The Republic of Sudan National AIDS Programme and UNHCR

HIV behavioural surveillance surveys in Wad Sharifey refugee camp and the surrounding host community, Kassala, Eastern Sudan

September 2010

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Acknowledgments

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We would also like to thank the numerous village leaders who facilitated our work by introducing and explaining the surveys' aims to a sometimes sceptical audience.

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The survey was the product of the efforts and contributions of the large group of individuals listed below; with many sincere apologies for any one whose name was inadvertently omitted.

Name	Title	Role
Dr Mison "Maysoon" Dahab, UNHCR consultant	Principal investigator	Developed the protocol, oversaw data collection, conducted data analysis and wrote the study report
Ms Hajer Hassan Mohammad Ahmmad Almahel, SNAP Kassala	Co-investigator and study coordinator	Coordinated training, data collection, and data cleaning
Dr BaderEldin Badawi, SRC Sudan and Mrs Ishraqa Alimam, SNAP Kassala	Co-investigators and field advisors	Advised on training, data collection, community mobilization and logistics
Dr FakherEldain Ameen and Dr Raoufou Makou, UNHCR Kassala	Co-investigators and UNHCR field focal points	Participated in study collection and facilitated logistics
SNAP: Dr Mohamed Sid-Ahmed and Dr Majid ElNour UNHCR: Dr Patterson Njogu and Dr Marian Schilperoord	Co-investigators	Advised on protocol development and report revision
Ms Salma Abdalgeder	Logistics coordinator	Coordinated transport, office space, and field logistics
Amany Hassan Mohammad, Awadia Algaly Mohammed, Mai Ali Alhassan, Sara Elsir	Team leaders	Supervised data collection teams
Nahed Hamza, Mohammed Hassan Abdalla, Moda Khalid Banga, Atif Osman, Khaled Mohamed, Maha Alahassan, Hanan Khalid Banga, Najwa Alhaj, Susan Abdalrhman, Mortada Abdalkarem, Ahmmad Mohammad Noor, Abdolgasim Ibrahim, Yosif Hamza, Esra Osman, Rasha Kflawy,	Data collectors	Conducted study interviews
Hatim Mergany, Abdalazim Emam, Majdy Mohammed, Mohammad Edris	Data entry clerks	Designed data entry screen, entered and cleaned data
WadEzoz Mohammad, Mohamed Edrase Kahasay, Salih Mohamed Edris	Community guides	Facilitated sampling and liaising with community

Index of abbreviations

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal clinic
BCC	Behavioural change communication
BSS	Behavioural Surveillance Survey
EPI	Expanded Programme of Immunization
HH	Household
HIV	Human immunodeficiency virus
IGAD	Inter-Governmental Authority on Development
IRAPP	IGAD Regional HIV/AIDS Partnership Programme
MOH	Ministry of Health
PMTCT	Prevention from mother to child transmission of HIV
PPS	Probability proportionate to size
PSU	Primary sampling unit
SNAP	Sudan National AIDS Programme
SRC	Sudanese Red Crescent Society
SSU	Secondary sampling unit
STI	Sexually transmitted infection
UNHCR	United Nations High Commissioner for Refugees
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
VCT	Voluntary counselling and testing
95% CI	95% confidence interval

EXECUTIVE SUMMARY

I. Introduction and rationale

Though the HIV epidemic in Sudan is not very well described there is wide consensus that the main route of transmission is through heterosexual sex and that prevalence varies regionally. In eastern Sudan, as in much of the north of the country, HIV prevalence is thought to be low and the epidemic concentrated among high risk groups such as sex workers, prisoners, and long-distance truck drivers. The ministry of health is currently conducting a national household survey partly to obtain a more precise estimate of HIV prevalence. Meanwhile, up to date information on HIV knowledge and sexual risk behaviours, especially among groups at highest risk of HIV infection, remains lacking. Given this gap, periodic behavioural surveillance surveys (BSSs) that capture trends in behaviour can provide important information for planning and adjusting HIV prevention programmes. This is especially among conflict affected populations where assertions are often made, without sufficient evidence, that HIV risk is high and that refugees spread HIV infection into host communities.

