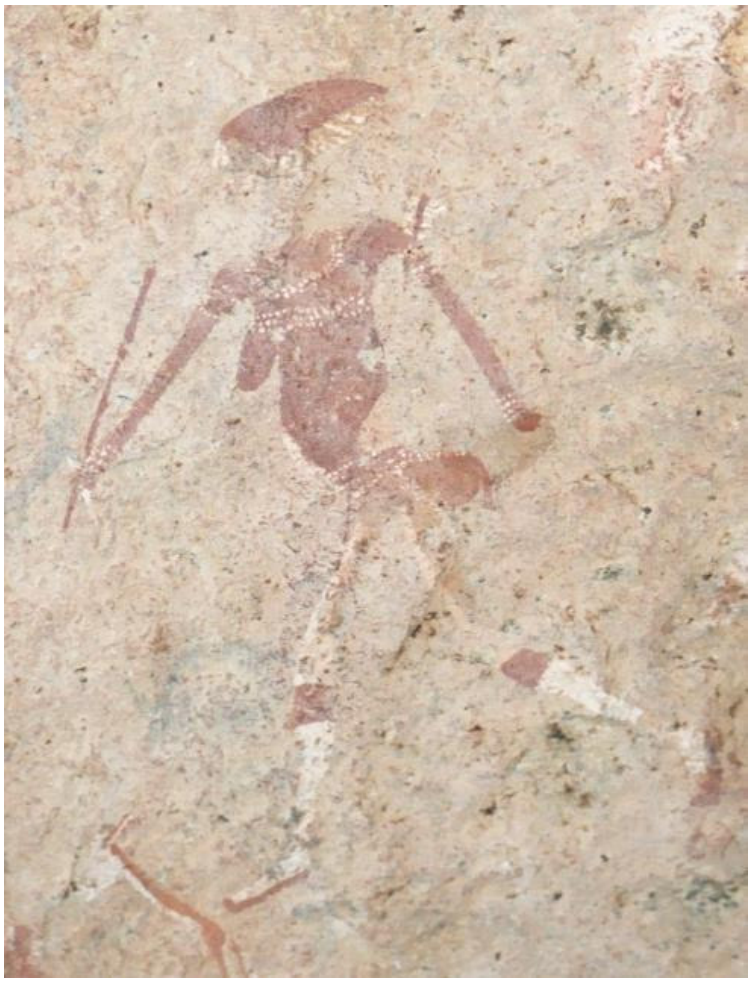
Risk factors for HIV-infection in a male population in Coast Province of Kenya; Analysis of a cross-sectional survey



Thesis submitted to the Royal Tropical Institute for the Master in International Health

Date submitted: 26th of may, 2010

Name of student: Marit de Wit – van Lenthe

Number of words:13,436

Declaration:

Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis "Risk factors for HIV-infection in a male populations in Coast Province of Kenya; Analysis of a cross-sectional survey"
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Signature: Marit de Wit – van Lenthe

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List of abbreviations

AIDS	Acquired Immunodeficiency Syndrom
APHIA	Aids, Population and Health Integrated Assistance
ART	Antiretroviral Therapy
BMS	Behavioural Monitoring Survey
FHI	Family Health International
FSW	Female Sexual Workers
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICRH	International Centre for Reproductive Health
IDU	Intravenous Drug Users
ISY	In School Youth
KAIS	Kenyan Aids Indicator Survey
KHN-ERC	Kenyatta National Hospital Ethics and Review Committee
MIWS	Men in Worksites
MSM	Men having Sex with Men
NA	Not applicable
OR	Odds Ratio
OSY	Out of School Youth
PDA	Personal Digital Assistant
PI	Principal Investigator
PPS	Probability Proportional to Size
PSU	Primary Sampling Units
RA	Research Assistants
RCT	Randomised Controlled Trial
STI	Sexually Transmitted Infections
WHO	World Health Organisation
WIHLIC	Women in households with low income

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Executive summary

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Year of writing: 2010

Title: "Risk factors for HIV-infection in a male populations in Coast Province of Kenya; Analysis of a cross-sectional survey"

Key words: HIV/AIDS, men, risk factors, unsafe sex, behaviour, Kenya

Involved research institutions and advisors:
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Abstract:
Background: In Sub-Saharan Africa women are disproportionably affected by HIV/AIDS. They are often not in a position to protect themselves from HIV/AIDS. Research focusing on HIV-prevention for men will benefit these women.
Methods: After a literature search on risk behaviour in men for acquiring HIV/AIDS, a cross sectional survey done amongst 1606 men in Coast Province in Kenya was analysed.
Findings: Two-third of the men were at high-risk for contracting HIV/AIDS, but self-perceived risk was low. During the last commercial sex act, a condom was used in 82%, with the last non-commercial sex act in 27%. Bivariate logistical analyses showed that age, marital status, profession, symptoms of STI, alcohol use, HIV testing and the number of sex partners were associated with unprotected sex. Multivariate analyses showed that being married (AOR 6.82), regular alcohol use (AOR 0.62), a higher number of commercial sex partners (AOR 0.81) and a recent STI (AOR 0.36) were independently associated with unprotected sex in the last sexual act.
Discussion: The number of men that fall into a high risk category for HIV is high. Self-perceived risk however is low. This needs to change in order to change behaviour. The link between high condom use and commercial sex is encouraging. The relation between alcohol and unprotected sex is not in line with other studies.
Conclusion: Many ordinary men in Kenya are not aware of the risk they have of acquiring or transmitting HIV/AIDS. Improving their knowledge on risk factors may change their behaviour and protect women.

Introduction and background

Human Immunodeficiency Virus (HIV), the virus that leads to the Acquired Immunodeficiency Syndrome (AIDS) is the fourth cause of death in low income countries[1]. Of the people infected with HIV worldwide , 67 % life in Sub Saharan Africa[2]. Sub Saharan Africa is the only region in the world were women are disproportionably affected by HIV. 60 % of the people infected in the region are women[2].
Many studies focus on HIV in women. It is clear from these studies however that women are often not in a position to protect themselves from acquiring HIV. Women may be forced to having sex, may need to have sex in order to go to school or may need the money or gifts to sustain their lives. Married women are often not in a position to negotiate condom use with their husband.
For preventive purposes it is therefore also very important to focus on men.

The rational behind this survey is to find out more about the behaviour of men in relation to HIV/AIDS, in order to tailor prevention. This study is interesting as it focuses on risk behaviour in *ordinary* men in Coast Province in Kenya. The study used for analysis is a cross sectional survey amongst in- and out of school youth and working men in Kenya done in 2007. The results will give an insight in their behaviour, and help to focus preventive strategies suited to their needs.

Objectives

Overall goal:
To improve the understanding of risk factors for HIV-infection in men in Coast Province, Kenya, for the development of targeted interventions for this group.

Specific objectives:

To determine risk factors for HIV-infection in general through literature study

To learn to do a statistical analysis of a large data-set

To describe sexual behaviour amongst various male subgroups in Coast Province, Kenya, using data from a cross sectional survey among men.

To determine factors associated with unprotected sex in men in Coast Province, Kenya, using data from a cross sectional survey among men, in order to target preventive activities for men who are not using condoms

To formulate proposals for targeted interventions for the above mentioned groups and settings

Literature review

Rationale

The rationale for a literature review before the analysis of the survey was to get an idea on risk factors for men for HIV-infection and unsafe sex. The results from this literature review were used on deciding which questions and answers to analyse.

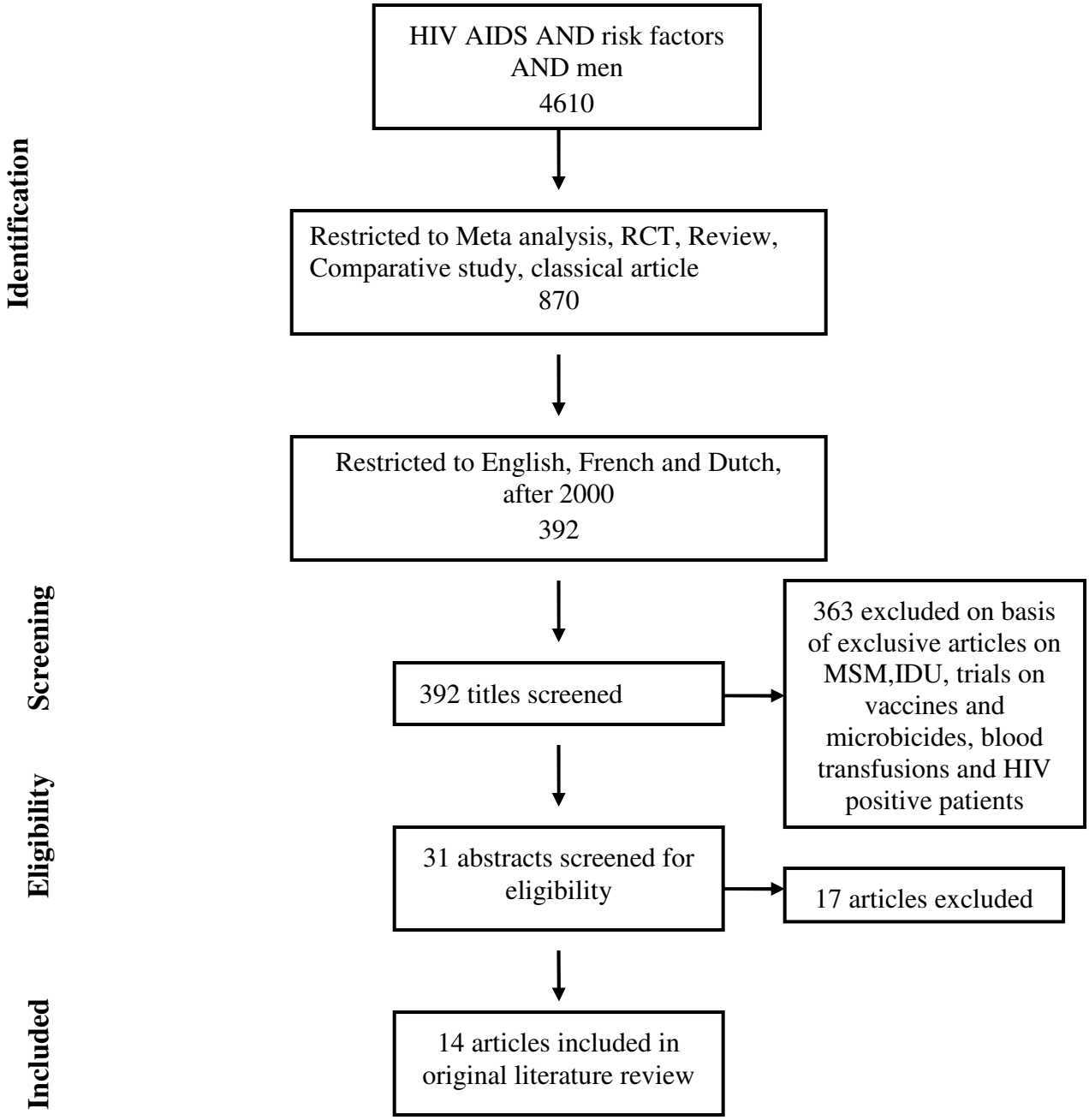
Methods

PubMed was searched using the following search strategy:
First of all literature was searched using the terms HIV OR AIDS AND risk factors AND men, without any limitations. This search yielded 4610 articles. In order to eliminate comments, case-reports and other results that would not be beneficial to the initial literature research, a restriction was made to include only meta-analyses, randomised controlled trials, review articles, comparative studies and classical articles.
Then a language selection was made, only including English, French and Dutch. The literature was then confined to articles published after 2000, in order to make it a recent overview.

A total of 392 articles were left for screening. All these titles were screened. Articles that were exclusively focusing on MSM and IDU (mainly in western settings), as well as articles focussing on trials with vaccines and microbicides, were discarded. Also articles that were related to blood transfusions and HIV positive patients were not included.

The remaining 31 articles were read and screened for eligibility. Some were not used because they had no relation with the population studied in this thesis and some were not included because of bad quality of the paper. In the final literature review 14 articles were included. In order to complete the literature overview, some articles were later on added for clarity or reference.
The literature review was completed by using data from the World Health Organisation (WHO) and the Kenyan AIDS indicator survey 2007.

Figure 1 Literature search strategy



Results

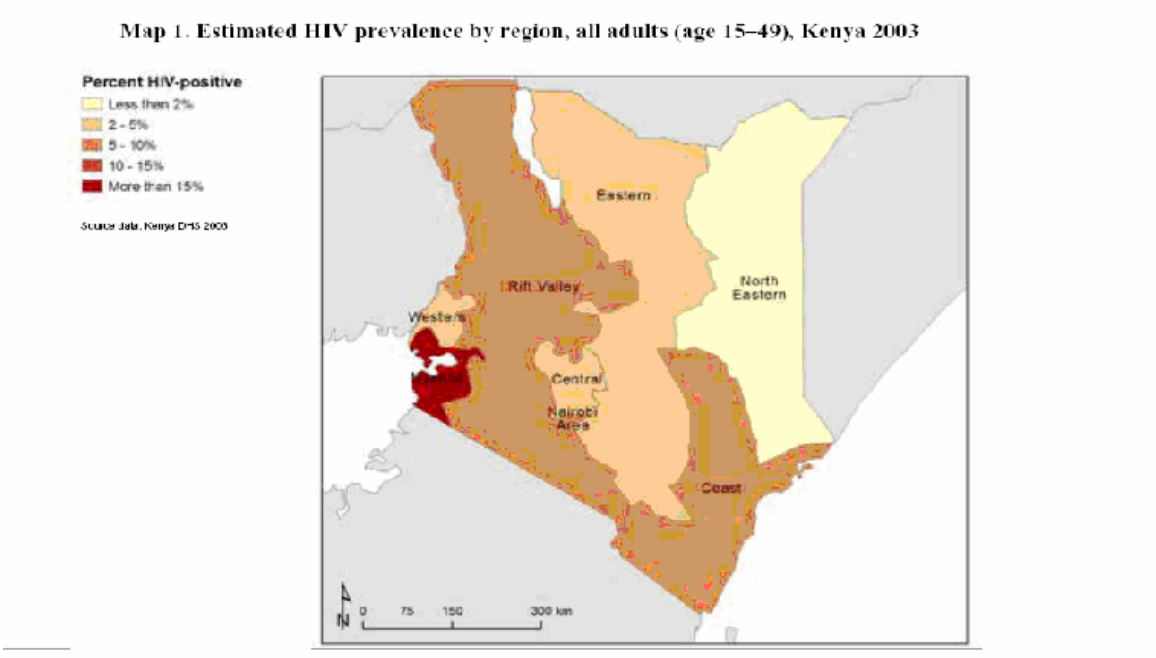
Kenya and the current demographic situation

Kenya has a population of over 37 million people, with an annual growth rate of 2.6 per cent. In 2006 the life expectancy at birth was 53 for males, comparable to the mean of the World Health Organisation's (WHO) African Region. HIV/AIDS is the leading cause of death for the total population (all ages) in Kenya, followed at a distance by lower respiratory infections and diarrhoea (38 %, 10 % 7 % respectively)[3].
Kenya has a density of 13 doctors and 114.5 nurses per 100.000 people. It spends 4.3 % of it's Gross Domestic Product (GDP) to health care [3, 4].

HIV and modes of transmission in Kenya

The HIV prevalence in adults (15-49 years) is between 7.1% and 8.5 % [5, 6] compared to 7.1 % in the WHO African Region [4]. The HIV prevalence differs between rural and urban settings in general (4.0 % versus 8.3 % in 2006) and per region [6]

Figure 2 HIV prevalence Kenya 2003



Transmission is mainly by heterosexual contacts in Kenya [7, 8]. Gouws et al estimated through modelling that 76 per cent of HIV infection occurred in individuals of a low risk population and/or involved in casual heterosexual contacts. Clients of female sex workers and the sex workers themselves accounted for 11 % of HIV infections. They estimate that nearly 5% of all infections occur in intravenous drug users (IDU) and another 5 % in men who have sex with men (MSM).

In 2003, Pisani et al came with similar percentages on HIV transmission in Kenya fior IDU, but not for MSM[7].

Figure 3 Mode of HIV transmission in different countries

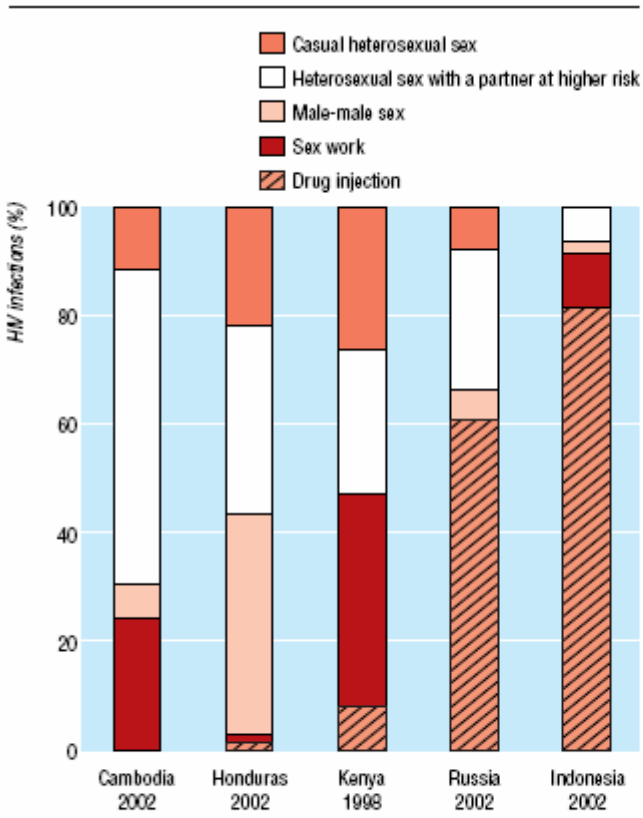


Fig 1 Distribution of new HIV infections by type of exposure in selected countries, 1998-2002. Data on behaviour and HIV prevalence drawn from references 7-17

From: Pisani et al. 2003; Back to the basics of HIV-prevention; focus on exposure

More women than man are now infected. In the Kenyan Aids Indicator Survey (KAIS) 2007 8.7 per cent of women aged between 15-64 were infected, compared to 5.6 per cent of men [6]. In 2007, for every male infected, 1.6 women were infected.

