I would like to talk about something else</i>			
5.1	Have you ever heard of an illness called AIDS (<i>Umeshawahi kusikia kuhusu ugonjwa unaoitwa Ukimwi?</i>)	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i>	<i>If no skip to 6.1</i>
5.2	Can people reduce their chances of getting AIDS virus by having just one uninfected sex partner who has sexual intercourse with no other partner? <i>Jee, inawezekana kupunguza njia za kupata Ukimwi ikiwa mtu atafanya ngono na mpenzi wake tuu na sio wapenzi wengine?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i>	
5.3	Can people get AIDS virus from mosquito or other insect bites? <i>Jee, inawezekana watu kupata virusi vya Ukimwi wakiumwa na umbu au wadudu wengine?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.4	Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex? <i>Jee, inawezekana kupunguza njia za kupata Ukimwi ikiwa watu watumia mipira ya kiume (kondomu) kila wakati wanafanya ngono?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.5	Can people get the HIV and AIDS virus by sharing utensils with a person infected with HIV and AIDS? <i>Jee, inawezekana watu kupata virusi vya Ukimwi wakitumia vyombo vya jikoni anavyotumia mtu aliyepata Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.6	Can people reduce their chances of getting HIV and AIDS virus by not having sexual intercourse at all? <i>Jee, inawezekana kupunguza njia za kupata Ukimwi kwa kukosa kufanya ngono kabisa?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.7	Can people get the HIV and AIDS virus because of witchcraft or other supernatural means? <i>Jee, watu wanaweza kupata virusi vya Ukimwi kwa ajili ya uchawi au njia zisizozakiulimwengu?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.8	Is it possible for a healthy-looking person to have the HIV and AIDS virus? <i>Inawezekana kwamba mtu anayekaa kuwa na afya kuwa na virusi vya Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
	Is it possible for a healthy-looking person who is infected with HIV virus, to transmit the HIV and AIDS virus?	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.9	Do you think that your chances of getting the HIV and AIDS virus are small, moderate or great or are there no risk at all? <i>Je, unafikiri yakwamba</i>	<input type="checkbox"/> No risk at all / <i>Sina hatari hata kidogo</i> <input type="checkbox"/> Small <input type="checkbox"/> Moderate <i>Kidogo</i> <input type="checkbox"/> Great <i>Kubwa</i> <input type="checkbox"/> Has HIV or AIDS <i>Ni na ukimwi</i> <input type="checkbox"/> Don't know <i>Sijui</i>	<i>If moderate / great skip to</i>

	<i>itawezekana upate Ukimwi kiurahisi, au kikiasi au kivigumu?</i>		5.11
5.10	Why do you think you have no risk / small chance of getting HIV and AIDS virus (tick all that apply) <i>Jee, ni kwanini unafikiri yakwamba hauwezi kupata Ukimwi kwa urahisi?</i>	<input type="checkbox"/> Is not having sex <i>Sifanyi ngono</i> <input type="checkbox"/> Uses condoms <i>Natumia mipira</i> <input type="checkbox"/> Has only one partner <i>Nina mpenzi mmoja</i> <input type="checkbox"/> Don't know <input type="checkbox"/> Limits number of partners <i>Sina wapenzi Wengi</i> <input type="checkbox"/> Partner has no other partners <i>Nina mpenzi mmoja</i> <input type="checkbox"/> Other specify / <i>Mengine (adhirisha)</i> _____	Skip to 5.12
5.11	Why do you think you have moderate / great chance of getting AIDS (tick all that apply) <i>Jee, kwanini unafikiri yakwamba nafasi yako kupata virusi vya Ukimwi ni kiasi?(tia alama kote kunakofaa)</i>	<input type="checkbox"/> Does not use condoms / <i>Situmii mipira</i> <input type="checkbox"/> Has more than one partner / <i>Nina wapenzi Wengi</i> <input type="checkbox"/> Had blood transfusions / injections / <i>Nina pewa damu / kudungwa</i> <input type="checkbox"/> Partner has other partners / <input type="checkbox"/> Other specify <i>Mengine (adhirisha)</i> _____	
	Do you know your HIV status?	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.12	Would you disclose your HIV status if it is positive to your partner? <i>Unaweza kumweleza mpenzi wako hali yako ukipata virusi vya Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.13	Does your family know about your HIV status? <i>Jamii yako inajua hali yako?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.14	Do your friends / colleagues know about your HIV status? <i>Marafiki wako wajua hali yako?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.15	Would you like your community members to know your HIV status? <i>Unaweza penda jumuiya yako ijue hali yako ya Ukimwi ikiwa utapatikana na virusi vya Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	
5.16	If a member of your house hold is HIV positive, would you want it to remain a secret? <i>Jee, jamaa yako akipata virusi vya Ukimwi, unaweza taka iwe siri?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i> <input type="checkbox"/> It Depends <i>Inategemea</i> <input type="checkbox"/> Other (Specify) _____	
5.17	If a relative of yours is HIV positive today, would you want to care for him / her in your own household? <i>Jamaa yako akipata virusi vya Ukimwi, unaweza penda kumhudumia nyumbani kwako?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i> <input type="checkbox"/> It Depends <i>Inategemea</i> <input type="checkbox"/> Other (Specify) <i>Engine adhirish</i> _____	
5.18	Do you personally know someone who has been denied involvement in the social events, religious services or community events because he / she is suspected to be HIV positive? <i>Jee, unajua mtu aliyekuwa amekatazwa kushiriki katika sherehe za jamii, kanisani au za kidini ?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
5.19	Is it possible for a healthy looking person to be infected with HIV virus? <i>Yawazekana mtu aliyekaa kuwa na afya kuwa na virusi vya Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
5.20	What are ARVS for? <i>Jee, Anti Retrovirals niza nini?</i>	<input type="checkbox"/> Cure HIV (<i>Za kuponya Ukimwi</i>) <input type="checkbox"/> Prevent one from re-infection (<i>za kumkinga mtu</i>) <input type="checkbox"/> Prolong life (<i>Za kurefusha maisha</i>) <input type="checkbox"/> Prevent one from being sick <input type="checkbox"/> Others (specify) _____	

