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 IN TWO AGRICULTURAL PLANTATIONS IN LAKE VICTORIA BASIN, KENYA

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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
CI	Confidence interval
CPT	Cotrimoxazole prophylaxis therapy
DBS	Dried Blood spot
EAC	East African Community
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
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
HIV	Human immunodeficiency virus
KEMRI	Kenya Medical Research Institute
KNASP	Kenya National AIDS strategic plan
LVBC	Lake Victoria Basin Commission
LVCT	Liverpool VCT
LVFO	Lake Victoria Fisheries Organization
ml	milliliter
MMWR	Mortality Weekly Review
MTCT	Mother to Child Transmission
NACC	National AIDS Control Council
NHRL	National HIV reference laboratory
NPHLS	National Public Health Laboratory Services
NTT	National Technical Team

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/AIDS
PMTCT	Prevention of mother to child transmission of HIV
POR	Prevalence odds ratio
QA	Quality assurance
SAS	Statistical analysis software
STI	Sexually transmitted infections
UNAIDS	Joint United Nations programme on HIV/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

Introduction

The HIV and AIDS pandemic remains a global public health challenge. By the year 2009, an estimated 33.3 million people were living with HIV and there were 2.6 million new infections in the same period. Sub-Saharan Africa remains the most affected region, accounting for over two-thirds of the 33.3 million people living with HIV in 2009 and three-quarters of the HIV-related deaths that occurred in the same year. In Kenya, there was a decline in HIV prevalence from 10% in mid 90s to below 7% in 2009 with an increase in the number of people receiving antiretroviral treatment. The National AIDS Control Council (NACC), housed within the Office of the President provides leadership of the national response to HIV&AIDS by coordinating the multiple sectors. The Ministries of Health (MoH), through the National AIDS and STI Control Programme (NASCOP) 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 NACC guides the implementation of HIV and AIDS interventions in Kenya.

In Kenya, HIV and AIDS affects different population segments with different intensities. These differences arise from a combination of biological, socio-economic, behavioural and cultural factors. Workers in agricultural plantations are examples of specific population segments which have been found to have higher vulnerabilities than the average population**.** The combined impact of negative social, economic and labour conditions in the agricultural plantations illustrates the extent of increased vulnerability. Previous seroprevalence surveys in Kenya have however, not highlighted prevalence in specific high risk rural groups like the workers in agricultural plantations that live in the lake basin within Nyanza and Western provinces.

Materials and methods

This cross-sectional study sought to determine the HIV seroprevalence, socio-demographic and behavioral risks, service availability and utilization, the existence of policies, programs and coordination structures in the agricultural plantation sector in the Lake Victoria basin. The study sites were SONY and Mumias sugar plantations and the study population was the plantation workers. Quantitative methods were used to determine the knowledge, attitude, 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. The sample size was 500 in each plantation. Stratified random sampling technique was employed to identify each the study participant. Data was collected using questionnaires, note books and audio tapes. Blood specimens were collected from each study participant to prepare dry blood spots (DBS). DBS were transported to National HIV Reference laboratory for analysis to determine HIV prevalence. Laboratory results were linked to the questionnaires using bar coded labeled unique identifiers. Data was analyzed using statistical package for social scientists (SPSS) and STATA.

Results

Response rate to interview in SONY and Mumias Sugar Company was 80% and 94% respectively, whereas blood draw rate was similar in both plantations (99%). Of the DBS specimens collected, 1.6% was spoilt and could not be analyzed in the laboratory. Males were the majority of the study participants (89% in SONY and 92% in Mumias).

The mean age of the study respondents in SONY Sugar Company was 32.2 years (±10.5 SD), with age range of 18-86 years while the mean age in Mumias Sugar Company was 36.4 years (±9.1 SD) with a age range of 20-62 years. Male constituted 88.6% in Sony Sugar Company and 91.7% in Mumias Sugar Company. Majority of the study participants were cane cutters (66.4% in SONY, 80.3% in Mumias). Eighty-three percent and 93.4% of study respondents were married in SONY Sugar Company and Mumias Sugar Company respectively. Sixty-seven percent of the study participants had education level of primary and below. Majority of the study respondents in the plantation sector were married; 84% in SONY Sugar Company and 95% in Mumias Sugar.

Thirty nine percent and 49% of the respondents had emigrated to Mumias and SONY sugar companies respectively and most of these immigrants (84% in Mumias and 78% in SONY) had lived in the plantations for over 5 years. About a fifth of the participants in Mumias and SONY sugar companies had travelled and slept away from home within the previous 3 months. Seventeen percent and 23% of those who had travelled in Mumias and SONY had had sex during the travels; most of them had not used a condom during these sexual encounters (67% in SONY and 61% in Mumias).

The HIV prevalence in Sony Sugar was 15.4 % (95% CI, 12.0-19.0) and Mumias sugar Company was 2.8% (95% CI, 1.3-4.4). There was no difference in the HIV prevalence among males and females (15.4% males and 15.6% females in SONY; males 2.9%, females 2.7% in Mumias). HIV prevalence was highest among those aged 45-54 years both in SONY (21.4%) and Mumias (4.5%). Regarding occupation, the highest HIV prevalence in SONY was among support staff (42.3%) while in Mumias field supervisors had the highest prevalence (20%). HIV prevalence among cane cutters was 10.6% and 2.9% in SONY and Mumias respectively. The mean age at sexual debut was 15.7 years in SONY an 16.8 years in Mumias. The overall mean age in years at sex debut for males in SONY Sugar and Mumias Sugar was lower than that of females (15.5 vs 17.6 in SONY and 16.7 vs 18.6 in Mumias). HIV prevalence among emigrants was higher than the residents of the plantations (19.1% vs 11.8% in SONY and 3% vs 2.7% in Mumias).

Ninety seven percent and 99% of the study respondents had heard of AIDS in SONY and Mumias Sugar Companies respectively. On knowledge of methods of HIV prevention, 92.3%, 82.0% and 86.9% in SONY responded that faithfulness among partners, use of condoms during sex and abstinence respectively were effective methods in prevention of HIV transmission while in Mumias, 92.9%, 79.6% and 81.1% reported positively knowledge to these methods. Rejection of common misconceptions on transmission of HIV was high ranging from 75% to 93% in Sony and 70% to 92% in Mumias where 74.7% in Sony and 70.3% in Mumias reported that HIV cannot be transmitted by mosquito or other insects' bites while 80.5% in Sony and 78.7% in Mumias reported that sharing of utensils with an infected person cannot transmit HIV. A high proportion; 93.0% in Sony and 91.5% in Mumias reported that a healthy-looking person can have HIV virus. Overall, 52.2% and 47.3% had comprehensive knowledge on HIV and AIDS SONY and Mumias respectively. Willingness to care for a sick HIV-infected person was similar in SONY and Mumias (85.6% and 86.9% respectively). Majority of those married or cohabiting were staying with their partners (92.5% in Sony and 92.0% in Mumias). On HIV testing, the uptake was of average proportion where in SONY, 67.2% and in Mumias, 62.6% reported ever having been tested. Seventy-nine percent and 91.8% had received their results in SONY and Mumias respectively.

Over 90% of the respondents reported availability of facilities offering HIV and AIDs services in the plantations. The government was the main service provider in both plantations while VCT was the most common services and ART services were limited. Most of the services were facility based. On demand, condoms were always available to 76% of SONY plantation workers and to 13% of Mumias plantation workers. Male circumcision was low in SONY Sugar Company (41.5%) and high in Mumias (91.1%).

Conclusion

The findings of shows that prevalence of HIV in SONY Sugar is similar to that of Nyanza province, but is 2.5 times higher than the national average whereas HIV prevalence in Mumias Sugar company is lower than the average of Western province as well as the national average. The findings of this study calls for focus to address the specific risks and vulnerabilities of these two population groups (SONY and Mumias) 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. There is need to institute targeted interventions to address the issues relating to mobility and population fluidity. Moreover, existing services such as VCT, PMTCT, PITC, ART and male circumcision need to be expanded. While VCT services are widely used, other HIV/AIDS related services are poorly utilized and hence the need to link all the services including HIV and AIDS care and treatment to the VCT services.

CHAPTER 1: INTRODUCTION

1.1. Background

HIV and AIDS remains 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 (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; 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).

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. The socio-economic impact of this scourge is huge with ILO estimating that approximately 26 million (70%) of people living with HIV actively engaged in the workplace (E. Buregyeya et al, 2008).

Kenya's HIV prevalence is estimated to be 6.3% for age group15-49 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.

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. 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 in the Lake Victoria Basin

The Lake Victoria region has the highest HIV prevalence in Kenya (KAIS 2007). Among Kenya's eight provinces, Nyanza province, located in the Lake Victoria Basin, has the highest prevalence of HIV (KAIS 2007). 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). As per KAIS, approximately 411,000 persons live with HIV in the Nyanza Province (age 15 – 64). Using an eligibility criteria of CD4<250 cells/µl, 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.

It is known that the drivers of the epidemic in this region include multiple sexual partners, frequent change of sexual partners, having unprotected sex, low knowledge of HIV status, presence of sexually transmitted infections and lack of circumcision among others. However, it is increasingly becoming evident that social and structural factors such as mobility, wife inheritance, gender inequalities (particularly early marriage among girls), stigma, poor access to services and poverty may also be fuelling the spread of HIV in the region.

1.3. HIV in the agricultural plantation sub-sector

Agriculture is one of the main drivers of the Kenyan economy. Agricultural production is heavily dependent on human labor. It is estimated that about 68 percent of all Kenyans live in rural areas, 90 percent of whom derive their livelihoods primarily from agriculture (Kenya National Housing and population census, 2009). A substantial proportion of this industry is in the agricultural plantation sub-sector which employs about 50 percent of the Kenyan labor force. This sector accounts for most of the agricultural export crops like tea, coffee, sugar, wheat and food crops such as maize (Foeken, D. and N. Tellegen, 1994).

There is evidence that the effects of HIV and AIDS on agriculture in Kenya and on the economy as a whole are severe, as the epidemic hits the work force in their most productive ages (FAO, 1999). HIV and AIDS impacts directly on human resources and indirectly on the operations of commercial agriculture (Baier, EG, 1997). HIV prevalence has been shown to be highest among the population aged 15-49 years (JAIDS 2006) and unfortunately, majority of workers population fall in this age category. 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). Although the picture within the plantation sub-sector is less clear, it is very likely that the impact of HIV/AIDS mirrors the broader sector.

The Lake Victoria basin region has a significant concentration of commercial agricultural plantations, which rely on mobile workers, an extensive system of out-grower schemes, and linkages with neighbouring communities and transportation routes. The relationships between the various components of the plantation system and the spread of HIV, is a complex and dynamic process. It is reasonable to assume that potential drivers of HIV risk and vulnerability (mobility in particular) in the plantation sub-sector overlap with those drivers in the Lake Victoria Basin.

1.4. Mobility and HIV vulnerability

Populations are engaged in multiple 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. 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 relationship between the various components of mobility and the spread of HIV is both complex and dynamic. 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). 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 the migrants may have more freedom, new experiences and opportunities as well as 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 alcohol and, sometimes, drugs as well as engaging in 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/AIDS. These groups include agricultural plantation workers. 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) HIV and AIDS response. There has been inadequate research on these dynamic interactions, and the relevant policies and programs are generally silent on mobility-induced vulnerability to HIV.

1.5. HIV and AIDS Interventions and responses

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. 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).

Available biomedical interventions that are relevant for the lake basin region 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). Recent developments however raise the prospect of radically changing the 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)

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 host 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 (including plantations) engagement through implementation of workplace policies.

In summary, HIV remains a major public health issue in the lake Victoria basin and is a source of concern within the plantation sub-sector. However appropriate technologies are available and the policy and partnership environment is suitable for greater impact.

2. Justification of the study

Vulnerability occasioned by mobility is widely recognized. 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). It is not clear though, whether mobility actually elevates risk particularly the burden of HIV among plantation workers, but such dynamism is likely to diversify associated risk factors as well as creating potential peer group influence.

The Lake Victoria region has a significant concentration of commercial agricultural plantations, which rely on mobile workers, an extensive system of out-grower schemes, and linkages with neighbouring communities and transportation routes. Also, plantation workers have social, economic and lifestyle characteristics that are likely to predispose them to higher risk of infection than the general population. Despite this, there has not been adequate research on these dynamic interactions, and the relevant policies and programs are generally silent on mobility-induced vulnerability to HIV. Additionally, national sero-surveys have not been tailored to include sub-populations. 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 agricultural plantation workers in Kenya. The major components of this study which are; HIV seroprevalence, socio-demographic and behavioral risks, service availability and utilization and lastly, the existence/effectiveness of policies, programs and coordination structures are interrelated and intricately linked to each other.

Determination of the HIV prevalence will influence the initiation of effective and efficient interventions, determine resource allocations and facilitators as well as barriers of service delivery with the aim of reducing risks and vulnerabilities to HIV transmission among plantation workers.

3. Aim and objectives

3.1. Aim

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

3.2. Specific objectives

i. To determine the HIV seroprevalence in the plantations communities in the lake Victoria Basin, Kenya
ii. To determine demographic risk factors of HIV transmission in the plantations community in the lake Victoria basin, Kenya
iii. To determine the knowledge, attitude and practices regarding HIV transmission in the plantations community in the lake Victoria basin, Kenya
iv. To determine behavioral risk factors of HIV transmission in the plantations community in the lake Victoria basin, Kenya
v. To determine the availability, range and utilization of HIV/AIDS services in the plantations community 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 plantations sector

CHAPTER 2: MATERIALS AND METHODS

2.1. Study design

A cross sectional survey was conducted using both quantitative and qualitative study methods to gather data. Quantitative methods were used to determine the knowledge, attitude, practices and HIV sero-prevalence among the plantation workers. 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/AIDS and drivers of vulnerability to HIV infection.

2.2. Plantations

2.2.1. Study Site

The study was conducted in SONY and Mumias Sugar Companies. The study had been planned to be carried out in Unilever Tea, SONY Sugar and Mumias Sugar Company. However, during the implementation of the study, administrative consent was not obtained from Unilever Tea for the study to be carried out hence the study was conducted in Mumias and SONY Sugar Company. All eligible plantations were approached by the client LVBC and NTT to seek consent to participate in the study.

2.2.2. Study population

The study population was all plantation workers whose employment terms were either permanent or seasonal/temporary or contractual workers. These workers included managers, supervisors, cane cutters, tea pluckers, weeders, drivers and the factory workers. The plantation workers were economically active age groups that were more homogenous in lifestyle and socio-economic status. Majority of the plantation workers were mobile populations who moved from one estate to another, one plantation to another during their work and they lived away from their families. There were also migrant workers from other parts of Kenya and expatriates from other countries who worked in these plantations.

2.2.3. Inclusion and exclusion criteria for the plantations

2.2.3.1. Inclusion criteria

- All plantation workers who were aged 18 years and above.

2.2.3.2. Exclusion criteria

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

2.2.4. Sample size determination

In order to be able to report on the HIV prevalence for each of the plantations selected, we calculated the sample size for each plantation separately. The required sample size for each plantation was determined using the formula below:-

Sample size required $n = \frac{z^2 p(1-p)}{d^2}$

Where:
z = risk of Type I error
p = expected prevalence
q = 1 – p
d = absolute precision

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

P = Expected probability of variable of interest = 30% (HIV prevalence among the plantation workers is not known but is thought to be higher than the HIV prevalence of the general population).

The calculated sample size for each of the plantation was 322. Taking into assumption that 20% of the participants would refuse to participate, the sample size required was 387 and assuming that 10% of the questionnaires were spoilt, the minimum sample size required for each of the plantation was 426. We enumerated 500 people per plantation for interview and blood specimen collection.

2.2.5. Sampling methodology

Within each plantation a stratified random sampling technique was employed in selection of the study participants. The strata were based on terms of employment i.e. either permanent or contractual or seasonal/temporary.

2.2.5.1. Sampling procedures for the plantations

Prior to the start of the study the management of each plantation was approached by LVBC and NTT to grant permission in order to conduct the studies. Arrangements were made to obtain the sampling frame for each plantation. The sampling frame was an elaborate list of all the plantation workers detailing their age, sex, occupation and residence. The workers of each plantation were grouped into three categories by terms of employment namely permanent, contractual and temporary or seasonal workers. The sampling frame was confirmed and verified with the respective plantation coordinator.

- A permanent employee was defined as one employed by an organization in the plantation in which his/her employment could be terminated only through retirement, death or resignation.

- A contractual employee was defined as one employed by an organization in the plantation for short periods ranging from 3 months to 3 years in order to complete a specified task over a specified period of time

- A seasonal/temporary employee was defined one employed for short durations of less than 3 months in order to complete a specified task and their wages were daily rated.

The number of participants selected from each category based on the terms of employment was directly proportional to population size. Thereafter the participants were identified in each group using simple random sampling technique. The study population and the sample size per job category are shown in table 1.

Table 1: Study population of Mumias and SONY plantations, August 2010

	Population			Sample size		
Job category	**Mumias**	**Sony**	**Total**	**Mumias**	**Sony**	**Total**
Permanent	1,531	1,268	2,799	52	117	169
Contractual	350	762	1,112	12	70	82
Temporary	12,827	3,397	16,224	436	313	749
Total	**14,708**	**5,427**	**20,135**	**500**	**500**	**1,000**

2.2.5.2. Procedures for enrollment

The list of sampled study participants was shared with the plantation to facilitate identification of the study participants. The sampled study participants were then notified by the plantation management. During field work, the research assistants approached and verified the selected participant by confirming his full names and job category that s/he belonged to. The objectives, benefits, risks etc of the study were explained to the participant and informed consent obtained before enrollment into the study.

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

2.3. 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 6 focus group discussions were conducted in the sugar plantations. Each of the FGD was composed of 6-12 people. The composition of the participants was as follows: Three 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 three 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. Three key opinion leaders were interviewed in each of the study sites and these were the plantation managers, the health administrators and the opinion community leaders. The interviewers took hand written notes during the interviews for production of full interview report thereafter.

2.4. Laboratory procedures

2.4.1. 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 perform finger-prick and 10 drops of finger-prick (capillary) whole blood was collected using fine tip pasture pipette and dispensed onto a filter paper (S&S 903) up to a maximum of 1ml, which was then air-dried.

2.4.2. Specimen processing

From a set of pre-printed labels, the laboratory technologist pasted the same unique bar-code label on the filter paper, questionnaire and 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 envelops 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.

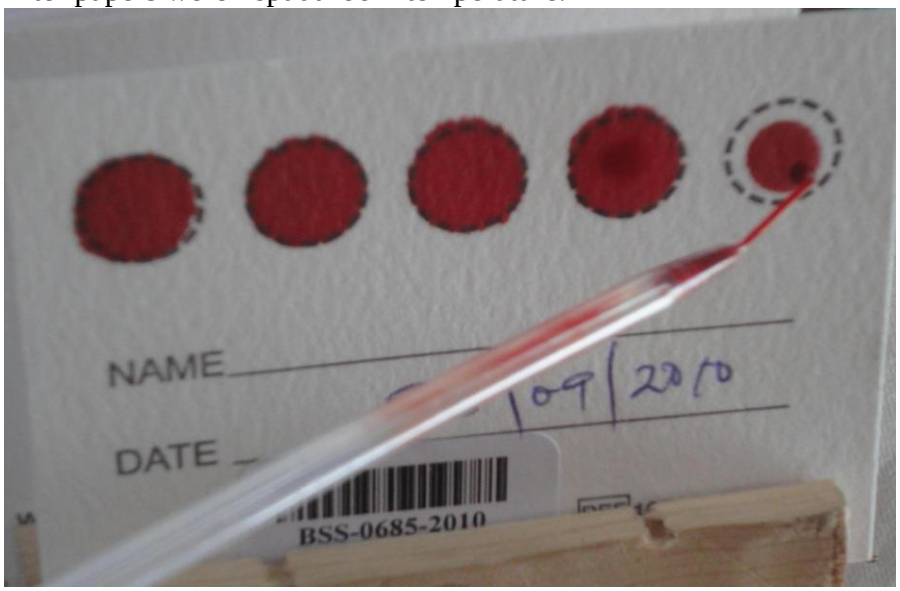


Figure 1: Preparation of a DBS on a filter paper (BSS-0685-2010)

2.4.3. 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.

2.4.4. Specimen shipment

All the DBS were shipped to National HIV Reference Lab (NHRL) at National Public Health Laboratories Services (NPHLS) in Nairobi. The plantations laboratories and 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.

2.4.5. 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^{o}C overnight. The eluted specimens were tested according to the manufacturer's recommendations using a 4^{th} generation (Vironostika® HIV Uni-Form II Ag/Ab) as a screening and a 4^{th} generation (Murex HIV.1.2.O) HIV EIA as a second confirmation test in a serial testing algorithm as indicated by Standard Operating Procedure attached 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^{o}C for future analysis.

All specimens were subjected to Vironostika® HIV Uni-Form II Ag/Ab kit and 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.

2.5. Data management

2.5.1. 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 pre test and pilot phases. The questionnaires were translated to Kiswahili for both the plantation workers. The choice of Kiswahili was informed by the diversity of the various ethnic groups in the plantations industry following the pre-field work visits carried out in the plantation sectors. Moreover, Kiswahili was the commonest language for transaction of business in this sector.

The Field Supervisors periodically worked with and observed each interviewer (research assistant) 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 with the questionnaire data using the unique identifiers on the bar code labels.

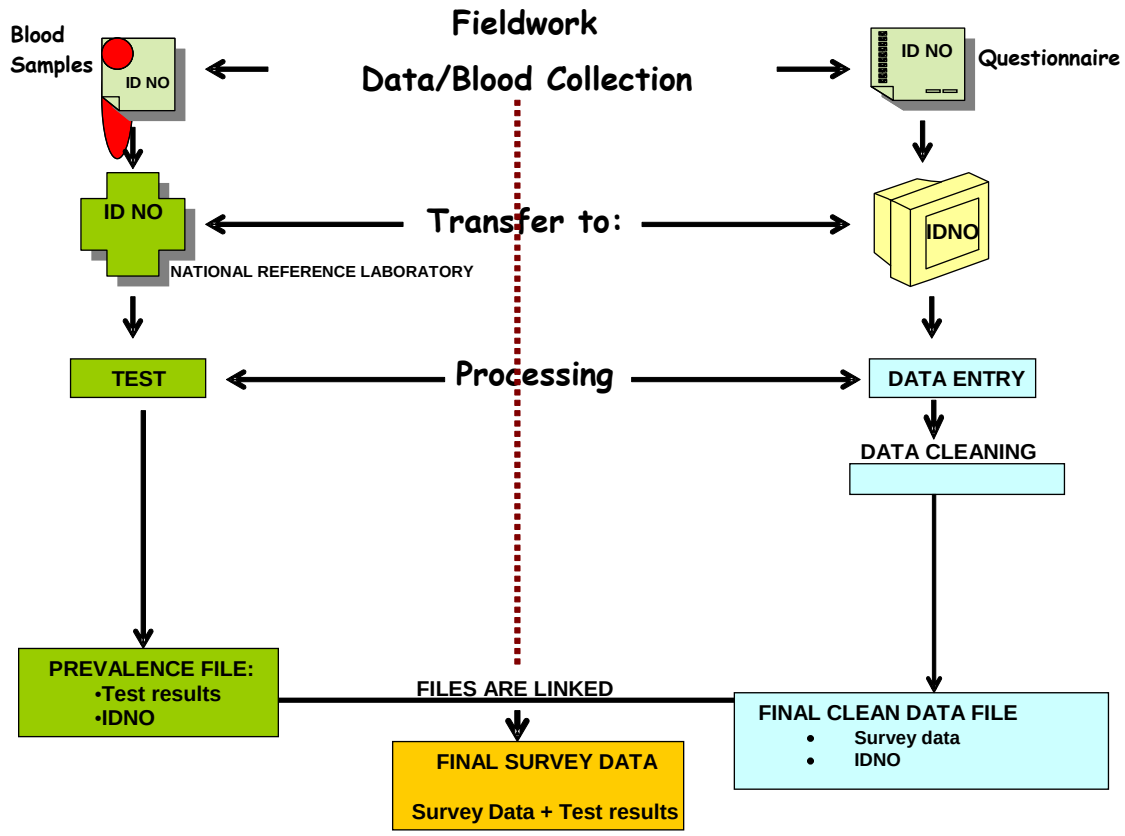
The variables that were collected in the questionnaire included identifier information (Location: District, division, location, village etc.), demographic information (Age, Sex, occupation, education, marital status, religion etc), economic factors, behavioural factors (sexual partners, polygamy, use of condoms, circumcision, wife inheritance etc), HIV/AIDS services and policies/programmes on HIV/AIDS

2.5.2. 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 2). 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 to estimate risk was the prevalence odds ratio with 95% confidence. 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.