Determinants of transmission of HIV

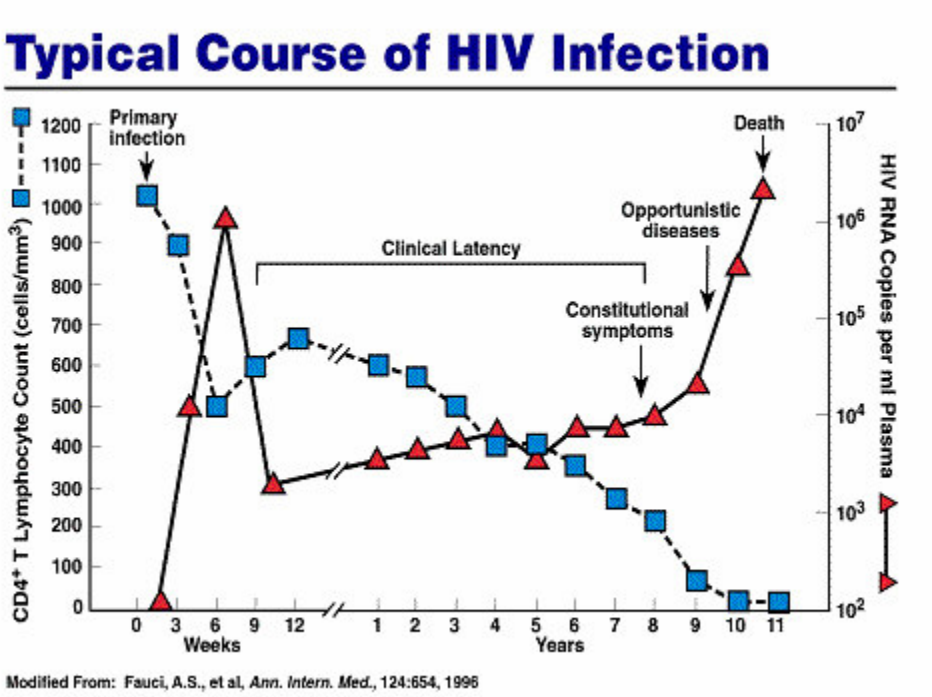
Proximate determinants of HIV transmission are *efficiency* (probability of transmission per sex act), *exposure* (probability of at risk contacts) and *duration of infectious period*.
In these proximate determinants there are differences for men and women. The probability of a transmission (*efficiency*) per sex act is estimated 0.0003-0.2 for male to female transmission per vaginal sex act and 0.0003-0.082 for female to male transmission per vaginal sex act [9]. This seems to be mainly due to the difference between insertive and receptive contact, as well as due to the thin mucosal lining in the cervix and uterus. This risk is greatest in young women, with a cervical ectopy. Young women are also more prone to Chlamydia infections, another risk factor for acquiring HIV [10]. The cervix normally acts as a protective barrier to the foetus and hosts a large number of CD4 cells. This may be an additional risk for women to get infected with HIV.
Circumcision in men diminishes the risk of infection for men by 50% in twelve months, but does not alter the risk for women [11]. The presence of an STI contributes to the efficiency of transmission. Transmission efficiency is probably increased by a factor three [9, 10]. Ulcers, lesions and a high presence of white blood cells in the genital area are thought to be responsible for this effective transmission.
The risk of transmission through anal sex is higher than through vaginal sex. The mucosal lining of the rectum and anus is very thin and this increases the risk of HIV transmission. Men who have anal receptive sex with men (MSM) therefore have a much higher risk of acquiring HIV than men who do not practice anal sex. In general the risk of infection rises with the viral load of the infected partner [12].

The *exposure* to (unsafe) sex in general and HIV especially is a factor that is greatly influenced by the person at risk him- or herself. Many studies have focussed on determinants of high risk sexual behaviour. In 1997 Mnyika et al. concluded that an urban setting, a young age at sexual debut, travel, alcohol and visits to disco's and drinking establishments were all associated with multiple concurrent partners and low or inconsistent condom-use [13]. Commercial and transactional sex (sex in exchange for gifts or services) are a major risk-factor in the spread of HIV/AIDS [14-18]. The prevalence of HIV in commercial sex workers and people engaged in transactional sex is usually much higher than in the general populations. Clients of commercial sex workers and people engaged in transactional sex are therefore at a higher risk of acquiring HIV when having unprotected sex. They may also serve as a bridge between high risk and low risk groups, such as their spouses.
Alcohol seems to be a facilitator of commercial, transactional and extra-marital sex [15, 19, 20]. Both the type of drinking (binge drinking versus non-binge drinking) and the frequency of drinking had an influence on the number of sexual partners and the consistency of condom-use.
Travel, both for work and leisure, is associated with multiple partners and unsafe sex. The majority of truck drivers, bus and matatu drivers in many parts of the

world have been shown to be engaged in unsafe sex with multiple, concurrent, commercial and non-commercial partners [12-15].

The third proximate determinant of HIV infection is *duration of the infective period*. This is highly individual in the absence of AntiRetroviral Therapy (ART). Where the first half year of infection the viral load is usually high, it diminishes there after to a stable, individual level for each patient. When, after a variable time between 6 months and 10 years the viral load increases again (and the CD4 count diminishes), people are eligible for ART. With adequate treatment the viral load usually diminishes to undetectable levels within three to six months. So the only factor that can influence the duration of the infective period is ART.

Figure 4 Typical course of HIV infection



It is generally believed that the risk of HIV transmission is very low when plasma viral load is below 1500 copies/ml. Recent studies however have shown that semen and vaginal discharge may still contain enough viral load for transmission, even at very low or undetectable levels of plasma viral load [21, 22].

The survey in Coast Province, Kenya

Study background

Between June and November 2007, Family Health International (FHI), an American based NGO, conducted a behavioural monitoring survey (BMS) in two provinces in Kenya in collaboration with the International Centre for Reproductive Health (ICRH). FHI is implementing a project called Aids, Population and Health Integrated Assistance II (APHIA II) in these two provinces, Coast Province and Rift Valley. The BMS served as baseline data for monitoring the impact of project interventions.
The objective of APHIA II is to create decentralized and integrated networks for prevention, care and treatment services. These networks will strengthen and link existing programs and resources in the public and private sectors and among faith- and community-based organizations.
Two more BMS's are planned; a mid-term and a final evaluation of the project will take place.
For these BMS's 8 groups of individuals were being interviewed:

- In School Youth (ISY)
- Out of School Youth (OSY)
- Men in Worksites (MIWS)
- Police and Military (Police)
- Matatu drivers and their assistants (Matatu)
- Truck drivers and their assistants (Truckers)
- Female sexual workers (FSW)
- Women in households with low income (WIHLIC)

The names between brackets are indicating the shorthand for the groups in the tables that will follow.
Matatu's are small vans or minibuses, used to transport people for short and longer distances.

For this thesis, only men from the first six groups from Coast District were used for analysis. Only these groups will be described here.

Sampling Process and Recruitment

Sampling sizes

For all groups the following formula was used to calculate appropriate sample sizes. The level of precision is set at 0.05.

$$n = D\frac{\left[\sqrt{2P(1-P)}Z_{1-\alpha} + \sqrt{P_1(1-P_1)+P_2(1-P_2)}Z_{1-\beta}\right]^2}{\Delta^2}$$

Where:

D = design effect;

P1 = the estimated proportion at the time of the first survey;

P2 = the proportion at some future date such that the quantity (P2 - P1) is the size of the magnitude of change it is desired to be able to detect;

P = (P1 + P2) / 2;

$Z1-\alpha$ = the z-score corresponding to the probability with which it is desired to be able to conclude that an observed change of size (P2 - P1) would not have occurred by chance; and

$Z1-\beta$ = the z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change of size (P2 - P1) if one actually occurred.

In School Youth

The survey was conducted in formal schools. Boys and girls aged between 15 and 24 were eligible. In the region, three districts were selected proportionally to the number of government and private secondary schools. Schools were then selected by Probability Proportional to Size (PPS). From these schools, all classes were surveyed. Proportional to the size of the school, a number of students from each class were randomly interviewed.

Out of School Youth

The survey was conducted in popular and social hang-out places as Primary Sampling Units (PSU). A PSU consisted of barber shops, markets, game halls, beaches etc. A rapid social mapping provided a chart for the sample. Proportional to the number of youth patronizing the site, youth were recruited. Single, unemployed or informally employed out-of-school females and males between 15 and 24 were eligible. In a single day per PSU, youth were randomly asked to participate, until the required number of participants was reached.

Men in worksites

Regional APHIA II offices have made a list of potential companies that would hopefully benefit from APHIA II. Through a PPS method, a systematic sample of

companies was made. A staff list was stratified by top management, middle level staff and lower level categories. From this stratified list, through systematic random sampling 10% of the top, 20% of the middle and 70% of the lower category was interviewed.

Police and military

A list was made of police divisions and military bases in the region. Through a PPS method, a systematic sample of three police division and three military bases was made. From these six units, eligible persons (male and female) were asked to participate during off hours in stations and particularly over weekends. There was no formal randomisation in this process.

Matatu drivers and their assistants

Matatu routes in the Coast Province were identified and treated as clusters. The number of routes and the number of matatus on each route were estimated with the Matatu Welfare Association. Routes were then selected through a PPS method. The number of drivers and assistants were chosen proportional to the estimated number of matatus on the route.
Matatu drivers and their assistant were interviewed as they arrived last in the terminus, were matatus leave at a first come first leave base. This is with the assumption that they arrived on a random occurrence. If the driver and/or assistant was not available on the spot for the interview, an appointment was made later during the day.

Truckers drivers and their assistants

Truckers were sampled at stopover points along the Northern Corridor, a route linking East and Central Africa. These interviews were carried out for another project from Family Health International, called ROADS.
For Coast Province (as for Rift Valley) one site was retained for this survey. At the stopover, truckers and their assistants were randomly invited to participate in the survey, until the needed number was reached for the ROADS project. There are no numbers of refusal rate.

Data Collection and data entry

A group of research assistants (RA) and a team leader were trained for a period of five days for the purpose of data collection. The individuals were trained on the method of selection of respondents, obtaining informed consent, the use of structured questionnaires, interviewing respondents and data collection using a personal digital assistant (PDA). Each PDA was loaded with the final version of the questionnaire.
The collected data was entered each day into a database developed on Epi-Info by the team leader. Data cleaning and error checks were conducted, but as indicated in the data analysis section, this was no guarantee for a clean database.
5% of the data of each subgroup were entered double, to check for inconsistencies. A threshold of 1% was set for minimum error.

Survey Measures

All women interviewed in this survey were taken out for analysis (see Figure 5 Flowchart for inclusion in analysis).

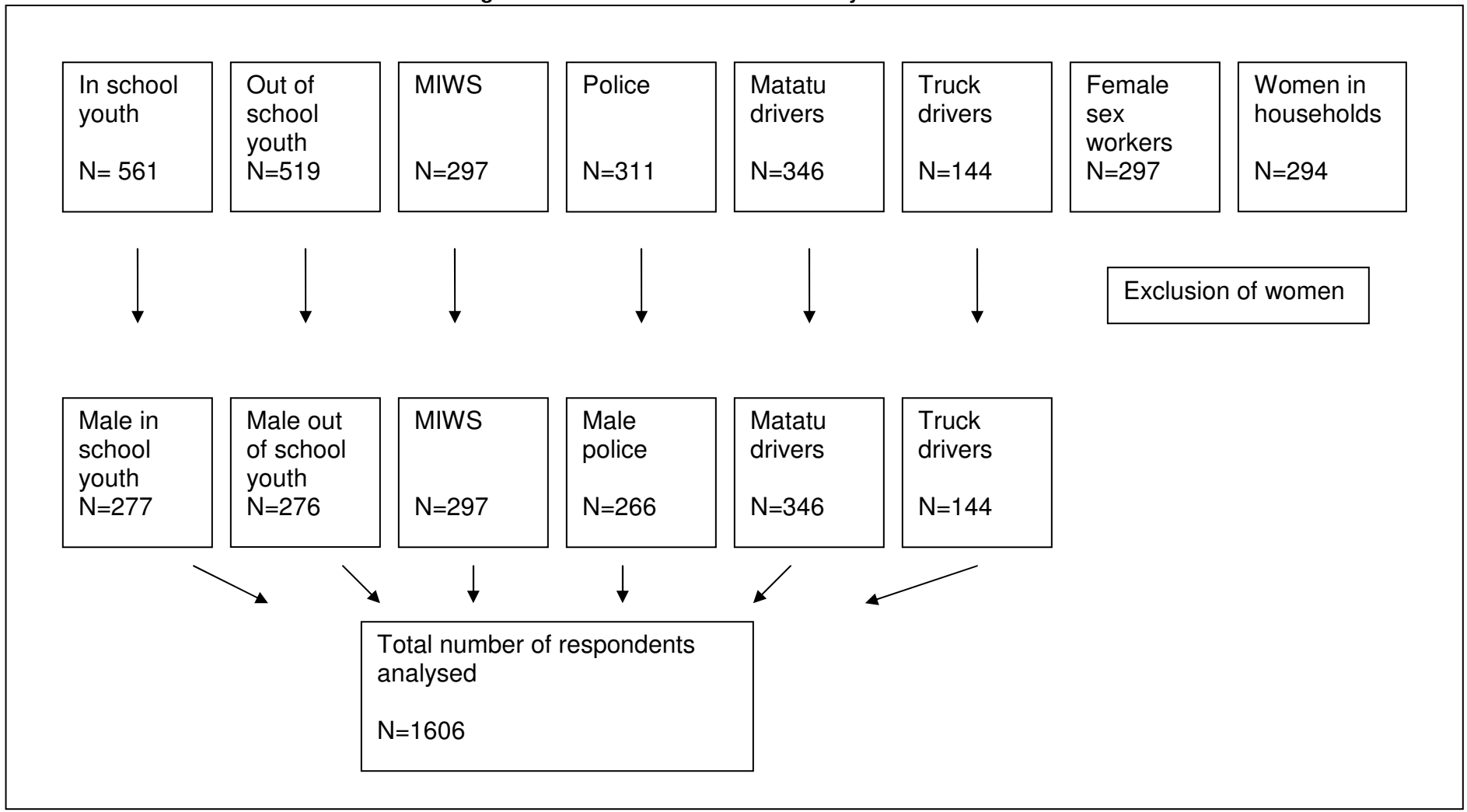
The survey questionnaire used in the study tried to elicit responses related to sexual behaviour, drug use including alcohol, use of and knowledge about male and female condoms, knowledge and experienced symptoms of sexually transmitted infections (STI), family planning, and knowledge, peer education on and attitude towards HIV/AIDS. The questionnaire had been prepared in English. It was translated into the local language Kiswahili and back translated into English to check for the accuracy of the translation. The questionnaire was pre-tested to check whether the questions were interpretable in a commonly understood idiom without distorting the original meaning (Annex 1).

After having explained what the survey was about, the respondents were asked to sign an informed consent. They were then asked about some demographic background characteristics, such as age, education completed, income, religion, marital status.
For the purpose of the demographic and univariate analyses, age was divided into 4 groups (15-24, 25-34, 35-44, 45 and older). Education was also coded into four groups, per education level completed (none, primary, secondary, tertiary). People were asked about their use of alcohol and other drugs ("Some people have tried different types of drugs. Which of the following, if any, have you tried? Cigarettes, bang, mirhaa, alcohol, glue/petrol, cocaine, heroine"). These responses were then quantified in the next questions.
For the analyses, the response to the question of drinking frequency was dichotomised into never/less than once a week, and more than once a week/every day for the analysis.

The respondents were then given a series of questions about their sexual behaviour. Questions varied from very general ("Have you ever had sexual intercourse?"), to having had sex with commercial and non-commercial partners. In the next section, the sexual intercourse with commercial and non-commercial partners was quantified. Men were also asked if they had ever had sex with other men.

A complete set of questions was devoted to condoms, both in use ("The last time you had sex with this (non-)commercial partner, did you and your partner use a condom?") and in knowledge and practicalities on where to get condoms.
There was more than one choice possible for the outcome variable used throughout the analyses. People responded to questions about their use of the condoms the last time they had had sexual intercourse per se, the last time they had had commercial sex and the last time they had had non-commercial sex. In the questions about non-commercial sex, no distinction had been made whether that was with the respondent's wife or any other non-commercial sex contact.

Figure 5 Flowchart for inclusion in analysis



There was also a question on how often people used condoms on commercial and non-commercial sex. The answer could vary from never, sometimes, almost every time and every time. When these answers were dichotomised (never and sometimes, compared to almost every time and every time) the percentages were very much in line with the percentages of condoms used the last time. For commercial sex 82% had used a condom the last time, and 90% said they did that almost every time or every time. In non-commercial sex 26% had used a condom the last time, and 21% said they did this almost every time or every time. The answer to the question about condom use the last time is more a reflection of behaviour, and not so much of intention, so this answer was used for all subsequent analyses.
In the survey, for different questions different recall period were used for different groups. For example, there was a question about the number of commercial and non-commercial sex partners in "the last 3-6 months". A next question was how often the respondent had sex with his last commercial or non-commercial partner in the last 30 days. In order to calculate the total number of commercial or non-commercial partners or sex-acts, the responses were multiplied by the appropriate number in order to compare the groups. The number of commercial and non-commercial partners was then recoded into categories; none, one partner, two or three partners and more than three partners.

The last section was devoted to obtain information on the respondent's knowledge of sexually transmitted infections (STI's), whether or not he had recently experience symptoms of STI's (genital discharge, ulcer, scratch), self-perceived risk for HIV and on knowledge and attitude towards HIV and family planning.
"Symptoms of STI in the last three months" was coded yes in the analysis if one of the answers to the question ulcer, scratch or genital discharge in the past three months had been yes, and no if the reply was no to all questions on symptoms of STI's. The same coding was applied to "symptoms of STI ever". The answer to self-perceived risk for HIV was kept in four categories: no risk, low risk, moderate risk and high risk.
Knowledge on HIV was tested by using ten questions, such as "Can a person get the HIV virus from mosquito bites?" Information on attitude was tested with questions such as "Would you be willing to share a meal with a person you knew had HIV or AIDS?" and "If your colleague (Driver/Assistant) became infected with HIV, the virus that causes AIDS, would you be willing to continue working with him?"
People were also asked if they had had an HIV test in the past six months, insisting that the interviewer did not want to know the result.

Ethical considerations

The protocol, consent forms and questionnaires were submitted to the Kenyatta National Hospital Ethics and Research Committee (KHN-ERC) and to the Family

Health International Protection of Human Subjects Committee for approval. Both committees approved the survey (Annex 2).
For the use of this thesis, the author submitted a full request for ethical approval to the Research Ethics of the Royal Tropical Institute in Amsterdam, as requested by a member of staff. The Research Ethics Committee decided that there had been no need for this request (Annex 3).
For all sites where participants were recruited, permission to conduct the study was asked to the appropriate regulatory bodies.

The survey was monitored by the FHI Regional Senior Technical Officer for Strategic Information Division as the Principle Investigator (PI), and also by the FHI/ICRH co-investigators. Sites were closely monitored for problems by the study coordinators.
The Principal Investigator (PI) and co-PI's trained the RA's to ensure that the informed consent process was covered in depth. During training, emphasis was placed on the importance of obtaining informed consent, and avoiding coercion of any kind. Complete confidentiality of study subjects was also emphasized. They made periodic visits to the sites to check that all ethical standards were observed throughout the study period.

Every potential participant was informed about the objectives of the project. The interviewer presented the study objectives and asked the interviewee if s/he had already participated. If the person met the inclusion criteria, the RA read the informed consent form to them slowly, and made sure the interviewee understood the details. When the potential participant agreed to participate, the form was signed and stored the interviewer read the informed consent letter. The interviewees were informed about the option to not answer any questions that they did not want to answer and to withdraw from the questionnaire application at any time during the interview. It was explained that deciding not to take part in the study would not result in any penalties. It would not affect any participation in APHIA project if that were the case. Participants were asked at the end of the consent form if they had understood the study procedures and what was being asked of them (Annex 4).