5.21	Do you agree or disagree that peer influence contributes to the spread of HIV? <i>Unakubali au kukanusha yakwamba Marafiki wabaya wanaweza kuzidisha hatari ya kuambukizwa kwa virusi vya Ukimwi?</i>	<input type="checkbox"/> Agree <i>Nakubali</i> <input type="checkbox"/> Disagree <i>Napinga</i> <input type="checkbox"/> Don't know <i>Sijui</i> <input type="checkbox"/> Not Sure <i>Sina uhakika</i>
5.22	Can a person be cured from HIV and AIDS <i>Jee, mtu anaweza kuponywa Ukimwi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know
5.23	If yes, which cures do you think are available (tick all that apply) <i>Kama jibu lako ni ndio, tiba zatoka wapi? (tia alama kote kunakofaa)</i>	<input type="checkbox"/> In hospitals <i>Hospitalini</i> <input type="checkbox"/> Traditional healers <i>Kwa daktari wa Kienyeji</i> <input type="checkbox"/> Sex with virgins <i>Kufanya ngono na mabikira</i> <input type="checkbox"/> Others (specify) _____

SECTION 6: AVAILABILITY AND UTILIZATION OF SERVICES			
<i>I'm now going to ask you some questions related to availability of health services in this area</i>			
6.1	Are there facilities that provide HIV related services around your area of residence? <i>Jee, kuna vifaa vinavyotoa huduma za afya kuhusu virusi vinavyoondoa kinga mwilini na Ukimwi (HIV and AIDS) unakoishi?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	<i>If no, skip to 6.14</i>
6.2	Who provide these services <i>Ni nani anayetoa kuduma hizi?</i>	<input type="checkbox"/> Health facility (GOK) <i>Kifaa cha afya cha serikal</i> <input type="checkbox"/> Health facility (Private) <i>Kifaa cha afya cha kibinafsi</i> <input type="checkbox"/> Health facility (church based) <i>Kifaa cha afya cha kikanisa</i> <input type="checkbox"/> Mobile clinics <i>Kliniki zitembeazo</i> <input type="checkbox"/> Health facility (NGO)	
6.3	Do they offer the following services? <i>Je, wanatoa huduma aina hizi?</i>	<input type="checkbox"/> VCT <i>Kupewa mawaidha</i> <input type="checkbox"/> PMTCT <i>Mwilini na kuangaliwa Kuinga uambukizaji Wa Ukimwi kutoka Kwa mama hadi kwa mtoto</i> <input type="checkbox"/> PITC <i>PITC****</i> <input type="checkbox"/> ART and CARE <input type="checkbox"/> HBC <i>Huduma ya Nyumbani ya Wanaoishi na Ukimwi</i> <input type="checkbox"/> Others (specify) _____	
6.4	How accessible are these facilities from your area of residence? <i>Jee vifaa hivi vinapatikana kwa urahisi katika eneo hii yenu?</i>	<input type="checkbox"/> Very accessible <i>Vinapatikana kwa urahisi</i> <input type="checkbox"/> Somehow accessible <i>Vinapatikana</i> <input type="checkbox"/> Hardly accessible <i>Vinapatikana kwa ugumu</i>	
6.5	What is the approximate distance from your house to the nearest health facility? <i>Kifaa cha afya kilicho karibu kabisa kiko kama umbali gani?</i>	_____ km <i>Kilomita</i>	
6.6	How much time does it take you to get to the facility using your usual means of transport? <i>Inakuchukuwa muda gani kufika huko?</i>	_____ minutes	
6.7	Have you used any of these services in the last 12 months? <i>Umeshawahi kutumia vifaa hivi vyovyote mwaka huu uliopita?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	<i>If no, skip to 6.14</i>
6.8	Which type of service did you use? <i>Ulitumia huduma gani?</i>	<input type="checkbox"/> VCT <i>Kupewa mawaidha</i> <input type="checkbox"/> PMTCT <i>Mwilini na kuangaliwa Kuinga uambukizaji Wa Ukimwi kutoka Kwa mama hadi kwa mtoto</i> <input type="checkbox"/> PITC <i>PITC****</i> <input type="checkbox"/> ART and CARE <input type="checkbox"/> HBC <i>Huduma ya Nyumbani ya Wanaoishi na Ukimw</i> <input type="checkbox"/> Health education <input type="checkbox"/> Others (specify) _____	
6.9	What was the quality of service offered? <i>Katika maoni yako,</i>	<input type="checkbox"/> EXCELLENT <i>Bora kabisa</i> <input type="checkbox"/> GOOD <i>Nzuri</i> <input type="checkbox"/> FAIR <i>Kiasi Mbaya</i> <input type="checkbox"/> POOR <i>Ya kuzorotesha</i> <input type="checkbox"/> VERY POOR	