Figure 2: Flow chart showing specimen and data handling procedures and linkages



2.5.3. Data analysis of qualitative data

The data was analyzed by transcribing the audio records and then reading the 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 and compared notes so as to find out whether they had 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. Thematic areas were generated and presented in the report.

2.6. Implementation of the study

2.6.1. 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 and the plantation 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.

2.6.2. Training: Field workers, supervisors, mobilizers were trained prior to commencement of the study. Fieldworkers and supervisors were trained in early August 2010.

2.6.3. 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.

2.6.4. 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.

2.6.5. 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

2.6.6. Data analysis. This activity was carried out in March and April 2011

2.6.7. Report writing. The report was drafted in April and May 2011.

The timeline of the implementation is presented in annex 3.

2.7. Ethical considerations

2.7.1. 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 prior to the commencement of the study.

2.7.2. Consent

The relevant plantation management authorities were approached and they granted permission to for the studies to be carried out. Furthermore, permission was sought from the national level Ministry of Public Health and Sanitation and sanctioned by the national technical team (NTT).

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. Both informed consent 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. A sample of the consent 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.

2.7.3. 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 and the results did not bear the name of the participants on it, but were identified only through unique identifiers contained in the bar code labels.

2.7.4. Risks

There were no 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.

2.7.5. Benefits

The results of the survey would help plantation managers, LVFO and LVBC gain the understanding on the factors that can lead to increased HIV transmission and the drivers of

such risks in the plantation sectors. 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/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.

2.8. Study limitations

The sampling of the study sites in the plantation sector only included those plantations that consented and were willing to participate in the study. This thus may affect the representativeness of the results for the plantation sector since each plantation was not given an equal opportunity to be selected. Since this study was a prevalence study, it was not possible to measure incidence of HIV and to demonstrate a cause-effect relationship. By the nature of the work carried out in the plantation sector, the proportion of males was higher than the females hence the number of females who were sampled and enrolled into the study was significantly low. Hence, any possible variations in HIV prevalences, knowledge and behaviours among males and females may have been missed. Furthermore, the low HIV prevalence in Mumias made it unlikely to demonstrate potential risks. Also, the study may not have been powered enough to demonstrate potential risk or protective factors for HIV infection. Thus, there was the likelihood of missing socio-demographic, cultural and behavioural risk factors.

CHAPTER 3: RESULTS

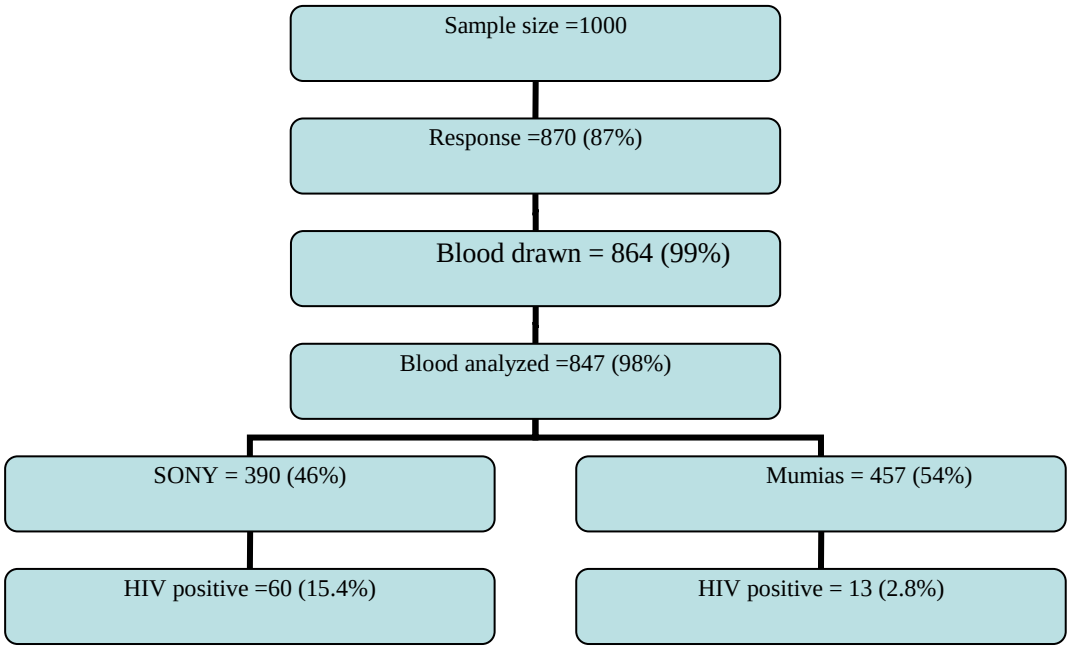
3.1. Response rate

The response rate to interview was 80% in SONY and 93.6% in Mumias whereas blood draw rate was similar in both plantations (99%). Of the 864 DBS samples collected, 1.6% (17 samples) was spoilt and could not be analyzed in the laboratory. Quality of specimens was based on the standard DBS rejection criteria where serum rings, spot oversaturation and blood clots/splashes render them unsuitable for laboratory analysis. SONY Sugar Company contributed 46% (390) while Mumias Sugar had 54% (457) study respondents as shown in figure 3.

Table 2: Response rate for interviews and blood draw among study respondents in the plantation sector, 2010

Plantation	Target Sample	Interview		Blood draw		Blood Analyzed	
	N	n	%	n	%	n	%
SONY	500	402	80.4	399	99.3	390	97.7
MUMIAS	500	468	93.6	465	99.4	457	98.3
Total	**1000**	**870**	**87**	**864**	**99.3**	**847**	**98.0**

Figure 3: Flow chart diagram of the study in plantation sector



3.2. Socio-demographic characteristics of the study population

This section provides information on a number of basic socio-demographic characteristics of the study population who were interviewed during the study period. Such characteristics include; age at the time of the survey, sex, marital status, occupation and education level.

This information is useful for understanding the characteristic, distribution and socio-demographic factors associated with HIV infection among the study respondent.

The mean age of the 870 study respondents in the plantation sector was 34.4 years (± 10 SD) with interquartile range of 27-41 years and age range of 18-86 years. In SONY Sugar company the mean age was 32.3 (±10.5SD), with interquartile range 25-37 years and the age range was from 18 years to 86 years. In Mumias the mean age 36.4 years (±9.1 SD); the youngest respondent was 20 years old while the oldest was 62 years old as indicated in the Table 3.

Table 3: Summary of age characteristics of the study population in the Plantation sector, 2010

		Plantation	
Statistic	**Overall**	**SONY, (n=402)**	**Mumias, (n=468)**
Mean	34.4	32.3	36.4
95% CI	33.8-35.2	31.3-33.3	35.5-37.2
Std	10	10.5	9.1
se	0.34	0.52	0.42
Median	32	30	35
Range	18-86	18-86	20-62
IQR	27-41	25-37	28.42.8

Generally, sex distribution varied across the two plantations (SONY Sugar Company and Mumias Sugar Company) with males accounting for a significant proportion of respondents. In SONY Sugar Company and Mumias Sugar Company males were 88.6% and 91.7% of the study respondents respectively as shown in table 4.

Table 4: Socio-demographic Characteristics of study population in the Plantation sector, 2010

	Plantation		
	SONY	**MUMIAS**	**Total**
	Percent	**Percent**	**n**
Age Group			
15 - 24	22.4	5.6	116
25 - 34	43.8	42.7	376
35 - 44	19.7	29.9	219
45 - 54	10.7	19.9	136
54+	3.5	1.9	23
Sex			
Male	88.6	91.7	785
Female	11.4	8.3	85
Religion			
Muslim	2.7	10.3	59
Catholic	30.6	31.6	271
Protestant	55.5	48.1	448
No Religion	1.0	2.8	17

Other	7.5	4.7	52
Not Stated	2.7	2.6	23
Education Level			
None	6.5	14.3	93
Primary Incomplete	20.6	34.6	245
Primary Complete	32.8	25.4	251
Secondary +	40.0	25.6	281
Marital Status			
Married	82.6	93.4	769
Single	13.7	3.2	70
Divorced/Separated	.7	.9	7
Widowed/Widower	1.0	.6	7
Other	.0	.0	0
Not Stated	2.0	1.9	17
Job Category			
Permanent	13.7	11.8	110
Temporary	76.1	83.5	697
Contractual	10.2	4.7	63
Occupation			
Clerical officer	6.3	4.1	42
Manager	3.2	3.6	28
Cane Cutter	66.4	80.3	605
Weeder	2.6	0.2	11
Field Supervisor	2.4	1.4	15
Support Staff	6.9	3.2	40
Other	12.2	7.3	78

The age distribution in both Mumias Sugar Company and SONY Sugar Company exhibited a similar pattern with age group 25-34 contributing most of the study respondents; 43.8% in SONY Sugar Company and 42.7% in Mumias Sugar Company as demonstrated in table 4. Regarding education level, there was a notable variation between the two plantation with 40% of study respondents in SONY Sugar Company having attained above secondary education while 34.6% of study respondents in Mumias Sugar Company having not finished primary education. A significant proportion of study proportion in the two plantations (SONY Sugar company 93.5% and Mumias sugar company 85.7%) had some form of formal education as shown in table 4.

Regarding marital status, 82.6% and 93.5% were married in SONY and Mumias Sugar Company respectively, while those who were divorced / separated contributed less than 1 % as shown in table 4. On religion, in SONY sugar, 55.5% of the study respondents subscribed to the religion protestant, 30.6% catholic, 2.7% Islam and 1% did not belong to any religion. In Mumias, 48.1% were protestants, 31.6% were Catholics, 10.3% Islam and 2.8% did not belong to any religion. Regarding occupation, majority of study respondents in SONY Sugar

Company (73.9%) and Mumias Sugar Company (80%) were cane cutters while farmers contributed the least proportion as shown in table 4.

3.3. Knowledge and attitudes in the plantation sector

In this sub-section, findings are presented on HIV/AIDS awareness, knowledge on HIV transmission, rejection of misconceptions about HIV/AIDS, comprehensive knowledge of HIV and AIDS, attitude towards the infected and transmission of HIV.

HIV and AIDS-related knowledge and attitudes in the plantation sector

The findings on knowledge and attitudes are useful for 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. The findings on knowledge and attitudes are presented for the plantation sector and specifically for Sony and Mumias sugar plantation.

Awareness of AIDS

Participants in the SONY Sugar Company and Mumias Sugar Company were asked questions to assess their awareness about the illness called AIDS. Out of 402 participants who responded to these questions in SONY Sugar Company, 391 (97.3%) indicated that they had heard about AIDS. The level of awareness was generally high in all the background categories as shown in table 5.

In Mumias Sugar Company, out of 468 participants who responded to these questions, 463 (98.9%) reported that they had heard about AIDS. Similarly, the level of awareness was high in all the background categories.

Table 5: Percentage of study participants who had awareness of AIDS in the SONY and Mumias Sugar Companies, 2010

Background characteristic	SONY	MUMIAS
Age Group		
15 - 24	97.8	100.0
25 - 34	97.7	98.5
35 - 44	94.9	99.3
45 - 54	100.0	98.9
54+	92.9	100.0
Sex		
Male	97.8	99.3
Female	93.5	94.9
Religion		
Muslim	100.0	100.0
Catholic	96.7	99.3
Protestant	96.9	98.2
No Religion	100.0	100.0
Other	100.0	100.0
Not Stated	100.0	100.0
Education Level		
None	96.2	100.0

Primary Incomplete	96.4	97.5
Primary Complete	99.2	100.0
Secondary +	96.3	99.2
Marital Status		
Married	96.7	98.9
Single	100.0	100.0
Divorced/Separated	100.0	100.0
Widowed/Widower	100.0	100.0
Not Stated	100.0	100.0
Job Category		
Permanent	90.9	98.2
Temporary	98.7	99.2
Contractual	95.1	95.5
Occupation		
Clerical Officer	100.0	100.0
Manager	91.7	100.0
Cane Cutter	98.8	99.2
Weeder	90.0	100.0
Field Supervisor	66.7	100.0
Other	95.7	93.8
Support Staff	100.0	100.0
Total	**97.3**	**98.9**

Knowledge of HIV Prevention

Ninety two percent of the study participants in SONY Sugar Company and 93% in Mumias Sugar Company reported that transmission of HIV can be reduced by limiting sexual intercourse to one uninfected partner who has no other partner. On condom use, 82.0% and 79.6% in SONY and Mumias Sugar Company respectively reported that transmission of HIV can be reduced by using a condom every time people have sex. In SONY Sugar Company, 86.9% and 81.1% in Mumias Sugar Company reported that abstaining from sex as an intervention to reduce HIV transmission as shown in the table 6.

Table 6: Methods of preventing or reducing transmission of HIV virus in Sony and Mumias Sugar plantation, 2010

Background characteristic	SONY			MUMIAS		
	Limiting sexual intercourse to one uninfected faithful partner	Using a condom every time during sexual intercourse	Abstaining from sexual intercourse	Limiting sexual intercourse to one faithful uninfected	Using a condom every time during sexual intercourse	Abstaining from sexual intercourse
Age Group						
15 – 24	90.9	77	82.6	96.2	76.9	84.0
25 – 34	93.6	83.9	88.3	93.9	83.0	79.4
35 – 44	92	83.8	89	93.5	78.3	86.1
45 – 54	90.7	88.1	87.8	89.1	74.2	75.3
54+	92.3	61.5	83.3	88.9	88.9	88.9
Sex						
Male	92	81.8	86.5	92.7	78.8	80.9
Female	95.3	83.7	90.7	94.6	89.2	83.3
Religion						
Muslim	81.8	63.6	90.9	93.8	82.2	89.1
Catholic	89.1	89.7	88.9	89.1	82.1	80.0
Protestant	94	77.9	85.8	94.6	75.8	81.1
No Religion	100	100	100	100.0	92.3	84.6
Other	96.7	89.3	93.3	95.5	86.4	72.7
Not Stated	90.9	72.7	63.6	91.7	83.3	72.7
Education Level						
None	96	75	79.2	94.0	73.1	69.7
Primary Incomplete	93.8	77.5	83.8	89.2	75.8	81.2
Primary Complete	89.3	81	83.7	93.3	78.8	82.9
Secondary +	93.5	86.4	92.7	96.6	89.0	85.5
Marital Status						
Married	92.2	82.2	86.3	92.8	79.3	80.7
Single	90.9	80	87	86.7	100.0	92.9
Divorced/Separated	100	100	100	100.0	50.0	100.0
Widowed/Widower	100	66.7	100	100.0	100.0	100.0
Not Stated	100	87.5	100	100.0	66.7	62.5
Job Category						
Permanent	94	96	95.8	96.3	83.0	86.8
Temporary	92.1	79	85.1	92.3	78.3	79.7
Contractual	92.3	87.2	89.7	95.2	95.2	90.5
Occupation						
Clerical Officer	95.8	91.7	95.8	100.0	94.4	100.0
Manager	90.9	100	90.9	100.0	93.3	93.3
Cane Cutter	92.3	78.9	83.1	92.0	77.2	79.1
Weeder	100	66.7	100	100.0	100.0	100.0
Field Supervisor	100	100	100	100.0	100.0	100.0

Other	95.5	84.1	97.7	93.3	90.0	83.3
Support Staff	84.6	92	96	100.0	85.7	85.7
Total	**92.3**	**82.0**	**86.9**	**92.9**	**79.6**	**81.1**

Rejection of Misconceptions about HIV and AIDS

Study participants in SONY and Mumias Sugar Companies were asked questions about misconceptions on HIV transmission as presented in table 7.

Overall, 93.0% of the study participants in SONY Sugar Company rejected misconception that a healthy-looking person cannot have HIV virus while 74.7%, 80.5% and 88.6%, respectively, rejected misconceptions that HIV virus can be transmitted by mosquito or other insects' bites, sharing utensils with a HIV positive person or by witchcraft.

In Mumias Sugar Company, 91.5% rejected misconception that a healthy-looking person cannot have HIV virus. Also, 70.3% of the participants rejected misconception that HIV can be transmitted by mosquito or other insects' bites while 78.7% and 86.6% rejected misconceptions that HIV virus can be transmitted by sharing utensils with an infected person or by witchcraft respectively.

Table 7: Percentage of participants in the plantation sector who rejected misconceptions on transmission of HIV virus, by background characteristics, 2010

Background characteristic	SONY				Mumias			
	A healthy-looking person can have HIV virus	HIV virus cannot be transmitted by mosquito bites	HIV virus cannot be transmitted by sharing utensils with an infected person	HIV virus cannot be transmitted by supernatural means	A healthy-looking person can have the HIV virus	HIV virus cannot be transmitted by mosquito bites	HIV virus cannot be transmitted by sharing utensils with an infected person	HIV virus cannot be transmitted by supernatural means
Age Group								
15 - 24	90.7	74.1	75.6	82.6	96.2	65.4	76.9	92.3
25 - 34	94.1	75.6	81.2	92.4	92.8	72.4	78.9	87.8
35 - 44	95.9	81.3	85.1	93.3	93.4	71.5	81.3	87.0
45 - 54	85.4	64.3	82.9	81	83.7	65.6	76.1	81.5
54+	100	61.5	69.2	76.9	100.0	66.7	62.5	88.9
Sex								
Male	92.7	73.8	79.8	88.4	91.7	70.5	78.3	87.3
Female	95.1	81.4	86	90.7	88.9	67.6	83.3	77.8
Religion								
Muslim	100	45.5	72.7	90	91.5	64.6	63.8	80.9
Catholic	94	79.5	80.2	88.1	92.5	69.7	83.6	90.5
Protestant	93	74.8	81.1	89.3	92.2	69.4	77.3	86.4
No Religion	100	50	50	75	69.2	84.6	84.6	69.2
Other	89.7	73.3	86.7	89.7	90.9	86.4	81.0	81.8
Not Stated	80	63.6	72.7	81.8	91.7	72.7	91.7	91.7
Education Level								

None	86.4	66.7	62.5	73.9	93.9	69.7	75.8	79.1
Primary Incomplete	92.4	57.5	69.6	85	89.7	58.1	72.7	83.5
Primary Complete	92.4	74.6	83.8	88.5	91.6	78.2	79.7	89.9
Secondary +	94.7	85	86.1	92.9	92.4	78.8	87.2	91.5
Marital Status								
Married	92.7	74.2	80.3	88.4	91.6	69.2	78.5	87.0
Single	92.7	77.8	83.6	87.3	86.7	85.7	86.7	80.0
Divorced/Separated	100	100	100	100	75.0	75.0	75.0	75.0
Widowed/Widower	100	50	50	100	100.0	100.0	100.0	100.0
Not Stated	100	75	75	100	100.0	87.5	66.7	77.8
Job Category								
Permanent	93.9	90	91.7	92	90.7	75.5	83.3	87.0
Temporary	93.3	70.1	77.8	87.9	91.1	68.5	77.2	86.0
Contractual	89.2	89.7	87.2	89.7	100.0	90.5	95.0	95.2
Occupation								
Clerical Officer	100	87.5	87.5	91.7	88.2	100.0	94.4	88.2
Manager	100	90	80	90.9	100.0	66.7	81.3	87.5
Cane Cutter	92.2	69	78.2	87.7	91.4	65.8	75.7	86.6
Weeder	100	55.6	88.9	88.9	100.0	100.0	100.0	.0
Field Supervisor	100	100	100	100	100.0	66.7	83.3	100.0
Other	90.7	90.9	86	90.9	90.0	90.0	86.2	83.3
Support Staff	88.5	76.9	80.8	88.5	92.9	85.7	92.9	85.7
Total	**93.0**	**74.7**	**80.5**	**88.6**	**91.5**	**70.3**	**78.7**	**86.6**

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 at correct knowledge of at 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 in SONY and Mumias was 52.2 % and 47.3% respectively.

Table 8: Percentage of participants in the plantation sector in the Lake Victoria Basin, Kenya, who had comprehensive knowledge* about HIV and AIDS, by background characteristics, 2010

	SONY	Mumias
	Comprehensive Knowledge* about HIV and AIDS	Comprehensive Knowledge* about HIV and AIDS
Age Group		
15 - 24	47.7	38.5
25 - 34	54.5	52.8
35 - 44	60.8	52.2
45 - 54	46.3	31.5
54+	23.1	33.3
Sex		
Male	50.1	46.4
Female	69	57.1
Religion		
Muslim	10	40.4
Catholic	53.9	45.8
Protestant	54.7	47.7
No Religion	50	46.2
Other	53.6	61.9
Not Stated	20	58.3
Education Level		
None	31.8	43.9
Primary Incomplete	38.5	33.5
Primary Complete	48.4	56.3
Secondary +	65.6	58.3
Marital Status		
Married	51.9	46.5
Single	52.7	66.7
Divorced/Separated	100	25.0
Widowed/Widower	50	100.0
Not Stated	42.9	44.4
Job Category		
Permanent	79.2	52.8
Temporary	45.9	44.5
Contractual	66.7	85.0
Occupation		
Clerical Officer	82.6	82.4
Manager	80	57.1
Cane Cutter	45.4	41.7
Weeder	33.3	100.0
Field Supervisor	100	66.7
Other	59.1	72.4

Support Staff	53.8	71.4
Total	**52.2**	**47.3**

* Comprehensive Knowledge: Knowledge that use of condoms during sexual intercourse and also that having just one uninfected faithful partner can reduce the chance of getting the AIDS virus 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

Attitudes towards HIV-infected people

Participants in SONY and Mumias Sugar Companies 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. The responses are presented in table 9.

In SONY, the overall, willingness to care for a sick HIV infected family member in their own household was 85.6% while the proportion who knew of someone who had been denied involvement in social events, religious services or community events on suspicion of being HIV positive was 24.3%. In Mumias, 86.9% were willing to care for a sick HIV infected family member in their own household while 29.7% knew of people denied involvement in social events, religious services or community events on suspicion of being HIV positive.