Names of respondents were not recorded anywhere on the questionnaire.
The RA located an acceptable place which offered some level of confidentiality and privacy to conduct the interview and then administered the questionnaire.

Potential risks to the participants

There were no specific risks for the participants. The only conceivable risk was a breach in confidentiality and a potential embarrassment over the questions asked.

Potential benefit to the participants

The individuals participating belong to a group which is considered as a high risk group for the acquirements and transmission of HIV/AIDS and other STI's. The

groups will benefit from prevention programmes and advocacy support more specified to their needs after analyses of this survey.

The analysis

Data analysis

Data analysis was done by the author herself using Intercooled STATA version 10.0 (Statacorps, Texas, USA).

Data cleaning

The data were delivered in subsets, per professional group. Similar questions had different numbers in the questionnaires per group, so they had to be sorted and renamed first. Similar answers to similar questions were not numbered identically per professional group, so they had to be recoded as well.
The datasets were then integrated into a masterset.
This masterset was checked for inconsistencies and duplicates by unique identifiers for each respondent. After review of the duplicates it was decided to keep them in the final analyses, as they appeared to be unique interviewees who had happened to get the same “unique” identifier (see results for analyses of duplicates).

Quantitative analyses

Descriptive analyses and tabulating of socio-demographic characteristics of the sample were conducted first.
Then a calculation was made of the proportion of people that was in a high risk group to contract HIV/AIDS, according to international criteria. People that had answered yes to use of injecting drugs, needle sharing, men having sex with men, having had symptoms of an STI, having one or more extramarital partners or considering themselves in a high risk or HIV were considered at a high risk of contracting HIV.

Several associations with suspected causal determinants of unprotected sex (no condom use in the last sexual act) were then tested using bivariate logistic regression; age, marital status, education, having had symptoms of STI in the last three months, alcohol use, having taken an HIV test in the past 12 months and ever, alcohol use, having had an HIV test in the past 6 months, the self-perceived risk of having HIV, whether or not the respondent had had any peer education in the past six months and the number of commercial and non-commercial partners.

The variables that had an association with unprotected sex with a p-value of less than 0.10 in the bivariate analyses were used in a multiple regression model. A

model using backward fitting was made to make the best description of the influence of individual associative factors with the outcome variable (annex 5).

The results

Demographics

In total 1606 people divided over 6 groups were analysed:

- In School Youth (ISY)
- Out of School Youth (OSY)
- Men in Worksites (MIWS)
- Police and Military (Police)
- Matatu drivers and their assistants (Matatu)
- Truck drivers and their assistants (Truckers)

As expected the in-school youth had the lowest mean age (17.1 years). The police force had the highest (38.9 years) mean age. The police was the most educated group (median education level more than secondary school, not in table) and the matatu drivers the least educated group.
The matatu drivers however had the highest median income, 12000 Kenyan Shilling on average per month. There was a great variety of incomes in most groups. The men at worksites also earned a respectable income. Surprisingly, the out-of-school youth had an income in the same order as the truck drivers. Unfortunately, the police men were not asked about their income, so we cannot see if their age and education were reflected in their income.

The majority of the working men were married.

Alcohol use in the in-school youth was still very low; only 1% said they drank at least once a week. The truck drivers and their assistants drank a lot more often, 58% said they drank at least once a week. Roughly 10% drank every day (not in table).

Of the out-of-school youth and the matatu and truck drivers, a large number had tried one or more drugs. These same groups had regular users of drugs, mainly bang/khat and mirhaa (a cannabis sativa). Cocaine and heroin use was minimal in this group.

Table 1 Description of some socio-demographics variables, alcohol and drug use per subgroup in a cross sectional survey in Coast Province, Kenya, 2007

Variable		In school youth	Out of school youth	Men worksites	Police	Matatu	Truckers
Numbers interviewed		N=277	N=276	N=297	N=266	N=346	N=144
Mean age	(standard dev)	17.1(1.49)	20.6 (2.03)	35.7 (8.33)	38.9 (8.34)	29.9 (7.01)	33.9 (7.9)
Education completed (percentage)							
	None	0% (0/277)	3% (9/276)	0% (1/297)	0% (0/266)	2% (7/346)	1% (1/144)
	Primary	100% (277/277)	50% (138/276)	44% 132/297)	4% (10/266)	61% (210/346)	48% (69/144)
	Secondary	0% (0/277)	41% (112/276)	36% (108/297)	87% (232/266)	34% (118/346)	49% (71/144)
	Tertiary	0% (0/277))	6% (17/276)	19% (56/297)	9% (24/266)	3% (11/346)	2% (3/144))
Median income (Kenian Shilling)	(Interquartile range)	NA	3440 (1720-6020)	7500 (5000-15000)	NA	12000 (7500-15000)	4000 (2050-6750)
Marital status	Married	NA	NA	81% (244/297)	90% (239/266)	60% (208/346)	76% (110/144
	Single/widowed/divorced	NA	NA	19% (55/297)	10% (27/266)	40% (138/346)	24% (34/144)
Alcohol use last 4 weeks							
	Every day/At least once a week	1% (4/276)	16% (43/275)	24% (69/290)	32% (84/266)	39% (136/346)	58% (51/88)
	Less than once a week/	99% (272/276)	84% (232/275)	76% (221/290)	68% (182/266)	61% (210/346)	42% (37/88)
Number of drugs ever tried *	0	83% (227/273)	55% (149/272)	82% (241/295	80% (212/264)	38% (129/344)	55% (78/141)
	1	15% (41/273)	30% (83/272)	13%(40/295)	17% (45/264)	36% (124/344)	35% (49/141)
	2	2% (5/273)	13% (35/272)	4%(13/295)	3% (7/264)	24% (83/344)	8% (12/141)
	3	0	1% (3/272)	1% (1/295)		1% (5/344)	1% (1/141)
	4	0	1% (2/272)	0		1% (3/344)	1% (1/141)
Number of regular users of:	bang	2	14	7	0	30	2
	mirhaa	0	21	8	14	56	27
	glue/petrol	0	0	0	0	0	0
	cocaine	1	0	0	0	1	0
	heroin	0	1	0	0	1	0

Missing numbers are due to the answer don't know/no response
* bang, mirhaa, glue/petrol, cocaine or heroin ever tried (1,2,3 or 4 substances)

Table 2 Description of main sexually related sample characteristics, per profession, of a cross sectional survey in Coast Province, Kenya, 2007

		ISY	OSY	MIWS	Police	Matatu	Truckers
Intercourse *		(intercourse at all)	(intercourse at all)	(intercourse last 12 months)	(intercourse last 3 months)	(intercourse last 12 months)	(intercourse last 3 months)
	Yes	25% (25/98)	65% (149/230)	93% (275/296)	90% (239/266)	90% (310/346)	87% (125/144)
	No	74% (73/98)	35% (81/230)	7% (21/296)	10% (27/266)	10% (36/346)	13% (19/144)
Condom use last time sex							
	Yes	44% (11/25)	34% (51/149)	19% (53/275)	23% (56/239)	27% (85/310)	40% (50/125)
	No	56% (14/25)	66% (98/149)	81% (222/275)	77% (183/239)	73% (225/310)	60% (75/125)
Number of commercial partners last 12 months					Last 3/6 months		Last 3/6 months
	0	92% (23/25)	91% (208/229)	97% (284/292)	95% (251/264)	79% (266/338)	72% (104/144)
	1	0	4% (8/229)	2% (6/292)	3% (9/264)	11% (37/338)	10% (14/144)
	2 or 3	8% (2/25)	4% (10/229)	<1% (1/292)	2% (4/264)	7% (25/338)	12% (18/144)
	More than 3	0	1% (3/229)	<1% (1/292)	0	3% (10/338)	6% (8/144)
Number of non-commercial partners last 12 months							
	0	12% (3/25)	46% (106/229)	17% (51/292)	14% (38/264)	22% (74/338)	26% (37/144)
	1	72% (18/25)	29% (66/229)	74% (215/292)	69% (182/264)	57% (192/338)	60% (86/144)
	2 or 3	12% (3/25)	17% (38/229)	8% (24/292)	17% (44/264)	18% (60/338)	13% (19/144)
	More than 3	4% (1/25))	8% (19/229)	1% (2/292)	0	3% (12/338)	1% (2/144)

* ISY and OSY intercourse at all, police and truckers in last 3 months, men in worksites and matatu-drivers last 12 months

A large percentage of the working men had had sexual intercourse in the last 12 months. The questions to truckers and policemen only covered a period of three months, but still gave the same result; around 90% of the men had had sexual intercourse. A quarter of the in school youth had ever had sex, and two third of the out of school youth. Only 29 % of the total group interviewed having had sex at all had used a condom the last time they had sexual intercourse (not in table). The young people school youth had used a condom most frequently in their last sex act, (44 %), but also the truckers had used a condom in 40 %. There is strong evidence to suggest that there is a real association between profession and condom use ($p<0.01$).

About 10% of the respondents, 156 men, responded having had commercial sex in the last year. The largest group with commercial sex partners were the truckers (26%) and the matatu-drivers (21%).
983 (61%) men had had a non-commercial partner in the last year. From the question it was not obvious if this was a partner next to their wife or if that included their wife. 14 percent of the men said they had more then one non-commercial partner (224 respondents), so that will include at least one partner in addition to a potential spouse.

Table 3 Description of risk sample characteristics for HIV, in three subgroups, of a cross sectional survey in Coast Province, Kenya, 2007

		In school youth	Out of school youth	Other men
Condom last time commercial sex (of people having commercial sex)	Yes	100% (2/2)	86% (18/21)	81% (108/133)
	No	0	14 % (3/21)	19% (25/133)
Frequency of condom use in commercial sex	Always/almost always	100% (2/2)	83% (15/18)	91% (98/108)
	Sometimes/never	0	17% (3/18)	9% (10/108)
Condom use last time non-commercial sex (of people having non-commercial sex)	Yes	77% (17/22)	56% (69/123)	21% (174/835)
	No	23% (5/22)	44% (54/123)	79% (661/835)
Frequency of condom use in non-commercial sex	Always/almost always	59% (13/22)	49% (60/123)	15% (129/838)
	Sometimes/never	41% (9/22)	51% (63/123)	85% (709/838)
Men having had sex with men	Yes	0	1% (1/129)	1% (13/1038)
	No	100% (25/25)	99% (148/149)	99% (1025/1038)
Symptoms of STI last 3-6 months	Yes	<1% (1/273)	2% (6/269)	4% (40/1037)
	No	>99% (272/273)	98% (263/269)	96% (997/1037)
Symptoms of STI ever	Yes	1% (3/273)	9% (24/269)	35% (361/1037)
	No	99% (270/273)	91% (245/269)	(65% 676/1037)
Peer education last 6 months	Yes	29% (80/277)	27% (75/276)	35% (367/1053)
	No	71% (197/277)	73% (201/276)	65% (686/1053)
HIV test last 6 months	Yes	4% (11/275)	22% (59/274)	26% (269/1047)
	No	96% (264/275)	78% (215/274)	74% (778/1047)
Self perceived risk of HIV	No risk	42% (114/272)	34% (87/258)	29% (289/984)
	Low risk	50% (137/272)	48% (123/258)	52% (516/984)
	Medium risk	6% (16/272)	14% (37/258)	13% (128/984)
	High risk	2 (5/272)	4% (11/258)	5% (51/984)

The overall condom use the last time people had sex was very low; only 29% said they had been using a condom the last time they had sexual intercourse. There was a large difference between condom use in commercial sex and in non-commercial sex. In the last commercial sexual intercourse the large majority of the respondents had used a condom (100%, 86% and 81% respectively), where as in the last non-commercial sexual intercourse only a quarter of the respondents had used a condom. The youth was doing better in non-commercial sex, using a condom in 77% (in-school-youth) and 56% (out-of-school youth). This difference between condom use in commercial and non-commercial sex was also reflected in their answers as to how often people said they would usually use a condom in commercial and non-commercial sex.

Of the men interviewed only 14 said they had ever had sex with a male partner. Only 4 men had ever tried injecting drugs. Three percent of the interviewees had had symptoms of a sexually transmitted disease in the past 12 months, mainly discharge, sometimes in combination with scratch. However, 35% of the working men had had symptoms of an STI in the past.

One third of the respondents had had peer education on HIV prevention, care and support in the past six months. This was consistent over all profession, except for the truck drivers, were only 17% said they had received peer education recently (not in table).

About one fifth of the men had taken an HIV test in the past six months. The majority of the respondents considered themselves of no or low risk of HIV, 80 %. Only 5% considered themselves at high risk for HIV.

Duplicates

In all professional groups there were duplicate “unique identifiers” (ID numbers). The largest group was in the police group, were 33 (counting as 66 duplicates) of the 266 men were identified by a number that had already been used. This group did not differ from the other 200 in income or education. Their records showed that they seemed to be different individuals who had been interviewed on separate days.
The 8 duplicates (4 pairs) in the truck driver group did seem to differ from their non-duplicate counterparts in age and mainly income. The following analysis showed that they were never the less probably separate individuals, who are part of the truck drivers group;
ID number 7008 was entered twice, but there was no ID number 7009, so probably that was the correct ID number for the second respondent entered by number 7008.
ID number 7042 was interviewed in a village called Taita Taveta on the 29th of June 2007. All other people with an ID number in the range ID 7033-7060 were interviewed on the 28th in Kilifi. The Taita Taveta group was that was interviewed

on the 29th of June had ID numbers in the range 7100 and over. Indeed number 7142 was missing. The same applied to the ID numbers 7059 and 7060, that should probably have been 7159 and 7160.

Table 4 Some socio-demographic characteristic means of the duplicates compared to the non-duplicates in a cross sectional survey in Coast Province, Kenya, 2007

In school youth	All	Duplicates	Difference	p-value
N=	275	2		
Mean age	17,1	15,5	1,6	0.11
Median income*	NA	NA	NA	NA
Education completed	1	1	0	NA
Out of school youth				
N=	266	10		
Mean age	20.6	21.3	0.7	0.3
Median income*	3440	2580	660	0.28*
Education	1.48	2	0.52	0.01
Men in worksites				
N=	281	16		
Mean age	35.6	37.1	1.5	0.46
Median income*	7500	9500	2000	0.06*
Education	1.74	1.75	0.01	0.95
Police				
N=	200	66		
Mean age	39.1	38.1	1	0.44
Median income	NA	NA	NA	xx
Education	2.05	2.08	0.03	0.54
Matatu				
N=	313	33		
Meanage	29.9	30.4	0.5	0.71
Median income*	12000	10000	2000	0.66*
Education	1.38	1.45	0.07	0.47
Truckdrivers				
N=	136	8		
Mean age	33.6	40.1	6.5	**0.02***
Median income*	4000	8000	4000	**0.02**
Education	1.53	1.5	0.03	0.88

* Using Mann-Whitney U test
2 duplicates indicate 1 pair with the same ID number
NA: Not applicable, as no answers in this category from survey

High risk groups

An analysis was made to see how many men in this survey would fall into a high risk group for HIV-infection as mentioned in the literature review (eg. [23]). This would include men who have been using intravenous drugs, shared needles, have had sex with men, have had an STI, had commercial or extra-marital non-commercial sex and/or would perceive themselves as having a high risk of contracting HIV/AIDS.
A division was made to see how many men had how many risk factors.
1033 men out of the 1606 (64%) had at least one risk factor, and should be considered at high risk in this survey that did not specifically target men at high risk.

Table 5 Actual risk-factors for HIV-infection of respondents in cross sectional survey in Coast Province, Kenya, 2007

Number of risk factors	ISY	OSY	Other men
0	90% (249/277)	52% (145/276)	17% (179/1053)
1	9% (26/277)	39% (107/276)	66% (696/1053)
2	1% (2/277)	7% (18/276)	14% (150/1053)
3	0	2% (5/276)	2% (25/1053)
4	0	<1% (1/276)	<1% (3/1053)

Bivariate logistic regression

For the bivariate analysis only men who had answered the question whether or not they had used a condom the last time they had had sexual intercourse where included in the analysis. This resulted in 242 observations that were deleted: 1364 men were left over for analysis.
People who had not been sexually active (241) were taken out of the analyses as well. This left a total of 1123 respondents for the analyses

There was a strong relation between age and unprotected sex. Compared to the youngest age group, the older men were less likely to use a condom. There was a hint of a trend visible: the older the men get, the less likely they are to use a condom.
There was also a strong relation visible between marriage and unprotected sex. The married men used a condom less often than the unmarried men.

People who had one or more commercial partners were more likely to having been using a condom the last time they had had sex (whether this was with a commercial or non-commercial partner is not clear from this survey).
The same strong association between use of alcohol and use of a condom in the last sexual act was found, but in a very peculiar way; it seemed that people who drank alcohol more than once a week to every day, were *more* likely to having been using a condom.

There was a relation between unprotected sex and having had symptoms of an STI in the past 3 months. People who had had recent symptoms of an STI were using a condom more often in their last sexual intercourse. The relation seemed to be temporarily however, as there was no relation between condom use and symptoms of an STI ever.

There was also a relation between HIV testing and unprotected sex. The respondents who had had a recent HIV-test were more likely to have had unprotected sex than the people who had not had an HIV-test.

No relation with unprotected sex was found between completed educations, self perceived risk of HIV and peer education.

Table 6 Bi-variate Logistic Regression; Estimated degree of associations (odds ratio with 95% intervals and p-values) linking suspected causal influences or correlates with unprotected sex (no condom used in last sexual act) in a cross sectional survey in Coast Province, Kenya, 2007

Variable names Number of observations	Covariate	Crude OR (95% CI)	P value
Age	Age groups		
N=1123	15-24 (281/1123)	1.00	
	25-34 (691/1123)	1.56 (1.13-2.15)	**<0.01**
	35-44 (286/1123)	2.87 (1.96-4.21)	**<0.01**
	45 and older (146/1123)	3.89 (2.31-6.54)	**<0.01**
Marital status	Currently not married (271/974)	1.00	
N=974	Currently married (757/974)	7.13 (5.12-9.93)	**<0.01**
Education completed	None (6/1123)	1.89 (0.21-16.2)	0.57
N=1123	Primary (471/1123)	0.90 (0.56-1.46)	0.68
	Secondary (544/1123)	1.11 (0.69-1.79)	0.66
	Tertiary (102/123)	1.00	
Symptoms of STI last 3-6 months	No (1067/1108)	1.00	
N=1108	Yes (41/1108)	0.51 (0.27-0.98)	**0.04**
Symptoms of STI ever	No (752/1108)	1.00	
N=1108	Yes (356/1108)	1.22 (0.91-1.63)	0.18
Alcohol use	Never/less than once a week (720/1072) = non regular	1.00	
N=1072	More than once a week/every day (352/1072) = regular	0.68 (0.51-0.90)	**<0.01**
HIV test last 6 months	No (833/1116)	1.00	
N=1116	Yes (283/1116)	1.36 (1.01-1.82)	**0.04**
Self perceived risk of HIV	No risk (282/1053)	1.00	
N=1053	Low risk (557/1053)	0.88 (0.63-1.22)	0.44
	Medium risk (154/1053)	0.73 (0.47-1.13)	0.16
	High risk (60/1053)	0.84 (0.45-1.56)	0.57
Peer education last 6 month	No (732/1123)	1.00	
N=1123	Yes (391/1123)	0.92 (0.70-1.20)	0.53
Number of commercial partners	None (969/1123)	1.00	
1123	1 (7/1123)	0.34 (0.21-0.56)	**<0.01**
	2 or 3 (59/1123)	0.22 (0.13-0.38)	**<0.01**
	More than 3 (22/1123)	0.21 (0.09-0.50)	**<0.01**
Number of non-commercial partners	None (179/1123)	1.00	
1123	1 (724/1123)	1.88 (1.32-2.8)	**<0.01**
	2 or 3 (184/1123)	0.97 (0.63-1.49)	0.90
	More than 3 (36/1123)	0.76 (0.37-1.58)	0.46

Missing numbers due to no answer or don't know to that question.