II. Objective

Our objective was to establish baseline behavioural data among refugees and members of the surrounding host population to inform programme planning, evaluate HIV interventions, and enable comparison with other behavioural surveys.

III. Design and methods

We conducted two population-based, cross-sectional surveys. The first survey was conducted in Wad Sharifey refugee camp near Kassala, Eastern Sudan. The second was conducted in the host community around the camp. Participants had to be between 15-49 years of age, living and eating in the selected household for at least two weeks. Participants in the camp survey were recruited using systematic random sampling and those in the host community were recruited using cluster survey design. We collected data using a semi-structured questionnaire that included questions on socio-demographics, condom knowledge and use, sexual history, sexually transmitted infections, HIV knowledge, and access to HIV prevention interventions.

IV. Study profile

We carried out data collection in February, 2010. Among eligible individuals living in the sampled households, non-response was high in both the camp and host surveys (22.0% and 25.0% respectively). We recruited 294 participants from 281 households in the Wad Sharifey camp, and 547 participants from 407 households in the surrounding host community.

V. Main findings

Interaction between the two communities was high. More than half of participants in the host community reported visiting the camp at least once a month; while, 42.8% of the camp participants reported visiting the host community at least once a month.

Alcohol consumption and substance abuse was very limited. Almost all participants (97.9% in the camp and 95.4% in the host community) reported having never drank alcohol in the past 4

weeks. While, almost no participants reported that they had used any illegal substances, other than alcohol, in the past 12 months (0.0% in the camp and 0.7% in the host community.

Overall among 15-49 year olds in both communities, the proportion reporting sexual partnerships with non-regular, transactional or multiple partners was low. Specifically, the prevalence of sex with non-regular partners in the past 12 months was 1.7% in the camp and 3.0% in the host community. The prevalence of transactional sex in the past 12 months was 0.3% in the camp and 1.1% in the host. Lastly, the prevalence of multiple partnerships in the past 12 months was 2.4% in the camp and 2.2% in the host community.

Among those who were sexually active, a higher proportion of men compared to women reported engaging in transactional and non-regular sex, and having multiple partners in the past 12 months. Transactional sex was five times more prevalent among sexually active men in the host community than those in the camp (18.5% and 4.0% respectively). By contrast, multiple partnerships in the last 12 months were 1.5 times more prevalent among men in the camp than men in the host (13.5% and 8.7%, respectively).

Unexpectedly in this conservative community, 30.0% of unmarried young men in the camp and 35.1% in the host community reported having had sex, and doing so on average around 14 years of age. Though the sample size of the sexually active unmarried young men surveyed was small (20 in the host community and 12 in the camp) the data still points to an elevated prevalence of non-regular sexual partnerships in this group. In the host community 45.0% of the unmarried young men who were sexually active had previously engaged in transactional sex (exact 95% CI 23.1-68.4); while 35.0% had had a non-regular partner in the last 12 months (exact 95% CI 15.3-59.22). By contrast, 16.7% of unmarried young men in the camp reported engaging in transactional sex and the same proportion had had a non-regular partner in the last 12 months (exact 95% CI 2.1-48.4).

Overall, among 15-49 year olds condom use at last sex, regardless of partner type in the past 12 months, was extremely low, as was the proportion of those reporting ever using a condom (5.4% in the camp and 10.9%in the host); this despite 56.8% in the camp and 52.6% in the host having heard of male condoms.

Only 1.0% of participants in the camp and 1.5% in the host community were reached by a HIV programme in the past 12 months (i.e. knowing where to receive an HIV test and receiving condoms from an HIV programme). However, 71.1% in the camp and 79.5% in the host community had received information about HIV in the past 12 months and accordingly awareness of the existence of HIV was high, but comprehensive HIV knowledge was extremely low in both communities, especially among those with no formal education; the majority of whom were women. Most participants knew that abstaining from sex and staying faithful prevented HIV, however a far lower proportion (38.3% n the camp and 34.8% in the host) knew that condoms prevented HIV.