	<i>huduma hii ilikuwa na ubora upi?</i>	
6.10	How affordable were the services <i>Huduma hizi zilikuwa zaweza kugaramiwa?</i>	<input type="checkbox"/> Free <i>Zilikuwa bure</i> <input type="checkbox"/> Affordable <i>Niliweza kugaramia</i> <input type="checkbox"/> Not affordable <i>Ilikuwa ghali sana Singeweza kulipa</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
6.11	Were you given any reading materials for more information at the facility? <i>Huduma hizi zilikuwa zaweza kugaramiwa?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
6.12	What kind of information was contained in the material you were given? <i>Ufahamu uliopata kwenyw vifaa hivo vya kusoma ulikuwa</i>	
6.14	What are the main channels of communication from which you receive AIDS information? <i>Ni kwa kutumia njia gani haswa ambapo umeweza kupokeaufaha mu kuhusu Ukimwi?</i>	<input type="checkbox"/> Radio <i>Redio</i> <input type="checkbox"/> Television <i>Runinga</i> <input type="checkbox"/> Film <i>Sinema</i> <input type="checkbox"/> Drama <i>Mchezo wa kuigiza</i> <input type="checkbox"/> Newspapers / magazines <i>Magazeti</i> <input type="checkbox"/> brochures <i>Kijitabu kinayo Maelezo mafupi</i> <input type="checkbox"/> Posters <i>Tangazo inayobanikwa ukutani</i> <input type="checkbox"/> Peers <input type="checkbox"/> Community notices <i>Notisi ya Ya kijumuiya</i> <input type="checkbox"/> Family <i>Jamii</i> <input type="checkbox"/> friends <i>Marafiki</i> <input type="checkbox"/> Billboards <i>Bango la kuwekea matangazo</i> <input type="checkbox"/> Health workers <i>Wafanyakazi wa afya</i> <input type="checkbox"/> Teachers <i>walimu</i> <input type="checkbox"/> Political leaders <i>viongozi wa kisiasa</i> <input type="checkbox"/> Internet <i>Mtandao</i> <input type="checkbox"/> Traditional leaders <i>Viongozi wa kimila</i> <input type="checkbox"/> religious leaders <i>Viongozi wa kidini</i> <input type="checkbox"/> Others (<i>specify</i>) _____
6.15	From which channel have you learned most about AIDS? <i>Jee, ni kutumia njia zipi umepata ufahamu kamili kuhusu Ukimwi?</i> CHOOSE ONLY ONE	<input type="checkbox"/> Radio <i>Redio</i> <input type="checkbox"/> Television <i>Runinga</i> <input type="checkbox"/> Film <i>Sinema</i> <input type="checkbox"/> Drama <i>Mchezo wa kuigiza</i> <input type="checkbox"/> Newspapers / magazines <i>Magazeti</i> <input type="checkbox"/> brochures <i>Kijitabu kinayo Maelezo mafupi</i> <input type="checkbox"/> Posters <i>Tangazo inayobanikwa ukutani</i> <input type="checkbox"/> Peers <input type="checkbox"/> Community notices <i>Notisi ya Ya kijumuiya</i> <input type="checkbox"/> Family <i>Jamii</i> <input type="checkbox"/> friends <i>Marafiki</i> <input type="checkbox"/> Billboards <i>Bango la kuwekea matangazo</i> <input type="checkbox"/> Health workers <i>Wafanyakazi wa afya</i> <input type="checkbox"/> Teachers <i>walimu</i> <input type="checkbox"/> Political leaders <i>viongozi wa kisiasa</i> <input type="checkbox"/> Internet <i>Mtandao</i> <input type="checkbox"/> Traditional leaders <i>Viongozi wa kimila</i> <input type="checkbox"/> religious leaders <i>Viongozi wa kidini</i> <input type="checkbox"/> Others (<i>specify</i>) _____