Multivariate analysis, using multiple logistic regression

Using multiple logistic regression, a model using was build to incorporate all possibly relevant factors for unprotected. Using all factors that had a p-value over 0.10 in the bivariate analyses, a model was build using backward fitting. Building a model using backward fitting means that one includes all relevant variables associated with the outcome, and then excludes the one with the weakest association. This model, with now fewer variables is then compared for fitness with the larger model including more variables. Since these models are nested, they can be compared using a logrank test. If the less complex model is equally good, the model building is continued using that model. Then another variable is taken excluded, to compare again against the last model. In this way, the least complex model to describe the association between the variables and the outcome is found (Annex 5 and 6).

Table 7 Final Multivariate Model Adjusted degree of associations (odds ratio with 95% intervals and p-values) linking suspected causal influences or correlates with unprotected sex (no condom used in last sexual act) in a cross sectional survey in Coast Province, Kenya, 2007

	Adjusted OR (95% CI)	P value
Variable names		
Marital status	6.82	<0.01
Regular alcohol use	0.62	0.01
Number of commercial sex partners	0.81	0.02
Symptoms of STI in past three months	0.36	0.01

Marital status (being married), alcohol use, the number of commercial partners and recent symptoms of an STI were the factors that remained of statistically significance in the multivariate model. Regular alcohol use (every day or at least once a week), the number of commercial sex partners and recent symptoms of an STI were independently associated with less unprotected sex and being married was associated with more unprotected sex.

Discussion

The survey done by Family Health International was intended as a baseline measure for future interventions for the prevention of HIV/AIDS. It targeted ordinary men and women, at school, at work and unemployed or women in households. I analysed the questionnaires of the men only.

In the literature review section a distinction was made between three proximate determinants of HIV transmission, namely the efficiency or probability of transmission per sex act, the exposure or probability of at risk contacts and the duration of the infectious period.

For the first determinant there were three major aspects of importance; circumcision, the presence of an STI and male-male sexual contact. In the Kenya Aids Indicator Survey (KAIS) 2007 85% of men reported being circumcised [6], with large regional differences. Unfortunately this survey did not ask the participants whether of not they had been circumcised.
In this survey, only 3% of the men reported having had symptoms of an STI in the past three or six months (three or six months depending on the question asked in different subgroups). A quarter of the respondents reported having had symptoms of an STI in the past. STI infection not only facilitates the transmission of HIV [9], but there is also a large percentage of co-infection between STI's and HIV [6]. In the bivariate analyses, having had symptoms of an STI in the past 3-6 months was associated with less unprotected sex. STI symptoms might be a warning for people to use a condom, but clearly, they have had sex without a condom before. Having unprotected sex with an STI is linked to increase risk of HIV transmission. The warning effect of an STI seems to wane over time however. There was no effect on condom use of ever having had symptoms of an STI.
One percent of the male respondent said they had had sex with men. Pisani et al calculated that 24 percent of HIV transmission took place through men having sex with men, but Gouws thinks this is only about 5% [7, 8]. Unfortunately these men were not asked if they used a condom having anal sex. If Pisani and or Gouws are right, the risk for contracting and transmitting HIV for the men having sex with men is large, if 1% is responsible for 5-24% of the transmission in Kenya.

For the second determinant, exposure to unsafe sex in general and HIV especially, this survey revealed some unexpected results.
A high percentage of the adult men had had intercourse in the last months, but only a quarter of them had used a condom the last time they had had sex. In the survey, it was not clear from the question whether this last time of having intercourse was within a marital or steady relation or outside. It is therefore difficult to compare this figure with the latest figures from the Kenya Aids Indicator Survey (KAIS), where report a 5.9% use of condom within a marital relationship and 52.6% of condom use outside marriage [6]. From the

formulations in the survey, it seems more logical for people to regard the question on condom use with the last non-commercial partner as a question relating to extra-marital sex with a non-commercial partner. What is clear from the demographic characteristics from this survey, that there is a large difference in condom use between commercial and non-commercial sex. In commercial sex, more than 80% of the men report the use of a condom, where as in non-commercial (and for this purpose regarded as extra-marital non-commercial sex) condom use was as low as 27%. Clearly any unprotected extra-marital sex is a risk-factor for HIV/AIDS. It may also serve as a bridge from high-risk to low-risk groups.
Other studies have shown that travel is associated with multiple sex partners and unsafe sex. The truck drivers and matatu drivers in this survey did not report using condoms less frequently than other groups. In fact, the reported use of condoms was high for the truckers. As seen in the result section, there was a strong link between condom use and commercial sex. Commercial sex could thus have served as a confounding factor for condom use in this group. 28% of the truckers had regular commercial sex, with an average of 2.77 different sex workers. Of the matatu drivers 21% had regular commercial sex, with an average of 2.80 different sex workers (not in table). This, compared to the other groups was high. When comparing the matatu-drivers and truckers together with the other group of men, it was not their profession that had a significant association with condom use (OR 1.04, 95% CI 0.77 – 1.39), but commercial sex (OR3.56, 95% CI 2.45 – 5.17).
In the multivariate analyses, this holds also true for the entire group of respondents; the number of commercial sex partners is an independently associated variable for condom use, not profession.

Alcohol use is a factor that has been found to be linked with unsafe sex in quite some other studies [13, 15, 19, 20]. In this survey, alcohol use comes out as an independent protective factor for condom use. It is associated with *less* unprotected sex in the last sexual act. As far as I am aware, no other study has shown this result, and it is puzzling. For this analysis, alcohol use was dichotomised into never/less than once a week and more than once a week/daily. Even if alcohol use and condom use were analysed using all four categories of alcohol use, this result remained. It is interesting to see if this result will also show in future surveys done in this group, as is anticipated in the APHIA II study.
Some hypothetical ideas on why people who use more alcohol use more condoms:
It could be that the condom distribution in this region of Kenya is mainly through bars or other places where people drink alcohol, so that people who drink alcohol have a better chance of picking up condoms than people who do not drink alcohol. Another reason might be that people who have been drinking have a less adequate memory of their condom use, and think that they have been using a condom, and would answer that in a survey.

This survey did not give any result on the third determinant of HIV transmission, the duration of the infectious period.

Some other interesting observations from this survey:
Most respondents in this survey thought they had no or a low risk of contracting HIV/AIDS (80%). This is consistent with the KAIS.
In the KAIS 75% of men reported having more than one sexual partner and inconsistent condom use. This obviously puts them at high risk for HIV/AIDS. In a simple analyses in this survey, adding up all people who had been using intravenous drugs, shared needles, have had sex with men, have had an STI, had commercial or extra-marital non-commercial sex and/or would perceive themselves as having a high risk of contracting HIV/AIDS, nearly two third was considered at high risk of HIV/AIDS. The difference between the self perceived risk and the actual risk is a major concern for prevention.
There is a statistically significant correlation coefficient for self-perceived risk and actual high risk (0.07, 95% CI 0.04 – 0.10), but the association is weak. Even though general knowledge of HIV/AIDS is relatively high in this group of respondents, as reported in the APHIA II Behavioural Monitoring Survey Report [24], translating this knowledge into a self perceived risk, and changing behaviour is clearly something different.

It is not imminent to distil items for targeted prevention from this study. It is clear that the discrepancy between the self perceived risk and the actual risk for acquiring or transmitting HIV/AIDS is a major concern. Education could help men to better understand the risk factors for HIV. It is not clear though if this will lead to change of behaviour. People who had had peer education did not differ in their use of condoms for example from people who had not had peer education. Perhaps the education by peers is not the way to correct a self perceived risk.
The correlation coefficient for self-perceived risk and actual high risk is strongest for the in-school youth (0.18, 95% CI 0.06 - 0.30). The in-school youth will probably have or have had sexual education at school, including education with regard to HIV/AIDS. Peer education had also no significant influence on condom use in this group (OR 2.29, 95% CI 0.90 – 5.82).
As for the variables that are associated with unprotected sex in the multivariate analysis;
It is clear that we must target married men to use more condoms if and when they have extra-marital sex. Group counselling for married men may facilitate this.
The other two factors that are linked to unprotected sex are not easily translated into recommendations for prevention. We cannot tell people to drink more, as they will then use a condom more frequently, or tell them to have more commercial sex.

Future research, more practical, the follow-up survey planned in 2010, could hopefully cast light on these two variables. This follow-up survey should take into

account the limitations posed by this survey and be an improved version of this baseline survey.

Limitations

Methodological limitations

The questionnaire

The questionnaire used here was extremely long. It contained 120 detailed questions. The accuracy of the individual answers might diminish as the interview will get too long.

Some of the formulations in the questions were not clear. I will pick a few examples:
“How many partners were commercial (any partner you had sex with in exchange for gifts or money) and how many were non-commercial (any partner other than a commercial partner).”

> In this question the first controversy is made about non-commercial partners. Does this include the wife or steady girlfriend of the respondent. Later on, there are questions on condom use in commercial and non-commercial sex. It is impossible to distinguish here between condom use with long term partner and non-commercial sex not with a long term partner.

Many questions had a different recall period:
“During the last 4 weeks, did you use alcohol?”
“Have you ever injected drugs in the last 3 or 6 months?”
“Have you had sexual intercourse in the last 3 months?”
“Have you had sexual intercourse in the last 6 months (two questions later in the survey)?”
“How many male partners did you have in the last 12 months?”
“Thinks about all the women you had sex with the last 3 or 6 months; how many were commercial, how many were non-commercial?”

> The use of different recall periods in one survey is generally not recommended. It may sometimes be useful as a cross-check on the answers, or when you actively want a description of two different things (such as “Did you use a condom during your last sexual act” and “Did you consistently use condom during the last month”).
> The use of two recall periods in one question is incomprehensible for the respondent. The use of the answers is therefore limited as well.

The questionnaire was administered to eight different groups. For all these groups, the questionnaire was slightly adapted. In itself this is not a problem, but with the analyses of this survey, this gave rise to several problems:
All people were asked “What is the highest level of school you have been to?”

In some groups the answers could only be: none, primary, secondary, tertiary", but other groups could answer which level they had *completed*.
Similar or exactly the same questions for different groups of respondents had different numbers in the questionnaire. This made a straight forward merge of all the subsets of answers impossible. All questions had to be renamed and then merged to make sure that the answers corresponded to the same questions.
It only then appeared that the same answers to the same questions were numbered differently in some groups (e.g. 1=female 2=male in one group, 1=male 2=female in another group). For any analyses this creates a lot of confusions and is a prone to mistakes.

Selection bias

For this survey, a selection of people and places was made for the survey. However carefully the selection was made, there is always some selection bias. In the truckers group for example, one stopover site along the Northern Corridor was retained for inclusion in this survey. In a prevalence study for HIV among truck drivers in KwaZulu Natal in South Africa, Ramjee et al. found that the stopover site was the only statistically significant factor associated with HIV-prevalence in the truck-drivers[25]. For this survey this result could mean that coincidentally a special stopover was selected, which gave results for the truckers that are not representative.
The choice for other sites was made according to a process called Probability Proportional to Size whereby a random selection took place according to size. For the Out of School Youth, youth present on the day of the interviews on a Primary Sampling Size (such as barber shop, a market or a game hall), were randomly asked to participate. The individuals hanging out together however are probably friends and might show similar sexual behaviour according to the social norms of that group. Interviewing individuals at the same place on a different day may have resulted in different answers for this specific group.

For none of the groups information has been collected on the number of people who refused to participate and the reasons why. It is not possible to find out if and in what way this has resulted in selection bias.

In the matatu group the terminus inspector was notified about the arrival of the team of researchers; permission to conduct the survey was sought from them. Matatu drivers could have felt a pressure to participate in order to please the terminus inspector and this can have influenced the results.
In the two mobile groups, the matatu drivers and the truck drivers, both the driver himsels and his assistant were asked to participate. Even though they were both asked separately, one of them could feel a peer pressure to participate or not when the other did so. This can be a hidden constraint to the participants.

The use of PDA's

The use of PDA's was new in this survey. As explained in the "duplicates" section, this has probably created the problem of having so many duplicate "unique identifiers". Had the teams left with pre-numbered questionnaires, then there might have been fewer problems with duplicates. However, the data entry from answer sheets that are illegible should not be neglected either. The problem with the PDA's however is, that one cannot trace back the mistakes. Data is entered on the spot with the respondent. The data sheets are entered in the data collection files at the end of the day, the PDA emptied and used the next day again. There is no room for double data entry to compare the accuracy of entry. The only way to do this is to have two people being present at the interview enter the answers from the respondent during the interview and compare them. This might hamper the confidentiality of the interview however.

The analysis

Sample size

The sample size for this study was calculated to see changes in behaviour in future comparative surveys. The analyses I have done, was of a different nature. Had the intention of this survey been my analyses, the sample size might have been different and I would have perhaps come up with different conclusions.

Use of self-reported measures

The use of self-reported measures is not without controversies. When not testing respondents for HIV itself, many surrogate markers have been used in different studies, including self reported symptoms of STI's, unprotected sex, number of sex partners, etc to establish a link between variables and safe sex with regard to the transmission of HIV. Also, biological endpoints have been used to evaluate interventions to prevent HIV transmission. No single measure of sexual behaviour appeared to be a strong predictor STI or HIV incidence[26].
For the use of self-reported measures regarding sexual behaviour, a partner-by-partner sexual behaviour assessment, which would elicit information about each sex partner and activities engaged in with that partner, would be optimal. However in many settings, including this one, this is not feasible. Pinkerton et al. have tried to compare this "gold standard" to the use of aggregate data (just collecting information on average number of partners and sort of sex-acts that people engaged in [27]. They showed that at least for their study-population (gay men on vacation in Key West, USA) it made little difference in the risk estimation for HIV acquisition.
With questionnaires on sexual behaviour, as well as on other subjects, there is always the risk of people giving socially desirable answers. In this case this would probably lead to reporting unprotected sex to condom-protected sex. There is no way to estimate the effect of this socially desirable answering between professions or other subgroups. There is also no indication that there

would be a difference between subgroups to this respect, so we will just have to accept the fact that this happens.

Cross sectional studies and causal relations

A problem with all cross sectional studies is the establishment of a causal relation between the factor studied and the variables that are found to be related. There was for example a relation in the bivariate analysis between having had an HIV test and condom-use. Does this mean that people who are going for an HIV test get information that will decrease their condom use (possibly an HIV-negative result), or, is the fact that people who do not use a condom but are aware of the HIV-risk are also the people that go for an HIV test (reversal causality)? Confounding variables include those factors that are both related to the outcome and the variables associated with them. By performing a multivariate analysis, I could filter out the confounding variables within this questionnaire. However, there may be unknown confounding variables that were influencing the outcome of this survey that we will not know now, nor could control for.

Conclusion and recommendations

Conclusions

This thesis has been written in order to obtain the degree of Master in International Health. The overall goal of the thesis was:
"To improve the understanding of risk factor for HIV-infection in men in Coast Province, Kenya, for the development of targeted interventions for this group".

This was possible by the kind disposition by Family Health International and the International Centre for Reproductive Health of the results of a large cross-sectional survey done among eight different professional groups in Coast Province, Kenya. The groups interviewed were In-School Youth (ISY), Out-of-School Youth (OSY). Men in Worksites (MIWS), Police, Matatu drivers and their assistants, Truck drivers and their assistants, Female Sexual Workers (FSW) and Women in Households with Low Income (WIHLIC). For this survey 2769 men and women were interviewed on their knowledge, attitude and behaviour towards sex, and HIV/AIDS more specifically. For the thesis I analysed the results of the 1606 men that were interviewed.

HIV/AIDS in Sub Saharan Africa predominantly affects women (ratio 1.6 women to 1 man in Kenya). Women however, are often not in a position to protect themselves from HIV/AIDS. Condom negotiation is often not possible, not within a marriage, and not for commercial or transactional sex, let alone in a rape situation. HIV prevention targeting men will benefit these women, as well as the men.
For targeted prevention activities for men, it is important to know and understand their behaviour. The analysis of surveys can help to do this.

Through general literature research, three important determinants for the transmission of HIV were found:
The *efficiency* (probability of transmission per sex act) of the transmission, the *exposure* (probability of at risk contacts) to transmission and *duration of infectious period* of an infected person.
For the efficiency, there is a difference between men and women. Women are physiologically more prone to infection from a single heterosexual contact then men. Anal sex has a very high efficiency of transmission. For both men and women, the efficiency of transmission is higher in the presence of a sexually transmitted disease. Circumcision diminishes the risk of transmission for men, but not for women.
The exposure to HIV is mainly through multiple concurrent partners, commercial sex, unprotected sexual intercourse and needle sharing with intravenous drug use. Several factors have been associated with behaviour that increases the risk of exposure to HIV: alcohol use, travel and a young age at sexual debut.
For the duration of the infectious period, the main determinant is the start of ART.

The analysis of the survey focused on the factors found in the literature study. The large majority of working men had had sexual intercourse in the last year Overall condom use was low, 29%, with a large difference between condom use in the last commercial sex act (82%) and non-commercial sex act (27%). The youth, both in- and out of school youth were more consistent in their condom use. Only one percent of the male respondents had had sex with men, and four out of the 1606 men ever tried injecting drugs. Only one person said he was a regular user of heroin and cocaine.

Two third of the respondents of this survey, that did not specifically targeted high risk groups for HIV/AIDS, showed high-risk behaviour in one or the other way. 80% of the respondents thought they had no or minimal risk for contracting or transmitting HIV/AIDS (self-perceived risk). Although there was some association between the actual risk and the self-perceived risk, this was minimal.

Bivariate logistical analyses showed that age, marital status and HIV testing were associated with unprotected sex (more unprotected sex) and the number of sex partners, symptoms of STI in the recent past and alcohol use were associated with unprotected sex in the opposite way (less unprotected sex).
The associations with more unprotected sex are consistent with the main literature, but the associations with less unprotected sex are not directly obvious to interpret.

Multivariate analyses showed that being married (AOR 6.82), regular alcohol use (AOR 0.62), a higher number of commercial sex partners (AOR 0.81) and a recent STI (AOR 0.36) were independently associated with unprotected sex in the last sexual act.
The association between condom use and the number of commercial sexual partners is encouraging. People seem to know that with commercial sex, the use of a condom is of extreme importance.
The association with alcohol is more puzzling, and not easily explained.