The majority of participants (67.5% in the camp and 68.3% in the host community) said they would test for HIV in the future. However, actual HIV testing rates were low in both communities (13.3% in the camp and 10.5% in the host community). The main reason for not wanting to test in the future was lack of perceived risk of HIV infection.

VI. Conclusions

- The camp and host community were very similar demographically and interaction was high between the two communities. This may explain the observed similarity in terms of HIV awareness, knowledge and the levels of condom use.

- Overall in both communities, the proportions of 15-49 year olds who reported engaging in sex with either a non-regular, transactional or multiple partners were very low. Nonetheless, the prevalence of these behaviours was higher among men than women, and higher still among unmarried young men a surprisingly high proportion of whom were sexually active.

- Overall in both communities condom use at last sex, regardless of partner type, was extremely low. The majority of participants had heard of male condoms, but most did not know that they could prevent HIV. Not surprisingly, most participants neither knew where to obtain a condom nor ever used one. Comprehensive knowledge of how to prevent infection was also very low in both communities and especially among those with no formal education; the majority of whom were women.

- The proportion of participants who knew where to receive an HIV test and those had an HIV test in the past 12 months was very low.

VII. Main recommendations

- Overall in both communities, the proportion of men and women aged 15-49 years old who reported engaging in sex with non-regular, transactional or multiple partners was low. Refugee camp residents did not have a higher prevalence of risky sexual behaviour compared to those in the host community. Instead, the prevalence of risky sexual behaviours in both communities was higher among men than among women. Future HIV prevention efforts should focus less on the difference between the two communities and more on the higher risk of exposure to HIV among men and their transactional and non-regular partners.

- Unexpectedly in this conservative community where sex before marriage is widely believed to be rare, almost a third of young unmarried men had had sex before marriage and did so when they were 15 years of age or younger. Thus, despite the small sample size, we noted that a high proportion of young unmarried men were sexually active, and of these many had had sex with transactional and non-regular partners. This subgroup should thus be considered at high risk of HIV infection and should be mapped to estimate programming needs.

- While current levels of non-regular, transactional and multiple partnerships were low, given the almost negligible rates of condom use it will be critical to intervene early to promote condom use and HIV testing among those at highest risk without exposing them to increased harassment and discrimination. This in order to maintain the levels of HIV risk low, even if the rates of non-regular, transactional or multiple partnerships were to increase in the future.

- In this low prevalence setting mobile and community based HIV testing reaching out to members of high risk groups must remain a priority.