SECTION 7: INDIVIDUAL HIV STATUS

7.1	Have you ever been tested for HIV?	<input type="checkbox"/> Yes <i>Ndio</i> Know <i>Sijui</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't	<i>If no, Thank the participant again and take to lab technician for blood draw</i>
7.2	Where was the last test done?	<input type="checkbox"/> Government Health Facility <input type="checkbox"/> Private Health facility <input type="checkbox"/> VCT Centre <input type="checkbox"/> Blood Donation Centre <input type="checkbox"/> Mobile clinic <input type="checkbox"/> Others(specify) _____	
7.3	When was the last time you were tested for HIV?	____ / ____ / ____	(dd / mm / yyyy)
7.4	Did you get the result of that test?	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	<i>If no, Thank the participant again and request for blood draw</i>
7.5	Is it possible to disclose to us the results of your HIV status?	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	<i>If no, Thank the participant again and request for blood draw</i>
7.6	What was the result?	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Don't Remember	
7.7	If positive, have you received any support from a health facility	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know	<i>If no skip to 7.10</i>
7.8	What was the nature of support	<input type="checkbox"/> Counseling <input type="checkbox"/> ARTs <input type="checkbox"/> Co-trimoxazole <input type="checkbox"/> Others (specify) _____	
7.9	Do you attend a regular clinic in the facility	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>	
7.10	If no support, what do you think is the main reason?	<input type="checkbox"/> Health facility is far <input type="checkbox"/> No need for support yet <input type="checkbox"/> Health workers are unfriendly <input type="checkbox"/> Don't Know <input type="checkbox"/> No support available in the health facility	<i>Thank the participant again and request for blood draw</i>

SECTION 8: SPECIMEN COLLECTION		
8.1	Did the participant agree to have a blood sample collected? <i>Mshiriki alikubali damu yake itolewe?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Don't Know <i>Sijui</i>
8.2	If No, what was the reason for refusal? <i>Kama alikataa, ni kwa sababu gani?</i>	_____
8.3	Was blood collected on filter paper? <i>Damu ilikusanywa kwenye karatasi chujio?</i>	<input type="checkbox"/> Yes <i>Ndio</i> <input type="checkbox"/> No <i>La</i> <input type="checkbox"/> Other specify _____

ii. Focus group discussion guidelines

We appreciate your accepting to meet here for a discussion on the issues relating to HIV and AIDS. We would wish to understand the extent of the HIV and AIDS issue.

1. What can you say about the situation of HIV and AIDS in this area? (If considered a big problem, how does it compare with other risks, health problems and challenges?)

2. What are the main reasons for of HIV and AIDS as a problem (probe for personal, social, movement, economic, cultural)

3. (a) Are there people who are particularly at a higher risk?

(b) If so, why do you think they are at a higher risk?

4) a) What are some of the services available (After the responses, if the participants do not know, then the facilitator should define to enable an informed discussion. Facilitator should clarify and probe for VCT, PMTCT, Nutritional support, Home based care)

b) For each of the services, facilitator should enquire about the following:

a) Who provide the HIV and AIDS services?

b) Accessibility

c) Barriers for utilization (comment on distance, acceptability)

5. Comment on the following attributes of HIV and AIDS providers

a. Professionalism in handling clients

b. attitude towards clients

c. confidentiality

d. attitude towards their work

6. In your view, what can be done to help improve HIV and AIDS services in this area? Probe for;

a. service provision

b. access

c utilization

- 7.) Is there some community social support for the following groups of people?
- HIV positive people who have disclosed their status?
 - AIDS patients
 - Known AIDS orphans and widows
- 8.) Are there people who suffer from discrimination due to HIV and AIDS?
- 9) Are there are HIV programs in this area? Have they been useful? If not, why?