Table 9: Percentage of responses by participants in the plantation sector on attitudes towards people who are HIV positive

Background characteristic	SONY		Mumias	
	Willingness to care for a sick family member in one's own household	Knowledge of someone denied involvement in any social and community events on suspicion of being HIV positive	Willingness to care for a sick family member in one's own household	Knowledge of someone denied involvement social and community events, on suspicion of being HIV positive
Age Group				
15 - 24	86.9	21.5	76.0	28.0
25 - 34	85.9	23.2	85.1	28.9
35 - 44	82.2	26.8	90.6	27.6
45 - 54	85.4	31.7	89.0	32.1
54+	92.3	16.7	77.8	62.5
Sex				
Male	85.3	23.5	87.2	30.0
Female	88.1	30.8	82.9	25.7
Religion			85.4	18.2
Muslim	90.9	18.2	86.9	36.9
Catholic	79.5	20.9	87.7	27.8
Protestant	87.1	27.1	69.2	40.0
No Religion	75.0	33.3	90.5	9.1
Other	100.0	13.8	91.7	50.0
Not Stated	80.0	40.0	81.8	34.9

Education Level			82.7	30.7
None	91.3	34.8	90.7	25.2
Primary Incomplete	83.3	20.3	91.5	29.8
Primary Complete	82.8	20.0	86.9	29.7
Secondary +	88.2	28.3	86.9	29.9
Marital Status			78.6	21.4
Married	85.6	24.5	100.0	50.0
Single	83.0	25.5	100.0	.0
Divorced/Separated	100.0	50.0	.0	.0
Widowed/Widower	75.0	.0	88.9	33.3
Not Stated	100.0	12.5	88.9	30.6
Job Category			86.7	29.6
Permanent	88.0	23.4	85.7	28.6
Temporary	86.7	23.4		
Contractual	73.7	31.6	83.3	11.1
Occupation			86.7	33.3
Clerical Officer	75.0	26.1	.0	.0
Manager	90.9	20.0	86.2	30.7
Farmer	.0	.0	.0	.0
Cane Cutter	86.3	23.4	83.3	40.0
Weeder	100.0	.0	90.0	20.7
Field Supervisor	66.7	50.0	92.9	25.0
Other	90.7	34.9	76.0	28.0
Support Staff	84.0	8.3	85.1	28.9
Total	**85.6**	**24.3**	**86.9**	**29.7**

Attitudes towards transmission of HIV

Some focus group discussion participants revealed that there are people who are indifferent and do not understand why HIV and AIDS is such a big deal. They consider it a disease just like any other and they said that this statement was very common, “After all I will not be the first to die from HIV/AIDS”. So they go about doing business as usual, casual unprotected sex is part of their life. Others reported that the knowledge of being tested and found positive is so devastating that it will lead to death just as being infected without knowing. There were also reports of strong misconceptions on the use of condoms as a preventive measure and doubts on its safety. Such misconceptions about HIV and AIDS are a clear indication of existing knowledge gaps in combating the disease.

Focus group discussions also revealed poor knowledge, inappropriate attitude and lack of confidence in the condoms being made available to the plantation workers as is evidenced by the following comments:

"I can say that, condom is just man-made, they are just telling us that it is 100% but it can't be 100%. You can find that it only protects in 25% the remaining 75% it does not."

"Tena wale ambao wanatumia mpira ni wale washarati"

"……hata wasichana wa kwetu hawa, hawataki condom. Yani wanasema eti haumwamini"

3.4. Description of behavioural and other risks factors

Behavioural characteristics are described in the subsequent sub-sections below for SONY and Mumias Sugar Companies.

SONY Sugar Company

In Sony, 83.9% of the participants were either married or cohabiting while 92.5% lived with their partners. Polygamy was reported by 9.9% of the participants. The number of wives reported in Sony ranged from 1 to 3 and the mean number of wives is 1.1. Ninety one percent of the married study participants had 1 wife and 8.6% had 2-3 wives. Only 2.3% reported that their wives were inherited. Those who reported having multiple sexual partners were 25.3% where 59.2% of them reported using a condom when having sex with these partners. Majority of these sexual partners were friends (79.2%) while 11.5% were workmates. The frequency of the sexual encounters with the extra sexual partners was weekly and monthly both at 31.9%.

Some participants (8.7%) reported having paid for the services of a commercial sex worker and 4.4% that they had ever been forced to have sex against their will. Some 4.2% reported having been given a gift for sex by non regular partner. Drinking of alcohol and taking drugs like bhang or cocaine were reported with 23.9% and 7.8% respectively. The summary of these characteristics are shown in table 10.

Table 10: Distribution of behavioural characteristics in SONY, 2010

	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	Ever been forced to have sex
Age Group								
15 - 24	60	91.5	8.5	8.2	3.6	44.4	8.8	3.5
25 - 34	88.7	93.8	6.2	4.8	0.7	23.6	8.4	5.3
35 - 44	93	90.8	9.2	19	5	18.9	8.3	2.7
45 - 54	95.2	92.1	7.9	16.2	2.7	10	8.1	5.3
54+	92.9	90	10	11.1	0	8.3	15.4	7.1
Sex								
Male	86	93.8	6.2	10.1	2.5	26	8.3	3.8
Female	68.2	81.3	18.8	7.7	0	19.5	11.6	9.1

Religion								
Muslim	72.7	100	0	0	0	33.3	0	0
Catholic	82.5	94.1	5.9	13.3	1.1	20.4	9.7	4.3
Protestant	85.8	90.3	9.7	8.3	3	26.4	8.8	3.3
No Religion	100	100	0	33.3	0	33.3	25	0
Other	86.2	100	0	7.4	4	32.1	7.4	18.5
Not Stated	60	83.3	16.7	14.3	0	27.3	0	0
Education level								
None	60.9	100	0	15.4	0	33.3	8.3	0
Primary Incomplete	88.6	97	3	9	1.5	16.9	8	3.7
Primary Complete	91.3	93.7	6.3	10.7	2.7	24.8	5.7	4.7
Secondary +	78.8	87.7	12.3	9	2.8	28.8	11.6	5.4
Marital status								
Married	96.8	92.6	7.4	10.1	2.5	19	8.5	4.5
Single	13.2	0	100	0	0	67.3	10.2	3.7
Divorced/Separated	50	100	0	0	0	0	0	0
Widowed/Widower	25	0	0	0	0	33.3	0	25
Not Stated	85.7	100	0	16.7	0	14.3	12.5	0
Job category								
Permanent	82.4	85	15	17.9	2.6	26	10.2	2
Temporary	85.5	94.1	5.9	8	2.1	25.6	7.7	4.4
Contractual	74.4	89.3	10.7	15.4	3.7	21.6	14.3	8.1
Occupation								
Clerical Officer	54.2	93.8	6.3	0	0	25	9.1	4.3
Manager	81.8	87.5	12.5	14.3	0	36.4	0	0
Cane Cutter	88.6	94.6	5.4	7.4	2.5	24.3	8.6	4.5
Weeder	90	100	0	11.1	0	20	11.1	20
Total	**83.9**	**92.5**	**7.5**	**9.9**	**2.3**	**25.3**	**59.2**	**8.7**

Mumias Sugar Company

In Mumias, 91.3% reported living together or cohabiting where 92.0% stayed with their partners. Polygamy was reported by 19.7% where number of wives ranged from 1-3 with a mean of 1.2 wives. Eighty six percent of the married respondents had 1 wife, 13.4% had 2-3 wives and only 0.5% having more than 3 wives. Wife inheritance was reported by 3.4 of the participants. Having multiple partners was reported by 24.5% of the participants where 44.3% reported using a condom when having sex with these partners. Most of these sexual partners were friends (68.2%) while 15.5% were workmates. The frequency of the sexual encounters with the extra sexual partners was weekly (27.5%) and monthly (32.1%. Only 10.8% reported having paid for the services of a commercial sex worker 6.1% reported ever been forced to have sex against their will. Only 6.3% of the participants reported having been given a gift for sex by non regular partner. Drinking of alcohol and taking drugs like bhang or cocaine were reported with 33.5% and 2.2% respectively. Details are shown in table 11.

Table 11: Distribution of behavioural factors, Mumias Sugar Company, 2010

	Currently living together with someone as if married	Living with partner	Polygamy	Wife inherited	Multiple sexual partners	Use a condom when engaging in sexual intercourse	Paid for the services of a commercial sex worker	Ever been forced to have sex against your will
Age Group								
15 - 24	80.0	90.9	10.0	.0	30.4	42.9	.0	.0
25 – 34	90.7	91.8	13.3	4.5	31.4	47.7	13.0	3.8
35 – 44	90.2	94.1	23.7	2.4	22.7	48.1	13.0	8.9
45 – 54	97.7	88.6	28.7	2.4	13.3	26.7	7.0	8.2
54+	88.9	100.0	25.0	14.3	.0	.0	.0	12.5
Sex								
Male	92.8	92.1	18.9	3.1	24.4	42.9	10.8	5.9
Female	75.7	90.3	31.0	7.4	25.7	60.0	11.8	8.6
Religion								
Muslim	93.5	91.3	26.1	4.8	25.5	38.5	6.8	13.6
Catholic	92.9	90.8	21.9	2.9	22.0	45.2	13.5	9.2
Protestant	89.5	93.1	17.6	3.6	26.9	42.6	11.2	2.9
No Religion	90.0	100.0	25.0	10.0	23.1	66.7	7.7	.0
Other	100.0	95.5	9.1	.0	15.0	100.0	.0	9.1
Not Stated	80.0	72.7	20.0	.0	25.0	25.0	11.1	.0
Education Level								
None	86.7	89.3	24.1	3.7	26.7	31.6	6.7	3.2
Primary Incomplete	90.8	94.2	20.8	3.4	28.8	44.2	13.1	5.8

Primary	93.8	96.5	19.3	3.6	21.1	46.4	7.3	8.3
Complete Secondary +	92.0	85.8	16.5	2.8	21.1	52.0	13.5	6.2
Marital Status								
Married	94.4	92.4	19.7	3.0	23.3	42.2	11.3	6.5
Single	21.4	75.0	20.0	20.0	41.7	71.4	.0	.0
Divorced/ Separated	66.7	100.0	.0	.0	50.0	50.0	.0	.0
Widowed/ Widower	33.3	100.0	.0	.0	100.0	33.3	33.3	.0
Not Stated	87.5	75.0	28.6	.0	16.7	100.0	.0	.0
Job Category								
Permanent	92.5	84.6	26.5	.0	13.2	40.0	8.2	11.8
Temporary	91.5	92.9	19.2	3.4	25.8	42.2	11.0	5.4
Contractual	85.0	94.4	11.1	9.5	30.0	75.0	14.3	5.3
Occupation								
Clerical Officer	83.3	93.3	7.1	.0	16.7	.0	.0	5.9
Manager	80.0	100.0	.0	8.3	20.0	100.0	7.1	7.7
Cane Cutter	93.1	94.1	19.6	3.4	26.4	40.6	12.2	5.6
Weeder	100.0	100.0	100.0	.0	.0	.0	.0	.0
Field Supervisor	100.0	50.0	66.7	.0	16.7	.0	16.7	40.0
Other	82.8	80.8	8.0	6.9	17.2	100.0	9.7	.0
Support Staff	100.0	84.6	38.5	.0	21.4	66.7	8.3	14.3
Total	**91.3**	**92.0**	**19.7**	**3.4**	**24.5**	**44.3**	**10.8**	**6.1**

Male circumcision

Although 36.8% of the SONY community practiced male circumcision, 41.5% of the male study participants were circumcised. While in Mumias, 89.9% of the Mumias community was reported practice male circumcision and a substantially high number of male study participants were circumcised (91.1%). Male circumcision disaggregated by background characteristics is presented in table 12.

Table 12: Percentage uptake of male circumcision in SONY and Mumias

	SONY	Mumias
Age		
15 - 24	42.9	90.5
25 - 34	38.8	89.7
35 - 44	46.2	92.1
45 - 54	43.2	92.9
54+	36.4	87.5
Religion		
Muslim	55.6	92.5
Catholic	43.5	93.3
Protestant	41.3	90.1
No Religion	50.0	100.0
Other	29.6	75.0
Not Stated	40.0	100.0
Education Level		
None	50.0	90.6
Primary Incomplete	34.7	88.7
Primary Complete	35.0	95.5
Secondary +	50.8	90.1
Marital Status		
Married	39.7	91.4
Single	52.2	80.0
Divorced/Separated	.0	66.7
Widowed/Widower	.0	100.0
Not Stated	50.0	100.0
Job Category		
Permanent	37.5	85.7
Temporary	42.4	92.4
Contractual	38.5	76.5
Occupation		
Clerical Officer	53.8	84.6
Manager	25.0	83.3
Cane Cutter	43.3	92.7
Field Supervisor	33.3	100.0
Other	37.5	76.9
Support Staff	52.4	100.0
Total	**41.5**	**91.1**

Sexually transmitted infections (STI)

In Sony, 10.7% and 3.6% of the participants reported ever experiencing unusual or smelly genital discharge and genital ulcer disease respectively as shown in table 13.

In Mumias, 15.6% and 7.0% reported ever experiencing unusual or smelly genital discharge and genital ulcer disease respectively.

Table 13: Sexually transmitted infections among plantation workers, 2010

	SONY				MUMIAS			
	Unusual/smelly genital discharge		Genital Ulcer Disease		Unusual/smelly genital discharge		Genital Ulcer Disease	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Age Group								
15 - 24	2	5.1	1	2.9	2	5.1	1	2.9
25 - 34	9	15.3	2	4.3	9	15.3	2	4.3
35 - 44	2	9.1	1	5.3	2	9.1	1	5.3
45 - 54	1	11.1	0	.0	1	11.1	0	.0
54+	0	.0	0	.0	0	.0	0	.0
Sex								
Male	13	11.0	2	2.0	13	11.0	2	2.0
Female	1	7.7	2	25.0	1	7.7	2	25.0
Religion								
Muslim	0	.0	0	.0	0	.0	0	.0
Catholic	3	8.3	0	.0	3	8.3	0	.0
Protestant	7	8.9	3	4.8	7	8.9	3	4.8
No Religion	0	.0	0	.0	0	.0	0	.0
Other	4	50.0	1	11.1	4	50.0	1	11.1
Not Stated	0	.0	0	.0	0	.0	0	.0
Total	14	10.7	4	3.6	14	10.7	4	3.6
Education Level								
None	0	.0	0	.0	0	.0	0	.0
Primary Incomplete	5	26.3	0	.0	5	26.3	0	.0
Primary Complete	5	10.6	3	6.8	5	10.6	3	6.8
Secondary +	4	7.3	1	2.3	4	7.3	1	2.3
Marital Status								
Married	10	11.0	4	5.5	10	11.0	4	5.5
Single	3	8.3	0	.0	3	8.3	0	.0
Divorced/ Separated	0	.0	0	.0	0	.0	0	.0
Widowed/ Widower	1	50.0	0	.0	1	50.0	0	.0

Job Category								
Permanent	1	5.9	0	.0	1	5.9	0	.0
Temporary	11	10.8	3	3.4	11	10.8	3	3.4
Contractual	2	16.7	1	12.5	2	16.7	1	12.5
Occupation								
Clerical	2	20.0	1	14.3	2	20.0	1	14.3
Officer								
Cane Cutter	8	9.9	3	4.1	8	9.9	3	4.1
Other	1	5.9	0	.0	1	5.9	0	.0
Support	3	27.3	0	.0	3	27.3	0	.0
Staff								
Total	**14**	**10.7**	**4**	**3.6**	**25**	**15.6**	**11**	**7.0**

Age at first sex

The mean age of sexual debut was 15.7 years in SONY an 16.8 years in Mumias. The overall mean age in years for sex debut for males in SONY Sugar and Mumias Sugar was lower than that of females (15.5 vs 17.6 in SONY and 16.7 vs 18.6 in Mumias). Majority of the study participants in SONY (45%) and Mumias (50%) aged less than 24 years had the first sex debut at age 15-18 years. Detailed description of sex debut by background characteristics is shown in table 14.

Table 14: Age at first sex in SONY and Mumias Sugar Companies, 2010

	SONY				MUMIAS			
	Age at first Sex				Age at first Sex			
	< 15	15 - 18	19 - 24	Total	< 15	15 - 18	19 - 24	Total
	Percent	Percent	Percent	No.	Percent	Percent	Percent	No.
Age Group								
15 - 24	41.3	45.0	13.8	80	34.6	50.0	15.4	26
Sex								
Male	42.1	44.7	13.2	80	34.8	52.2	13.0	26
Female	25.0	50.0	25.0	76	33.3	33.3	33.3	23
Religion								
Muslim	50.0	.0	50.0	4	66.7	33.3	.0	3
Catholic	30.4	56.5	13.0	2	28.6	57.1	14.3	3
Protestant	46.5	44.2	9.3	23	26.7	53.3	20.0	7
No Religion	.0	.0	.0	43	.0	.0	.0	15
Other	40.0	30.0	30.0	0	100.0	.0	.0	0
Not Stated	50.0	50.0	.0	10	.0	.0	.0	1
Education Level								
None	50.0	50.0	.0	2	57.1	28.6	14.3	0
Primary Incomplete	43.8	25.0	31.3	8	41.7	50.0	8.3	7
Primary Complete	39.4	54.5	6.1	16	.0	83.3	16.7	12
Secondary +	39.1	43.5	17.4	33	.0	.0	100.0	6

Marital Status								
Married	40.9	47.7	11.4	23	33.3	57.1	9.5	1
Single	40.0	42.9	17.1	44	40.0	20.0	40.0	21
Divorced/ Separated	.0	.0	.0	35	.0	.0	.0	5
Widowed/ Widower	.0	.0	.0	0	.0	.0	.0	0
Other	.0	.0	.0	0	.0	.0	.0	0
Not Stated	100.0	.0	.0	0	.0	.0	.0	0
Job Category								
Permanent	.0	100.0	.0	1	.0	.0	.0	0
Temporary	43.8	43.8	12.3	2	34.6	50.0	15.4	0
Contractual	20.0	40.0	40.0	73	.0	.0	.0	26
Occupation								
Clerical Officer	.0	100.0	.0	5	.0	.0	100.0	0
Manager	.0	100.0	.0	2	.0	.0	.0	1
Cane Cutter	46.0	42.9	11.1	0	33.3	57.1	9.5	0
Other	14.3	42.9	42.9	0	50.0	.0	50.0	0
Artisan	.0	.0	.0	7	.0	.0	.0	2
Support Staff	25.0	50.0	25.0	0	.0	.0	.0	0
Total	**41.3**	**45.0**	**13.8**	**80**	**34.6**	**50.0**	**15.4**	**26**

3.5. Mobility and HIV vulnerability

Mobility of the plantation workers was assessed considering movement of people to the plantation sector in search of employment. Results of mobility in SONY and Mumias Sugar companies are presented against background characteristics

Mumias Sugar Company

As shown below, 61.3% of the participants had resided in the current locations since birth while 32.9% had moved into the current locations and lived for over 5 years. Majority of those who were divorced/separated or were either widows or widowers had moved into the current locations and lived for over 5 years.

Table 15: Residence of plantation workers, Mumias Sugar company, 2010

		Duration of stay in current residence			
		Resident from birth	< 1 year	1-5 years	> 5 years
		Percent	Percent	Percent	Percent
Age Group	< 15	.0	.0	.0	.0
	15 - 24	72.0	.0	4.0	24.0
	25 - 34	64.9	5.9	2.1	27.1
	35 - 44	56.2	2.3	3.8	37.7

	45 - 54	50.0	1.1	1.1	47.8
	54+	85.7	.0	14.3	.0
Sex	Male	61.8	3.2	2.9	32.1
	Female	37.5	6.3	.0	56.3
Religion	Muslim	48.8	.0	2.3	48.8
	Catholic	59.3	4.3	3.6	32.9
	Protestant	63.3	3.3	2.8	30.7
	No Religion	75.0	.0	.0	25.0
	Other	47.6	4.8	.0	47.6
	Not Stated	55.6	11.1	.0	33.3
Education Level	None	64.1	1.6	1.6	32.8
	Primary Incomplete	69.5	1.9	2.6	26.0
	Primary Complete	67.0	.9	2.8	29.4
	Secondary +	38.1	8.8	3.5	49.6
Marital Status	Married	61.0	2.9	2.9	33.2
	Single	42.9	14.3	.0	42.9
	Divorced/Separated	33.3	.0	.0	66.7
	Widowed/Widower	33.3	.0	.0	66.7
	Not Stated	57.1	14.3	.0	28.6
Marital Status	Married	61.0	2.9	2.9	33.2
	Single	42.9	14.3	.0	42.9
	Divorced/Separated	33.3	.0	.0	66.7
	Widowed/Widower	33.3	.0	.0	66.7
	Not Stated	57.1	14.3	.0	28.6
Job Category	Permanent	22.0	.0	.0	78.0
	Temporary	67.1	3.3	3.0	26.6
	Contractual	27.3	13.6	4.5	54.5
Occupation	Clerical Officer	37.5	.0	.0	62.5
	Manager	53.3	.0	.0	46.7
	Cane Cutter	69.6	2.4	3.3	24.8
	Weeder	.0	.0	.0	.0
	Field Supervisor	20.0	.0	.0	80.0
	Other	16.1	12.9	.0	71.0
	Support Staff	14.3	.0	7.1	78.6
	Total	61.3	2.9	2.9	32.9

In Mumias Sugar Company, 23.3% of the respondents had travelled and slept away from home within the previous 3 months. Twenty-three percent of these had sex while away; 38.5% of reported not using a condom during the sexual encounters.

SONY Sugar Company

As shown in table 16, 50.7% of the study participants were born in the area of residence while 38.1% had moved in from elsewhere but lived there for over 5 years.

Table 16: Residence of plantation workers, SONY Sugar Company, 2010

		Duration of stay in current residence			
		Resident from birth	< 1 year	1-5 years	> 5 years
		Percent	Percent	Percent	Percent
Age Group	< 15	.0	.0	.0	.0
	15 - 24	58.6	9.2	9.2	23.0
	25 - 34	51.8	5.5	4.3	38.4
	35 - 44	44.6	5.4	2.7	47.3
	45 - 54	33.3	.0	2.4	64.3
	54+	46.2	.0	7.7	46.2
Sex	Male	51.8	5.6	5.6	37.1
	Female	31.6	5.3	.0	63.2
Religion	Muslim	40.0	10.0	.0	50.0
	Catholic	40.5	9.5	5.2	44.8
	Protestant	54.7	3.3	5.7	36.3
	No Religion	75.0	.0	.0	25.0
	Other	46.4	7.1	3.6	42.9
	Not Stated	60.0	.0	.0	40.0
Education Level	None	72.0	4.0	4.0	20.0
	Primary Incomplete	49.4	6.2	12.3	32.1
	Primary Complete	59.5	5.6	4.8	30.2
	Secondary +	37.8	5.4	1.4	55.4
Marital Status	Married	51.0	4.8	4.1	40.1
	Single	48.1	11.1	9.3	31.5
	Divorced/Separated	50.0	.0	.0	50.0
	Widowed/Widower	.0	.0	.0	100.0
	Not Stated	28.6	.0	14.3	57.1
Marital Status	Married	51.0	4.8	4.1	40.1
	Single	48.1	11.1	9.3	31.5
	Divorced/Separated	50.0	.0	.0	50.0
	Widowed/Widower	.0	.0	.0	100.0
	Not Stated	28.6	.0	14.3	57.1
Job	Permanent	24.0	2.0	.0	74.0

Category	Temporary	55.3	6.1	6.1	32.4
	Contractual	40.5	5.4	2.7	51.4
Occupation	Clerical Officer	39.1	8.7	.0	52.2
	Manager	18.2	9.1	.0	72.7
	Cane Cutter	59.7	6.2	7.0	27.2
	Weeder	12.5	.0	.0	87.5
	Field Supervisor	42.9	.0	.0	57.1
	Other	35.9	2.6	5.1	56.4
	Support Staff	26.9	7.7	.0	65.4
	Total	50.7	5.9	5.3	38.1

Twenty-two percent of the study participants in SONY Sugar Company reported having travelled and slept away from home during the previous 3 months. Among these, 17% indicated that they had had sex during the travel while only 33.3% of those who had had sex reported using a condom.