INDICATOR	Camp				Host			
	% Male n/N	% Female n/N	% Overall n/N	95% CI	% Male n/N	% Female n/N	% Overall n/N	95% CI
Young men and women aged 15-24 who have had sexual intercourse before the age of 15								
Aged 15-24	12.5 5/40	9.5 7/74	10.5 12/114	4.8-16.2	13.6 9/66	8.9 16/180	10.2 25/246	6.2-14.2
Aged 15-19	13.0 3/23	8.6 3/35	16.3 6/58	2.3-18.4	12.9 4/31	9.8 9/92	10.6 13/123	5.3-15.9
Aged 20-24	11.8 2/17	10.3 4/39	10.7 6/56	2.3-19.1	14.3 5/35	8.0 7/88	9.8 12/123	4.6-14.9
Never-married young people aged 15-24 who have never had sex								
Aged 15-24	70.0 28/40	94.7 36/38	82.0 64/78	73.3-90.7	64.9 37/57	95.4 84/88	83.4 121/145	76.7-90.2
Aged 15-19	69.6 16/23	94.7 36/38	82.0 64/78	74.0-94.6	69.0 20/29	93.6 59/63	85.9 79/92	78.7-93.0
Aged 20-24	70.6 12/17	90.0 9/10	77.8 21/27	61.0-94.5	60.7 17/28	100.0 25/25	79.2 42/53	65.7-92.7
More than one sex partner in the past 12 months among men and women aged 15-49								
Aged 15-49	5.8 5/87	1.0 2/207	2.4 7/294	0.6-4.1	5.1 9/175	0.8 3/367	2.2 12/542	1.0-3.4
Aged 15-24	10.0 4/40	0.0 (0/74	3.5 4/114	0.0-6.9	7.6 5/66	1.1 2/180	2.8 7/246	0.7-4.9
Aged 15-19	8.7 2/23	0.0 0/35	3.4 2/58	0.4-11.9*	3.2 1/31	1.0 1/92	1.6 2/123	0.2-5.7*
Aged 20-24	11.8 2/17	0.0 0/39	3.6 2/56	0.4-12.3*	11.4 4/35	1.1 1/88	4.1 5/123	1.3-9.2*
Aged 25-49	2.1 1/47	1.5 2/133	1.7 3/180	0.3-4.8*	3.7 4/109	0.5 1/183	1.7 5/292	0.3-3.1
Percent reported using a condom during last sexual intercourse among men and women aged 15-49 with more than one sex partner in the past 12 months								
Aged 15-49	60.0 3/5	100.0 0/2	42.9 3/7	9.9-81.6*	44.4 4/9	100.0 3/3	58.3 7/12	20.4-96.2
Aged 15-24	75.0 ¾	0.0 0/0	75.0 ¾	19.4-99.3*	60.0 3/5	100.0 2/2	71.4 5/7	2.3-11.9
Aged 15-19	100.0 2/2	0.0 0/0	100.0 2/2	-	100.0 1/1	100.0 1/1	100.0 2/2	-
Aged 20-24	50 ½	0.0 0/0	50 ½	1.3-98.7*	50.0 2/4	100.0 1/1	60.0 3/5	14.7-94.7*
Aged 25-49	0.0 0/1	0.0 0/2	0.0 0/3	-	25.0 1/4	100.0 1/1	40.0 2/5	5.2-85.3*
Sex with a non-regular partner in the last 12 months among men and women aged 15-49								
Aged 15-49	3.4 3/87	1.0 2/207	1.7 5/294	0.2-3.1	5.7 1/175	1.6 6/367	3.0 16/542	1.3-4.6
Aged 15-24	5.0 2/40	1.3 1/74	2.6 3/114	0.0-5.6	13.6 9/66	2.8 5/180	5.7 14/246	2.2-9.2
Aged 25-49	2.1 1/47	0.7 1/133	1.1 2/180	0.1-4.0*	0.9 1/109	0.5 1/183	0.7 2/292	0.0-2.4*
Condom use at last sex with a non-regular partner among sexually active men and women aged 15-49 who have had sex with a non-regular partner in the last 12 months								
Aged 15-49	66.7 2/3	0.0 0/2	40.0 2/5	5.2-8.5*	70.0 7/10	16.7 1/6	50.0 8/16	15.7-84.2
Aged 15-24	0.0 0/2	100.0 1/1	66.7 2/3	9.4-99.1*	66.7 6/9	20.0 1/5	50.0 7/14	20.0-80.0
Aged 25-49	0.0 0/1	0.0 0/1	0 0/2	-	100.0 1/1	0.0 0/1	50.0 1/2	1.3-98.7