Thank you very much

iii. Mwongozo ya Majadiliano ya vikundi

Tunawashukuru kwa kukubali kukutana hapa kwa ajili ya kujadiliana kuhusu virusi vinavyomaliza kinga mwilini na Ukimwi (HIV and AIDS). Tungependa kuelewa janga hili lemeenea mpaka wapi.

- Waweza kusemaje kuhusu janga la Ukimwi kwenye eneo hii? Kama shida hii ni kubwa sana, utaifaninishaje na hatari zingine na changamoto za kiafya?
- Ni sababu gani haswa janga la Ukimwi ni shida? (chunguza kibinafsi, kijamii, myenendo, uchumi, mila)
 - Kuna watu walio na hatari kubwa?
 - Kama ndio, kwanini?
- Ni huduma gani zilizoko (Baada ya majibu, kama washiriki hawajui, kiongozi anafaa afafanue ili washiriki wafanye uamuzi wa ufahamu. Kiongozi hanafaa atofautishe na kuchunguza upatikanaji wa kituo vya ushauri, Kuinga usambazaji wa virusi vya Ukimwi kutoka kwa mama hadi kwa mtoto, usaidizi wa kuchagua vyakula bora, Utunzaji nyumbani wa walioambukizwa na virusi vya Ukimwi)
 - Kwa kila huduma, kiongozi anafaa aulize:
 - Ninani atakaye toa huduma hizi?
 - Huduma hizi zinaweza kupatikana kwa urahisi?
 - Ni vizuizi gani viko? (umbali, watu kukubali au kukataa)
- Toa hisia zako kuhusu tabia za wahuduma wa afya
 - Ustadi wa wahuduma kwa kushughulikia wateja
 - Jinsia zao kuhusu wateja
 - Jinsi wahuduma wanahifadhi siri za wateja
 - Jinsia za wahuduma kuhusu kazi yao
- Kwa maoni yako, ninini yaweza kufanywa kuboresha huduma hizi kwenye eneo hili?
 - Kutoa huduma
 - Kupatikana kwa huduma
 - Kutumika kwa huduma
- Kuna usaidizi wowote kutoka kwa jumuiya kwa watu hawa?:
 - Walioambukizwa na virusi vya Ukimwi na kujulisha hali yao
 - Wagonjwa wanaougua Ukimwi
 - Wajane na mayatima wanaojulikana waliofiwa na wapendwa wao kutokana na ugonjwa wa Ukimwi

8. Kuna watu wanaobaguliwa kwa sababu wameabukizwa na virusi vya Ukimwi?
9. Kuna miradi inayokumbana na madhara haya yanayosababishwa na Ukimwi? Jee, yamesaidia? Kama jibu ni *la* kwa ajili gani?
Ahsante Sana

iv. Key informant interview guidelines

Thank you for agreeing to talk to me (us). We are conducting a survey on HIV and AIDS and would wish to understand the burden of HIV and AIDS in this area / factory and how you are coping with it. This interview should take no more than 45 minutes.

1. a) How big a problem is HIV and AIDS in this area?

b) In your opinion what are the specific risk factors for HIV and AIDs among the plantation / fishing communities?

2 a) Who are the providers of the HIV and AIDS services in the area?

b) What HIV and AIDS services are available in this area / facility (*probe for:*

i) Types of services

- Voluntary counseling and testing
- Provider initiated counseling and testing
- Antiretroviral therapy
- Nutritional support
- Psychosocial support
- Post exposure prophylaxis
- Home based care

(ii) For each of the above: comment on the following:

a) Availability

(b) Utilization of services

(c) Competence of staff

(d) Adequacy of ART services

(e) Effectiveness of the services (*probe for: Cost, Accessibility*)

3. What are the main barriers in provision / utilization of services (*probe for the following if not mentioned*)

i) *Cultural,*

- ii) Economic,*
- iii) Social,*
- iv) Physical*
- v) Personal*

4. In your opinion, what are the factors hindering the use of the services?

5. Kindly comment on the following facility specific factors or components

Waiting time

Staff attitude toward their work

Staff attitude toward their clients

Confidentiality

Staff-client relationship

6. In your opinion what can be done to improve HIV and AIDS services in this area / facility
(Probe for:

(a) *Service provision*

(b) *Access*

(c) *Utilization*

(e) *Any other (Specify)*

7. a) Are there elaborate HIV and AIDS programs?

b) Was there a needs assessment before the initial of the program?

c) How are the community members involved in the program?