3.6. HIV testing: Coverage and willingness to disclose

SONY Sugar Company

In SONY, 67.2% reported that they had ever been tested where 78.5% received their results. Respectively, 82.4%, 49.2%, 33.4% and 41.7% reported willingness to disclose their HIV status to partners, family, friends and the community. Similarly, 67.8% reported that they would be willing to disclose the status of a HIV positive member of the family as shown in table 17.

Table 17: HIV testing coverage and willingness to disclose, SONY, 2010

	Ever been tested for HIV	Received result of test	Willingness to disclose HIV status if it is positive to your partner	Willingness to disclose HIV status to family	Willingness to disclose HIV status to friends	Willingness to disclose HIV status to community	Willingness to disclose if member of your house HIV positive
Age Group							
15 - 24	71.1	78.1	78.8	47.7	38.4	38.8	74.4
25 - 34	66.5	82.1	81.5	50.3	32.2	42.0	67.1
35 - 44	67.1	77.4	83.8	47.3	27.8	38.9	60.8
45 - 54	65.1	71.4	90.2	54.8	41.5	52.5	69.0
54+	57.1	62.5	84.6	38.5	23.1	38.5	69.2
Sex							
Male	66.9	76.9	83.9	49.0	34.3	40.9	69.0
Female	69.6	90.6	69.2	51.2	26.2	47.6	58.1
Religion							
Muslim	81.8	66.7	90.9	54.5	18.2	27.3	63.6
Catholic	68.3	82.1	85.5	41.0	33.3	44.4	64.1
Protestant	64.6	77.1	80.1	49.8	30.5	39.6	67.3
No Religion	75.0	66.7	100.0	25.0	50.0	50.0	100.0
Other	73.3	81.8	79.3	75.9	41.4	44.8	82.8
Not Stated	72.7	75.0	88.9	60.0	88.9	54.5	70.0
Education Level							
None	76.9	45.0	86.4	68.2	52.2	34.8	82.6
Primary Incomplete	49.4	70.7	73.1	38.0	26.6	36.7	74.7
Primary Complete	64.4	81.2	87.8	51.5	34.6	41.4	69.2
Secondary +	77.0	84.7	82.0	50.3	33.1	45.6	60.8

Marital Status							
Married	66.0	77.2	84.4	49.8	31.6	41.3	68.7
Single	69.1	84.2	73.6	47.3	41.8	41.8	64.8
Divorced/ Separated	100.0	100.0	66.7	33.3	.0	33.3	66.7
Widowed/ Widower	75.0	100.0	25.0	50.0	50.0	50.0	50.0
Not Stated	87.5	71.4	100.0	42.9	50.0	57.1	62.5
Job Category							
Permanent	76.4	83.3	85.7	63.3	46.9	53.1	50.0
Temporary	65.7	78.1	82.3	46.3	32.4	39.0	72.6
Contractual	65.9	74.1	78.9	53.8	23.7	47.4	53.8
Occupation							
Clerical Officer	87.5	90.5	69.6	54.2	25.0	37.5	37.5
Manager	75.0	100.0	90.9	72.7	45.5	45.5	45.5
Cane Cutter	65.7	75.8	84.7	48.8	32.9	39.5	74.0
Weeder	50.0	100.0	77.8	44.4	33.3	44.4	55.6
Field Supervisor	66.7	33.3	66.7	33.3	33.3	33.3	66.7
Other	78.3	72.2	72.1	51.2	25.6	47.6	72.7
Support Staff	65.4	94.1	84.0	38.5	42.3	50.0	53.8
Total	**67.2**	**78.5**	**82.4**	**49.2**	**33.4**	**41.7**	**67.8**

Mumias Sugar Company

In Mumias, 62.6% reported they ever been tested where 91.8% received their results. A substantial proportion (72.2%) reported they were willing to disclose their status to their partners while 50.3%, 39.1%, 52.2% and 64.6% reported willingness to disclose their HIV status to family, friends, community and the status of a HIV positive member of the family respectively. These findings are illustrated in table 18 against background characteristics.

Table 18: HIV testing coverage and willingness to disclose, Mumias, 2010

	Ever been tested for HIV	Received result of test	Willingness to disclose HIV status if it is positive to your partner	Willingness to disclose HIV status to family	Willingness to disclose HIV status to friends	Willingness to disclose HIV status to community	Willingness to disclose if member of your house HIV positive
Age groups							
15 - 24	65.4	94.1	69.2	19.2	19.2	47.8	72.0
25 - 34	59.5	94.1	69.1	52.9	36.6	49.5	57.4
35 - 44	67.1	88.3	77.8	51.5	41.6	57.1	66.2
45 - 54	60.2	92.9	71.1	51.6	45.7	52.8	71.7
54+	77.8	85.7	75.0	55.6	44.4	44.4	100.0
Male	63.2	91.1	72.2	50.7	39.7	51.9	65.1
Female	56.4	100.0	72.2	45.9	32.4	55.9	58.3
Muslim	66.7	87.5	76.6	35.4	27.1	54.2	60.4
Catholic	62.8	92.5	68.1	56.6	44.5	51.7	64.8
Protestant	61.3	93.5	73.1	49.3	38.5	53.1	66.8
No Religion	61.5	100.0	53.8	46.2	33.3	33.3	69.2
Other	77.3	76.5	86.4	54.5	40.9	60.0	59.1
Not Stated	41.7	100.0	81.8	50.0	33.3	41.7	41.7
None	58.2	92.3	60.6	45.5	35.8	40.6	64.6
Primary Incomplete	61.7	90.0	71.4	45.8	34.2	54.3	68.2
Primary Complete	63.0	92.0	79.1	58.5	47.5	58.1	64.7
Secondary +	65.8	93.7	72.9	50.9	39.0	50.0	59.7
Total	62.6	91.8	72.2	50.3	39.1	52.2	64.6
Married	62.5	91.6	71.1	50.0	40.0	52.6	64.7
Single	80.0	91.7	80.0	46.7	20.0	50.0	57.1
Divorced/Separated	25.0	100.0	75.0	50.0	25.0	25.0	100.0
Widowed/Widower	66.7	100.0	100.0	100.0	66.7	100.0	100.0
Not Stated	55.6	100.0	100.0	55.6	22.2	33.3	44.4
Permanent	63.6	100.0	81.1	42.6	46.3	53.8	59.3
Temporary	62.4	90.2	71.0	50.3	37.6	51.5	65.7
Contractual	63.6	100.0	71.4	73.7	47.6	61.9	57.1

Clerical Officer	66.7	100.0	66.7	50.0	44.4	50.0	44.4
Manager	56.3	100.0	68.8	37.5	37.5	50.0	56.3
Cane Cutter	63.0	89.7	71.6	50.7	38.4	52.5	67.0
Field Supervisor	100	100.0	83.3	66.7	50.0	33.3	50.0
Other	65.6	100.0	79.3	57.1	43.3	48.3	63.3
Support Staff	78.6	90.9	78.6	50.0	42.9	76.9	42.9
Total	**62.6**	**91.8**	**72.2**	**50.3**	**39.1**	**52.2**	**64.6**

3.7. HIV prevalence in the plantation sector

This section provides information on the level of HIV infection among the Plantation community living along the Lake Victoria basin. The prevalence of HIV infection varied across the two sugar companies in the plantation sector; SONY sugar 15.4% (95% CI, 12.0-19.0) and Mumias Sugar Company 2.8% (95% CI, 1.3-4.4). However there was no difference in the overall HIV prevalence by gender in the two plantations as shown in table 19.

3.7.1. HIV Prevalence by Socio-demographic characteristics

HIV prevalence is presented by the various socio-demographic characteristics like age, sex, marital status, education, religion and occupation.
Table 19 below summarizes the HIV prevalence in SONY and Mumias Sugar Companies.

Table 19: HIV prevalence among the study population in the plantation sectors, 2010

Socio-demographic characteristic	SONY		MUMIAS	
	Prevalence	95% CI	Prevalence	95% CI
Overall	15.4	12.0-19.0	2.8	1.3-4.4
Age Group				
15 – 24	3.5	0.0 - 7.4	.0	.
25 – 34	18.7	12.8 - 24.9	3.0	0.6 - 5.4
35 – 44	18.2	9.5 - 26.9	2.2	0.0 - 4.7
45 – 54	21.4	8.8 -34.0	4.5	0.2 - 8.8
54+	14.3	0.0 - 33.3	.0	
Sex				
Male	15.4	11.5 - 19.2	2.9	1.3 - 4.5

Female	15.6	4.8 - 26.3	2.7	0.0 - 8.0
Religion				
Muslim	9.1	0.0 - 26.9	2.1	0.0 - 6.3
Catholic	18.5	11.5 - 25.5	2.8	0.1 - 5.4
Protestant	13.9	9.3 - 18.5	2.7	0.1 - 4.9
No Religion	.0	.	8.3	0.0 - 24.7
Other	16.7	3.1 - 30.3	4.5	0.0 - 13.4
Not Stated	20.0	0.0 - 46.2	.0	
Education Level				
None	.0	.	7.6	1.1 - 14.0
Primary	16.3	8.1 - 24.4	2.5	0.0 - 5.0
Incomplete Primary	12.5	6.7 - 18.3	.0	.
Complete Secondary +	19.9	13.6 - 26.2	3.4	0.1 - 6.7
Marital Status				
Married	16.2	12.1 - 20.2	3.0	1.4 - 4.7
Single	9.3	1.4 - 17.1	.0	.
Divorced/Separated	.0	.	.0	.
Widowed/Widower	50.0	0.0 - 100.0	.0	.
Not Stated	12.5	0.0 - 37.1	.0	
Job Category				
Permanent	27.5	15.0 - 39.9	3.8	0.0 - 9.1
Temporary	13.0	9.2 - 16.9	2.9	1.2 - 4.6
Contractual	17.5	5.5 - 29.5	.0	.
Occupation				
Clerical Officer	18.2	1.6 - 34.7	11.8	0.0 - 27.6
Manager	10.0	0.0 - 29.7	.0	.
Cane Cutter	10.6	6.7 - 14.5	2.9	1.1 - 4.6
Weeder	10.0	0.0 - 29.7	.0	.
Field Supervisor	33.3	0.6 - 66.1	20.0	0.0 - 59.3
Other	15.2	4.7 - 25.7	.0	,
Support Staff	42.3	22.9 - 61.7	.0	,
Years lived in the current Residence				
Born here	11.8	7.2 - 16.6	2.7	0.7 - 4.7
< 1	10	0.0 - 23.5	0	0
1 – 5	5.9	0.0 - 17.4	8.3	0.0 - 24.7
5+	21.9	15.2 - 28.7	2.8	0.0 - 5.4

In the plantation sector, the prevalence varied across the age groups in the two plantations. In SONY Sugar Company HIV prevalence was 21.4% in the age-group 45-54 years, while in SONY the same age category had a prevalence of 4.5% as shown in table 19. In SONY Sugar Company**,** HIV prevalence among those who moved to the region more than 5 years ago was 21.9% while in Mumias Sugar Company the prevalence was 2.8%. In SONY high prevalence was noted among this category as compared to those who were born in the region. HIV prevalence among those migrated to SONY was generally higher than that of the residents of SONY (21.9% vs 11.8%) while in Mumias, HIV prevalence was similar among the residents and those who had migrated to Mumias more than 5 years ago (2.8% vs 2.7%) as shown in table 19.

In both plantations those who were married had a significantly higher prevalence as compared to the other categories, however in SONY Sugar Company a prevalence of 50% was noted among the widowed/widower, which could be explained by the low number of study respondents within this category. On religious affiliation, high HIV prevalence was noted among the Catholics in both SONY (18.5%) Sugar Company and Mumias Sugar Company (2.8%) as demonstrated in table 19.

HIV prevalence among the permanently employed workers was 27.5% in SONY Sugar Company and 3.8% in Mumias. Regarding individual job categories, HIV prevalence among the support staff was 1-4 times higher than the other categories in SONY sugar Company while in Mumias Sugar Company the prevalence among the field supervisor was 1-9 times higher than the other categories.

There were variations in the HIV prevalence among the different age groups in the two plantations when disaggregated by sex. In SONY Sugar Company, HIV prevalence among females aged 15-24 years was about 7 times higher than males of the same age, whereas, prevalence among males aged 35-44 years was about 2 times higher than females of the same age group as shown in table 20. In Mumias Sugar Company where HIV prevalence among females aged 35-44 years was about 8 times higher than males of the same age group (table 20).

Table 20: HIV prevalence by age and sex in SONY and Mumias Sugar plantation, 2010

	Prevalence (95% CI							
	SONY				Mumias			
	Male		Female		Male		Female	
Age group	n	%	n	%	n	%	n	%
15-24	84	2.5 (0-6.0)	6	16.7 (0-50.3)	23	-	3	-
25-34	154	18.1 (11.9-24.4)	22	22.7 (4.3-41.2)	182	3.3 (0.6-6.0)	18	-
35-44	68	23.7 (1.0-37.4)	11	10.0 (0-30.2)	130	1.6 (0-3.8)	10	12.5 (0-37.9)
45-54	39	23.7 (10.0-37.4)	4	-	86	4.8 (0.0-9.6)	7	-
55+	11	18.2 (-5.8-42.1)	3	-	8	-	1	-

3.7.2. HIV prevalence by Behavioural and other characteristics

Table 21 below presents HIV prevalence by sexual behaviour indicators among study respondents in Sony and Mumias Sugar Company. There was no difference in HIV prevalence between polygamous and non-polygamous relationship in Sony Sugar Company (16.7% vs 17%), however significant variation was noted in Mumias where those who were polygamous had a higher risk of HIV infection than non polygamous (6.1% vs 2, 1%). For those respondents who had multiple sexual partners the prevalence was 15.1% in Sony Sugar Company and 3.8% in Mumias Sugar Company. In Sony Sugar Company those respondents who reported having one wife/partner had a greater risk of HIV infection (18.6%) while in Mumias Sugar Company HIV prevalence increased with the number of wives/ partner increases as shown in table 21. However, none of respondents with these sexual behaviors tested positive for HIV infection in Mumias Sugar Company. The results show that there is a strong relationship between HIV prevalence and circumcision status, with HIV prevalence was more than 1 times higher among uncircumcised men than among circumcised men (Sony Sugar Company 16.8% vs 12.5% and Mumias Sugar Company 3.2 vs none). Prevalence among study respondent who used condom when engaging in sexual intercourse (23.6%) was significantly higher than among those who never used condoms (5.1%) in Sony Sugar Company however in Mumias sugar company high prevalence (5.1%) was noted among those respondents who never used condom during sexual intercourse (table 21).

Table 21: HIV prevalence in SONY and Mumias by behavioural and other characteristics, 2010

		Sony			Mumias		
Behaviour		**N**	**Prevalence**	**Total n**	**n**	**Prevalence**	**Total n**
Currently living together with someone as if married	Yes	50	16.2	309	13	3.3	391
	No	8	13.6	59	0	0	36
Living with wife/husband	Living together	46	16.7	275	11	2.8	394
	Staying elsewhere	1	4.5	22	2	6.3	32
Polygamous	Yes	5	16.7	30	5	6.1	82
	No	45	17	265	8	2.4	334
Wife inherited	Yes	0	0	7	2	14.3	14
	No	50	17.5	286	8	2	391
Multiple sexual partners	Yes	14	15.1	93	4	3.8	105
	No	41	15.4	267	9	2.8	321
Condom use when engaging in sexual intercourse	Yes	13	23.6	55	2	3.9	51
	No	2	5.1	39	3	5.1	59
Condom use with regular partner	Yes	6	31.6	19	2	14.3	14
	No	11	19	58	4	3.5	113

How often do you use a condom with a regular partner	Always	5	29.4	17	1	11.1	9
	Rarely	2	15.4	13	1	14.3	7
	Never	4	33.3	12	1	3.3	30
Unusual/smelly genital discharge	Yes	4	30.8	13	2	8.3	24
	No	17	14.9	114	4	3.1	131
Genital Ulcer Disease	Yes	1	25	4	2	18.2	11
	No	16	15.5	103	4	2.8	142
Male circumcision	Yes	17	12.5	136	12	3.2	370
	No	32	16.8	190	0	0	36
Travel and sleeping away from Home in the last three Months	Yes	13	15.5	84	3	2.8	107
	No	47	15.4	306	10	2.9	350
Had sex while away in the last three months	Yes	1	7.1	14	3	12	25
	No	13	18.6	70	0	0	88
Used Condoms when having sex while away in the last three months	Yes	0	0	4	1	10	10
	No	1	11.1	9	2	13.3	15
Pay for the services of a commercial sex worker	Yes	3	9.4	32	3	6.4	47
	No	53	16.4	324	9	2.4	376
Have you ever been given a gift for sex by a non regular partner?	Yes	2	13.3	15	0	0	26
	No	51	15.3	333	13	3.3	395
Drink alcohol	Yes	15	16.5	91	3	2	147
	No	42	15.1	278	10	3.3	299
How often do you engage in sex with a non regular partner after drinking alcohol?	Always	0	0	0	0	0	0
	Rarely	0	0	0	0	0	0
	Never	0	0	0	0	0	0
Use drugs like bhang or cocaine?	Yes	2	7.4	27	0	0	9
	No	52	16.3	320	11	2.8	397
Engaged in sex after taking drugs	Yes	0	0	0	0	0	0
	No	0	0	0	0	0	0

Have you ever been forced to have sex against your will?	Yes	0	0	17	0	0	25
	No	57	16.1	355	13	3.2	404
Age at first Sex	< 15	16	13.3	120	4	3.5	114
	15 - 18	28	16.4	171	8	3.9	207
	19 - 24	9	15.8	57	0	0	96
No of wives/partner	1 wife	44	18.6	236	8	2.5	316
	2 - 3 wives	4	17.4	23	2	4.3	47
	> 3 wives	0	0	0	1	50	2

3.8. Demographic and Behavioural Risk factors

3.8.1. Demographic Risk factors

In this sub-section socio-demographic factors that are associated with HIV in the plantation sector along the Lake Victoria basin are presented. The section provides results of bivariate analyses for socio-demographic factors associated with HIV infection among the study respondents in the two plantations surveyed.

Regarding demographic factors that were assessed, education level was not no statistical associated with HIV in both SONY Sugar Company (0.6, 95% CI 0.3-1.0, p value 0.045) and Mumias ((POR 0.8, 95% CI 0.2-2.6, p value 0.679). In SONY Sugar Company, males (POR 7.13, 95% CI 1.02 – 142, p value 0.02) were more likely to be HIV positive as compared to the female while in Mumias Sugar Company sex was not associated with HIV infection (POR 3.80, 95% CI 0.54 – 76.4, p value 0.16).We noted that being an auxiliary staff was a risk factor (POR 7.6, 95% CI 1.3 – 50.7, p value 0.007) in SONY Sugar Company while in Mumias Sugar Company the no job category was associated with HIV infection. No other significant association was noted as regards to other socio demographic characteristics (Table 22).

Table 22. Demographic characteristics associated with HIV infection in SONY and Mumias Sugar Company, 2010

Sector		**HIV Status**			
		HIV+, n (%)	**HIV-, n (%)**	**POR (95%CI)**	**p-value**
SONY	**Sex**				
	Male	55(15)	301(85)	7.13(1.02-142)	0.02
	Female	7(16)	39 (84)	Ref	
Mumias					
	Male	39(3)	390(97)	3.80 (0.54-76.4)	0.16
	Female	1(3)	38(97)	Ref	
SONY					
	Level of Education				
	Low education level*	Ref	Ref	Ref	

	High Education Level*	31 (51.7)	125 (37.9)	0.6 (0.3-1.00)	0.045
Mumias					
	Low education level*	9 (69.2)	330 (74.3)	Ref	
	High Education Level*	4 (30.8)	114 (25.7)	0.8 (0.2-2.6)	0.679
	Occupation				
SONY	Clerical Officer	3 (15.8)	16 (84.2)	Ref.	
	Manager	1 (10.0)	9 (10.0)	1.7 (0.1 - 49.1)	1
	Farmer	0	2 (100.0)	-	-
	Cane Cutter	26 (10.6)	219 (89.4)	1.6 (0.3-6.3)	0.448
	Weeder	1 (10.0)	9 (90.0)	1.7 (0.1 - 49.1)	1
	Driver	0	5 (100.0)	-	-
	Auxiliary Staff	10 (58.8)	7 (41.2)	7.6 (1.3 – 50.7)	0.007
	Field Supervisor	3 (33.3)	6 (66.7)	0.4 (0.0 - 3.3)	0.352
	Other	7 (15.9)	37 (84.1)	1.0 (0.2 - 5.1)	0.375
	Artisan	2 (28.6)	5 (71.4)	0.5 (0.0 - 5.6)	0.588
Mumias	Clerical Officer	2 (11.8)	15 (88.2)	Ref.	
	Manager	0	16 (100.0)	-	-
	Farmer	0	0	-	-
	Cane Cutter	10 (2.8)	337 (97.1)	5.5 (0.6 - 29.1)	0.102
	Weeder	0	1 (100.0)	-	-
	Driver	0	5 (100.0)	-	-
	Auxiliary Staff	0	7 (100.0)	-	-
	Field Supervisor	1 (20.0)	4 (80.0)	0.5 (0.0 - 19.4)	1
	Other	0	31 (100.0)	-	-
	Artisan	0	1 (100.0)	-	-
SONY	**Marital Status**				
	Single	5 (9.3)	49 (90.7)	ref	
	Married	52 (16.2)	269 (83.8)	0.5 (0.2-1.5)	0.267
	Separated/Divorced	0	3 (100.0)	-	
	Widowed/wer	2 (50.0)	2 (50.0)	0.1 (0.0-1.3)	0.105
Mumias	**Marital Status**		**HIV Status**		
	Single	0	15 (100.0)	ref	
	Married	13 (3.0)	414 (97.0)	-	
	Separated/Divorced	0	4 (100.0)	-	
	Widowed/wer	0	2 (100.0)	-	

* Lower Education mean Primary education and below

*High Education means Secondary education and above

3.8.2. Socio-cultural and behavioural drivers of risks and vulnerabilities to HIV infection

In the plantation sector there were various factors that the community identified as possible drivers to the spread of HIV. Some of the underlying factors include the alcohol use, poverty, negative socio-cultural practices, poor living conditions, negative perceptions and ignorance. This was aggravated by the presence of money earned from the plantation sector.

Alcohol and other drugs use among the temporary workforce, which resulted to impaired judgement and subsequent engagement in casual sexual encounters. Also, abundance of money earned from the SONY and Mumias plantation and its industries which have attracted persons seeking employment and also commercial sex workers who seek to capitalize on this economic boom. This situation is worsened by rampant poverty especially among the economically disadvantaged members of the community such as women and adolescent girls which results to promiscuity and exchange of favours/financial gains for sex. Sexual exploitation of these vulnerable groups has yielded to thriving commercial sexual activities. Various persons have migrated from Tanzania to Awendo and Uganda to Mumias to exploit the available resources in this sector.