Targeted prevention, based on the results of this survey, should include ways to alter the self perceived risk by men. If men do not consider themselves at risk, it is unlikely that they will change their behaviour. Another conclusion from this survey is that peer education has no relation to condom use. This is consistent with other studies. It seems then that peer education should not be the only way to try to change self-perceived risk and behaviour.
Another type of prevention should focus on married men. The condom use in married men is lower than in unmarried men. This is worrying, as these men may bring STI's, including HIV to their homes. They may serve as a bridge between high and low risk populations. As said earlier, many women are not in a position to negotiate condom use within marriage and may therefore not be in a position to protect themselves from HIV/AIDS.

Recommendations with regard to the survey

- Make one concise questionnaire that is identical for all groups interviewed
- If questions are added for specific groups, add them so that the questionnaire will remain logical for the respondents, but do not interfere with the numbering of the questionnaire in general
- Make sure all answers are identical in all questionnaires for different groups
- Use only one realistic recall period for all questions in the questionnaire, e.g. two weeks.
- If PDA's are used, incorporate a mechanism that will check for data-entry mistakes. One possibility is to have two people enter the data at the same time. Another one would be to record the interview and have somebody check the data entry afterwards. This should be done in at least 5 – 10 % of the interviews
- Make sure it is impossible to enter the same unique identifiers
- Include a question on circumcision
- Make sure that questions can only be understood in one way. One big problem with this survey was that from the questions it was not clear if a non-commercial partner, and non-commercial sex was meant as extra-marital or not. Also the question on condom use during the last sexual intercourse was confusing, as this could have been within the marriage or extra-marital.
- It would be of great added value to include some biological measure in this survey. It would change the nature of the research, but urine samples for example might be relatively easy to obtain. Proving HIV infection or other STI's would strengthen the analysis and the conclusions from large surveys as this.
- A comparative analysis between men in this more urban district and the men in rural districts should be facilitated for the next survey.

Recommendations for future research:

- Future research should focus on means to improve the self-perceived risk of men to a more realistic risk analysis
- The effect of different kind of education and interventions should be analysed and the results used for prevention
- The specific role of alcohol with regard to condom use should be part of HIV/AIDS research and prevention activities.

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Annexes

Annex 1 : Example of questionnaire matatu-drivers and touts

FAMILY HEALTH INTERNATIONAL (FHI)
HIV/AIDS/STI BEHAVIORAL MONITORING APHIA II SURVEYS (BMS)

For use with Matatu Drivers andTouts

KENYA - 2007

QUESTIONNAIRE IDENTIFICATION NUMBER |___|___|___||___|___|___|

Q001	**Province**	**Coast** 1 **Rift Valley** 2
Q002	District: _____	
Q003	Location: _____	
Q004	Route No: _____	|___|___|

Introduction
We are asking you to take part in a research survey to assess baseline HIV/AIDS/STI/RH/FP/TB, malaria and child health seeking behaviors in Coast and Rift regions. We want to be sure that you understand the purpose and your responsibilities in the survey before you decide if you want to be in it. Please ask us to explain any words or information that you may not understand.

Utangulizi:

Tunakuomba kushiriki kwenye utafiti huu inayonuia kutathmini tabia na mazoea ya watu katika maeneo ya Pwani na Bonde la Ufa ya kutumia huduma ya afya kwa maradhi yanayotokana na HIV, UKIMWI, magonjwa ya zinaa/afya ya kizazi / upangaji wa uzazi/ kifua kikuu, homa ya malaria na afya ya watoto. Tunataka kuhakikisha kuwa unaelewa kikamilifu madhumuni ya utafiti, jukumu lako katika

utafiti huu kabla hujaamua kushiriki. Tafadhali utuulize tukufanafanulie jambo au swali lolote ambalo hutakuwa umelielewa.

Information about the Research

This is a pure behavioral research survey being conducted with the aim of providing useful information that may help the APHIA II program improve health behaviors. Approximately 3850 respondents are expected to be recruited in this research survey. The survey will be conducted in a maximum of 10 selected companies benefiting from APHIA II activities in this region in collaboration with the management of these companies. Matatu touts and drivers aged between 15 to 55 years of age will be randomly selected. With permission from the chairmen of matatu organizations, interviews will be conducted during working hours by trained data collectors. The interview will last about 30 to 40 minutes. The interview will be confidential and anonymous. No names or personal identifiers will be recorded and no inducements will be given in order to participate in the survey.

.

Maelezo Kuhusu Utafiti.

Utafiti huu una lengo moja tu, kuleta kuelewa zaidi tabia na mazoea ya watu ili kusaidia mradi wa APHIA II ili uweze kuboresha tabia. Takriban watu 3,850 watahusishwa katika utafiti huu. Manamba na madereva wa matatu walio na umri wa kati ya miaka 15 mpaka 55 watachaguliwa. Kwa ruhusa kutoka kwa wenyekiti wa makundi ya matatu, mahojiano yatafanyika nyakati za kazi na watafiti waliopewa mafunzo. Mahojiano yatachukua takriban dakika 30 au 40. Jina la mhojiwa halitahitajika na mtafiti atahakikisha kuwa atakaye hojiwa maoni yake yatakuwa siri. Hakuna jina wala chochote kitakachoweza kumtambulisha mhojiwa kitaorodheshwa katika fomu ya kunukuu majibu. Hakuna pato lolote ama faida yoyote itakayotolewa kwa kushiriki katika utafiti huu.

Possible Risks

Apart from the potential psychological risks due to the sensitive nature of the questions in the structured questionnaires, no other risks are anticipated.

Possible Benefits

- This survey will provide information on health needs and help the APHIA II program to improve the health seeking behaviors of the targeted populations, including the health seeking behavior for RH/FP services with the aim of improving the utilization of RH/FP services e.g. deliveries by skilled attendants, use of ITN and Contraceptive prevalence Rate)
- Provide evidence of success or otherwise of the combination of HIV prevention efforts taking place in the project sites.
- Provide evidence for improvement in RH/FP and child health outcomes in the project.

Athari

Hakuna athari yoyote inaweza kutokana na kushiriki katika utafiti huu bali tu na fadhaiko inayoweza kutokana na maswali yenyewe ambayo ni ya kibinafsi mno.

Faida:

- Utafiti huu utachangia pakubwa kutoa habari muhimu kuhusu mahitaji ya ki-afya itakayo saidia sana mradi wa APHIA II kuweza kuboresha tabia ya kutafuta huduma za afya kwa waliolengwa, pamoja na kutafuta huduma za upangaji uzazi na afya ya kizazi ili kuimarisha matumizi ya huduma za afya ya kizazi na upangaji wa uzazi kwa mfano watoto kuzalishwa na wakunga walio na ujuzi na utaalam, matumizi ya chandarua iliyonyunyiziwa dawa na matumizi ya mbinu za kisasa za kuopanga uzazi.

- Itatoa ushahidi wa kufaulu au kutofaulu kwa mbinu mseto zinazotumiwa kujaribu kupunguza maambukizo katika maeneo ya mradi.

- Kutoa ushahidi wa umuhimu wa kuboresha huduma za afya za kizazi , upangaji wa uzazi na afya hasa ya watoto katika eneo la mradi.

If You Decide Not to Be in the Research
You are free to decide if you want to be in this research or not. If you decide not to participate, your decision will not affect your relations with the company management nor with your workmates or colleagues.

Japo hutakubali kushiriki.

Uko huru kuamua ikiwa utahusika katika utafiti au kama hutoshiriki. Ikiwa utaamua kutoshiriki uhusiano wako na wasimamizi wa kampuni, na wenzio hautaathiriwa kwa njia yoyote.

Confidentiality
We will protect information about you and your taking part in this research to the best of our ability. We will not use your name in any reports. We will not tell the company management, workmates or colleagues about your participation.

Kuhifadhi siri:

Tutachukua hatua zote ili kuhakikisha kwamba habari kuhusu kushiriki kwako katika utafiti huu imebanwa kabisa ili usiweze kutambulika kama mhusika. Jina

lako halitatumika katika ripoti yoyote wala habari za kushiriki kwako hakitatangazwa kwa wasimamizi wa kampuni, wenzio au mtu yeyote.

Payment
There will be no payment for taking part into this survey.

Malipo:
You may end your participation at any time. If you decide not to participate, your decision will not affect your relations with your peers, friends and colleagues nor the people around this place.

Leaving the Research
You may end your participation at any time. If you decide not to participate, your decision will not affect your relations with the company management nor with your workmates or colleagues.

Kujiondoa kwenye utafiti:

Uko huru kuacha kushiriki katika utafiti huu wakati wowote. Uamuzi wako kusitisha uhusiano na utafiti hautodhuru kwa njia yoyote uhusiano wako na wahusika.

If You Have a Questions about the Study
If you have any questions about the research, call **Simon Pierre Tegang at** Family Health International (FHI), Tel: 27139113/4 to 9; or **Nzioki King'ola at** International Centre for Reproductive Health (ICRH).Tel: +254 (0)41 494 866 from Monday to Friday between 8:00AM to 5:30PM.

Ukiwa na swali lolote kuhusu utafiti huu:

Ukiwa na swali au shaka yolote kuhusu utafiti huu, piga simu kwa: Simon Pierre TEGANG wa Family Health International (FHI) nambari ya simu 27139113/4-9 au kwa Nzioki King'ola wa International Center for Reproductive Health (ICRH) nambari ya simu 041494866 saa za kazi saa mbili hadi saa kumi na moja unusu jioni kati ya Jumatatu na Ijumaa.

Your rights as a Participant
This survey has been reviewed and approved by the Institutional Review Board of Family Health International and the Kenyatta National Hospital Ethics Review committee. If you have any questions about how you are being treated by the study or your rights as a participant you may contact Dr. Gauntai at Kenyatta National Hospital; P.O box 20723 Nairobi or and/or Mr. David Borasky, Protection

of Human Subjects Committee, PO Box 13950, Research Triangle Park, NC 27709, USA, phone number: [International Access Code]-1-919-405-1445, e-mail: dborasky@fhi.org.

Haki yako kama mhusika katika utafiti:

Utafiti huu imeidhinishwa na halmashauri ya kitaifa ya FHI pamoja ma ya Hospitali Kuu ya Kenyatta inayosimamia maadili kuhusu utafiti. Ikiwa una swali au shaka lolote kuhusu jinsi ambavyo utafiti huu unaendeshwa au haki zako kama mhusika tafadhali wasiliana na Dr. Guantai wa Kenyatta National Hospital wa kamati inayosimamia maadili ya utafiti SLP 20723 Nairobi au Bw. David Borasky wa Kamati ya Kusimamia utafiti inayo wahoji wanadamu P.O.Box 13950, Research Triangle Park, NC 27709 USA nambari ya simu 1-919-405-1445, au kwa barua pepe anwani: dborasky@fhi.org.

VOLUNTEER AGREEMENT

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

MAKUBALIANO YA KUJITOLEA KWA HIARI.

Ninaidhinisha ya kuwa sababu, madhumuni na athari zozote zinazoweza kutokana na kushiriki katika utafiti huu zimelezwa kwa mhusika huyu:

_____

_____

Signature of Person Who Obtained Consent	Date:
Sahihi ya aliyepata kibali cha mhusika	Tarehe:

005 INTERVIEWER: Code [____|____] Name_____

006 DATE INTERVIEW: | D | D | / | M | M | / | Y | Y | Y | Y |

CHECKED BY SUPERVISOR: Signature _____ Date _____

The MATATU DRIVERS AND TOUTS questionnaire includes the following sections:

Section 0 – Questionnaire identification data (6 codes)

Section 1 – Background characteristics
questions

Section 2 – Sexual history: Number and types of partners ## questions

Section 3 – Sexual partners: Commercial partners ## questions

Section 4 – Sexual partners: non-commercial partners
questions

Section 5 – Male and Female condoms
questions

Section 6 – STIs and Treatment seeking behavior ## questions

Section 7 – FP-Knowledge and use of contraceptives ## questions

Section 8 – HIV/AIDS Knowledge, opinions, and attitudes
questions

Section 9 – Stigma and Discrimination
questions

Section 10 – Exposure to interventions
questions

TOTAL NUMBER OF QUESTIONS : ## questions

Section 1: Background characteristics

No.	Questions and filters	Coding categories	Skip to
Q101	In what month and year were you born? Ulizaliwa mwezi na mwaka gani?	Month [__|__] Don't know month 88 Year [__|__|__|__] Don't know year 8888 No response 9999	
Q102	How old were you at your last birthday? Ulikuwa na umri gani wakati wa kusherehekea siku yako ya kuzaliwa iliyopita?	AGE IN COMPLETED YEARS [__|__] DON'T KNOW 88 **NO RESPONSE 99**	
Q103	What religion are you? Wewe ni mshiriki wa dini gani? **CIRCLE ONE**	PROTESTANT 1 ROMAN CATHOLIC 2 MUSLIM 3 TRADITIONALIST 4 NO RELIGION 5 OTHER_____ ___6 DON'T KNOW 8 NO RESPONSE 9	
Q104	Have you ever attended school? Je, umeshawahi kuhudhuria shule?	Yes 1 No 2 Don't know 8	2→ **Q106**
Q105	What is the highest level of study you have been to? Ulifika kiwango gani cha juu zaidi cha elimu?	PRIMARY (INCOMPLETE) 1 PRIMARY (COMPLETE) 2 SECONDARY (INCOMPLETE) 3 SECONDARY (COMPLETE) 4 POST-SECONDARY (INCOMPLETE) 5 POST-SECONDARY (COMPLETE) 6 NO RESPONSE 9	Go to **Q107**

No.	Questions and filters	Coding categories	Skip to
Q106	What is the **main** reason why you did not go or stopped going to school? Ni sababu gani muhimu ilikufanya kutoenda au kuacha kuenda shule? ***SPONTANEOUS; DO NOT READ OUT*** ***Only 1 answer***	No money for school fees 01 Failed secondary school entrance exam 02 Got pregnant 03 Parents died 04 Failed/academic dismissal 05 Completed Form Four 06 Health problems 07 To assist my parents 08 My parents refused 09 Disciplinary dismissal 10 No school to continue 11 Family discord 12 Didn't want to finish 13 Move around too much 14 Others_____ 15 NO RESPONSE 99	
Q107	How long have you lived in ____ *(NAME OF COMMUNITY/ TOWN/ VILLAGE)?* Wewe umeishi kwa muda gani hapa_____?	NUMBER OF YEARS [__|__] NUMBER OF MONTHS [__|__] ***(RECORD 00 IF LESS THAN 1 YEAR)*** DON'T KNOW 88 NO RESPONE 99	
Q108	What is your *current* marital status? Je, kwa wakati huu, umeowa au uko na mpenzi? *(for those who have never been married, ask whether they are currently living with a sexual partner?)*	Currently single 1 Currently married 2 Not married cohabiting with a sexual partner 3 Separate/Divorce 4 Widow 5 DON'T KNOW 8 NO RESPONSE 9	1,4,5,9 → **Q110**
Q109	How many wives/partners do you have? Je, uko na wake/wapenzi wangapi?	Number of wives/partners [___] NO RESPONE 9	
Q110	What is your occupation in this factory/worksite? Kazi yako ni nini katika kiwanda/mahala pakufanya kazi?	- _____ ___ [___]	

No.	Questions and filters	Coding categories		Skip to
Q111	How much is your average total personal montly income? Wewe binafsi hupata pesa ngapi kwa jumla kwa …….?	Amount in KSH DON'T KNOW NO RESPONSE	[__|__|__|__|__] 88888 99999	
Q112	Are you supporting any one (children, parents, or others) now? Je, wewe unasaidia yeyote (watoto, wazazi au wengine) kwa sasa?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	2 →**Q114**
Q113	How many people are you supporting now? Je, wewe unawasaidia watu wangapi kwa sasa?	Number of adults Number of children DON'T KNOW NO RESPONSE	[__|__] [__|__] 88 99	
Q114	During the **last 4 weeks** how often have you taken alcohol? Would you say... Katika **wiki nne zilizopita**, umekunywa pombe mara ngapi? Ungesema… **READ OUT and circle one**	Every day At least once a week Less than once a week Never DON'T KNOW NO RESPONSE	1 2 3 4 8 9	
Q115	Some people have tried different types of drugs. Which of the following, if any, have you tried? Watu wengine wamejaribu madawa ya kulevya tofauti tofauti. Je, wewe umejaribu, yapi kati ya haya?		YES NO DK NR a) Cigarettes 1 2 8 9 b) Bhang 1 2 8 9 c) Miraa/khat 1 2 8 9 d) Alcohol 1 2 8 9 e) Glue/petrol 1 2 8 9 f) Cocaine 1 2 8 9 g) Heroin 1 2 8 9	**IF NOT** TRIED ANY, GO TO **Q201**
Q116	How frequently have you used any of these substances? Je, ni mara ngapi umeshawahi kutumia yoyote kati ya hivi vileo?		Regularly Rarely Once Only a) Cigarettes 1 2 3 b) Bhang 1 2 3 c) Miraa/khat 1 2 3 d) Alcohol 1 2 3 e) Glue/petrol 1 2 3 f) Cocaine 1 2 3 g) Heroin 1 2 3	

No.	Questions and filters	Coding categories	Skip to
Q117	Have you ever been addicted to any of these substances? Je, umeshawahi *kuzoea* yoyote kati ya hivi vileo?	Yes No a. Cigarettes 1 2 b. Bhang 1 2 c. Miraa/khat 1 2 d. Alcohol 1 2 e. Glue/petrol 1 2 f. Cocaine 1 2 g. Heroin 1 2	**IF NEVER** ADDIC-TED, GO TO **Q120**
Q118	**If you have been addicted** to any of these substances, have you tried to stop their use? Je, ikiwa umeshawahi *kuzoea* yoyote kati ya hivi vileo, umewahi jaribu kuacha kuvitumia?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q119	Some people have tried injecting drugs such as cocaine or heroin. Have you injected such drugs in the last 12 months? Watu kadha wamejaribu kujidunga madawa ya kulevya kama *cocaine* na *heroine* kwa kutumia sindano. Je, wewe umejidunga madawa ya kulevya katika miezi 12 iliyopita?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	**IF NO**, GO TO **Q201**
Q120	**If you have injected cocaine or heroine** in the past 12 months, who supplied you with these drugs and needles? Ikiwa uliidunga dawa ya kulevya ya *cocaine* ama *heroine* kwa kutumia sindano kwa miezi 12 iliyopita, je, ni nani aliye kupatia madawa hayo na shindano?	YES NO a. Street vendor? 1 2 b. Bar/club worker? 1 2 c. Chemist/pharmacist? 1 2 d. Health/Clinic worker? 1 2 e. Another substance user?	