8. Are there national guidelines for HIV and AIDS? Which ones

9. Is there a national policy

10. Is there a specific policy targeting the community here (fishing / plantation)

11. Are there specific guidelines and policies targeting the fishing / plantation?

12. How do these programs link to the national HIV and AIDS control program guidelines and policies?

Thank you very much.

v. Mwongozo wa Mahojiano ya kibinafsi

Ahsante kwa kukubali kunena nami (si). Tunafanya uchunguzi kuhusi virusi vinavyoodosha kinga mwilini (HIV) na Ukimwi na tungependa kuelewa jinsi shida hii imeenea katika kiwanda hiki na jinsi unavyokumbana nayo. Hatutapitisha dakika arobaini na tano.

1. a) Shida hii ya Ukimwi ni kubwa kiasi gani kwenye eneo hili?
b) Kwa maoni yako, ni hatari gani zinazowakumba wakulima au wavuvi kwenye eneo hii?
2. a) Jee, ni nani ambao wanatoa huduma za afya kushusu Ukimwi katika eneo hili?
b) Ni huduma zipi zilizoko kwenye eneo hii? (chunguza:
i) Aina za huduma

- Kituo cha hiari cha kupimwa hali ya Ukimwi na kupewa mawaidha
- Kituo cha kupimwa hali ya Ukimwi na kupewa mawaidha na mhuduma
- Kupewa dawa za kuinua kinga mwilini ya kupata magonjwa kwa walioambukizwa na Ukimwi
- Kupewa mawaidha na kusaidiwa kuhusu kuchagua vyakula bora vya kujenga mwili kwa Walioambukizwa na Ukimwi
 - Usaidizi wa kisaikologia
- Mawaidha anaoyopewz mtu kuhusu t iba ya kuzuia maradhi
- Matibabu nyumbani kwa walioambukizwa na Ukimwi

ii)Kwa kila moja, toa maoni yako kuhusu:

- a)Kupatikana kwa huduma
- b)Ustadi wa wafanyakazi wa kiafya
- c)Upatikanaji wa huduma za kutoa dawa za kuinua kinga ya kupata magonjwa kwa walioambukizwa na Ukimwi
- e) Matokeo ya huduma (chunguza bei, kupatikana)

3. Ni vizuizi gani viko kwa kutoa au kutumia huduma hizi? (chunguza yafuatayo kama haijatajwa:)
 - i) Utamaduni
 - ii) Uchumi
 - iii) Jamii
 - iv) Maumbile
 - v) Kibinafsi
4. Kwa maoni yako mambo gani yanayochangia kuzuia utumizi wa huduma hizi?
5. Tafadhali toa maoni kuhusu sehemu za huduma hizi

Wakati wa kungojea

Jinsia za wanahuduma kuhusu kazi yao

Jinsia za wanahuduma kuhusu wateja wao

Jinsi wanahuduma wanahifadhi siri za wateja

Uhusiano baina ya wanahuduma na wateja

6. Kwa maoni yako ninini yaweza kufanywa ili kuboresha huduma hizi katika eneo hii?
(chunguza)

(a) *Kutoa huduma*

(b) *Kupatikanaji kwa huduma*

(c) *Utumiaji wa huduma*

(d) *Ingingine (adhirisha)*

7. a) Kuna miradi inayokumbana na madhara haya yanayosababishwa na Ukimwi? Jee, yamesaidia? Kama jibu ni *la* kwa ajili gani?

b) Kuna utafiti uliofanywa kabla ya mradi kuanzishwa

c) Jee, wana jumuiya wanasaidia mradi huu kwa njia yeyote?

8. Kuna miongozo ya kitaifa kuhusu Ukimwi? Ipi?

9. Kuna sera ya kitaifa?

10. Kuna sera maalum linayokusudia eneo hili la wakulima na wavuvi?

11. Kuna miongozo maalum na sera inayokusudia eneo hili?

12. Jee, miradi hii inahusiano gani na sera na miongozo za kitaifa zinazohusu virusi vya kuondosha tiba mwilini na Ukimwi?