TABLE 1: SUMMARY OF CORE BSS INDICATORS, DISAGGREGATED BY SETTING, GENDER AND AGE *CONT....*

INDICATOR	Camp				Host			
	% Male n/N	% Female n/N	% Overall n/N	95% CI	% Male n/N	% Female n/N	% Overall n/N	95% CI
Sex with a transactional partner in the last 12 months among men and women aged 15-49								
Aged 15-49	0.0 0/87	0.5 1/207	0.3 1/294	0.0-1.9*	2.3 4/175	0.5 2/367	1.1 6/542	0.1-2.1
Aged 15-24	0.0 0/40	0.0 0/74	0.0 0/114	-	6.1 4/66	0.6 1/180	2.05/24 6	0.3-3.8
Aged 25-49	0.0 0/47	0.7 1/133	0.6 1/180	0.0-3.0*	0.0 0/109	0.5 1/183	0.3 1/292	0.0-1.9*
Condom use at last sex with a transactional partner among men and women aged 15-49 who have had sex with a transactional partner in the last 12 months								
Aged 15-49	0.0 0/0	0.0 0/1	0.0 0/1	-	50.0 2/4	0.0 0/2	33.3 2/6	4.3-77.8*
Aged 15-24	0.0 0/0	0.0 0/0	0.0 0/0	-	50.0 2/4	0.0 0/1	40.0 2/5	5.2-85.3*
Aged 25-49	0.0 0/0	0.0 0/1	0.0 0/1	-	0.0 0/0	0.0 0/1	0.0 0/1	-
Percent of men and women aged 15-49 received an HIV test in the past 12 months and know their results								
Aged 15-49	6.9 6/87	9.2 19/207	8.5 25/294	5.3-11.7	7.4 13/175	6.8 25/367	7.0 38/542	4.6-9.4
Aged 15-24	12.5 5/4	4.0 3/74	7.0 8/114	2.2-11.8	6.1 4/66	8.3 15/180	7.7 19/246	40-11.4
Aged 15-19	4.3 1/23	2.9 1/35	3.4 2/58	0.4-11.9*	3.2 1/31	6.5 6/92	4.9 6/123	1.1-8.6
Aged 20-24	23.5 4/17	5.1 2/39	10.7 6/56	2.3-19.1	11.4 4/35	10.2 9/88	10.6 13/123	4.3-16.9
Aged 25-49	2.1 1/47	12.0 16/133	9.4 17/180	5.1-13.8	8.3 9/109	5.5 10/183	6.5 19/292	4.0-9.1
Percent of men and women aged 15-49 who had an STI symptom in the past 12 months and sought treatment at a health facility								
Aged 15-49	100.0 3/3	85.7 18/21	87.5 21/24	67.6-97.3*	83.3 5/6	82.0 32/39	82.2 37/45	70.6-93.8
Aged 15-24	0.0 0/0	66.7 4/6	66.7 4/6	22.3-95.7*	66.7 2/3	90.9 10/11	85.7 12/14	57.2-98.2*
Aged 25-49	100 3/3	93.3 14/15	94.4 17/18	72.7-99.8*	100.0 3/3	81.5 22/27	83.3 25/30	67.6-99.0*
Percent of men and women aged 15-49 with comprehensive correct knowledge of HIV/AIDS[1]								
Aged 15-49	22.1 19/86	2.5 5/196 **	8.5 24/282 **	5.2-11.8	14.6 25/171 **	4.0 14/348 **	7.5 39/519 **	5.3-9.7
Aged 15-24	18.0 7/39	4.4 3/68	9.3 10/107	3.7-14.9	21.5 14/65	3.5 6/171	8.5 20/236	4.9-12.0
Aged 25-49	25.5 12/47	1.2 2/128	8.0 14/75	3.9-12.0	10.4 11/106	4.6 8/174	6.8 19/261	3.7-9.8
Percent of men and women aged 15-49 with accepting attitudes towards PLHIV								
Aged 15-49	32.2 28/87	24.6 51/207	26.9 79/294	21.8-32.0	39.4 69/175	25.3 93/367	29.9 162/542	24.3-35.4
Aged 15-24	37.5 15/40	33.8 25/74	35.1 40/114	26.2-44.0	39.4 26/66	26.1 47/180	29.7 73/246	22.6-36.7
Aged 25-49	27.7 13/47	19.5 26/133	21.7 39/180	15.7-27.7	39.4 43/109	25.1 46/183	30.5 89/292	24.0-37.0
Percentage of men and women aged 15-49 who have been reached by HIV prevention programmes[2]								
Aged 15-49	3.4 3/87	0.0 0/207	1.0 3/294	0.0-2.2	4.0 7/175	0.3 1/367	1.5 8/542	0.4-2.5
Aged 15-24	5.0 2/40	0.0 0/74	1.7 2/114	02.-6.2*	6.1 4/66	0.0 0/180	1.6 4/246	0.4-4.1*
Aged 25-49	2.1 1/47	0.0 0/133	0.6 1/180	0.0-3.0*	2.8 3/109	0.5 1/183	1.4 4/292	0.0-2.7