There are negative social and cultural practices that have facilitated HIV transmission. Such practices include; widow inheritance, funeral rites known as 'matanga' discos and other traditional rites like 'kutoa mbegu' which is done during planting season in SONY Sugar. Feasting and merry making during these ceremonies was also reported to create an environment for people to meet, mingle and engage in illicit sexual relations. Although wife inheritance was reported to be a common practice among the plantations (84% in SONY and 80% in Mumias), only a small proportion of the study participants had their wives inherited (2.3% in SONY and 3.4% in Mumias). Some women reported that the widows take part in the rite of wife inheritance due to fear of the consequences. The uncleansed woman is isolated and forbidden from taking part in communal activities. This is called "makhola" the women participants said, and it literally means you are an outcast.

Focus group discussion also revealed that traditional male circumcision was done using unsterilized equipment and the circumciser uses one knife for several boys as evidenced below:

> " *kama hapa alitahiri kama watoto wanne safari moja; juzi tu….. imefanyika hapa. Anatoka kwa huyu anaenda kwa mwingine na hiyo kisu moja tu"*

Negative societal perceptions promoted wrong behaviours e.g. that commercial sex is a quick way of earning lucrative income rather than doing manual work.
"Times are hard; getting even five shilling is a problem. If you see the portion of shamba that the supervisors show you that you have to weed [pointing far to show the large portion] for 50 shillings, I would rather sleep with a rich man and earn 200 shillings and live my life. Even if I die, I will die a slow death but I will have a full stomach".

Moreover, the presence of ARVs is posing a threat to prevention of HIV transmission since some members of the plantation sector believe that ARVs give a guarantee of protection from HIV. Poor living conditions of the plantation workers have favoured HIV transmission since this pressure promotes peer pressure and promiscuity. Often they live in crowded and shared rooms. Moreover, cane cutters and weeders are migrant workers who often leave their spouses to work in the plantation and thus may engage in casual sex.

Ignorance on HIV transmission and the methods of prevention compounded with misconceptions have fuelled HIV transmission. Lack of adequate knowledge on HIV transmission and on use of condoms impacted negatively to the process of reducing the burden of HIV. Condom use during sexual intercourse in Mumias was low (44.3%) although 91% reported that they would be able to access condoms whenever they needed them. On the

other hand in SONY an even higher proportion of the participants used condoms (59.2%) when engaging in sexual intercourse, similarly access to condoms was equally high (93.9%). Focus group discussions revealed poor knowledge, inappropriate attitude and lack of confidence in the condoms being made available to the plantation workers as is evidenced by the following comments:

"I can say that, condom is just man-made, they are just telling us that it is 100% but it can't be 100%. You can find that it only protects in 25% the remaining 75% it does not."

"Tena wale ambao wanatumia mpira ni wale washarati"

"hata wasichana wa kwetu hawa, hawataki condom. Yani wanasema eti haumwamini"

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

Based on the quantitative survey, 93.2% of the participants reported that facilities which offered HIV related services were available (table 23) while 73.3% reported that these facilities were accessible. Only 40.4% of the respondents had used the services within the previous 12 months. The quality of services were reported as good or excellent by 94.3% while 98.2% indicated that the services were either affordable or free.

Table 23: Service availability in Mumias, 2010

		Proportion reporting that facilities that provide HIV related services are available	Proportion reporting that facilities that provide HIV&AIDS services are accessible.	Proportion reporting having used HIV& AIDS services in the last 12 months	Quality of service offered			Affordability of services		
					Good	Fair	Poor	Free	Affordable	Not affordable
		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Age Group	< 15	.0	.0	.0	.0	.0	.0	.0	.0	.0
	15 - 24	92.3	69.6	30.8	50.0	37.5	12.5	66.7	33.3	.0
	25 - 34	92.5	72.2	39.5	59.5	39.2	1.4	63.0	37.0	.0
	35 - 44	94.3	73.5	43.6	64.3	35.7	.0	74.5	23.6	1.8
	45 - 54	93.5	76.2	36.6	65.5	31.0	3.4	75.0	21.9	3.1
	54+	88.9	75.0	77.8	42.9	42.9	14.3	71.4	28.6	.0
Sex	Male	93.5	74.2	40.6	62.5	35.0	2.5	67.1	31.6	1.3
	Female	89.7	62.9	38.5	42.9	57.1	.0	93.3	6.7	.0
Religion	Muslim	93.8	89.1	45.8	80.0	10.0	10.0	60.0	40.0	.0
	Catholic	91.9	69.1	39.2	60.7	39.3	.0	74.5	23.6	1.8
	Protestant	92.9	71.3	38.7	56.8	40.7	2.5	70.0	28.8	1.3
	No Religion	100.0	75.0	46.2	66.7	33.3	.0	66.7	33.3	.0
	Other	95.5	81.0	45.5	50.0	50.0	.0	50.0	50.0	.0
	Not Stated	100.0	75.0	50.0	66.7	33.3	.0	75.0	25.0	.0
Education	None	92.5	75.4	44.8	68.0	28.0	4.0	59.3	37.0	3.7

Level	Primary Incomplete	92.6	66.0	40.1	62.3	36.1	1.6	69.0	31.0	.0
	Primary Complete	93.3	80.6	41.2	55.3	40.4	4.3	64.4	33.3	2.2
	Secondary +	94.2	74.8	37.5	61.0	39.0	.0	81.4	18.6	.0
Marital Status	Married	92.7	73.7	39.4	62.9	34.6	2.5	69.8	28.9	1.3
	Single	100.0	60.0	46.7	42.9	57.1	.0	71.4	28.6	.0
	Divorced/Separated	100.0	50.0	25.0	.0	100.0	.0	.0	.0	.0
	Widowed/Widower	100.0	100.0	66.7	.0	100.0	.0	100.0	.0	.0
	Other	.0	.0	.0	.0	.0	.0	.0	.0	.0
	Not Stated	100.0	77.8	77.8	60.0	40.0	.0	40.0	60.0	.0
Job Category	Permanent	96.4	84.6	38.2	50.0	50.0	.0	90.5	9.5	.0
	Temporary	92.6	70.9	40.2	62.2	35.0	2.8	67.4	31.2	1.4
	Contractual	95.5	85.0	50.0	63.6	36.4	.0	54.5	45.5	.0
		100.0	88.9	50.0	33.3	66.7	.0	88.9	11.1	.0
Occupation	Clerical Officer	87.5	60.0	37.5	80.0	20.0	.0	50.0	50.0	.0
	Manager	92.1	71.3	40.4	64.1	32.8	3.1	67.4	31.0	1.6
	Cane Cutter	100.0	100.0	.0	.0	.0	.0	.0	.0	.0
	Field Supervisor	100.0	100.0	50.0	66.7	33.3	.0	100.0	.0	.0
	Other	93.8	82.1	25.0	37.5	62.5	.0	62.5	37.5	.0
	Support Staff	100.0	85.7	50.0	57.1	42.9	.0	100.0	.0	.0
	Total	93.2	73.3	40.4	61.3	36.2	2.5	69.4	29.5	1.2

As shown in the table 24 below, government run health facilities provided services to 84.2% of the respondents and private health facilities provided services to 28.2%. The main services offered as reported by 88.5% of the respondents were VCT services.

Table 24: Providers, category and utilization of HIV & AIDS related services in Mumias Sugar Company

Characteristic	N=468	
	%	n
Provider of HIV-related services		
• Health facility (GoK)	84.2	367
• Health facility (Private)	28.2	123
• Health facility (church based	18.1	79
• Mobile clinics	17.7	77
• NGO	13.3	58
HIV-related services offered		
• VCT	88.5	386
• PMTCT	31.0	135
• PITC	18.3	80
• ART/CARE	22.5	98
• HBC	8.0	35
• Other	0.7	3
Type of HIV-related service used during the previous 12 months		
• VCT	33.3	156
• PMTCT	9.5	18
• PICT	2.6	5
• ART/CARE	3.2	6
• HBC	2.1	4
• Health Education	1.6	3
• Other	10.6	20

The KII and FGDs confirmed that HIV & AIDS related services are provided mainly by the Ministries of Health (MOH), Faith based organizations (FBO), Private facilities and Community based organizations (CBOs) within the sugar zone. St Mary's hospital an FBO was also reported as a major HIV& AIDS related services provider.

Condom use

Condoms were available to 13% of the respondents in Mumias Sugar Company. Most of the participants get the condoms from Government of Kenya health facilities (33%) and shops (29%). During FGDs and KIIs it emerged that although there are abundant supplies of free male condoms, the utilization was still sub-optimal. Condom use is impeded by myths, attitudes and lack of knowledge among the community members. Yet others, despite having the knowledge just don't want to use them. One participant said:

"It is not necessarily due to lack of knowledge, some people just want it flesh to flesh"

The unavailability and high retail price of the female condom was reported as a barrier. The women participants felt that the government should consider reducing the retail price of the female condom and distributing it instead of the male condom. They said that this will give women more control on the use of condoms. Some participants said:

"We were suggesting that it would be good for us women to be given our own female condoms; you know it is good because it helps women to protect themselves rather than to be given by a man."

Counseling and testing services

Eighty-nine percent of the respondents reported that VCT services are available within their area of residence while 33.3% reported having utilized the VCT services within the previous 12 months. During FGDs, participants reported that testing was picking up but remained largely facility based. Several challenges remained that were hindering counseling and testing. Several groups explained that some community members would prefer to remain ignorant of their HIV status rather than face the fact that they are HIV positive due to the psychological effects. They said:

> *"There is another thing that people do say, if am tested I will die. So it's better to live without knowing, if I get tested and I am found positive I'll die"*

> *"They just ignore, they just do not want to go. Others say that if they get tested and are found to be positive, they will go and drown in river Nzoia, or they will die of stress. Others commit suicide after testing positive. Many people avoid they are really scared."*

Some people feared that HCWs breach the confidentiality of the clients HIV status. They said:

> *"Some people imagine that if they go for the test and the nurse comes from that neighborhood, then he/she might make their status public and everyone will know that they are HIV positive."*

An excerpt of recount of how a HCW breached confidentiality of a client's status.

> *"One day I was seated in a shade near the health facility, then a woman went by and the nurse commented that she was now doing well and her body weight was back to the extent that one could not know that she was once very ill and has the HIV. When I wanted to know who exactly, she pointed out to the woman"....."We were around 5 people, we sat there ,and I said to myself in my heart, even if I go for the test, the nurse will make public my status just the way she is doing now."*

It also emerged that some stereotypes in the community were also impeding utilization of counseling and testing services e.g. those who seek VCT services are promiscuous. In relation to this, women said that if a married woman went for VCT services and she turned out positive; her partner will accuse her of bringing HIV home.

> *"The difficulty in that is that when I go for testing and I am found positive and I inform my husband about it, he will beat me up and send me packing saying that I am the one who brought the virus to the matrimonial bed."*
>
> *"You will be asked to say who sent you for the HIV test. If you are not the one who brought the virus home, then why did you go for the test?"*

Prevention of mother to child transmission (PMTCT)

PMTCT services were reported to be available by 31% of the respondents. 12.7% of the HIV infected women aged 15-49 had utilized PMTCT services within the previous 12 months. Female participants revealed that fear of mandatory testing was a big barrier to utilization of the ANC services. Disclosing of the positive test result to their spouses was reported to be a major challenge.

Care and Treatment

Mumias Sugar Company began a comprehensive care clinic (CCC) in March 2010. They get all their drug supplies and HIV related laboratory services from the MOH. The CCC is run by the company employees and the services are open to the general public. After 6 months of

initiation (as at September 2010) the Mumias CCC had enrolled 35 clients of whom only 2 were company employees. Most employees preferred to seek services elsewhere since the company caters for all medical and transport expenses for employees who mostly seek care and treatment in other hospitals. Participants reported that there was discomfort in being served by people known to them and therefore preferred seeking services elsewhere where they are not known. There appeared to be reluctance among employees to use CCC services where they are known by HCWs for fear that the confidentiality of their status would be compromised.

Care and treatment was also reported to be hampered by the fact that the PSCs (Patient Support Centers)/CCCs are isolated from the other outpatient services and people fear being seen there and identified as being HIV positive.
Distance from the hospitals and transport costs were considered a big barrier to utilization of care and treatment services especially by the casual workers who as a rule are not housed by the company and thus live in the villages which are situated far from the company CCC. Some were not even aware that the CCC was open to the general public. Most of the participants reported that the GoK facilities were situated very far from the villages and poverty made access to services almost impossible, as people are unable to meet travel costs to the service delivery points. The clinicians noted that there are those who do not accept the result when they test positive, others say that since they are still healthy they will come for care and treatment when they get sick and these results in clients seeking care when it is too late
The Luo and Luhya communities' belief in witchcraft and supernatural causes of illnesses was also a barrier to service utilization. Informants reported that the spiritual explanation of 'chira' or "msambwe" to justify the wasting in HIV/AIDS had subsided although it still existed. 'Chira' (Luo) and 'msambwe' or 'Ishira' (Luhya) is a wasting disease sometimes culminating in death, which is incurred when a person or someone close to the person ignores some kind of taboo.

STI Treatment
The challenge of contact tracing was noted as a barrier while the cost of buying drugs from private chemists since most government facilities never have the drugs.

Psychosocial support
Discussants reported that stigma was hindering some of the infected from forming or joining community support groups. Others were dissatisfied with the social support system and said it was not transparent. One said:

> *"I think there is corruption because there are instances where children with parents are assisted and yet orphans are not being supported, yet the money was meant for the orphans"*

SONY Sugar Company

Availability and Accessibility
Based on the quantitative survey, 91.5% of the participants reported that facilities which offered HIV related services were available (table 25). Overall, 71.9% of the respondents reported that the health facilities were accessible while 44.2% had used at least one of the HIV and AIDS services provided. Fifty-one percent of considered the services to be good.

Table 25: Service availability in SONY, 2010

		Availability o f facilities that provide HIV related services	Proportion reporting that facilities that provide HIV&AIDS services are accessible.	Proportion reporting having used HIV& AIDS services in the last 12 months	Quality of service offered			Affordability of services		
					Good	Fair	Poor	Free	Affordable	Not affordable
		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Age Group	< 15	.0	.0	.0	.0	.0	.0	.0	.0	.0
	15 - 24	90.0	77.0	33.3	51.9	48.1	.0	60.7	39.3	.0
	25 - 34	92.6	73.4	47.2	49.3	49.3	1.3	70.5	29.5	.0
	35 - 44	89.9	75.4	49.4	56.4	43.6	.0	81.6	18.4	.0
	45 - 54	93.0	73.7	44.2	27.8	66.7	5.6	68.4	31.6	.0
	54+	100.0	42.9	28.6	75.0	25.0	.0	75.0	25.0	.0
Sex	Male	91.6	72.3	43.0	50.7	47.9	1.4	67.1	32.9	.0
	Female	93.5	81.4	47.8	42.9	57.1	.0	100.0	.0	.0
Religion	Muslim	100.0	62.5	36.4	66.7	33.3	.0	100.0	.0	.0
	Catholic	93.5	73.9	50.4	58.6	39.7	1.7	71.2	28.8	.0
	Protestant	89.7	75.1	38.1	48.1	50.6	1.3	75.6	24.4	.0
	No Religion	100.0	50.0	75.0	33.3	66.7	.0	100.0	.0	.0
	Other	96.7	63.0	56.7	23.5	76.5	.0	41.2	58.8	.0
	Not Stated	90.9	80.0	36.4	66.7	33.3	.0	66.7	33.3	.0
Education Level	None	96.2	76.2	26.9	80.0	20.0	.0	66.7	33.3	.0
	Primary Incomplete	89.2	67.1	36.1	44.4	55.6	.0	50.0	50.0	.0
	Primary Complete	89.4	72.2	47.0	50.8	45.8	3.4	62.7	37.3	.0
	Secondary +	94.4	77.1	47.2	48.6	51.4	.0	86.5	13.5	.0
Marital Status	Married	91.6	71.2	45.8	50.0	48.6	1.4	70.5	29.5	.0
	Single	90.9	83.0	29.1	46.7	53.3	.0	73.3	26.7	.0
	Divorced/Separated	100.0	100.0	33.3	100.0	.0	.0	100.0	.0	.0
	Widowed/Widower	100.0	75.0	50.0	50.0	50.0	.0	100.0	.0	.0
	Other	.0	.0	.0	.0	.0	.0	.0	.0	.0
	Not Stated	100.0	85.7	50.0	33.3	66.7	.0	66.7	33.3	.0
Job Category	Permanent	92.7	92.0	54.5	43.3	53.3	3.3	83.3	16.7	.0
	Temporary	91.2	70.1	42.5	53.8	45.4	.8	67.5	32.5	.0
	Contractual	95.1	71.4	36.6	28.6	71.4	.0	78.6	21.4	.0
		100.0	83.3	62.5	46.7	53.3	.0	93.3	6.7	.0
Occupation	Clerical Officer	91.7	100.0	41.7	60.0	40.0	.0	80.0	20.0	.0
	Manager	90.4	67.9	42.6	52.6	46.4	1.0	65.0	35.0	.0
	Cane Cutter	90.0	44.4	40.0	100.0	.0	.0	100.0	.0	.0
	Field Supervisor	66.7	83.3	33.3	100.0	.0	.0	100.0	.0	.0
	Other	93.5	78.9	43.5	36.8	63.2	.0	73.7	26.3	.0
	Support Staff	100.0	88.5	50.0	30.8	61.5	7.7	69.2	30.8	.0

Total	91.5	72.5	44.2	50.6	48.1	1.3	71.1	28.9	.0

Government-run health facilities provide services to 84.2% of the respondents and private health facilities to 31.4%. The main services offered as reported by 88.9% of the respondents were VCT services.

Table 26: Availability of HIV & AIDS related services in SONY Sugar Company 2010

Characteristic	N=402	
	%	n
Provider of HIV-related services		
• Health facility (GoK)	84.3	311
• Health facility (Private)	31.4	116
• Health facility (church based	13.0	48
• Mobile clinics	9.8	36
• NGO	8.7	32
HIV-related services offered		
• VCT	88.9	328
• PMTCT	31.7	117
• PITC	19.5	72
• ART/CARE	27.5	100
• HBC	9.5	35
• Other	0.3	1
Type of HIV-related service used		
• VCT	85.1	149
• PMTCT	8.0	14
• PICT	2.3	4
• ART/CARE	2.9	5
• HBC	0.8	1
• Health Education	1.7	3
• Other	7.4	13

Condom use

Condoms were available to 76% of the respondents in SONY Sugar Company. The main sources of condoms were Government of Kenya Health facilities (41%), shops (36%) and private/non-governmental health facilities (6%). During FGDs, discussants explained that condom use is impeded by negative attitudes and misinformation among the community members. Some comments during the discussions included:

"Eat meat, while you still have your teeth."

"When you use a condom you don't get the satisfaction."

"That thing is just sweet if there is nothing like condom. So the sweetness of it makes you to do it without a condom"

"Condom is just a name, let me tell you. If you have talked to a girl you have agreed and then you've gone to bed, then there is a certain hurry making you not to remember of the condom. You know you will think of it after"

"I can say that, condom is just man-made, they are just telling us that it is 100% but it can't be 100%. You can find that it only protects in 25% the remaining 75% it does not."

"Those who use condoms are promiscuous"

Male participants explained that women were not keen on using condoms because they fear that the lubricant on the condom affects them. One discussant remarked:

"There are those who say that the lubricant on the condom affects them."

Most male discussants also appeared to underestimate their risk of HIV infection by reporting that they only use condoms when they suspect their partner is HIV infected, which they would determine through physical look. Some said:

"The reality is that around here we use condoms only when we suspect that the other partner is HIV infected"

"You look closely; it goes according to the physical appearance"

"So you can meet somebody who is very healthy physically but inwardly you do not know what he or she is carrying. That is why you can meet with a person, you just see her or him is very healthy so you decide [laughing] that let me go without a CD……condom".

"In your heart you feel, aahh ... this person does not seem like she/he may have these dreaded sexually transmitted diseases"

The females also voiced their concerns that the use of condoms especially in marriage was misconstrued as one party not being faithful. They were concerned about the non-availability of the female condoms.

PMTCT

PMTCT was reported to be available by 31.7% of the respondents. Eighteen percent of the women aged 15-54 had used the PMTCT services within the previous one year.

Counseling and testing

VCT services were reported to be available by 88.9% of the respondents while 88.5% of those who had used any HIV and AIDS service reported having used the VCT services. During FGDs, it emerged that some fears regarding the effect of a positive HIV result on an individual's mental health still persisted. They said:

"People don't like anything to do with VCT; very few people have embraced it. You know, if you go for testing then you are found to be infected many people feel that they are already dead awaiting to be announced.

"You know people react to situations differently. People do not like anything to do with VCT because of the fear associated with it. In case you go for testing and you are found positive, you could die of shock."

"....most people don't want to know their status because it will cause them to have stress, and they think this would make them even die faster"

"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."

Voluntary medical male circumcision

Approximately 41.5% of the respondents reported that they had undergone circumcision. Participants reported that cultural concerns were a barrier to VMMC. They noted:

"Some say it is not part of their traditions. If their ancestors were not circumcised they do not see why they should undergo the procedure"

"...they therefore justify that God had a purpose for the foreskin so they do not see the need of removing it."

Other reasons cited included fears of the side effects e.g. pain during and after the procedure, bleeding as well as the long healing period. They said:

"May, be one is interested, but one discourages you saying that the pain is unbearable and one takes about...I do not know...2 weeks for him to recover. I have a friend who actually went for the procedure and he had pain for almost a whole month and it turned into a wound."

"I cannot seek the service because it is very painful"

"Others think if they are circumcised in adulthood there will be too much bleeding since their penis is mature"

"We also resist it saying that, God was not mad when He put that skin there"

Care and treatment

Health facilities providing care and treatment were reported to be available by 27.5% of the health facilities. A number of barriers were considered to be hindering care and treatment. These included:

i) Stigma: Discussants noted that although testing is done, seeking care and treatment was hampered by the isolation of patient support centres and other outpatient services yet people fear being seen there and identified as being HIV positive. There was also the fear of being served by people known to them resulting in people s preferring to seek services elsewhere where they are not known.

ii) 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.

iii) 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. Informants reported that the spiritual explanation of 'chira' to justify the wasting in HIV/AIDS had subsided although it still existed.

iv) Delay in initiating treatment: this was due to the fact that the CCC depends on MoH for some baseline tests and delays in obtaining the results were therefore service provision

v) Confidentiality issues hinder service utilization. There are 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) Understaffing: The numbers of clients who have enrolled at the CCC is overwhelming since they also serve the general public. Unfortunately the MoH does not post any HCWs to this site and thus they have to make do with the few HCWs employed by the company.

vii) Funding: Mainly applies to the general public who seek HIV related services at the company clinic. The management can only offer free services to an extent depending on availability of free resources from the stakeholders. But in situations where they have no donor for a service then they are forced to charge the client since the company is only responsible for its employees. The informants felt that this was also a barrier to service provision since some clients are unable to have essential tests done or buy important drugs. This is worsened by the fact that HIV related services are supposed to be offered at no cost, so some just do not understand why they should be charged.

viii) Space: The CCC is overcrowded due to the overwhelming numbers and thus confidentiality and privacy may be breached.

ix) Long waiting times: The informants stated that the waiting time in the company clinic was long and they said it was mainly due to staff shortage and high demand for the services, since they are open to the general public yet they have to make do with the few HCWs employed by the company. Some participants thought that the long waiting time was because HCWs report on duty late. One discussant said:

"Health care workers report to work late. Then they start harassing patients. Ultimately some clients go back home without getting treatment."