Ahsante Sana

vi. Blood transmittal sheet

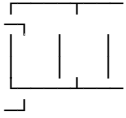
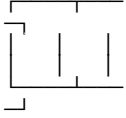

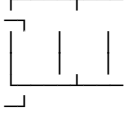
BLOOD SAMPLE TRANSMITTAL SHEET

Landing site / Estate / plantation

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NAME OF PLACE

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PERSON SENDING / RECEIVING SAMPLES	TIME TO FILL IN FORM	TOTAL COUNT OF BLOOD SAMPLES	SIGNATURE (CONFIRMING THAT EACH SAMPLE IS PRESENT—SEE BACK OF FORM)	SIGNATURE (CONFIRMING THAT THE NUMBER OF BLOOD SAMPLES MATCHES COL. 3)	DATE	NOTES (NOTE ANY DISCREPANCY IN NUMBERS OF SAMPLES)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
HEALTH INVESTIGATOR / SUPERVISOR	WHEN LANDING SITE / ESTATE IS COMPLETED					
SAMPLE PICK UP VEHICLE / PERSON INCHARGE	WHEN SAMPLES ARE PICKED UP IN FIELD					
RECEIVER AT THE [IMPLEMENTING AGENCY]	UPON ARRIVAL AT THE [IMPLEMENTING AGENCY]					
RECEIVER AT [LABORATORY]	UPON ARRIVAL AT [LABORATORY]					

INSTRUCTIONS

HEALTH INVESTIGATOR: Upon completion of a landing site / estate / factory, verify that the unique bar code (identification) number on each blood sample (filter paper card) collected and stored in the large zip-lock bag labeled with that landing site number corresponds to a bar code number pasted to the back of this transmittal sheet and vice-versa. Note any discrepancies in Column (7). Count and record the total number of blood samples in Column (3). Sign your name in Column (4) and the date in Column (6). Fold and store this transmittal sheet in the large zip-lock bag.

FIELD TEAM SUPERVISOR: After the technician has verified the blood samples, you will conduct a second verification. Verify that the unique bar code (identification) number on each blood sample (filter paper card) collected and stored in the large zip-lock bag labeled with that landing site or estate number corresponds to a bar code number pasted to the back of this transmittal sheet and vice-versa. Note any discrepancies in Column (7). Count and verify the total number of blood samples in Column (3). Sign your name in Column (5) and the date in Column (6). Refold and store this transmittal sheet in the large zip-lock bag.

SAMPLE PICK UP PERSON: Before returning to the sample collection centers after visiting a team in the field, you will verify the number of blood samples collected in each completed PSU that you are carrying back with you. For each completed PSU, count and record the total number of blood samples stored in the large zip-lock bag labeled with that PSU number in Column (3). Note any discrepancies in Column (7). Sign your name in Column (5) and the date in Column (6). Refold and store this transmittal sheet in the large zip-lock bag.

AT THE IMPLEMENTING AGENCY OFFICE: For each large zip-lock bag arriving from the field, you will verify the number of blood samples received. Count and record the total number of blood samples stored in the large zip-lock bag labeled with the BMU number in Column (3). Note any discrepancies in Column (7). Sign your name in Column (5) and the date in Column (6). Photocopy both sides of this transmittal sheet and file the photocopies (as instructed) in a designated, locking file cabinet. Refold and store the original transmittal sheet in the large zip-lock bag.

RECEIVER AT THE LABORATORY: Upon receiving blood samples from the Blood collection centers, verify that the unique bar code (identification) number on each blood sample (filter paper card) collected and stored in the large zip-lock bag labeled with the landing site/estate number corresponds to a bar code number pasted to the back of this transmittal sheet and vice-versa. Note any discrepancies in Column (7). Count and record the total number of blood samples in Column (3). Sign your name in Column (4) and the date in Column (6). Photocopy both sides of this transmittal sheet after signing and dating. Send the photocopies (as instructed) to the office of the Research Organization. Follow the [COUNTRY] BSS lab protocol for storing and processing dried blood samples.

Note: These forms were destroyed under the direction of the Lab Director after all blood samples have been completely processed and a Final HIV Test Result has been determined for each usable sample.

BLOOD SAMPLE TRANSMITTAL SHEET

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STATE NUMBER

LANDING SITE / ESTATE NUMBER

HEALTH INVESTIGATOR NUMBER

NO.	SAMPLE BAR CODE	TECH.	LAB
1			
2			
3			
4			
5			
6			
7			

NO.	SAMPLE BAR CODE	TECH.	LAB
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f. Appendix 6 : List of sampled landing sites, fishing community