No.	Questions and filters	Coding categories		Skip to
Q121	With how many people have you ever shared needles or syringes? Umeshawahi kuitumia shindano moja na watu wangapi?	None 1 – 2 people 3 or more people	1 2 3	

Section 2: Sexual history: numbers and types of partners

No.	Questions and filters	Coding categories	Skip to
Now I am going to ask you some personal questions about sex. Remember we are asking these questions to learn more about how men feel, in order to help you make life safer. We know that some people have sexual intercourse with more than one person. Please answer the following questions honestly. Remember, your name is not written on this questionnaire and there is no information in it which can help relate it to you. **Sasa, ningependa kukuuliza maswali ya kibinafsi kuhusu kufanya mapenzi. Kumbuka, tunauliza maswali haya ili tuelewe jinsi watu wanavyo hisi ili tuweze kufanya maisha yako yawe salama. Tunajua kwamba watu wengine wamefanya mapenzi na wengine wamefanya mapenzi na watu wengi. Tafadhali yajibu maswali yafuatayo kwa uaminifu. Kumbuka, jina lako halitaandikwa kwenye fomu hii na hakuna habari zozote ambazo zinaweza kuhusishwa na wewe.**			
Q201	Have you had sexual intercourse in the last 12 months? Je, umeshawahi kufanya mapenzi katika miezi 12 iliyopita? [For the purposes of this survey, "sexual intercourse," is defined as vaginal, oral or anal penetrative sexual intercourse.]	YES 1 NO 2 Never had sex 3 NO RESPONSE 9	**1** **→Q204**
Q202	Have you ever had sex? Je, umeshawahi kufanya mapenzi?	YES 1 NO 2 Never had sex 3 NO RESPONSE 9	**1→Q204** **2→Q203**

No.	Questions and filters	Coding categories		Skip to
Q203	What is your <u>main</u> reason for not having sex? Ni kwa sababu gani <u>muhimu</u> ilikubidi kutofanya mapenzi? ***(Tick only one)***	I do not want I am not ready I haven't had any opportunity I am afraid of getting STI/HIV I want to finish my education I am afraid of getting (someone) pregnant I would like to abstain up to marriage It is against my religion I am afraid my parents will find out Don't know No response	00 01 02 03 04 05 06 07 08 88 99	GO TO **Q503**
Q204	The last time you had sexual intercourse with someone, was a condom used? Je, kondomu ilitumika wakati wa mwisho ulipofanya mapenzi?	Yes, male condom Yes, female condom No DON'T KNOW NO RESPONSE	1 2 3 8 9	
Q205 A	Have you ever had any male sexual partners? Je, umeshawahi kuwa na wapenzi wowote wakiume?	YES NO NO RESPONSE	1 2 99	**2 → Q206**
Q205 B	Have you had sexual intercourse with any of your male partners in the past 12 months? (sexual intercourse defined as penetrative anal or oral sex) Umewahi kufanya mapenzi na mpenzi wa kiume katika miezi 12 iliyopita?	Yes anal sex Yes oral sex Yes both anal and oral NO NO RESPONSE	1 2 3 4 9	**IF NO** GO TO **Q207**

No.	Questions and filters	Coding categories			Skip to
Q206	How many male partners have you had anal intercourse with in the last 12 months? Umefanya mapenzi na wapenzi wangapi kupitia sehemu ya siri ya nyuma katika miezi 12 iliyopita?	**Male partners** [__|__] DON'T KNOW 88 NO RESPONSE 99			
Q207	What does 'safe sex' mean to you? Unaelewa vipi maana ya kusema "ngono salama/kufanya mapaenzi salama"? *DO NOT READ. PROBE BY ASKING 'ANYTHING ELSE'?*	a. Abstaining from sex b. Using condom c. Avoiding multiple partners d. Avoiding sex with people who have multiple partners e. Avoiding other sex than vaginal f. Other_____ g. Don't know h. No Response	Yes 1 1 1 1 1 1 1 1	No 2 2 2 2 2 2 2 2	

No.	Questions and filters	Coding categories	Skip to
	Think about all the men with whom you've had sex in the last 12 months. Hebu fikiria kuhusu wapenzi wasio wa jinsia moja na wewe uliyo kuwa nao katika miezi 12 iliyopita.		
Q207A	How many were: Wangapi walikuwa: "***Commercial***" (partners with whom you had sex in exchange for money or gift) **Wapenzi wa kibiashara** (Wateja /wapenzi ambao umefanya mapenzi nao na ukawapa/ ukapewa pesa)	**A- COMMERCIAL** [__|__] DON'T KNOW 88 NO RESPONSE 99	
Q207B	***"Non-commercial"*** Any partner other than a commercial partner. **Wapenzi wasio wa kibiashara** (wapenzi wengine wote ambao hawakuwa wa kibiashara)	**B- NON-COMMERCIAL** [__|__] DON'T KNOW 88 NO RESPONSE 99	

Section 3: Commercial partners

No.	Questions and Filters	Coding categories		Skip to
	FILTER: CHECK Q207A HAD SEXUAL INTERCOURSE WITH A COMMERCIAL PARTNER IN LAST 12 MONTHS…[___] ↓	HAS NOT *HAD* SEXUAL INTERCOURSE WITH A COMMERCIAL PARTNER IN LAST 12 MONTHS….	**→Q4 01**	
Q301	Think about your most recent commercial sexual partner. How many times did you have sexual intercourse with this person over the last 30 days? Hebu fikiria kuhusu mpenzi wako anayelipa/anayelipwa pesa uliyekuwa naye hivi karibuni. Je, ni mara ngapi ulifanya mapenzi nayeye katika siku 30 zilizopita?	Number of times DON'T KNOW NO RESPONSE	|__|__| 88 99	
Q302	The last time you had sex with this commercial partner, did you and your partner use a condom? Mara ya mwisho ulipofanya mapenzi na mpenzi anayelipa/anayelipwa pesa, je, wewe na mpenzio mlitumia kondomu?	Yes, male condom Yes, female condom No DON'T KNOW NO RESPONSE	1 2 3 8 9	**IF NO** GO TO **Q304** **IF DK** GO TO **Q401**
Q303	Who suggested condom use that time? Nani alipendekeza kutumia kondomu wakati huo? **CIRCLE ONE**	Myself My partner Joint decision DON'T KNOW NO RESPONSE	1 2 3 8 9	GO TO **Q305**
Q304	Why didn't you and your partner use a condom that time? Kwa nini wewe na mpenzi wako hamkutumia kondomu wakati	a. Not available b. Too expensive c. Partner objected d. Don't like them e. Are unreliable f. Used other	Yes No 1 2 1 2 1 2 1 2 1 2	

	huo? *SPONTANEOUS:* **CIRCLE ALL ANSWERS AS THEY APPLY**	contraceptive 1 2 g. Didn't think it was 1 2 necessary 1 2 h. Didn't think of it 1 2 i. Reduces enjoyment 1 2 j. Other_____ 1 2 _____ 1 2 k. DON'T KNOW l. NO RESPONSE	
Q305	With what *frequency* did you and all of your commercial partner(s) use a condom over the last 12 months? Je, wewe na mpenzi/wapenzi wako wote wa kulipa/kulipwa mlitumia kondomu mara ngapi katika miezi 12 iliyopita?	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 8 NO RESPONSE 9	

Section 4: Non-commercial partners

No.	Questions and Filters	Coding categories	Skip to
Q400	**FILTER: CHECK Q207B** HAD SEXUAL INTERCOURSE WITH A NON-COMMERCIAL PARTNER IN LAST 12 MONTHS…[___] ↓	HAS NOT *HAD* SEXUAL INTERCOURSE WITH A NON COMMERCIAL PARTNER IN LAST 12 MONTHS….	→**Q501**
Q401	Think about your most recent non-commercial sexual partner. How many times did you have sexual intercourse with this person over the last 30 days? Hebu fikiria kuhusu mpenzi wako **asiyelipa/asiyelipwa** pesa uliyekuwa naye hivi karibuni. Je, ni mara ngapi ulifanya mapenzi nayeye katika siku 30 zilizopita?	Number of times |__|_ DON'T KNOW _| NO RESPONSE 88 99	
Q402	The last time you had sex with this non-commercial partner, did you and your partner use a condom? Mara ya mwisho ulipofanya mapenzi na mpenzi **asiyelipa/asiyelipwa** pesa, je, wewe na mpenzio mlitumia kondomu?	Yes, male condom 1 Yes, female condom 2 No 3 DON'T KNOW 8 NO RESPONSE 9	IF **NO** GO TO **Q404** IF **DK** GO TO **Q501**
Q403	Who suggested condom use that time? Nani alipendekeza kutumia kondomu wakati huo? **CIRCLE ONE**	Myself 1 My partner 2 Joint decision 3 DON'T KNOW 8 NO RESPONSE 9	**1,2,3 → Q405,** 8,9 → **Q501**
Q404	Why didn't you and your partner use a condom that time?	Y N a. Not available at the time 1 b. Too expensive 1 c. Partner objected 2 1 2	

	Kwa nini wewe na mpenzi wako hamkutumia kondomu wakati huo? *SPONTANEOUS:* **CIRCLE ALL ANSWERS AS THEY APPLY**	d. Don't like them 1 e. Are unreliable 2 f. Used other contraceptive 1 2 g. Didn't think it was necessary 1 2 h. Didn't think of it 1 i. Reduce enjoyment 2 j. Other_____ 1 2 _____ DON'T KNOW 1 NO RESPONSE 2 1 2 1 2 1 2 1 2	
Q405	With what *frequency* did you and all of your non-commercial partner(s) use a condom over the last 12 months? Je, wewe na mpenzi/wapenzi wako wote wasio wa kulipa/kulipwa mlitumia kondomu mara ngapi katika miezi 12 iliyopita?	Every time 1 Almost every time 2 Sometimes 3 Never 4 DON'T KNOW 8 NO RESPONSE 9	

Section 5: Male and Female condoms

No.	Questions and Filters	Coding categories		Skip to
Q501	**EXAMINE YOUR RESPONSES TO Q204, Q302, Q402** **Chunguza majubu yako kwa Q204, Q302, Q402** HAVE YOU USED male or female CONDOMS in the past 12 months? Umeshawahi kutumia kondomu za kiume au za kike kwa miezi 12 iliyopita?	**Yes, male condom** Yes, female condom Yes, both None	1 2 3 4	**IF 1 or 2 or 3,** GO TO **Q504**
Q502	***If None,*** Have you and a sexual partner ever used a condom? Wewe na mpenzi wako mumewahi kutumia kondomu? (It is possible that you may not have used a condom with partners in sections 3-4, but may have used a condom at some other time in the past.) (Inawezekana kuwa haujawahi kutumia kondomu na wapenzi wako katika sehemu 3-4 lakini huenda umeitumia wakati mwingine uliopita)	Yes, male condom Yes, female condom No, never DON'T KNOW NO RESPONSE	1 2 8 9	**IF 1 or 2,** GO TO **Q504**

No.	Questions and Filters	Coding categories		Skip to
Q503	Have you ever *heard of* a male condom? Je, umewahi kusikia kuhusu kondomu za kiume? (This is a rubber object that a man puts on his penis before sex. Here is a sample of one.) (Huu ni mpira ambao mwanaume anavaa kenye sehemu yake ya siri kabla kufanya mapenzi. Hii ni majawapo.)	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO OR DK** GO TO **Q507**
Q504	Do you know of any place or person from which you can obtain male condoms? Je unajua mahali popote au mtu ambaye unaweza kupata kutoka kwake kondomu za kiume?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO** GO TO **Q507**
Q505	Which places or persons do you know where you can obtain male condoms? Ni kutoka mahali gani au kwa watu gani wewe unajua unaweza kupata kondomu za kiume? ***SPONTANOUS:*** ***CIRCLE ALL ANSWERS AS THEY APPLY.***	Yes No2 a. Shop 1 2 b. Pharmacy/chemist 1 2 c. Market 1 2 d. Clinic 1 2 e. Hospital 1 2 f. Dispensary 1 2 g. Public vending 1 2 machine 1 2 h. Family planning 1 2 center 1 2 i. Bar/guest 1 2 house/hotel 1 2 j. Peer educator 1 2 k. Friend l. OTHER_____ m. NO RESPONSE		
Q506	How long would it take you to obtain a male condom close to your house or to your place of work? Itakuchukua muda gani wewe kupata kondomu za kiume karibu na nyumba yako au mahali unapofanya kazi?	Under 30 minutes 30 minutes to 1 hour 1 hour to 1 day More than 1 day DON'T KNOW NO RESPONSE	1 2 3 4 8 9	

No.	Questions and Filters	Coding categories		Skip to
Q507	Have you ever heard of a female condom? Je, umewahi kusikia kuhusu kondomu za kike? (This is a rubber object that is put into a woman's vagina before sex. Here is a sample of one.) (Ninamaanisha kifuko cha mpira ambacho mwanamke huweka kwenye uke kabla ya kufanya mapenzi. Hii hapa mojawapo.)	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	IF **NO** OR **DK** GO TO **Q511**
Q508	Do you know of any place or person from which you can obtain female condoms? Je, unajua mtu ambaye au mahali ambako wewe unaweza kupata kondomu za kike?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	IF **NO** GO TO **Q510**
Q509	Which places or persons do you know where you can obtain female condoms? Je, ni kutoka wapi au kwa watu gani mtu anaweza kupata kondomu za kike? ***SPONTANOUS:*** ***CIRCLE ALL ANSWERS AS THEY APPLY.***	a. Shop b. Pharmacy/chemist c. Market d. Clinic e. Hospital f. Dispensary g. Public vending machine h. Family planning center i. Bar/guest house/hotel j. Peer educator k. Friend l. OTHER_____ ____ m. NO RESPONSE	Yes / No 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

No.	Questions and Filters	Coding categories		Skip to
Q510	How long would it take you to obtain a female condom close to your house or to your place of work? Itakuchukua muda gani wewe kupata kondomu za kike karibu na nyumba yako au mahali unapofanya kazi?	Under 30 minutes 30 minutes to 1 hour 1 hour to 1 day More than 1 day DON'T KNOW NO RESPONSE	1 2 3 4 8 9	
Q511	***FOR SEXUALLY ACTIVE RESPONDENTS ONLY:*** During the past 12 months, did you ever have sexual intercourse without using a condom with any commercial sexual partner or any other sexual partner who you have never lived with and are not married to? Katika miezi 12 iliyopita, uliwahi kufanya mapenzi bila kutumia kondomu na mpenzi yeyote wa kulipa/kulipwa au mpenzi mwingine yeyote ambaye haujawahi kuishi naye na sio mke/mume wako?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	

Section 6: STIs and treatment seeking behaviors

No.	Questions and filters	Coding categories		Skip to
Q601	Have you ever heard of diseases that can be transmitted through sexual intercourse? Umeshawahi kusikia kuhusu maradhi/magonjwa ambayo yanaambukizwa kwa kufanya mapenzi?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO** GO TO **Q701**
Q602	Can you mention any symptoms of STIs **in women**? Unaweza kutaja dalili za magonjwa ya zinaa katika **wanawake?** ***SPONTANOUS:*** ***MORE THAN ONE ANSWER IS POSSIBLE.***	a. Abdominal pain b. Genital discharge c. Smelling vaginal discharge d. Pain while urinating e. Buttons/wounds on the sex f. Genital swollen g. Itching genitals h. Other _____ i. Don't know j. No-response	**Yes No** 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
Q603	Can you mention any symptoms of STIs **in men**? Unaweza kutaja dalili za magonjwa ya zinaa katika **wanaume?** ***SPONTANOUS:*** ***MORE THAN ONE ANSWER IS POSSIBLE.***	a. Genital discharge b. Pain while urinating c. Genital ulcer/sore d. Genital swollen e. Other _____ f. Don't know g. No-response	**Yes No** 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
Q604	Have you ever had a genital abnormal discharge? Je, umewahi kuwa na unyevunyevu (uchafu/usaha) kwenye sehemu za siri?	Yes during the last 12 months Yes, more than 12 months No, never DK NR	1 2 3 8 9	

No.	Questions and filters	Coding categories		Skip to
Q605	Have you ever had scratches on your sexual organs? Je, umewahi kuwa na mkwaruzo kwenye sehemu zako za siri?	Yes during the last 12 months Yes, more than 12 months ago No, never Don't Know No Response	1 2 3 8 9	
Q606	Have you ever had ulcer/sore on your sexual organs? Je, umewahi kuwa na kidonda/uvimbe kwenye sehemu zako za siri?	Yes during the last 12 months Yes, more than 12 months ago No, never Don't Know No Response	1 2 3 8 9	
	Check Q604; Q605 and Q606	If the answer to at least one of these questions is **1 or 2**, then go to Q607. If not, then go to Q701		

No.	Questions and filters	Coding categories			Skip to
Q607	Did you do any of the following the last time you had a genital ulcer/sore or genital discharge: Je, ulifanya chochote kati ya haya mara ya mwisho ulipokuwa na vidonda/uvimbe au unyevunyevu (uchafu/usaha) kutoka kwenye sehemu za siri *MORE THAN ONE ANSWER IS POSSIBLE.* *READ OUT TO RESPONDENT*	Yes	**No**	**DK NR**	
	a. Seek advice/medicine from a clinic or hospital? Tafuta ushauri/ dawa kutoka kliniki au hospitali?	1	2	8 9	
	b. Seek advice/medicine from a chemist/ pharmacy? Tafuta ushauri/ dawa kutoka duka la dawa?	1	2	8 9	
	c. Seek advice/medicine from a traditional healer? Tafuta ushauri/ dawa kutoka kwa mganga wa kienyeji?	1	2	8 9	
	d. Take medicine that was at home? Meza dawa ililyokuwa nyumbani?	1	2	8 9	
	e. Inform sexual partner about the discharge/ ulcer? Eleza mpenzio kuhusu unyevunyevu/vindonda?	1	2	8 9	
	f. Stop having sex until symptoms cleared? Uliwacha kufanya mapenzi hadi dalili zilipoisha?	1	2	8 9	
	g. Use a condom until symptoms cleared? Ulitumia kondomu hadi dalili zilipoisha?	1	2	8 9	

No.	Questions and filters	Coding categories	Skip to
Q608	Which of these things did you do FIRST? Kati ya mambo haya, lipi uliyafanya kwanza? *ONLY ONE ANSWER IS POSSIBLE*. *READ OUT TO RESPONDENT*		
	a. Sought advice/medicine from a clinic or hospital	1	
	Tafuta ushauri/ dawa kutoka kliniki au hospitali	2	
	b. Sought advice/medicine from a chemist/pharmacy	3	
	Tafuta ushauri/ dawa kutoka duka la dawa	4	
	c. Sought advice/medicine from a traditional healer	5	
	Tafuta ushauri au dawa kutoka kwa mganga wa kienyeji	6	
	d. Took medicine that was at home	8	
	Meza dawa ililyokuwa nyumbani	9	
	e. Informed sexual partner about discharge/ulcer		
	Mueleza mpenzio kuhusu unyevunyevu au vidonda		
	f. Other_____		
	Nyingine		
	DON'T REMEMBER		
	NO RESPONSE		

No.	Questions and filters	Coding categories		Skip to
Q609	If you took medicine for the last episode of symptoms, from where did you obtain the medicine? **Ikiwa ulimeza dawa baada ya kuona dalili wakati wa mwisho**, ulipata dawa hizo kutoka wapi? ***SPONTANEOUS:*** ***CIRCLE ALL THAT APPLY.***		Yes / No	
		a. Health worker in clinic/hospital	1 2	
		b. Pharmacy	1 2	
		c. Traditional healer	1 2	
		d. Friend or relative	1 2	
		e. "Took medicine I had at home"	1 2	
		f. Did not take any medicine	1 2	
		g. DON'T REMEMBER	1 2	
		NO RESPONSE	1 2	