Home-based care

Home-based care was reported to be available by 9.5% of the respondents. It emerged during discussions that there used to be an elaborate HBC program but this had ceased when the NGO that had been supported it withdrew funding.

Psychosocial support

Discussants indicated that psychosocial support was initiated in health facilities providing care and treatment but was hardly available in the communities.

3.10. HIV and AIDS Policies, Programs and coordination structures in the Plantations

HIV/AIDS POLICIES

Policies that govern HIV and AIDS policies are presented at the various levels of the health system: national, provincial, district and the community level (plantation).

National level HIV&AIDS Policies

In 2005 the Government of Kenya realized the need to have a coordinated intervention strategy in the public sector workplace necessitated by the challenges posed by HIV and AIDS. The policy was a re-affirmation of the Government's commitment to intensify its campaign against the spread of HIV and ensure a harmonized response in the public service. The aim was to:

(i) Mitigate the impact of the pandemic on the specific sectors. Consequently, an inter-ministerial task force, spearheaded by Directorate of Personnel Management was constituted to develop the Public Sector workplace policy on HIV and AIDS.

(ii) The policy is a handy reference to tackle the challenges brought into the occupational settings by the effects of HIV and AIDS. It will guide each sector on developing workplace programs to facilitate effective and planned response to the management and prevention of HIV and AIDS at the workplace.

The Ministry of State for Public Service has been coordinating the implementation of Public Sector Workplace Policy on HIV and AIDS. This policy was developed to address the crisis

imposed by the pandemic in the public sector. It aims at providing guidance to the management of employees who are infected and affected by HIV and AIDS and prevention of further infections. The policy also defines the public sector's position and practices for the multi-sectoral response to HIV and AIDS pandemic. In addition, it provides guidance for those who deal with the day-to-day HIV and AIDS related issues and problems that arise within the workplace and outlines employee's rights, responsibilities and expected behavior in the workplace. The policy covers key areas such as legal and regulatory framework, guiding principles, management of human resource HIV and AIDS programs in the workplace and implementation.

The main objective of this policy is to provide a framework to address HIV and AIDS in the public sector. Specifically, the policy aims at:

(i) Setting Minimum Internal Requirements (MIR) for managing HIV and AIDS in the public sector
(ii) Establishing structures and promoting programs to ensure non-discrimination and non-stigmatization of the infected and affected
(iii) Contributing to national efforts to minimizing the spread and mitigating against the impact of HIV and AIDS
(iv) Ensuring adequate allocation of resources to HIV and AIDS interventions
(v) Guiding employers, managers and employees on their rights and obligations regarding HIV and AIDS
(vi) Providing a framework for development of sector specific workplace policies

Following the development of the Kenya Public Sector Work place policy, it was a requirement for all sectors, institutions, departments and organizations with workers to develop specific work place policies.

The Kenya National AIDS Strategic Plan III (KNASP III), covering the period 2009/10 to 2012/13 is in place but plantation workers were not included among the MARPs or vulnerable populations

Agricultural plantation level work place HIV/AIDS Policies

Information gathered from the Key Informants revealed that HIV policies and guidelines at Sony and Mumias Sugar companies were largely not well developed. Comparatively, Sony Sugar had a relatively well developed policy. Despite the fact that the policies are not well developed, HIV testing was not a requirement for recruitment and HIV infected staff were generally allowed to continue working. HIV treatment and care services are provided free of charge to staff in both plantations.

HIV&AIDS PROGRAMMES

National level HIV&AIDS Programmes

The Kenya HIV&AIDS Public Sector Policy revolves around initiating and carrying out programs in the workplace. Some of the programme components include HIV prevention and advocacy.

The programmes are sector specific and involve creation of HIV and AIDS awareness and promotion of positive cultural and behavioral change among employees such as:

(i) Promotion of testing and support programs in the workplace
(ii) Provision of information on safe sex practices
(iii) Promotion of attitude and behavior change
(iv) Establishment of HIV and AIDS resource centers
(v) Incorporation of HIV and AIDS education curricula in training institutions

(vi) Encouraging HIV and AIDS peer education and counseling programs at the workplace
(vii) Creating a pool of resource persons on HIV and AIDS intervention programs

HIV&AIDS programmes at plantation level

Sony Sugar Company

Data from key informant Prevention/advocacy and care and treatment programs have been initiated and running. All programs are implemented in line with the national guidelines. Some of the work place programs in place include:

i. Presence of peer educators who are company employees
ii. Provide moonlight VCT at the work place
iii. Condom distribution at the work place
iv. Peer educators create awareness and sensitize colleagues at the work place
v. The company also has a comprehensive care clinic that is also open to the general public
vi. The management also finances referral for HIV comprehensive care and treatment for advanced cases that need specialized treatment

Sony Sugar Company has an AIDS Control Unit (ACU) that spear head HIV activities, although the unit is not very active. The ACU has incorporated both company employees and community resource persons as members. The Medical Officer in charge of health services coordinates HIV related services on behalf of the ACU and ensures that the health department implements the HIV related programs

Mumias Sugar Company

HIV&AIDS care and treatment programs have been initiated and running in Mumias Sugar Company. Some of the programs in place include:

a) Peer Education by company staff
b) Behaviour Change Communication
c) Condom distribution at the work place
d) HIV&AIDS Comprehensive Care services also open to the general public
e) Company financed referrals for Permanent workers to other Comprehensive Care Clinics

All programs are implemented in line with the national guidelines. The Mumias sugar company does not have an AIDS Control Unit (ACU) or an AIDS Control committee which is supposed to spear head HIV activities. The Medical Officer in charge of health services coordinates all HIV related services single handedly and ensures that the health department implements the HIV related programs.

EFFECTIVENESS OF EXISTING HIV&AIDS POLICIES AND PROGRAMS IN THE PLANTATIONS

The work place policy provides an important framework to address HIV and AIDS issues for the workers. It guides each sector on developing workplace programs to facilitate effective and planned response to the management and prevention of HIV and AIDS at the workplace. Information gathered from the key informants revealed that the two plantations had attempted to operationalize existing policy guidelines and programmes as outlined below:

i) Sony Sugar Company

The presence of an ACU that has incorporated community members is a plus in tackling HIV related issues in the plantation community. Similarly, inclusion of HIV&AIDS as

components in the company's Strategic Plan is a positive move by the company management towards ensuring that HIV is mainstreaming into the company operations. It was also established that the HIV&AIDS programs existing in the company have improved the staff and general population's response to HIV&AIDS. There is increased awareness; increased uptake of HIV testing services and those infected are seeking care and treatment.

ii) Mumias Sugar Company

The company has not adapted the Kenya HIV&AIDS Public Sector workplace Policy hence not yet developed plans and strategies to suit the needs of sugar plantation population. In addition coordination of HIV related services remains a challenge. There is no committee to facilitate the planning and implementation of HIV&AIDS related activities. Without a plan and set targets monitoring and evaluation of the pandemic remains a challenge. However, the existing work place HIV&AIDS programs were reported to have benefitted the staff.

CHAPTER 4: DISCUSSION

The high overall response rate for both interviews and blood draw in the plantation sector was attributable to well coordinated social mobilization that was carried out prior to data collection as well as support that the management of the plantations accorded to the study team. The overall HIV prevalence in Sony Sugar Company (15.6%) was higher than what was observed in 2007 KAIS (7.1%) and 2008-09 KDHS (6.3%) however the prevalence in Mumias Sugar (2.8%) was lower than the national average and that of Western Province (KDHS, 2008/2009).

This sero-survey revealed that HIV prevalence among females aged 15-24 years was about 7 times higher than males. This finding is in consistent with was observed in 2007 KAIS and KDHS 2008-09 where young women had a higher HIV prevalence than young men. In particular, young women aged 15-24 years were more vulnerable to HIV infection than young men in the same age group. This is because young women begin having sexual intercourse at early ages as compared to men hence putting them at risk. Young women, especially those disadvantaged, are increasingly at risk for HIV infection through heterosexual contact. Other reason which put young women at risk for sexually transmitted HIV includes biologic vulnerability, lack of recognition of their partners' risk factors, and having sex with older men who are more likely to be infected with HIV. We observed that prevalence among males aged 35-44 years was about 2 times higher than females of the same age group. As age increases, the prevalence among the women decreases whereas among the males, prevalence increases with age.

The HIV prevalence was higher in SONY Sugar (15.6%) compared to Mumias Sugar 2.8%. This may be as result of multiple factors such as the lifestyles of the two populations. Circumcision has been shown to be protective to HIV infection and male circumcision rate was high in Mumias. The HIV prevalence is comparable to previous studies done in the agricultural plantations in Kericho. A study on human immunodeficiency virus type 1 (HIV-1) to determine the prevalence and risk factors for HIV-1 infection among agricultural plantation residents in Kericho revealed that the overall HIV-1 prevalence was 9.9%, with prevalence in women more than twice that in men (17.4% vs 8.0%) (JAIDS, 2006). Notably, HIV prevalence was higher among those who had come from elsewhere and lived for more than 5 years in the plantations as compared to those who had recently arrived. Additionally, over one-fifth of the respondents reported having traveled and slept away from home in the previous 3 months. Over two thirds of those who had travelled had sex while away from home, most of them not using condoms. The study therefore highlights the added risks of transmission of HIV and AIDs among communities with a higher mobility or fluidity in the population dynamics. Specific interventions need to be developed to mitigate the vulnerabilities occasioned by the mobility.

Knowledge of HIV and AIDS and its transmission as well as perceptions of risk for HIV infection are essential for making behavioral choices that reduce 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 SONY Sugar company, the level of awareness of HIV and AIDS among the study participants was high (overall 97.3%). This proportion was slightly lower than the national awareness level (98.3%) observed in 2007 (KAIS, 2007) and 99% in 2008 (KDHS 2008). Unlike in 2007 and 2008 where there was no difference in the level of knowledge in the stratified age categories, in this study, the range was 92.9%-100% in SONY. In Mumias

Sugar Company, level of awareness was 98.9% which was similar to the national level (KAIS, 2007) and (KDHS 2008). Comprehensive knowledge is a good measure of the population's general understanding of the epidemiology of the disease. This comprehensive knowledge was high in the plantation sector given that survey data from several countries indicate that, on average, 40% of males and 38% of females ages 15–24 had accurate and comprehensive knowledge about HIV (UNAIDS 2008).

There was no marked difference in the overall knowledge of methods HIV transmission in both SONY and Mumias. However, in both plantations, there was more likelihood to know that HIV transmission can be reduced by faithfulness between partners and by abstinence from sex than by use of condoms. The findings on methods of HIV transmission were general consistent with the results in 2008 (KDHS, 2008).

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/AIDS, unnecessary and punitive restrictions, and discriminatory practices. These misconceptions are also likely to result in spread of the virus thus frustrating major gains made in HIV/AIDS prevention programs. Among misconceptions about AIDS included fear of contracting AIDS by sharing utensils with someone who is infected transmission by mosquito or other insect bites, belief that AIDS is a result of witchcraft and that people with HIV and AIDS always show signs and symptoms of illness. There were misconceptions in the plantations sector on transmission of HIV by mosquito bites, sharing of utensils with an infected person and that a healthy-looking person cannot transmit HIV virus. The corresponding proportions were consistent with the findings of the 2008 demographic and health survey (KDHS, 2008).

There were still negative attitudes towards HIV infected people 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 in the two plantations. In this study, it was found that although wife inheritance was a reportedly common practice within the plantation sector only a small proportion still practiced it. However a notable finding in this study is that in Mumias where male circumcision is commonly practiced, there were attendant behaviors reported during focus group discussions that would make the practice unsafe and fuel HIV transmission. Programs targeting making male circumcision in Mumias safer should be initiated while in SONY plantation there should be advocacy and initiation of male circumcision programs. It was also found that drinking of alcohol unlike smoking bhang was common among the plantation sector, although more common in Mumias than SONY plantation.

Similarly, a low prevalence of sexually transmitted infections was reported in the plantation sector, although notably higher in Mumias than SONY plantation. Previous studies have shown that STIs increases the risk of HIV transmissions (E Pisani 2004). Programs should be enhanced to prevent and treat STIs in the plantation sector.

Findings from this study showed that married couples were at higher risk of contracting HIV. Studies have shown that 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 and. Eppstein. 2004). This has important implications for married couples, as married men consistently report higher numbers of extramarital partners than their wives. For example, in Kenya, 11 percent of married men

reported having an extramarital partner in the past year, as opposed to just over two percent of women. In Kenya, among currently married people, seven percent of those in monogamous relationships are HIV-positive, but the rate reaches 11 percent among those in polygamous relationships (KDHS. 2003). Uncircumcised males were shown to have a greater risk of HIV infection compared to those who were circumcised. This finding is consistent with 2003 KDHS and the 2007 KAIS which showed that uncircumcised men were more than four times likely to have HIV as circumcised men (13 percent and 3 percent).

Condom use in Mumias was much lower compared to SONY despite the fact that condoms were easily accessible in both plantations. The proportions of participants reporting use of condom in this study is however higher than that reported in previous studies. It is notable that it is difficult to establish whether the reports made by participants translate into actual practice. However we do not have any reason to believe that the rate reported by participants was spurious since the interviews were conducted in confidence and the interviewers were well trained on interviewing techniques. The existing programs targeting access to condoms in the plantations should be strengthened to ensure a sustained constant supply of condoms. It is not contestable that use of condoms is an effective method of preventing HIV transmission (Maryam Shahmanesh 2008). Tied with the use of condoms is the knowledge and attitude towards condom use which was identified in the focus group discussion to be inappropriate and may have contributing to lower use of condoms. In order to achieve appropriate behavior change, programs should be initiated to improve knowledge and attitude and specifically to boost the confidence of the plantation workers towards the effectiveness of the condoms being made available to them. More importantly, in order to achieve long terms gains in behavior change a multi-component approach should be undertaken and there is need to sustain the little gains already achieved in HIV prevention programming in the plantation sector in addition to initiating new programs(Maryam Shahmanesh 2008).

Age at sexual debut was lower than that of the general population (Macro. 2010); programs should therefore be initiated to sustain this or even better delay sexual debut further. However we did not find a higher proportion of married/cohabiting participants among HIV infected compared to uninfected persons. This finding is inconsistent with that found in other previous studies which have shown that there is increased HIV transmission among married persons(Guthrie BL 2007; Dunkle KL 2008; Kaiser R 2011). Previous studies have shown that in Kenya and Malawi over 80% of unprotected sex occur in cohabiting or married couples(Anand A 2009). Although in this study the prevalence of forced sex to be low in the study population, the finding of a significantly higher proportion of this practice among HIV infected than uninfected suggests that it could be a driver of HIV infection in this setting. Nevertheless the attributable risk may be low. On the other hand this being a cross-sectional study it is not possible to tell whether the HIV status is contributing to this practice or vice-versa.
Marriage or cohabiting was common in both plantations. This is a practice that is common with mobile populations and may be a potential driver of HIV. However our finding that there was no increased prevalence of this behavior irrespective of whether the partner was the spouse or had multiple partners among HIV infected compared to non infected may be associated with increased use of condoms during such relationships, thus masking any increased risk of HIV infection.

Although wife inheritance was a reportedly common practice within the plantation sector especially in SONY Sugar Company, only a small proportion still practiced it, similarly there was no increased prevalence of this practice among HIV infected compared to HIV negative

persons. This suggests that the community has already been sensitized enough about this practice and its effect on HIV infection and as a result majority of the community members have already given up this practice. This change in behavior should be sustained if long term results are to be realized. Our finding of 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.

Lack of male circumcision was common in SONY compared to Mumias plantation and this was more prevalent among the HIV infected compared to uninfected persons. This is consistent with previous studies that male circumcision significantly reduces the risk of HIV transmission (Bailey 2007; Gray 2007; Guthrie BL 2007). However, a notable finding in this study that in Mumias where male circumcision is commonly practiced, there were attendant behaviors that would make the practice unsafe and fuel HIV transmission. Programs targeting making male circumcision in Mumias safer should be initiated while in SONY plantation there should be advocacy and initiation of male circumcision programs. Such programs should have an inbuilt promotion of use and increased access to condoms.
Drinking of alcohol unlike smoking bhang was common among the plantation sector, although more common in Mumias than SONY plantation. However, there was no increased prevalence of the behavior among HIV infected compared to uninfected persons. This suggests that in the plantation sector this may not be an important driver of HIV infection.
The low prevalence of sexually transmitted infections in the plantation sector, although notably higher in Mumias than SONY plantation. There was however no significant difference in the prevalence of STI among HIV infected compared to uninfected persons. Our study did not show an association between HIV infection and STI, probably due to the small numbers of persons with STIs and therefore lack of power to demonstrate significant associations. Previous studies have shown that STIs increases the risk of HIV transmissions(E Pisani 2004). Programs should be enhanced to prevent and treat STIs in the plantation sector.

Most of the respondents in the plantation arm of this study reported that HIV/AIDs services were available, with VCT services being the most available. This could be linked to the massive roll out of VCT services by the Ministry of Health in the last decade (Grabbe et al). Less than half of the respondents reported having used the services in the previous one year. This could perhaps be linked to the sub-optimal quality of services in the facilities as reported by half of those who had used the services in the previous year. During focus group discussions, poor quality of services in the health facilities characterized by long queues kept emerging as a point of discussion.

Although the government health facilities were reported as available to over 90% of the respondents, less than half of the respondents who undergone the HIV testing had done so in a government health facility. This could perhaps be linked to the reported challenges in service provision in these facilities. As has been reported in other set ups, the private health care providers might be important in playing a bigger role in the provision of services especially to community members unwilling to use the public health institutions (Wenjuan W. *et al*).

CHAPTER 5: CONCLUSION

HIV prevalence in Sony and Mumias sugar Company was 15.4 % (95% CI, 12.0-19.0) and 2.8% (95% CI, 1.3-4.4) respectively. There was no difference in the HIV prevalence among males and females in both plantations (15.4% males and 15.6% females in SONY; males 2.9%, females 2.7% in Mumias). Majority of the study participants were males and cane cutters in both SONY and Mumias plantations. The mean age at sexual debut was 15.7 years in SONY and 16.8 years in Mumias. Regarding the possible demographic factors, males were more likely to be infected with HIV than females ((POR 7.13, 95% CI 1.02 – 142, p value 0.02). Social and behavioural risk factors such as extramarital affairs, polygamy, wife inheritance, circumcision, condom use, genital ulcer diseases, urethral discharge, travel away from home, use of alcohol and drugs were not statistically significant.

Awareness of HIV and AIDS was relatively high among all age group in both SONY and Mumias Sugar companies. However, awareness of use of condoms as protective against transmission of HIV was low in Mumias (79.6%). There were strong misconceptions on the use of condoms as a preventive measure and doubts on its effectiveness and safety. Such misconceptions about HIV/AIDS like 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 was a clear indication of existing knowledge gaps in combating the disease. Negative attitudes towards HIV and discrimination were also reported in both plantations. There were still misconceptions about HIV transmission and evidence of stigma, negative attitudes towards persons with HIV and discrimination was also reported in both plantations. Knowledge on the correct use of ARVs was quite low in both plantations. Although Mumias reported higher male circumcision prevalence than SONY, there were unsafe practices associated with the traditional rite that made it unsafe. Mumias plantation reported more alcohol abuse, and higher prevalence of STIs than SONY plantation.

There were important differences in the two plantation sectors that could fuel HIV transmission. Mumias plantation reported lower condom use, more alcohol abuse, and higher prevalence of STIs than SONY plantation. In addition although Mumias reported higher male circumcision prevalence than SONY, there were unsafe practices associated with the traditional rite that made it unsafe. Specific programs should be initiated in Mumias targeting these practices.

Generally, although HIV/AIDS services are widely available and were mainly provided by government health facilities, accessibility and utilization remained suboptimal. While VCT services are widely used, other HIV/AIDS related services were poorly utilized and there was a weak link between the VCT services and HIV/AIDS care. The quality of service provision in the health facilities was sub-optimal, probably due to staff shortages among other reasons. Most HIV related services were available at SONY Sugar Company although utilization was low. However nutrition services are weak and home based care services are lacking. The main barriers to service utilization among the company workers are stigma and confidentiality issues. Other barriers include distance and transport costs among casual and out sourced services employees as well as dependency on Government for all care and treatment services. Thus centralized services were a barrier to HIV related services. Furthermore, staff shortage and funding were identified as the main barriers to provision of HIV related services. There were no social support for the affected (widows and orphans) that existed in the plantation community. Voluntary medical male circumcision (VMMC) uptake was low in SONY Sugar Company. In Mumias Sugar Company, Most HIV related services

were available even though most were facility based. Home based care services are lacking. Stigma still exists although has reduced considerably over the years.

CHAPTER 6: RECOMMENDATIONS

The findings of this study calls for focus to address the specific risks and vulnerabilities of these two population groups so as to stop transmission of HIV as well as availing quality and responsive services that are accessible and address the legitimate needs of these special groups. Furthermore, HIV services require to be expanded to cater for these special population groups. From the findings of this study, below are some recommendations to interrupt HIV transmission and improve the survival of those who have already contracted HIV. The focus to control HIV should be in SONY sugar with focus on reducing the risks associated with being female and promoting circumcision as an intervention to control of HIV through increasing the level of knowledge of HIV transmission and addressing misconceptions.

The suggested areas of focus include, but not limited to the following areas:

1. High condom use should be sustained as an important and necessary method of reducing both HIV and sexually transmitted infections in both plantations. Programs should therefore be initiated to ensure continuous availability and access to condoms.
2. Lack of male circumcision is still a driver of HIV infection in this plantation sector and more specifically in SONY; programs should be initiated to increase access to male medical circumcision. Male circumcision should be made safer in Mumias plantation by availing sustainable surgical clinics and in SONY by increasing advocacy on importance of male circumcision as an effective method of reducing HIV transmission. Such advocacy can be effected through the plantation and factory supervisors, union leaders and "gang leaders" in cane cutter teams where they are trained and facilitated to act as peer educators. These peer educators should also sensitize the community on the correct facts about HIV and AIDS to change their indifferent attitude.
3. Sustain successful programs like VCT, condom use and circumcision
4. The empowerment and engagement of communities to demand for HIV prevention services as more long lasting in ensuring that long term gains are achieved.
5. Concerted effort should be tailored to address misconceptions through systematic health education programmes
6. Integration of HIV services to other outpatient services at the health facility
7. Awareness on correct use of ARVs should be promoted. The supervisors, union leaders and gang leaders (cane cutters) can be trained and facilitated to act as peer educators. These peer educators should also sensitize the community on the correct facts about HIV and AIDS to change their indifferent attitude.
8. The elite community leaders should be sensitized to dissuade the community to abandon some cultural practices that predispose them to HIV infection
9. The sugar companies should partner with more NGOs, FBOs and CBOs that provide HIV related services so that they can provide outreaches, mobile VCTS and other community based HIV related services which will enable them reach the masses.
10. Sugar Company should consider inviting more stakeholders on board to increase funding and strongly continue supporting available services and support weak and unavailable HIV related services e.g. nutrition and HBC programs. This will enable all services to be provided at no cost. Specifically they felt that the MOH should also consider supplying free anti-malarials and basic antibiotics to be used by the CCC general public clients and help shoulder off costs of purchasing the same from the private chemists.