	Name Of Landing site	No of times to sample	Region	District	Division	Parish	Village
1	Achuodho	1	Nyanza	Rachuonyo	East Karachuonyo	Rambira	Kamser Seka
2	Aluru	1	Nyanza	Migori	Karungu	West Karungu	Gunga
3	Awana	1	Nyanza	Rachuonyo	West Karachuonyo	Kobiero	Wagwe South
4	Bongu	1	Nyanza	Migori	Karungu	Central Karungu	Raga
5	Busembe	1	Western	Busia	Funyula	Bwiri	Busembe
6	Dunga	1	Nyanza	Kisumu	Winam	Kolwa West	Nyalenda 'B'
7	Gul Min Ougo	1	Nyanza	Bondo	Nyang'oma	South Sakwa	Nyaguda
8	Kadedi	1	Nyanza	Bondo	Rarieda	West Asembo	Mahaya
9	Kamariga	1	Nyanza	Bondo	Madiany	West Uyoma	Kagwa
10	Kao	1	Nyanza	Migori	Nyatike	Central Kadem	Kakelo Kakoth
11	Kethegunga	1	Nyanza	Migori	Muhuru	West Muhuru	Kithii
12	Kiriwo	1	Nyanza	Suba	Gwasi	Gwasi North	Uterere
13	Kitawi	1	Nyanza	Suba	Mfangano	Mfangano East	Wakianga
14	Kiwari	1	Nyanza	Suba	Mfangano	Mfangano West	Wakula South
15	Koginga	1	Nyanza	Homa Bay	Asego	Homa Bay	Homa Bay Township
16	Kolunga	1	Nyanza	Suba	Mbita	Rusinga West	Kamasengre West
17	Kwoyo	1	Nyanza	Bondo	Usigu	Mageta	Mitundu
18	Luanda Disi	1	Nyanza	Bondo	Usigu	Central Yimbo	Usigu
19	Luanda Kotieno	1	Nyanza	Bondo	Madiany	South Uyoma	Naya
20	Mabinju	1	Western	Busia	Budalangi	Hajula	Mabuji
21	Mahanga	1	Nyanza	Bondo	Usigu	Mageta	Mahanga
22	Marenga Omena	1	Western	Busia	Budalangi	West Bunyala	Bukoma
23	Matoso	1	Nyanza	Migori	Nyatike	West Kadem	Winam
24	Mirunda	1	Nyanza	Suba	Mbita	Gembe East	Kayanja
25	Misori Kobar	1	Nyanza	Suba	Mbita	Gembe East	Ngothe
26	Mulukoba	1	Western	Busia	Budalangi	West Bunyala	Bukani
27	Nanga	1	Nyanza	Kisumu	Maseno	East Seme	Koker Kajulu
28	Ndeda Island	1	Nyanza	Bondo	Nyang'oma	Central Sakwa	Ndeda_Oyamo
29	Ngodhe	1	Nyanza	Suba	Mbita	Rusinga West	Wanyama
30	Nyakwara	1	Nyanza	Suba	Central	Kaksingri West	Rangwe West
31	Nyandiwa	1	Nyanza	Suba	Gwasi	Gwasi West	Nyandiwa
32	Nyenye Misori	1	Nyanza	Bondo	Usigu	West Yimbo	Usenge

33	Oele	1	Nyanza	Bondo	Usigu	East Yimbo	Pala
34	Omena	1	Western	Busia	Budalangi	North Bunyala	Sisenye
35	Osieko	1	Western	Busia	Budalangi	South Bunyala	Obaru
36	Osoi	1	Nyanza	Suba	Gwasi	Gwasi Central	Nyancha
37	Port South B	1	Nyanza	Bondo	Nyang'oma	Central Sakwa	Uyawi
38	Remba	2	Nyanza	Suba	Mfangano	Mfangano South	Wakula North
39	Ringiti	1	Nyanza	Suba	Mfangano	Mfangano West	Wakula South
40	Runyu	1	Western	Busia	Budalangi	South Bunyala	Rukala
41	Sibora	1	Nyanza	Suba	Gwasi	Gwasi West	Nyandiwa
42	Sindo Main	1	Nyanza	Suba	Central	Kaksingri West	Rangwe East
43	Sori	1	Nyanza	Migori	Karungu	West Karungu	Sori
44	Tagache	1	Nyanza	Migori	Muhuru	West Muhuru	Nyancha
45	Ugina	1	Nyanza	Suba	Mfangano	Mfangano South	Wakula North
46	Ulugi	1	Nyanza	Suba	Mbita	Rusinga East	Waware North
47	Utajo	1	Nyanza	Suba	Mbita	Rusinga East	Waware North
48	Wagusu	1	Nyanza	Bondo	Nyang'oma	Central Sakwa	West Migwena
49	Wichlum	1	Nyanza	Bondo	Nyang'oma	South Sakwa	Nyaguda

g. Appendix 7: Sample bar code labels