Section 7: FP-Knowledge and use of contraceptives

No.	Questions and filters	Coding categories Codes		Skip to
Now I would like to ask you some questions about what you know about reproductive health. This is not a test so please just tell me if you do not know the answer."				
Q701	During which part of the monthly cycle does a woman have the greatest chance of becoming pregnant? Ni wakati upi wa mwezi ambapo mwanamke ako na uwezo wa juu sana kupata mamba?	During her period In the middle of her monthly cycle Right after her period has ended Right before her period begins Don't know No response	1 2 3 4 8 9	
Q702	Can a girl get pregnant the first time she has sex? Je, msichana anaweza kupata mimba mara ya kwanza anapofanya mapenzi?	Yes No Don't know No response	1 2 8 9	
Q703	Can a girl get pregnant if she has sex only once? Je, msichana anaweza kupata mimba akifanya mapenzi mara moja tu?	Yes No Don't know No response	1 2 8 9	
Q704	Is it possible to get pregnant if the boy withdraws before ejaculation? Je, inawezekana msichana kupata mimba ikiwa mvulana atatoka kabla ya kumwaga?	Yes No Don't know No response	1 2 8 9	
Q705	Do you know any ways to avoid getting pregnant? Je, unajua njia zozote za kuzuia kupata mimba?	Yes No Don't know No response	1 2 8 9	If No, Go to Q711

No.	Questions and filters	Coding categories Codes			Skip to
Q706	What are the ways to avoid pregnancy? Ni njia zipi za kuzuia kupata mimba? ***DO NOT READ.*** ***PROBE BY ASKING 'ANYTHING ELSE'?***		Yes	No	
		Pills that women swallow every day	1	2	
		IUD (a small device that is placed in the woman's uterus)	1	2	
		Injectable/Depo-provera/Noristat	1	2	
		Diaphragm/foam tables/jelly	1	2	
		Condom	1	2	
		Norplant/Implant	1	2	
		Traditional methods	1	2	
		Non-penetrative sex	1	2	
		Withdrawal	1	2	
		Douching	1	2	
		Natural method	1	2	
		Male of female sterilization	1	2	
		Emergency contraception	1	2	
		No response			
Q707	Have you ever used…….to avoid pregnancy? Je, umeshawahi tumia…… kuzuia kupata mimba? ***READ OUT:*** ***CIRCLE ALL THAT APPLY***		Yes	No	If Never used, Go to Q711
		Pills that women swallow every day	1	2	
		IUD (a small device that is placed in the woman's uterus)	1	2	
		Injectable/Depo-provera/Noristat	1	2	
		Diaphragm/foam tables/jelly	1	2	
		Condom	1	2	
		Norplant/Implant	1	2	
		Traditional methods	1	2	
		Non-penetrative sex	1	2	
		Withdrawal	1	2	
		Douching	1	2	
		Natural method	1	2	
		Male of female sterilization	1	2	
		Emergency contraception	1	2	
		No response			
Q708	***If 'Yes' at least once***, When was the last time you used such method? Mara ya mwisho kutumia njia hiyo ilikuwa lini?	Currently using	0		
		1-3 months ago	1		
		4-6 months ago	2		
		7-12 months ago	3		
		More than 12 months ago	4		
		Don't know/Don't remember	8		
		No response	9		

No.	Questions and filters	Coding categories Codes		Skip to
Q709	The last time you used one of these methods, where did you get it from? Wakati wa mwisho wewe kutumia mojawepo ya njia hizi, uliipata kutoka wapi?	Hospital/pharmacy Health worker Friend/parent Other_____ Don't know/don't remember No response	1 2 3 4 8 9	

No.	Questions and filters	Coding categories Codes		Skip to
Q710	**FILTER CHECK Q708** If not currently **NOT** using any method: Why are you currently **NOT** using any method to avoid pregnancy? Ni kwanini hautumii kwa sasa njia yoyote ya kuzuia kupata mimba? ***SPONTANEOUS:*** *MORE THAN ONE ANSWER IS POSSIBLE.* ***MARK ALL MENTIONED***	**Fertility related reasons**		
		Not sexually active	1	
		Infrequent sex	2	
		Menopausal / hysterectomy	3	
		Infertile	4	
		Postpartum amenorrhoea	5	
		Breastfeeding	6	
		Fatal	7	
		Desires more children	8	
		Opposition to use		
		Respondent opposed	11	
		Husband/Partner opposed	12	
		Others opposed	13	
		Religious prohibition	14	
		Lack of knowledge		
		Knows no method	21	
		Knows no source	22	
		Method related reasons		
		Health concerns	31	
		Fear of side effects	32	
		Lack of access / too far	33	
		Cost too much	34	
		Inconvenient to use	35	
		Interferes with body's normal processes	36	
		Other / Don't know	41	
		Other	99	
		_____		
		Does not know		

No.	Questions and filters	Coding categories Codes		Skip to
Q711	How many children do you have? Je, uko na watoto wangapi?	Number of children Don't know No Response	[__|__] 88 99	
Q712	Are you satisfied of the number of your children? Umetosheka/unaridhika na idadi hiyo ya watoto?	Yes No Don't know No response	1 2 8 9	1→Q801
Q713	What is the main reason why you are not satisfied? Ni kwa sababu gani muhimu ainakufanya usitosheke?	_____ _____	[____]	

Section 8: HIV/AIDS Knowledge, opinions, and attitudes

No.	Questions and filters	Coding categories	Skip to
Q801	Have you ever heard of HIV or the disease called AIDS? Je, umeshawahi kusikia kuhusu virusi vya ukimwi au ugonjwa uitwao ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	**IF NO** GO TO **Q1001**
Q802	Do you know anyone who is infected with HIV or who has died of AIDS? Je, unamjua yeyote ambaye ameambukizwa au amekufa kutokana na virusi/ugonjwa wa ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	**IF NO** OR **DK** GO TO **Q804**
Q803	Do you have a close relative or close friend who is infected with HIV or has died of AIDS? Je, una jamaa wa karibu au rafiki ambaye anaugua au amekufa kutokana na ugonjwa wa ukimwi?	YES, A CLOSE RELATIVE 1 YES, A CLOSE FRIEND 2 NO 3 NO RESPONSE 9	
Q804	Can people protect themselves from HIV, the virus that causes AIDS by correctly using a condom every time they have sex? Je, watu wanaweza kujikinga kutokana na virusi vya ukimwi kwa kutumia kondomu kwa njia iliyo sahihi kila wanapofanya mapenzi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q805	Can a person get the HIV virus from mosquito bites? Je, mtu anaweza kupata virusi vya ukimwi kupitia kuumwa na mmbu/ wadudu?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q806	Can people protect themselves from HIV by having one uninfected faithful sex partner? Je, watu wanaweza kujikinga kutokana na virusi vya ukimwi kwa kuwa na mpenzi mmoja muaminifu ambaye hajaambukizwa?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q807	Can people protect themselves from HIV by abstaining from sexual intercourse? Je, watu wanaweza kujikinga kutokana na virusi vya ukimwi kwa kuacha kufanya mapenzi kabisa?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q808	Can a person get HIV by sharing a meal with someone who is infected? Je, mtu anaweza kuambukizwa virusi vya ukimwi kwa kula pamoja na mtu alye ambukizwa virusi vya ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q809	Can a person get HIV by getting injections with a needle that was already used by someone else? Je, mtu anaweza kupata virusi vya ukimwi ikiwa atatumia sindano ambayo tayari ishatumiwa na mtu mwengine?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q810	Do you think that a healthy-looking person can be infected with HIV, the virus that causes AIDS? Je, unafikiri mtu anaye onekana kuwa na afya nzuri anaweza kuwa ameambukizwa virusi vya ukimwi, virusi vinavyo sababisha ugonjwa wa ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q811	Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child? Je, mwanamke mjamzito ambaye ameambukizwa virusi vya ukimwi anaweza kumuambukiza virusi mwanawe ambaye bado hajazaliwa?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	**IF NO** OR **DK** GO TO **Q813**

No.	Questions and filters	Coding categories			Skip to
Q812	What can a pregnant woman do to reduce the risk of transmission of HIV to her unborn child? Je, mwanamke mjamzito ambaye ameambukizwa virusi vya ukimwi anaweza kufanya nini ili kupunguza uwezekano wa kumuambukiza mwanawe ambaye hajazaliwa? **Circle all that apply.** **(SPONTANEOUS: DO NOT READ OUT)**	a. Go to the hospital b. Take ARV treatment c. Not breastfeed the child d. Breastfeed the child e. Deliver in health facility f. Autre_____ g. Don't know	Yes 1 1 1 1 1 1 1	No 2 2 2 2 2 2 2	
Q813	Can a woman with HIV or AIDS transmit the virus to her newborn child through breastfeeding? Je, mwanamke ambaye ameambukizwa virusi vya ukimwi anaweza kumuambukiza mtoto wake mchanga kupitia kunyonyesha?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9		

No.	Questions and filters	Coding categories	Skip to
Q814	Is it possible in your community for someone to get a confidential test to find out if they are infected with HIV? Je, inawezekana katika jamii yako mtu kwenda kupimwa damu kwa **siri** kama ameambukizwa na virusi vya ukimwi? By confidential, I mean that no one will know the result if you don't want them to know it. Nikisema **siri**, ninamaanisha kwamba hakuna atakayejua kama haumtaki ajue.	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q815	I don't want to know the result, but have *you* ever had an HIV test? Sitaki kujua matokeo lakini wewe umeshawahi pimwa kama umeambukizwa na virusi vya ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	**IF NO** GO TO **Q819**
Q816	Did you voluntarily undergo the HIV test, or were you required to have the test? Je, ulipimwa virusi vya ukimwi kwa hiyari yako ama ulihitajika/shurutishwa kupimwa?	Voluntary 1 Required 2 DON'T KNOW 8 NO RESPONSE 9	
Q817	Please do not tell me the result, but did you find out the result of your test? Tafadhali usiniambiye majibu, lakini ulielezewa matokeo ya kupimwa kwako?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

No.	Questions and filters	Coding categories	Skip to
Q818	When did you have your most recent HIV test? Je, ni lini ulipopimwa virusi vya ukimwi hivi karibuni sana?	WITHIN THE PAST YR 1 BETWEEN 1-2 YRS 2 BETWEEN 2-4 YRS 3 MORE THAN 4 YRS AGO 4 DON'T KNOW 8 NO RESPONSE 9	
Q819	***FOR SEXUALLY ACTIVE RESPONDENTS*** Do you think your chances of getting HIV are low, medium, high or no risk at all? Je, unafikiri uwezekano wako kuambukizwa virusi vya ukimwi uko chini, kadri, juu ama hakuna uwezo kabisa?	NO RISK AT ALL 1 LOW 2 MEDIUM 3 HIGH 4 OTHER _____ DON'T KNOW 8 NO RESPONSE 9	**IF 3 OR 4 Go to Q821**

No.	Questions and filters	Yes	No	Skip to
Q820	**Having just answered 1 or 2,** Why do you think that you have NO RISK or have a LOW risk of getting HIV? Ni kwanini unafikiri kwamba hakuna uwezekano kwamba wewe kuambukizwa virusi vya ukimwi uko chini? ***READ OUT RESPONSE.*** Is it because you… Je, ni kwa sababu...	**Yes**	**No**	

No.	Questions and filters	Coding categories		Skip to
	Have never had sexual intercourse?	1	2	
	Hujawahi kufanya mapenzi?			**Go to Q901**
	Have started abstaining from sex?	1	2	
	Umewacha kufanya mapenzi?			
	Are consistently using condoms?	1	2	
	Unatumia kondomu kila wakati?			
	Have only one sexual partner?	1	2	
	Uko na mpenzi mmoja tu?			
	Have reduced number of sex partners?	1	2	
	Umepunguza idadi ya wapenzi?			
	Know your partner has no other sexual partners?	1	2	
	Unajua kwamba mpenzi wako hana wapenzi wengine?			
	Have avoided blood transfusions?	1	2	
	Umejizuia kupewa damu?			
	Have avoided injections?	1	2	
	Umejizuia na kudungwa shindano?			
	Have been tested and are HIV- negative?	1	2	
	Umepimwa virusi vya ukimwi na ukapatikana hauna?			
	OTHER _____	1	2	
Q821	**Having just answered 3 or 4,** Why do you think that you have a MEDIUM or HIGH chance of getting HIV?			
	kwanini unafikiri kwamba uko na uwezekano wa kadri au juu wa kuambukizwa virusi vya ukimwi?			
	READ OUT RESPONSE.			
	Is it because you…	**Yes**	**No**	
	Je, ni kwa sababu...			

No.	Questions and filters	Coding categories		Skip to
	Do not use condoms?	1	2	
	Hautumii kondomu?			
	Have hugged a person with HIV?	1	2	
	Umemkumbatia mtu aliye na ukimwi?			
	Have had multiple sexual partners?	1	2	
	Umewahi kuwa na wapenzi wengi?			
	Have been bitten by mosquitoes?	1	2	
	Umeumwa na umbu?			
	Have had blood transfusion?	1	2	
	Umewahi kupewa damu?			
	Have had sex with a person with HIV?	1	2	
	Umewahi kufanya mapenzi na mtu aliye ambukizwa?			
	Have been raped?	1	2	
	Umebakwa?			
	Have had injections?	1	2	
	Umewahi kudungwa shindano?			
	OTHER _____	1	2	

Section 9: Stigma and Discrimination

No.	Questions and filters	Coding categories	Skip to
Q901	Would you be willing to share a meal with a person you knew had HIV or AIDS? Je, unaweza kukubali kula chakula pamoja na mtu ambaye unajua kuwa ana virusi/ ugonjwa wa ukimwi?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q902	If a male relative of yours became ill with HIV, the virus that causes AIDS, would you be willing to care for him in your household? Ikiwa mmoja wa jamaa yako wa kiume angekuwa mgonjwa kwa ukimwi, je, ungekuwa tayari kumhudumia nyumbani kwako/ kwenu?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q903	If a student has HIV but is not sick, should he or she be allowed to continue attending school? Ikiwa mwanafunzi ameambukizwa virusi vya ukimwi lakini hajaanza kugonjeka, je, ni vyema aachwe aendelee na masomo yake?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q904	If a female relative of yours became ill with HIV, would you be willing to care for him in your household? Ikiwa mmoja wa jamaa yako wa kike angekuwa mgonjwa	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

	kwa ukimwi, je, ungekuwa tayari kumhudumia nyumbani kwako/ kwenu?		
Q905	If a teacher has HIV but is not sick, should he or she be allowed to continue teaching in school? Ikiwa mwalimu ana virusi vya ukimwi lakini bado si mgonjwa, atakiwa aruhusiwe kuendelea kufundisha?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q906	If you knew a shopkeeper or food seller had the HIV virus, would you buy food from them? Ikiwa ungalijua kuwa muuzaji duka au muuzaji wa chakula ana virusi vya ukimwi, je ungalinunua chakula kutoka kwao?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q907	If you knew a member of your community as a neighbor is infected with HIV or has AIDS, do you think he shall be allowed to continue his community activities or he shall be isolated from the rest of the community members? Ikiwa unajua kwamba mmoja wa jamii yako kama jirani amembukizwa virusi vya ukimwi, je unafikiri atachwa aendelee na shughuli zake za kijamii ama atatengwa kutoka kwa watu wengine wa jamii?	Yes, shall remain entire member of the community 1 No, shall be isolated 2 No, his community rights shall be removed 3 Others _____ 4 Don't know 8	
Q908	If a member of your family became ill with HIV, the virus that causes AIDS, would you want it to remain secret?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

	Ikiwa mmoja wa jamaa yako ataambukizwa virusi vya ukimwi, je, ungalitaka jambo hili libaki siri?				
Q 909	Do you know someone in the past year that has had the following happen to them because of HIV or AIDS? Je, unamjua mtu yeyote ambaye katika mwak mmoja uliyopita amefanyikiwa na mambo haya kwa sababu ya hali yake ya HIV au UKIMWI? ***READ OUT:*** *MORE THAN ONE ANSWER* *IS POSSIBLE.*	Excluded from social gathering Lost customers to buy their produce/ good or lost a job Had property taken away Abandoned by their spouse /partner Abandoned by their family/sent away to the village Teased or sworn at Lost respect/standing within the family and/or community Gossiped about	**Yes** 1 1 1 1 1 1 1 1	**No** 2 2 2 2 2 2 2 2	

Section 10: Exposure to Interventions

No.	Questions and filters	Coding categories		Skip to
Now I am going to ask you some questions about your interaction with peer educator. A peer educator is someone who is like you but who gives you information on how to protect yourself from getting infected with HIV. Peer educators may have already begun to offer you advice about protecting your health. I would like to ask you a few questions about the advic they may have given you.				
Q1001	In the past 6 months have you had a session with a peer educator on HIV prevention, care and support? Je katika miezi sita zilizopita umewahi kuwa na kikao na mshirikishi wa elimi kati ya marika juu ya jinsi ya kuzuia, kuuguza na kutoa usaidizi kwa wahasiriwa.	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO GOTO Q1003**
Q1002	Which topic(s) did the peer educator discuss with you? Je ni mada gani ambayo mshirikisha alijadili nawe? **DO NOT READ RESPONSES** PROBE: Anything else? **CIRCLE 1 FOR ALL MENTIONED** **CIRCLE 2 FOR ALL NOT MENTIONED** **MORE THAN ONE ANSWER IS POSSIBLE**	Condom use Facts about HIV and AIDS PMTCT Family planning Nutrition Living positively with HIV Voluntary counseling and Testing Opportunistic infections Drugs Preventions of STI Access to HIV care and treatment Other_____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	

			2 1 2 1 2	
Q1003	In the past 6 months were you referred by a peer educator for any services? Je katika miezi sita iliyopita umewahi kutumwa kwa huduma zaidi na mshirikishi wa elimi ya marika.	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO GOTO Q1009**
Q1004	If Yes, which services were you referred for? Kama jibu lako ni ndio, ni huduma gani haswa? **DO NOT READ RESPONSES** PROBE: Anything else? **CIRCLE 1 FOR ALL MENTIONED** **CIRCLE 2 FOR ALL NOT MENTIONED** **MORE THAN ONE ANSWER IS POSSIBLE**	VCT services STI services TB treatment and care Treatment of opportunistic infections Home based care PMTCT services Comprehensive care services Post test support services Spiritual counseling Ongoing counseling Legal services PLHA support services Nutritional counseling Other_____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