11. There is need to encourage sustainable community based social support and IGA for HIV/AIDS patients, widows and orphans, and move away from the usual unsustainable handouts.
12. There is need to enhance VMMC campaigns in SONY sugar plantation
13. There's need to strengthen the AIDS Control Units in the sugar plantations as well as adopting and rigorously implementing the Workplace policy on HIV and AIDS.
14. At the national level, there is need to develop a specific strategy to tackle HIV within agricultural plantations while in the plantations:
    a. Mumias:
        i. There is need to institutionalize the HIV and AIDS work place policy and develop plans and strategies to suit the needs of Mumias sugar plantation population.
        ii. Constitute a committee to facilitate the planning and implementation of HIV/AIDS related activities.
        iii. Draw a plan and set targets to monitor and evaluate the HIV and AIDS program in the company

    b. SONY
        i. Management board should approve the developed customized work place policy
        ii. Management board/CEO should support the ACU to perform its functions
        iii. ACU should develop a strategy to tackle HIV/AIDS in the plantation

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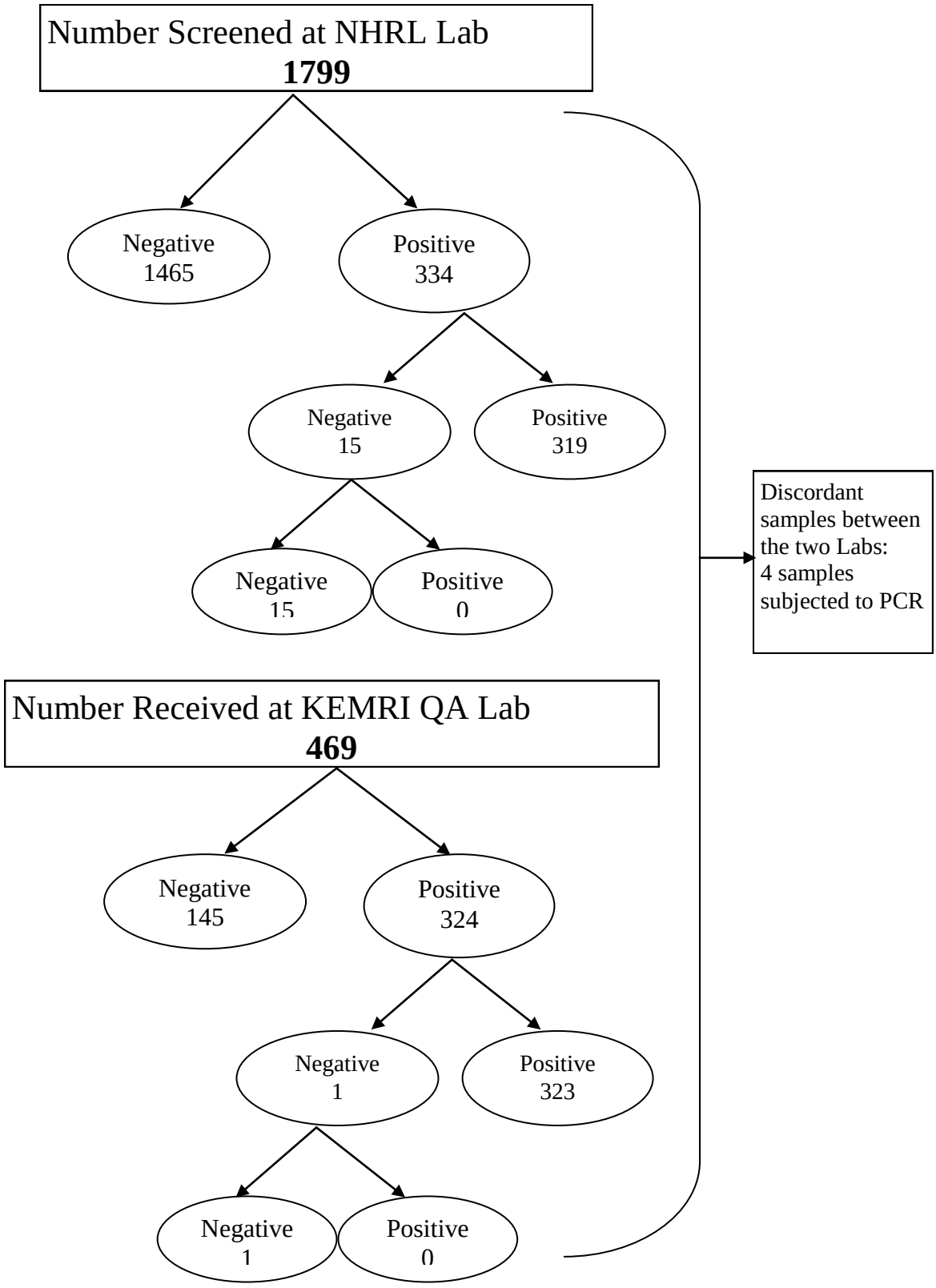
Appendices

a. Appendix1: Flow chart of Laboratory analysis of the 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 20only 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 37^0 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 30^o C for 30+- 2minutes
14) Stop the reaction by adding 100ul 1mol/l 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:

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 inturn 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^{o} 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

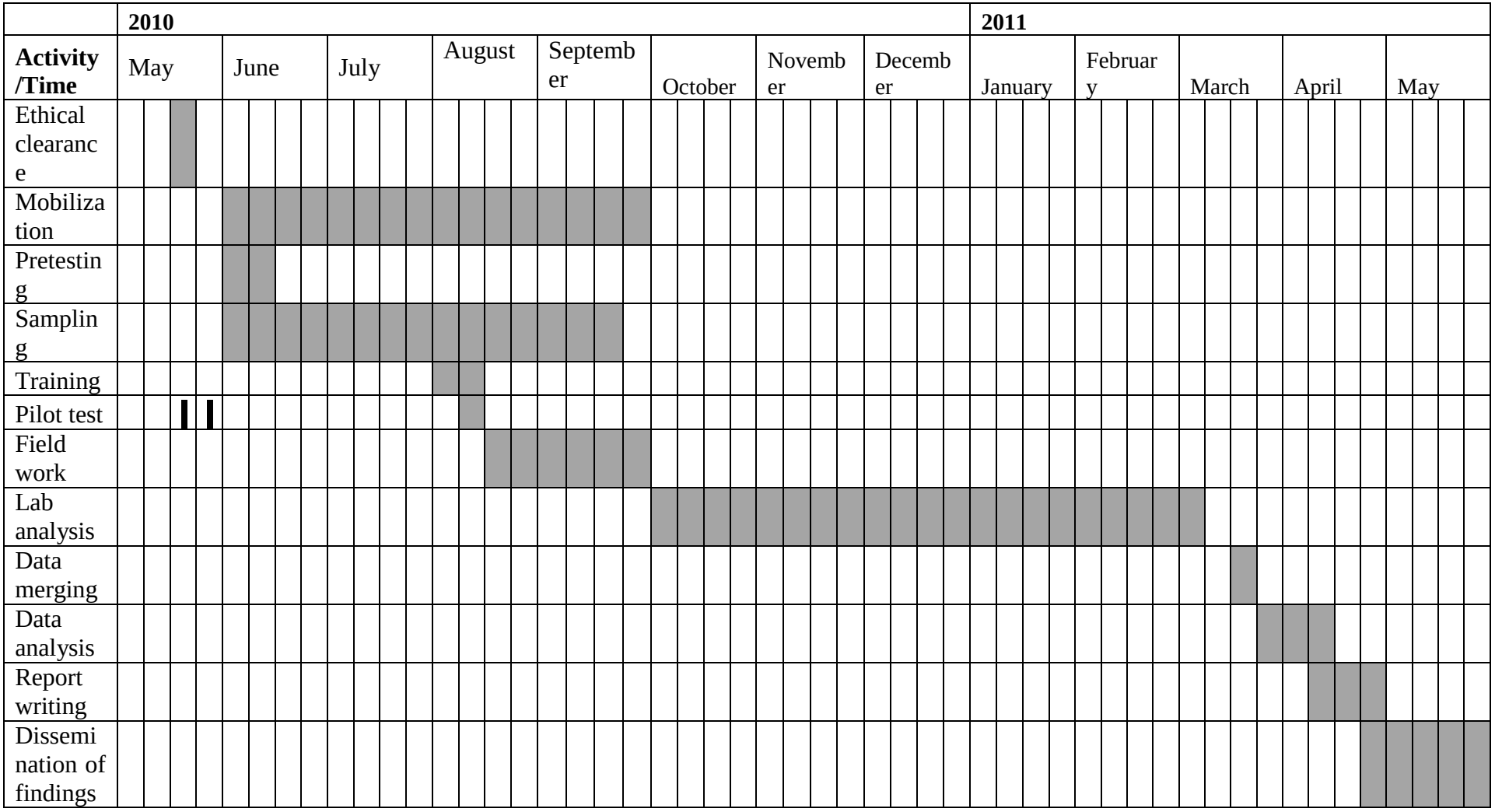
3) Remove any strips from the microwell plate that are not needed for the assay and replace with null strips.
4) **Dispense 50ul of specimen diluents to kit control wells only**. Also dispense 25ul of the same specimen diluents to all the remaining wells (DBS control and sample wells).
5) Using a multichannel 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^{o}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^{o}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



d. Appendix 4: Consent Forms

HIV/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 or plantation.

The Lake Victoria Basin (LVBC) would like to establish a framework of improving effectiveness of the HIV/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/AIDS. We will also ask questions about availability of HIV/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. XXXX, 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

i. Fomu ya Kutoa Idhini

Uchunguzi wa Kimsingi wa Virusi vinavyoondosha kinga ya mwili (HIV/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 yatakikana 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 was 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 ushunguzi 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/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/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) _____

ii. 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 kuhusi 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 ruhusa 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 ruhusa 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) _____

e. Appendix 5: 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/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 utaanza 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/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/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 shaidi (Sahihi ya kutoa idhini)_____

Sahihi _____ Tarehe _____

f. Appendix 6: Survey instruments

i. Questionnaire

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

Introduction

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.

ON 1: IDENTIFIER INFORMATION

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_____

	1.1 Interviewer code	**1.2 DATE OF INTERVIEW**	**1.3 SECTOR:**	
AFFIX BAR CODE HERE		_____ / ___ ___ / ___ ___ (dd/mm/yy)	☐FISHING ☐ PLANTATION	*(if plantation, then Skip to 1.7)*

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 2: DEMOGRAPHICS

2.1 Residence

Usual residence	Origin
Country (***Taifa la makao***)_____	Country (***Taifa ya asili*****)**_____
Province (***Mkoa wa makao***)_____	Province (***Mkoa wa asili*****)**_____
District (***Wilaya ya makao*** **)**_____	District (***Wilaya ya asili*****)**_____
Division **(** ***Tarafa ya makao***)_____	
Sub-location (***Katandogo ya makao*** **)**_____	
Village (***Tarafa ya makao***)_____	

2.2	**Gender (*Mwanamke*)**	☐ Male (***Mume)***	☐Female
2.3	**Date of Birth (dd/mm/yyyy)** ___ ___/ ___ ___/____ ____ ____ ____ ***Tarehe ya Kuzaliwa (ss/mm/mm) (Siku mwezi,mwaka)***		
2.4	**Age in years** __ __ ***Miaka***		
2.5	**How many people live in your household? _____** ***Watu wangapi wanaishi nyumbani kwako?***		
2.6	**Are you the head of the household?** ***Wewe ndiwe mzee wa nyumba?***	☐Yes (***Ndio)*** ☐No (***La***) ☐Don't know	*(Skip to 2.8 if the answer is no)*
2.7	**If yes, how many dependants do you have? _____** **Kama jibu lako ni ndio ni wangapi wanaokutegemea?**		
2.8	**How many of the dependants live with you? _____** ***Ni wangapi wanaokutegemea wanaishi na wewe?***		

2.8	**What is the highest level of education attained?** **Umesoma hadi kiwango kipi cha elimu?** ☐ None (***Hakuna)*** ☐ Informal education (***Elimu ambao sio rasmi)*** ☐ Primary- not completed (***Haujamaliza Masomo ya msingi)*** ☐ Primary-completed ***(Umemaliza masomo ya msingi***) ☐ Secondary-not completed ***(Haujamaliza shule ya upili)*** ☐ Secondary-completed (***Umemaliza shule ya upili)*** ☐ Post secondary (***Elimu baada ya shule ya upili)*** ☐ Literacy classes only (***Elimu ya gumbaru)***
2.9	**Religion? (*Dini?)*** ☐ Muslim (***Muisilamu)*** ☐ Catholic(***Mkatoliki***) ☐ Protestant (***Mprotestani***) ☐ No Religion (***Bila Dini***) ☐ Other (***ingine***) If others Specify **(*ngine (Dharisha*)** _____
2.10	**Marital status? (*Umeoa au kuolewa)*** ☐ Married ***Ndio*** ☐ Single ***La*** ☐ Divorced ***Nimtaliki*** ☐ Separated ☐ Widowed /Widower ***Mjane*** ☐ Others (Specify) ***Ingine (Dharisha)*** _____

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 of respondent)?** ***Kazi ya mtahiniwa*** **(Fishing)** ***(Uvuvi)***	☐ Boat crew ***Mfanyakazi melini*** ☐ Boat owner ***Mmiliki waboti*** ☐ Fish monger/trader ***Muuzaji wa samaki*** ☐ Fish processors ☐ Boat maker ***Mkarabati wa mashua*** ☐ Factory agents ☐ Boat repairer ***Mtayarishaji wa samaki*** ☐Transporters ***Wasafirishaji*** ☐Boat manager/supervisor ***Msimamiaji wa mashua*** ☐Fish equipment dealer ***Muuzaji wa vyombo vya uvuvi*** ☐ Other traders (bar owners, shopkeepers, charcoal dealers etc) ***Wanabiashara wengine (wamiliki wa baa, wauzaji dukani, wauzaji wa makaa, na kadhalika)***
	3.1.2 What do you do to earn a living (Occupation of respondent)? Kazi ya mtahiniwa (Shambani) ***(Plantation)*** (Shambani)	☐ Clerical officer ***karani*** ☐ Manager ***Meneja*** ☐ Farmer ***Mkulima*** ☐ Cane cutter ***Mkataji wa miwa*** ☐ Weeder Mpaliliaji ☐ Driver ***Dereva*** ☐ Auxiliary staff ***Mfanyikazi wa ziada*** ☐ Tea plucker ***Mchuma chai*** ☐Field supervisor/superintendent ***Msimamizi*** ☐ Others (specify) ***Mwingine(Adhirisha)***
3.2	**Job category of respondent (*Aina ya Kazi ya Mtahiniwa*** **(Plantation only)** (***Mfanyikazi wa shambani peke yake)***	☐ Permanent (***Kazi ya kudumu)*** ☐ Temporary (***Kibarua)*** ☐ Contractual (***Kandarasi)***
3.3	Approximately how much money do you earn in a month? ***Mshahara wako ni kam ngapi kwa mwezi?***	KES_____***Shilingi***

3.4	In your opinion, are your earnings from the plantation enough to take care of most of your basic needs? ***Kwa maoni yako, mshahara huu unatosha kukutana na mahitaji yako?***	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Somehow ***Nikama*** ☐ Other ***Nyingine (***specify) _____
3.5	How many of each of the items does your household have at the moment? (Indicate number of items) ***Nyumba yako ina vyombo ngapi vilivyotajwa hapa? redio baiskeli kiti taa runinga ngombe mbuzi kuku kondoo armchair gari dau nyavu***	Radio ***Redio*** _____ Bicycle ***Biskeli***_____ Sofa _____ Lantern ***Taa/ Fanusi*** _____ TV ***Runinga***_____ Cow ***Ngombe***_____ Goats ***Mbuzi*** _____ Chickens ***Kuku*** _____ Sheep ***Kondoo***_____ Vehicle ***Gari***_____ Boats ***Mashua*** _____ Fishing nets ***Nyavu***_____ Fishing hooks_____ Arm chairs ***Kiti chenye mikono***_____
3.7	Does your family own a piece of land? ***Jee, jamii yako inamiliki kipande cha shamba?***	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know ***Ni kama***
3.8	How big is the land? ***Ni shamba ya kiasi gani?***	State acreage _____ Eleza ekari
3.9	Which crops do you grow? Unapanda mimea ipi?	
3.10	Do you sell any of the above crops for money ***Je, unauza mimea hii yeyote?***	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know ***Ni kama*** — *If No,Skip to 3.12*
3.11	If you sell crops for money, specify? ***Adhirisha/Eleza***	
3.12	Do you have any savings in a bank account	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know ***Ni kama***

	Una akiba yeyote kwa benki?	
3.13	Do you have access to any loan from a financial institution ***Una njia za kupata mkopo kutoka kwa shirika lolote la kifedha?***	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know ***Ni kama***

SECTION 4: MARRIAGE AND SEXUAL ACTIVITY

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.

	MALES ☐	**FEMALES** ☐		
4.1	Are you currently living together with someone as if married?	Are you currently living together with someone as if married?	☐ Yes ***Ndio*** ☐ No ***La***	*If yes, skip to 4.4*
4.2	Have you ever been married or lived together with a woman as if married ***Umeshawahi kuoa au kuishi pamoja na mwanamke kama mumeoana?***	Have you ever been married or lived together with a man as if married ***Umeshawahikuolewa au kuishi na mtu kama mumeoana?***	☐Yes, formerly married ***Ndio, nimeshawahi kuoa/kuolewa*** ☐Yes, lived with a man/woman ***Ndio, nimeshawahi kuishi na mtu/mwanamke*** ☐No ***La***	*If no skip to 4.9*
4.3	What is your marital status now; are you widowed, divorced or separated ***Hivi sasa, hali yako ni ipi? Mjanie, mtaliki au mumetengana?***	What is your marital status now; are you widowed, divorced or separated ***Hali yako ya kuishi sasa au wewe ni mjane? Mtaliki au umetengana na mpenzi wako?***	☐Widowed (***Mjane)*** ☐Married ☐Divorced (***Mtaliki)*** ☐Single ☐Separated (***Tumetengana)***	*Skip to 4.9*
4.4	Is your wife living with you or she is elsewhere ***Unaishi na mke wako au anaishi peke yako?***	Is your husband living with you or she is elsewhere ***Unaishi na mume wako au anaishi peke yake?***	☐Living together (***Tunaishi pamoja)*** ☐Staying elsewhere (***Mwanzangu anaishi kwingine)***	

4.5	Do you have more than one wife/woman you live with as if married? ***Unawake zaidi ya mmoja unayeishi nao kama bibi yako***	Does your husband have other wives or does he live with other women as if married? ***Bwana yako ana wanawake wengine anaoishi nao kama mabibi?***	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't know ***sijui***
4.6	Altogether, how many wives do you have or other partners do you live with as if married ***Wote pamoja, una bibi wangapi au wapenzi unaoishi nao kama umeoa?***	Including yourself, in total, how many wives or other partners does your husband live with now as if married ***Nikihesabiwa pia, mabibi wote na wanawake mumewangu anaoishi nao***	Number of wives/live in partners_____ ☐ Don't know ***sijui***
4.7	Is wife inheritance practiced in your community? ***Jumuiya yako ina desturi ya kuridhi wajane?***	Is wife inheritance practiced in your community? ***Jumuiya yako ina desturi ya kuridhi wajane?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.8	Are any of your wives inherited? ***Miongoni mwa mabibi zako, kuna wale uliowaridhi?***	Including yourself, are any of your husband's wives inherited ***Ukijihesabu, kuna wake wenzako walio ridhiwa?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.9	Do you have any sexual partners (if married, other than your married partner(s)? ***Una uhusiano wa kimapenzi na mwanamke mwingine kando ya bibi zako?***		☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If No, skip to 4.23*
4.10	What is the relationship between you and these partners? ***Unauhusiano gani na wapenzi hawa?***		☐Business partner ***Mwanabiasharamwenza*** ☐Workmate ***Tunafanya kazi pamoja*** ☐Friend ☐Others (specify)_____	
4.11	How often do you engage in sexual intercourse with these partners? ***Unashiriki ngono mara ngapi na wapenzi hawa?***		☐Weekly ***Kiwik*** ☐Monthly ***Kimwezi*** ☐Once every Three monthly ***Maramoja kwa miezi tatu*** ☐Occasionally ***Maramojamoja***	

4.12	Do you use a condom when engaging in sexual intercourse with these partners? ***Jee, unatumia mpira wa kiume/ kondomu kushiriki ngono na wapenzi hawa?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If No skip to 4.14*
4.13	How often do you use condoms when engaging in sexual intercourse with these partners? ***Jee, unatumia mpira wa kiume marangapi Ukishiriki ngono/mpira wa kiume na wapenzi hawa?***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii***	
4.14	Do you use a condom with your regular partner ***Jee, unatumia mpira wa kiume/kondomu unaposhiriki ngono na mpenzi wako wa kawaida?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	If no skip to 4.16
4.15	How often do you use a condom with a regular partner ***Jee, unatumia mpira wa kiume marangapi Ukishiriki ngono/mpira wa kiume na mpenzi wako wa kawaida?***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii***	
4.16	Where do you get the condoms from? ***Jee unatoa wapi mipira hii?***	☐ Government Health Facility (***Kituo cha serikali)*** ☐Buy from a shop (***Nanunua dukani)*** ☐ Private health facility (***Kituo cha afya cha kibinafsi)*** ☐Non GOK health facility (***Kituo cha afya ambacho sio Serikali)*** ☐The man comes with condoms ☐Others (specify)***Zingine (adhirisha)***_____	
4.17	Do you always get the condoms when you need them? ***Jee unapata mipira hii/ kondomu unapohitaji?***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii*** ☐Not applicable (explain)_____	
	What type of condom do you get?	☐Male condom ☐Female condom	
4.18	Have you ever experienced an unusual or smelly discharge from your private parts in the last 6 months? ***Umeshawahi kutokwa na uchafu wa harufu mbaya kwenye sehemu zako za siri kwa muda wa miezi sita***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	

	zilizopita?	
4.19	Have you ever had an ulcer in your private parts in the last 6 months? ***Umeshawahi kuwa na kidonda kwenye sehemu zako za siri kwa muda wa miezi sita zilizopita?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.20	Did you obtain treatment for above ***Ulipata matibabu kwa ajili ya kidonda hii?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.21	If yes, where did you get the treatment? ***Kama ndio, ulipata matibabu haya wapi?***	☐Self ***Nilijitibu*** ☐Government health facility ☐Company clinic ☐Chemist ☐Private clinic ***Hospitali ya kibinafsi*** ☐Herbalist ***Daktari wa mitishamba*** ☐Traditional healer ***Mganga*** ☐Others (specify) _____
4.22	Is male circumcision traditionally practiced in your community?***Ni desturi yenu kupasha tohara wanaume ?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.23	Are you circumcised? – **Note:-Apply this question to male respondents only**	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
4.24	For how long have you lived here ***Umeishi hapa kwa muda gani?***	_____years ***Miaka*** _____months ***Miezi***_____days ***Siku***
4.25	Where were you living before you came here? ***Ulikuwa unaishi wapi kabla uhame hapa?***	District _____ Plantation/Landing site_____ Other(specify) _____
4.26	Why did you relocate? (State reason) ***Kwa nini ulihama (toa sababu)***	
4.27	In the last three months, did you travel and sleep away from home (usual residence)? ***Kwa miezi tatu iliyopita, ulisafiri au kukosa kulala nyumbani?***	☐Yes ***Ndio*** ☐No ***La***

		☐Don't Know ***Sijui***	
4.28	Where did you travel to ***Ulisafiri wapi?***	District _____ Plantation/Landing site_____ Other(specify) _____	
4.29	What was the reason for your travel ***Jee, ulisafiri sababu gani?***		
4.30	What is the maximum duration you were away from home (usual residence) in the last 3 months ***Kwa miezi tatu iliyopita, ni muda gani murefu sana umekosa kulala nje ya nyumba yako?***	_____days	
4.31	How many occasions in the last three month did you sleep away from home? ***Kwa miezi tatu iliyopita, sherehe ngapi zilikulazimu ukose kulala nje ya nyumba yako?***	_____(Indicate 00 if not travelled) ***Dhahirisha kama hukusafiri***	
4.32	Have you had sex when away from home (usual residence) in the last three months? ***Umeshiriki katika ngono ulipokuwa mbali na nyumbani?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	***If no skip to 4.34***
4.33	Did you use a condom? ***Ulitumia mpira wa kiume/kondomu?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui*** ☐Not applicable	
4.34	Have you paid for the services of a commercial sex worker? ***Jee, umewahi kulipia kuduma ya kahaba?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	
4.35	Have you ever been given a gift for sex by a non regular partner? ***Jee, umeshawahi kupewa zawadi na mtu asiye mpenzi wako wa kawaida kwa sababu ya kufanya ngono?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If no, skip to 4.37*
4.36	If yes, what was the nature of the gift ***Kama jibu lako ni ndio zawadi hiyo ilikuwa nini?***	☐Money ***Pesa*** ☐ Fish ***Samaki*** ☐Household commodities like sugar, cooking oil ***Bidhaa vya nyumba kama sukari, Mafuta ya kupikia***	

		☐Meat ***Nyama*** ☐Others (specify)_____	
4.37	Do you drink alcohol? ***Jee, unatumia pombe?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If no, skip to 4.39*
4.38	How often do you engage in sex with a non regular partner after drinking alcohol? ***Unashiriki ngono mara ngapi baada ya kunywa pombe?***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Kamwe*** ☐Not applicable (explain)_____	
4.39	Do you take any drugs like bhang or cocaine? ***Unatumia madawa ya kulevya yoyote?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	*If no, skip to 4.44*
4.40	If yes, which ones ***Kama jibu lako ni ndio unatumia madawa gani?***		
4.41	Have you engaged in sex after taking any of these drugs? ***Ushawahi kushiriki kwa ngono baada ya kutumia madawa haya?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	If no skip to 4.44
4.42	Which ones did you use before sex? Please specify ***Madawa gani ulitumia kabla kufanya ngono? Tafadhali adhirisha***	Drug 1 ***Dawa ya kwanza***	
		Drug 2 ***Dawa ya pili***	
		Drug 3 ***Dawa ya tatu***	
4.43	How often do you engage in sex after taking the said drugs? ***Jee, unashiriki ngono marangapi baada ya kutimia madawa haya?***		
	Drug 1 ***Dawa ya kwanza***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii*** ☐Not applicable (explain)_____	
	Drug 2 ***Dawa ya pili***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii*** ☐Not applicable (explain)_____	
	Drug 3 ***Dawa ya tatu***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii*** ☐Not applicable (explain)_____	
	Others (specify) ***Ingine***	☐Always ***Kilawakati*** ☐Rarely ***Marachache*** ☐Never ***Situmii***	

	(Dhahirisha)	☐Not applicable (explain)_____		
4.44	Have you ever been forced to have sex against your will? ***Umeshawahi kulazimishwa kushiriki kwa ngono?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know		*If no, skip to 4.46*
4.45	If Yes, what was the relationship of the person ***Kama jibu lako ni ndio, ulikuwa na uhusiano gani na mtu huyu?***	☐Husband, ***Bwana*** ☐wife ☐Boyfriend, ***Mchumba*** ☐Girlfriend ☐Teacher, ***Mwalimu*** ☐Employer ***Mwajiri*** ☐Business partner, ***Mwanabiashara mwenza*** ☐Other Specify _____		
4.46	How old were you when you first had sexual intercourse for the very first time? ***Jee, ulishiriki ngono kwa mara yako ya kwanza ukiwa umri gani?***	_____Years ***Miaka*** ☐Never had sexual intercourse***Sijawahi***		*If never had sexual intercourse, skip to 4.56*
4.47	Compared to your age at that time, would you say the person you first had sexual intercourse with was___(***Ukilinganisha na miaka yako, uliyefanya ngono naye alikuwa)***	☐Older by more than 5 years (***Amekupita na miaka kumi)*** ☐Younger by less than 5 years (***Mchanga kwako na miaka kumi)*** ☐About the same age group (***Umri kama wako)***		
4.48	When was the last time you had sexual intercourse ***Nilini mwisho ulifanya ngono?***	**LAST PARTNER** Days ago/ ***Siku ngapi zilizopita*** _____ Weeks ago/***wiki ngapi zilizopita*** _____ Months ago/ ***miezi ngapi zilizopita***_____ Years ago/ ***miaka ngapi zilizopita***_____	**2ND LAST PARTNER** Days ago _____ Weeks ago _____ Months ago _____ Years ago _____	
4.49	What was the relationship to the said person ***Nilini mwisho ulifanya ngono?***	☐Husband/Wife ***Bwana/Bibi*** ☐Live-in Partner ***Rafiki niliyeishi naye*** ☐Boyfriend/Girlfriend Not living with	☐Husband/Wife ☐Live-in Partner ☐Boyfriend/Girlfriend	

		respondent ***Mchumba ambaye sikuwa naishi naye*** ☐Casual acquaintance ***Rafiki tuu*** ☐Commercial sex worker ***Kahaba*** ☐Other (specify)***Mwingine (adhirisha)*** _____	Not living with respondent ☐Casual acquaintance ☐Commercial sex worker ☐Other (specify) _____
4.50	Was a condom used every time you had sexual intercourse with the said person in the last 12 months ***Ulitumia mpira wa kiume kila wakati ulipokuwa unafanya ngono na aliyekuwa mpenzi wako kabla ya mpenzi wako wa mwisho?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
4.51	For how long have you had/did you have a sexual relationship with the said person ***Uhusiano wako na mpenzi huyu ulidumu muda gani?***	Days / ***siku***_____ Months / ***miezi***_____ Years / ***miaka***_____	Days / ***siku***_____ Months / ***miezi***_____ Years / ***miaka***_____
4.52	How old is this person ***Mtu huyu ana umri gani?***	Age of partner/ ***Umri wa mpenzi*** _____ ☐Don't know / ***sijui***	Age of partner_____ ☐Don't know /***sijui***
4.53	Is this person older than you, younger than you or about the same age ***Mtu huyu ni mzee kukuliko, mdogo wako kwa umri au muna umri moja***	☐Older /***Mzee*** ☐Younger/ ***Mdogo wangu*** ☐Same age/ ***Umri moja*** ☐Don't know/ ***Siju***	☐Older /***Mzee*** ☐Younger ☐Same age ☐Don't know/ ***Siju***
4.54	Would you say this person is ten or more years older than you or less than 10 years older ***Unaweza kusema kwamba mtu huyu amekupita na miaka kumi au zaidi au ni mdogo wako na miaka***	☐Ten or more years older ***Mzee na miaka kumi au zaidi*** ☐Less than 10 years older ***Mdogo wangu na miaka kumi au zaidi***	☐Ten or more years older ☐Less than 10 years older

	kumi au zaidi?	☐Older, unsure how much ***Mzee kwangu, sijui kwa miaka ngapi***	☐Older, unsure how much
4.55	In total, how many different people have you had sexual intercourse in the last 12 months? ***Ukihesabu, umefanya ngono na wapenzi wangapi mwaka huu?***		
4.56	Do you intend to wait until you are married to have sexual intercourse for the first time? ***Unakusudia kusubiri hadi uolewe ili ufanye ngono?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know ☐Not applicable	

SECTION 5: HIV/AIDS Knowledge and attitudes ***Now I would like to talk about something else***			
5.1	Have you ever heard of an illness called AIDS (***Umeshawahi kusikia kuhusu ugonjwa unaoitwa Ukimwi?)***	☐Yes ***Ndio*** ☐No ***La***	*If no skip to 6.1*
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? ***Jee, inawezekana kupunguza njia za kupata Ukimwi ikiwa mtu atafanya ngono na mpenzi wake tuu na sio wapenzi wengine?***	☐Yes ***Ndio*** ☐No ***La***	
5.3	Can people get AIDS virus from mosquito or other insect bites? ***Jee, inawezekana watu kupata virusi vya Ukimwi wakiumwa na umbu au wadudu wengine?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
5.4	Can people reduce their chances of getting the AIDS virus by using a condom every time they have sex? ***Jee, inawezekana kupunguza njia za kupata Ukimwi ikiwa watu watatumia mipira ya kiume (kondomu) kila wakati wanafanya ngono?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
5.5	Can people get the HIV/AIDS virus by sharing utensils with a person infected with HIV/AIDS? ***Jee, inawezekana watu kupata virusi vya Ukimwi wakitumia vyombo vya jikoni anavyotumia mtu aliyepata Ukimwi?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
5.6	Can people reduce their chances of getting HIV/AIDS virus by not having sexual intercourse at all? ***Jee, inawezekana kupunguza njia za kupata Ukimwi kwa kukosa kufanya ngono kabisa?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	

5.7	Can people get the HIV/AIDS virus because of witchcraft or other supernatural means? ***Jee, watu wanaweza kupata virusi vya Ukimwi kwa ajili ya uchawi au njia zisizozakiulimwengu?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
5.8	Is it possible for a healthy-looking person to have the HIV/AIDS virus? ***Inawezekana kwamba mtu anayekaa kuwa na afya kuwa na virusi vya Ukimwi?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
	Is it possible for a healthy-looking person who is infected with HIV virus, to transmit the HIV/AIDS virus?	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know	
5.9	Do you think that your chances of getting the HIV/AIDS virus are small, moderate or great or are there no risk at all? ***Je, unafikiri yakwamba itawezekana upate Ukimwi kiurahisi, au kikiasi au kivigumu?***	☐No risk at all/ ***Sina hatari hata kidogo*** ☐Small ☐Moderate ***Kidogo*** ☐Great ***Kubwa*** ☐Has HIV or AIDS ***Ni na ukimwi*** ☐Don't know ***Sijui***	*If moderate/great skip to 5.11*
5.10	Why do you think you have no risk/small chance of getting HIV/AIDS virus (tick all that apply) ***Jee, ni kwanini unafikiri yakwamba hauwezi kupata Ukimwi kwa urahisi?***	☐Is not having sex ***Sifanyi ngono*** ☐Uses condoms ***Natumia mipira*** ☐Has only one partner ***Nina mpenzi mmoja*** ☐Don't know ☐Limits number of partners ***Sina wapenzi Wengi*** ☐Partner has no other partners ***Nina mpenzi mmoja*** ☐Other specify / ***Mengine (adhirisha)*** _____	*Skip to 5.12*
5.11	Why do you think you have moderate/great chance of getting AIDS (tick all that apply) ***Jee, kwanini unafikiri yakwamba nafasi yako kupata virusi vya Ukimwi ni kiasi?(tia alama kote kunakofaa)***	☐Does not use condoms/ ***Situmii mipira*** ☐Has more than one partner/ ***Nina wapenzi Wengi*** ☐Had blood transfusions/injections/ ***Nina pewa damu/kudungwa*** ☐Partner has other partners/ ☐Other specify ***Mengine (adhirisha)***_____	

	Do you know your HIV status?	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.12	Would you disclose your HIV status if it is positive to your partner? ***Unaweza kumweleza mpenzi wako hali yako ukipata virusi vya Ukimwi?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.13	Does your family know about your HIV status? ***Jamii yako inajua hali yako?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.14	Do your friends/colleagues know about your HIV status? ***Marafiki wako wajua hali yako?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.15	Would you like your community members to know your HIV status? ***Unaweza penda jumuiya yako ijue hali yako ya Ukimwi ikiwa utapatikana na virusi vya Ukimwi?***	☐Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.16	If a member of your house hold is HIV positive, would you want it to remain a secret? ***Jee, jamaa yako akipata virusi vya Ukimwi, unaweza taka iwe siri?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui*** ☐It Depends ***Inategemea*** ☐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? ***Jamaa yako akipata virusi vya Ukimwi, unaweza penda kumhudumia nyumbani kwako?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui*** ☐It Depends ***Inategemea*** ☐Other (Specify) ***Ingine adhirish***_____
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? ***Jee, unajua mtu aliyekuwa amekatazwa kushiriki katika sherehe za jamii, kanisani au za kidini ?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
5.19	Is it possible for a healthy looking person to be infected with HIV virus? ***Yawazekana mtu aliyekaa kuwa na afya kuwa na virusi vya Ukimwi?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***

5.20	What are ARVS for? ***Jee, Anti Retrovirals niza nini?***	☐Cure HIV (***Za kuponya Ukimwi)*** ☐Prevent one from re-infection (***za kumkinga mtu)*** ☐Prolong life (***Za kurefusha maisha)*** ☐Prevent one from being sick ☐Others (specify) _____
5.21	Do you agree or disagree that peer influence contributes to the spread of HIV? ***Unakubali au kukanusha yakwamba Marafiki wabaya wanaweza kuzidisha hatari ya kuambukizwa kwa virusi vya Ukimwi?***	☐Agree ***Nakubali*** ☐Disagree ***Napinga*** ☐ Don't know ***Sijui*** ☐Not Sure ***Sina uhakika***
5.22	Can a person be cured from HIV/AIDS ***Jee, mtu anaweza kuponywa Ukimwi?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know
5.23	If yes, which cures do you think are available (tick all that apply) ***Kama jibu lako ni ndio, tiba zatoka wapi? (tia alama kote kunakofaa)***	☐In hospitals ***Hospitalini*** ☐Traditional healers ***Kwa daktari wa Kienyeji*** ☐Sex with virgins ***Kufanya ngono na mabikira*** ☐Others (specify)_____

SECTION 6: AVAILABILTY AND UTILIZATION OF SERVICES

I'm now going to ask you some questions related to availability of health services in this area

6.1	Are there facilities that provide HIV related services around your area of residence? ***Jee, kuna vifaa vinavyotoa huduma za afya kuhusu virusi vinavyoondoa kinga mwilini na Ukimwi (HIV/AIDS) unakoishi?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If no. skip to 6.14*
6.2	Who provide these services ***Ni nani anayetoa kuduma hizi?***	☐Health facility (GOK) ***Kifaa cha afya cha serikal*** ☐Health facility (Private) ***Kifaa cha afya cha kibinafsi*** ☐Health facility (church based) ***Kifaa cha afya cha kikanisa*** ☐Mobile clinics ***Kliniki zitembeazo*** ☐Health facility (NGO)	

6.3	Do they offer the following services? ***Je, wanatoa huduma aina hizi?***	☐VCT ***Kupewa mawaidha*** ☐PMTCT ***Mwilini na kuangaliwa Kukinga uambukizaji Wa Ukimwi kutoka Kwa mama hadi kwa mtoto*** ☐PITC ***PITC******* ☐ART and CARE ☐HBC ***Huduma ya Nyumbani ya Wanaoishi na Ukimwi*** ☐Others (specify) _____
6.4	How accessible are these facilities from your area of residence? ***Jee vifaa hivi vinapatikana kwa urahisi katika eneo hii yenu?***	☐Very accessible ***Vinapatikana kwa urahisi*** ☐Somehow accessible ***Vinapatikana*** ☐Hardly accessible ***Vinapatikana kwa ugumu***
6.5	What is the approximate distance from your house to the nearest health facility? ***Kifaa cha afya kilicho karibu kabisa kiko kama umbali gani?***	_____km ***Kilomita***
6.6	How much time does it take you to get to the facility using your usual means of transport? ***Inakuchukuwa muda gani kufika huko?***	_____minutes
6.7	Have you used any of these services in the last 12 months? ***Umeshawahi kutumia vifaa hivi vyovyote mwaka huu uliopita?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
6.8	Which type of service did you use? ***Ulitumia huduma gani?***	☐VCT ***Kupewa mawaidha*** ☐PMTCT ***Mwilini na kuangaliwa Kukinga uambukizaji Wa Ukimwi kutoka Kwa mama hadi kwa mtoto*** ☐PITC ***PITC******* ☐ART and CARE ☐HBC ***Huduma ya Nyumbani ya Wanaoishi na Ukimw*** ☐Health education ☐Others (specify) _____
6.9	What was the quality of service offered? ***Katika maoni yako, huduma hii ilikuwa na ubora upi?***	☐EXCELLENT ***Bora kabisa*** ☐GOOD ***Nzuri*** ☐FAIR ***Kiasi Mbaya*** ☐POOR ***Ya kuzorotesha*** ☐VERY POOR
6.10	How affordable were the services ***Huduma hizi zilikuwa zaweza kugaramiwa?***	☐Free ***Zilikuwa bure*** ☐Affordable ***Niliweza kugaramia***

		☐Not affordable ***Ilikuwa ghali sana Singeweza kulipa*** ☐Don't Know ***Sijui***
6.11	Were you given any reading materials for more information at the facility? ***Huduma hizi zilikuwa zaweza kugaramiwa?***	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***
6.12	What kind of information was contained in the material you were given? ***Ufahamu uliopata kwenyw vifaa hivo vya kusoma ulikuwa***	
6.14	What are the main channels of communication from which you receive AIDS information? ***Ni kwa kutumia njia gani haswa ambapo umeweza kupokeaufa hamu kuhusu Ukimwi?***	☐Radio ***Redio*** ☐Television ***Runinga*** ☐Film ***Sinema*** ☐Drama ***Mchezo wa kuigiza*** ☐Newspapers/magazines ***Magazeti*** ☐brochures ***Kijitabu kinayo Maelezo mafupi*** ☐Posters ***Tangazo inayobanikwa ukutani*** ☐Peers ☐Community notices ***Notisi ya Ya kijumuiya*** ☐Family ***Jamii*** ☐friends ***Marafiki*** ☐Billboards ***Bango la kuwekea matangazo*** ☐Health workers ***Wafanyakazi wa afya*** ☐Teachers ***walimu*** ☐Political leaders ***viongozi wa kisiasa*** ☐Internet ***Mtanda***o ☐Traditional leaders ***Viongozi wa kimila*** ☐religious leaders ***Viongozi wa kidini*** ☐Others ***(specify)***_____

6.15	From which channel have you learned most about AIDS ***Jee, ni kutumia njia zipi umepata ufahamu kamili kuhusu Ukimwi?*** **CHOOSE ONLY ONE**	☐Radio ***Redio*** ☐Television ***Runinga*** ☐Film ***Sinema*** ☐Drama ***Mchezo wa kuigiza*** ☐Newspapers/magazines ***Magazeti*** ☐brochures ***Kijitabu kinayo Maelezo mafupi*** ☐Posters ***Tangazo inayobanikwa ukutani*** ☐Peers ☐Community notices ***Notisi ya Ya kijumuiya*** ☐Family ***Jamii*** ☐friends ***Marafiki*** ☐Billboards ***Bango la kuwekea matangazo*** ☐Health workers ***Wafanyakazi wa afya*** ☐Teachers ***walimu*** ☐Political leaders ***viongozi wa kisiasa*** ☐Internet ***Mtanda***o ☐Traditional leaders ***Viongozi wa kimila*** ☐religious leaders ***Viongozi wa kidini*** ☐Others ***(specify)***_____

SECTION 7: INDIVIDUAL HIV STATUS			
7.1	Have you ever been tested for HIV?	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know ***Sijui***	*If no, Thank the participant again and take to lab technician for blood draw*
7.2	Where was the last test done?	☐Government Health Facility ☐Private Health facility ☐VCT Centre ☐Blood Donation Centre ☐Mobile clinic ☐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?	☐ Yes ***Ndio*** ☐No ***La*** ☐Don't Know	*If no, Thank the participant again and request for blood draw*

7.5	Is it possible to disclose to us the results of your HIV status?	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know	*If no, Thank the participant again and request for blood draw*
7.6	What was the result?	☐ Positive ☐ Negative ☐ Don't Remember	
7.7	If positive, have you received any support from a health facility	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know	*If no skip to 7.10*
7.8	What was the nature of support	☐ Counseling ☐ ARTs ☐ Co-trimoxazole ☐ Others (specify)_____	
7.9	Do you attend a regular clinic in the facility	☐ Yes ***Ndio*** ☐ No ***La*** ☐ Don't Know ***Sijui***	
7.10	If no support, what do you think is the main reason?	☐ Health facility is far ☐ No need for support yet ☐ Health workers are unfriendly ☐ Don't Know ☐ No support available in the health facility	*Thank the participant again and request for blood draw*

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

ii. <u>Focus group discussion guidelines</u>

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

1. What can you say about the situation of HIV/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/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/AIDS services?

b) Accessibility

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

5. Comment on the following attributes of HIV/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/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?
a) HIV positive people who have disclosed their status?
b) AIDS patients
c) Known AIDS orphans and widows

8.) Are there people who suffer from discrimination due to HIV/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/AIDS). Tungependa kuelewa janga hili lemeenea mpaka wapi.

1.Waweza kusemaje kuhusu janga la Ukimwi kwenye eneo hii? Kama shida hii ni kubwa sana, utaifananishaje na hatari zingine na changamoto za kiafya?

2.Ni sababu gani haswa janga la Ukimwi ni shida? (chunguza kibinafsi, kijamii, myenendo, uchumi, mila)

3.a)Kuna watu walio na hatari kubwa?

b)Kama ndio, kwanini?

4.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, Kukinga usambazaji wa virusi vya Ukimwi kutoka kwa mama hadi kwa mtoto, usaidizi wa kuchagua vyakula bora, Utunzaji nyumbani wa walioambukizwa na virusi vya Ukimwi)

b) Kwa kila huduma, kiongozi anafaa aulize:

a) Ninani atakaye toa huduma hizi?

b)Huduma hizi zinaweza kupatikana kwa urahisi?

c)Ni vizuizi gani viko? (umbali, watu kukubali au kukataa)

5.Toa hisia zako kuhusu tabia za wahuduma wa afya

a) Ustadi wa wahuduma kwa kushughulikia wateja

b) Jinsia zao kuhusu wateja

c) Jinsi wahuduma wanahifadhi siri za wateja

d) Jinsia za wahuduma kuhusu kazi yao

6. Kwa maoni yako, ninini yaweza kufanywa kuboresha huduma hizi kwenye eneo hili?

a)Kutoa huduma

b)Kupatikana kwa huduma

c)Kutumika kwa huduma

7. Kuna usaidizi wowote kutoka kwa jumuiya kwa watu hawa?:

a) Walioambukizwa na virusi vya Ukimwi na kujulisha hali yao

b) Wagonjwa wanaougua Ukimwi

c) 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/AIDS and would wish to understand the burden of HIV/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/AIDS in this area?

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

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

b) What HIV/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/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/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/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/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) Ingine (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 inauhusiano 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 No | | | | **NAME OF PLACE** | |

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: this form 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

STATE NUMBER LANDING SITE/ESTATE NUMBER HEALTH INVESTIGATOR NUMBER

NO.	SAMPLE BAR CODE	TECH.	LAB
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

NO.	SAMPLE BAR CODE	TECH.	LAB
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Fold here ↓

g. Appendix 7: Bar code labels

BAR CODES USED IN MUMIAS SUGAR COMPANY DURING THE STUDY

(SAMPLE)

BAR CODES USED IN SONY SUGAR COMPANY DURING THE STUDY

(SAMPLE)