			1 2	
Q1005	Did you visit the referral point? Je, ulienda kwenye kituo ulicho elekezwa?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF 1, 8 or 9 GOTO Q1009**
Q1006	If **NO** in **1005 ask;** Why did you not visit the referral point? Ikiwa hukuenda pahala pa huduma je ni kwa sababu gani?	Felt better Lost my referral form Did not have fare to go Other_____ DON'T KNOW NO RESPONSE 9	1 2 3 4 8	
Q1007	Did you receive the services you were referred for? Je, ulipata huduma ulizoelekezwa?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF 1, 8 or 9 GOTO Q1009**
Q1008	**If NO in Q107 ask**; why did you not receive the services? Je ni kwa sabau gani hukupata huduma hiyo?	Provider was not there I changed my mind Left before seeing the provider No drugs Was referred else where Other_____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2	
Q1009	In the past 6 months, has a peer educator ever spoken to you about using male condoms? Je katika miezi sita zilizopita mshirikisha wa vikao vya marika amekuzungumzia kuhusu	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO GOTO Q1011**

	kondomu. **CIRCLE ONE**				
Q1010	What have you discussed with peer educators about using male condoms? Je ni yapi mmejadili na mshirikishi huyu kuhusu matumizi ya kondomu? **DO NOT READ RESPONSES** PROBE: Anything else? Lingine lolote? **CIRCLE 1 FOR ALL MENTIONED** **CIRCLE 2 FOR ALL NOT MENTIONED** **MORE THAN ONE ANSWER IS POSSIBLE**			Y N	
		Condoms prevent STI		1 2	
		Condoms prevent HIV/AIDS		1 2	
		Condoms prevent pregnancy		1 2	
		How to use condoms		1 2	
		What to do to avoid slippage or breakage		1 2	
		Need to use different condoms for every sex act		1 2	
		How to convince a partner to use condoms		1 2	
		How to dispose of condoms		1 2	
		Other_____		1 2	
		DON'T KNOW		1 2	
		NO RESPONSE		1 2	
Q1011	In the past 6 months, has a peer educator ever spoken to you about using female condoms? Je katika miezi sita ziliziopita mshirikishi wa vikao vya elimu ya marika amekuzungumzia kuhusu matumizi ya kondomu ya wanawake? **CIRCLE ONE**				
		YES		1	**IF NO GOTO Q1013**
		NO		2	
		DON'T KNOW		8	
		NO RESPONSE		9	
Q1012	What have you discussed with peer educators about using		Y	N	
		Female condoms prevent STI	1	2	

	female condoms? **DO NOT READ RESPONSES** PROBE: Anything else? Lingine lolote? **CIRCLE 1 FOR ALL MENTIONED** **CIRCLE 2 FOR ALL NOT MENTIONED** **MORE THAN ONE ANSWER IS POSSIBLE**	Female condoms prevent HIV/AIDS Female condoms prevent pregnancy How to use female condoms What to do to overcome difficulties with insertion, noise, and slippage during sex acts etc….. Use female condom when partner refuses to use male condoms Need to use different condoms for every sex act How to convince a partner to use a condom How to dispose of a female condom Use female condom only once Other_____ DON'T KNOW NO RESPONSE	1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
Q1013	Has a peer educator ever suggested to you that you take a confidential test to find out if you are infected with HIV? Je mshirikishi wa vikao vya elimi ya marika amewahi kudokezea kuhusu kupimwa faraghani ili ujue hali yako ya HIV? By confidential, I mean that no one will know the results if you don't want them to know it. Kupimwa faraghani inamaanisha kuwa majibu yako hayata tangaziwa mtu yoyote.	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9		
Q1014	When you need condoms, where do you get most of your condoms? Je unapo hitaji kondomu, wewe huzipata wapi?	Shop 1 Pharmacy/chemist/clinic 2 Bar/Hotel/Guesthouse 3 Peer educator 4 Health worker 5 Other_____ 6 DON'T KNOW 8 NO RESPONSE 9		

Q1015	I will not need to know your test results, but in the last 6 months, have you had an HIV test? Sitaki kujua matokeo ya kupimwa kwako lakini jhe kati ya miezi sita iliyopita umewahi kupimwa ili kutambua ikiwa una virusi vya HIV?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9	**IF NO END Intervie w**
Q1016	If not tested, why have not been tested in the last 6 months? Ikiwa hujapimwa je ni kwa sababu gani? **DO NOT READ RESPONSES** PROBE: Anything else? Lingine lolote? **CIRCLE 1 FOR ALL MENTIONED** **CIRCLE 2 FOR ALL NOT MENTIONED** **MORE THAN ONE ANSWER IS POSSIBLE**	Wants to test latter Wants to test with partner Mo test kits available I don't know where to be tested I am not at risk of getting infected with HIV Changed my mind about being tested Other_____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	

That is the end of our questionnaire. Thank you very much for taking time to answer these questions. We appreciate your help.

Annex 2 : Ethical clearance Kenyatta National Hospital Ethics and Research Committee

KENYATTA NATIONAL HOSPITAL
Hospital Rd. along, Ngong Rd.
P.O. Box 20723, Nairobi.
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP", Nairobi.
Email: KNHplan@Ken.Healthnet.org

Ref: KNH-ERC/ 01/ 4239

24th April 2007

Mr. Simon Pierre Tegang
Family Health International
P O BOX 38835-00623
NAIROBI

Dear Simon

RESEARCH PROPOSAL: "BEHAVIORAL MONITORING SURVEYS FOR HIV/STI/TB/RH/FP/MALARIA IN COAST, RIFT VALLEY AND MAJOR TRANSPORT CORRIDORS OF KENYA" (P39/3/2007)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and approved your above cited research proposal for the period 24th April 2007 – 23rd April 2008.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimen must also be obtained from KNH-ERC for each batch.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH-ERC

c.c. Prof. K.M. Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
Co-investigators: Mr. Nzioki King'ola,ICRH, Mombasa
Dr. Stanley Luchters, ICRH, Mombasa
Mr. Sam Wambugu, F.H.I
Marstella Barasa, F.H.I

Annex 3 : Decision letter Research Ethics Committee Royal Tropical Institute

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Contact
Linda de Groot
Tel: 020 568 8237
l.d.groot@kit.nl

Mrs. M. de Wit - van Lenthe

Date Amsterdam, July 8, 2009

Subject: Decision Research Ethics Committee

Dear Ms. De Wit – Van Lenthe,

The Research Ethical Review Committee of the Royal Tropical Institute (KIT) has exempted your research proposal from ethical review for the following reasons:

- No new data is collected for the analysis.
- The purpose of the extra data analysis falls within the stated aim of the study in the consent form

Yours sincerely,

L. Blok, MD. Mph
Acting Chair Research Ethics Committee, KIT

Attachment: Approval and comments

Annex 4 : Example of informed consent form matatu-drivers and touts

Family Health International (FHI)
Consent Form Behavioral – Matatu drivers-touts

Title: **Behavioral Monitoring Surveys for HIV/STI/TB/RH/FP/Malaria in Coast, Rift valley and Major Transport Corridors of Kenya**

Sponsor: *FHI and USAID*

Principal Investigator: *Simon-Pierre TEGANG* ; STO Strategic Information Division, FHI

Address: *Family Health International; Po Box 38835-00623 Nairobi - Kenya*

Introduction
We are asking you to take part in a survey to assess baseline HIV/AIDS/STI/RH/FP/TB, malaria and child health seeking behaviors in Coast and Rift regions. We want to be sure that you understand the purpose and your responsibilities in the survey before you decide if you want to be in it. Please ask us to explain any words or information that you may not understand.

Information about the Research
This is a pure behavioral survey. All matatu drivers and touts plying various routes of Mombasa and Nakuru municipalities will be eligible for selection. From randomly selected routes in the municipality area, the data collector will interview all the matatu drivers and touts as they arrive at the terminus on a first come first served basis until the desired number for that route is realized. Matatu drivers who are on a short rest time will be given the priority for interview. The interview will last about 30 to 40 minutes. The interview will be confidential and anonymous. No names or personal identifiers will be recorded.

Possible Risks
Apart from the potential psychological risks due to the sensitive nature of the questions in the structured questionnaires, no other risks are anticipated.

Possible Benefits
- This survey will provide information on health needs and help the APHIA II program to improve the health seeking behaviors of the targeted populations, including the health seeking behavior for RH/FP services with the aim of improving the utilization of RH/FP services e.g. deliveries by skilled attendants, use of ITN and Contraceptive prevalence Rate)

- Provide evidence of success or otherwise of the combination of HIV prevention efforts taking place in the project sites.
- Provide evidence for improvement in RH/FP and child health outcomes in the project.

If You Decide Not to Be in the Research

You are free to decide if you want to be in this research or not. If you decide not to participate, your decision will not affect your relations with the Matatu Welfare Association members, vehicle owners, passengers nor with your fellow workmates.

Confidentiality
We will protect information about you and your taking part in this research to the best of our ability. We will not use your name in any reports. We will not tell the Matatu Welfare Association members, vehicle owners, passengers or workmates about your participation.

Payment
There will be no payment for taking part into this survey.

Leaving the Research
You may end your participation at any time. If you decide not to participate, your decision will not affect your relations with the Matatu Welfare Association members, vehicle owners, passengers nor with your fellow workmates.

If You Have a Questions about the Study
If you have any questions about the research, call **Simon Pierre Tegang at** Family Health International (FHI), Tel: 27139113/4 to 9; or **Nzioki King'ola at** International Centre for Reproductive Health (ICRH).Tel: +254 (0)41 494 866 from Monday to Friday between 8:00AM to 5:30PM.

Your rights as a Participant
This survey has been reviewed and approved by the Institutional Review Board of Family Health International and the Kenyatta National Hospital Ethics Review committee. If you have any questions about how you are being treated by the study or your rights as a participant you may contact Dr. Gauntai at Kenyatta National Hospital; P.O box 20723 Nairobi or and/or Mr. David Borasky, Protection of Human Subjects Committee, PO Box 13950, Research Triangle Park, NC 27709, USA, phone number: [International Access Code]-1-919-405-1445, e-mail: dborasky@fhi.org.

VOLUNTEER AGREEMENT

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____

_____

Signature of Person Who Obtained Consent Date

Annex 5 : Example of do-file STATA for multivariate analysis

```
clear
capture log close
log using "C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.log", replace
set memory 100m
use "C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset.dta", clear

**********right denominator**********
drop if condomlast1==.
drop if intercourse1==0
gen condomlast5=condomlast1
recode condomlast5 0=2
gen condomlast4=condomlast5
recode condomlast4 1=0 2=1

**********building model**********
drop if sti1==.
drop if hivtest==.
drop if drugs1==.
drop if noncommercial==.

logit condomlast4 age marital1 alcohol2 commercial noncommercial drugs1 hivtest1 sti1
estimates store A
logit condomlast4 age marital1 alcohol2 commercial noncommercial drugs1 hivtest1 sti2
estimates store B
logit condomlast4 marital1 alcohol2 commercial hivtest1 sti1
estimates store C
lrtest A C
logit condomlast4 marital1 alcohol2 commercial sti1
estimates store D
lrtest C D
logit condomlast4 marital1 alcohol2 commercial
estimates store E
lrtest D E

xi : logistic condomlast4 marital1 alcohol2 commercial sti1

save "C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.dta", replace
log close
```

Annex 6 : Example of output-file STATA for multivariate analysis

```
-------------------------------------------------------------------------------------------------
-------------------------------
log:  C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.log
  log type:  text
 opened on:  29 Apr 2010, 09:32:02

. set memory 100m
(102400k)

. use "C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset.dta", clear

.
. ***************right denominator*************
. drop if condomlast1==.
(242 observations deleted)

. drop if intercourse1==0
(241 observations deleted)

. gen condomlast5=condomlast1

. recode condomlast5 0=2
(condomlast5: 817 changes made)

. gen condomlast4=condomlast5

. recode condomlast4 1=0 2=1
(condomlast4: 1123 changes made)

.
. *****************building model***************
. drop if sti1==.
(15 observations deleted)

. drop if hivtest==.
(7 observations deleted)

. drop if drugs1==.
(10 observations deleted)

. drop if noncommercial==.
(0 observations deleted)

.
. logit condomlast4 age marital1 alcohol2 commercial noncommercial drugs1 hivtest1 sti1

Iteration 0:   log likelihood = -516.49304
Iteration 1:   log likelihood = -436.29716
Iteration 2:   log likelihood = -433.51924
Iteration 3:   log likelihood = -433.51456
Iteration 4:   log likelihood = -433.51456

Logistic regression                               Number of obs   =        906
                                                  LR chi2(8)      =     165.96
                                                  Prob > chi2     =     0.0000
Log likelihood = -433.51456                       Pseudo R2       =     0.1607

------------------------------------------------------------------------------
 condomlast4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |  -.0029661   .0114911    -0.26   0.796    -.0254883    .0195561
    marital1 |    1.94855   .2177431     8.95   0.000     1.521781    2.375318
    alcohol2 |  -.4883083   .1983608    -2.46   0.014    -.8770883   -.0995282
  commercial |  -.1807681   .0874836    -2.07   0.039    -.3522329   -.0093033
```

```
noncommerc~l |  -.1192646   .0711391    -1.68   0.094    -.2586948    .0201655
      drugs1 |   .0345768   .2212236     0.16   0.876    -.3990135     .468167
    hivtest1 |   .3808589   .1902201     2.00   0.045     .0080344    .7536834
        sti1 |  -.9793015   .3804697    -2.57   0.010    -1.725008   -.2335945
       _cons |  -.4718773   .4912889    -0.96   0.337    -1.434786    .4910312
------------------------------------------------------------------------------

. estimates store A

. logit condomlast4 age marital1 alcohol2 commercial noncommercial drugs1 hivtest1 sti2

Iteration 0:   log likelihood = -516.49304
Iteration 1:   log likelihood = -439.38258
Iteration 2:   log likelihood = -436.55487
Iteration 3:   log likelihood = -436.54762
Iteration 4:   log likelihood = -436.54762

Logistic regression                                     Number of obs   =        906
                                                        LR chi2(8)      =     159.89
                                                        Prob > chi2     =     0.0000
Log likelihood = -436.54762                             Pseudo R2       =     0.1548

------------------------------------------------------------------------------
 condomlast4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |  -.0024102   .0116497    -0.21   0.836    -.0252433    .0204228
    marital1 |   1.934442   .2189813     8.83   0.000     1.505246    2.363637
    alcohol2 |  -.4788478    .197521    -2.42   0.015    -.8659818   -.0917139
  commercial |  -.2206045   .0923009    -2.39   0.017    -.4015109   -.0396981
noncommerc~l |  -.1212261   .0717216    -1.69   0.091    -.2617978    .0193456
      drugs1 |    .033199   .2213107     0.15   0.881    -.4005621      .46696
    hivtest1 |   .3968234   .1894161     2.09   0.036     .0255747    .7680721
        sti2 |  -.0974944   .1897349    -0.51   0.607    -.4693681    .2743792
       _cons |  -.5124026   .4895069    -1.05   0.295    -1.471818    .4470134
------------------------------------------------------------------------------

. estimates store B

. logit condomlast4 marital1 alcohol2 commercial hivtest1 sti1

Iteration 0:   log likelihood = -516.49304
Iteration 1:   log likelihood = -437.87362
Iteration 2:   log likelihood =  -434.9897
Iteration 3:   log likelihood = -434.98435
Iteration 4:   log likelihood = -434.98435

Logistic regression                                     Number of obs   =        906
                                                        LR chi2(5)      =     163.02
                                                        Prob > chi2     =     0.0000
Log likelihood = -434.98435                             Pseudo R2       =     0.1578

------------------------------------------------------------------------------
 condomlast4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    marital1 |   1.918898   .1808647    10.61   0.000     1.564409    2.273386
    alcohol2 |  -.4879215   .1779916    -2.74   0.006    -.8367785   -.1390644
  commercial |  -.2072293   .0874784    -2.37   0.018    -.3786838   -.0357748
    hivtest1 |   .3465526   .1889748     1.83   0.067    -.0238313    .7169365
        sti1 |  -.9895911    .380693    -2.60   0.009    -1.735736   -.2434465
       _cons |  -.5957937   .3640781    -1.64   0.102    -1.309374    .1177863
------------------------------------------------------------------------------

. estimates store C

. lrtest A C

Likelihood-ratio test                                 LR chi2(3)  =      2.94
(Assumption: C nested in A)                           Prob > chi2 =    0.4010

. logit condomlast4 marital1 alcohol2 commercial sti1
```

```
Iteration 0:   log likelihood = -516.49304
Iteration 1:   log likelihood = -439.47174
Iteration 2:   log likelihood = -436.64561
Iteration 3:   log likelihood = -436.64029
Iteration 4:   log likelihood = -436.64029

Logistic regression                                     Number of obs   =        906
                                                        LR chi2(4)      =     159.71
                                                        Prob > chi2     =     0.0000
Log likelihood = -436.64029                             Pseudo R2       =     0.1546

------------------------------------------------------------------------------
 condomlast4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    marital1 |   1.919431   .1804145    10.64   0.000     1.565825    2.273037
    alcohol2 |  -.4823332   .1773772    -2.72   0.007    -.8299862   -.1346803
  commercial |  -.2088717    .088554    -2.36   0.018    -.3824343   -.0353091
        sti1 |  -1.023076   .3808453    -2.69   0.007    -1.769519   -.2766331
       _cons |   .0044929   .1581421     0.03   0.977      -.30546    .3144457
------------------------------------------------------------------------------

. estimates store D

. lrtest C D

Likelihood-ratio test                                 LR chi2(1)  =      3.31
(Assumption: D nested in C)                           Prob > chi2 =    0.0688

. logit condomlast4 marital1 alcohol2 commercial

Iteration 0:   log likelihood = -516.49304
Iteration 1:   log likelihood = -443.08589
Iteration 2:   log likelihood = -440.07877
Iteration 3:   log likelihood = -440.06906
Iteration 4:   log likelihood = -440.06906

Logistic regression                                     Number of obs   =        906
                                                        LR chi2(3)      =     152.85
                                                        Prob > chi2     =     0.0000
Log likelihood = -440.06906                             Pseudo R2       =     0.1480

------------------------------------------------------------------------------
 condomlast4 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    marital1 |   1.883682   .1788393    10.53   0.000     1.533163      2.2342
    alcohol2 |   -.479125   .1767191    -2.71   0.007     -.825488   -.1327619
  commercial |  -.2586934   .0917771    -2.82   0.005    -.4385733   -.0788136
       _cons |  -.0083236   .1576311    -0.05   0.958     -.317275    .3006278
------------------------------------------------------------------------------

. estimates store E

. lrtest D E

Likelihood-ratio test                                 LR chi2(1)  =      6.86
(Assumption: E nested in D)                           Prob > chi2 =    0.0088

.
. xi : logistic condomlast4 marital1 alcohol2 commercial sti1

Logistic regression                                     Number of obs   =        906
                                                        LR chi2(4)      =     159.71
                                                        Prob > chi2     =     0.0000
Log likelihood = -436.64029                             Pseudo R2       =     0.1546

------------------------------------------------------------------------------
 condomlast4 | Odds Ratio   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    marital1 |   6.817079     1.2299    10.64   0.000     4.786623    9.708841
    alcohol2 |   .6173413   .1095023    -2.72   0.007     .4360553    .8739953
  commercial |   .8114993   .0718615    -2.36   0.018     .6821987     .965307
```

```
        sti1 |   .3594874   .1369091    -2.69   0.007     .1704149    .7583327
------------------------------------------------------------------------------

.
. save "C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.dta", replac
> e
(note: file C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.dta not
> found)
file C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.dta saved

. log close
       log:  C:\Documents and Settings\Marit\My Documents\MIH\Thesis\Werkset
data\bms_masterset_multivariate_u.log
  log type:  text
 closed on:  29 Apr 2010, 09:32:03
-------------------------------------------------------------------------------------------------------------------------
```