TABLE 3: SUMMARY OF CORE BSS INDICATORS, DISAGGREGATED BY SETTING, GENDER AND AGE ***CONT....***

INDICATOR	Camp				Host			
	% Male n/N	% Female n/N	% Overall n/N	95% CI	% Male n/N	% Female n/N	% Overall n/N	95% CI
Percent of women aged 15-49 who were forced to have sex in the past 12 months								
Aged 15-49	-	1.0 2/207	1.0 2/207	0.1-3.4*	-	0.8 3/367	0.8 3/367	0.0-1.7*
Percent of men and women residing in current community for 12 months or less								
Aged 15-49	2.3 2/87	1.4 3/207	1.7 5/294	0.2-3.2	4.0 7/175	1.9 7/367	2.6 14/542	0.0-4.2
Aged 15-24	5.0 2/40	1.3 1/74	2.7 3/114	0.5-7.5*	3.0 2/66	1.7 3/180	2.0 5/246	0.0-3.7
Aged 25-49	0.0 0/47	1.5 2/133	1.1 2/180	0.1-3.9*	4.6 5/109	2.2 4/183	3.1 9/292	0.6-5.6
Percent of men and women away from home for four or more weeks in the past 12 months								
Aged 15-49	19.5 17/87	14.0 29/207	15.7 46/294	11.4-19.8	38.3 67/175	19.6 72/367	25.6 139/542	21.1-30.2
Aged 15-24	22.5 9/40	12.2 9/74	15.8 18/114	9.0-22.6	54.5 36/66	21.1 38/18	30.1 74/246	23.3-36.8
Aged 25-49	17.0 8/47	15.0 20/133	15.6 28/180	10.3-20.9	28.4 31/109	18.6 34/183	22.3 65/292	16.7-27.8
Percent of men and women who visit the surrounding community one or more times a month								
Aged 15-49	54.0 47/87	38.2 79/207	42.9 126/294	37.2-48.5	65.7 115/175	51.2 188/367	55.9 303/542	51.0-60.8
Aged 15-24	60.0 24/40	35.1 26/74	43.9 50/114	34.6-53.1	75.7 50/66	51.7 93/180	58.1 143/246	52.8-63.4
Aged 25-49	48.9 23/47	39.8 53/133	42.2 76/180	34.9-49.5	59.6 65/109	51.9 95/183	54.8 160/292	47.6-61.9

* An exact confidence interval was calculated assuming a binomial distribution to account for the small number of outcomes
** Missing data
[1]Composite of 5 factors: 1. A healthy-looking person can have HIV, the virus that causes AIDS; 2. People can protect themselves from HIV infection by using a condom correctly every time they have sex; 3. People can protect themselves from HIV infection by staying faithful to one uninfected faithful sex partner; 4. A person cannot become infected by sharing food with a person who has the AIDS virus; and 5. The AIDS virus cannot be transmitted by mosquito bites
[2]Reached by an HIV programme: knew where to receive an HIV test and had been given condoms in the past 12 months

1. INTRODUCTION

1.1 HIV in Northern Sudan

The HIV epidemic in Sudan is not well described, though there is wide consensus that the main route of transmission is through heterosexual sex and that prevalence varies regionally. In eastern Sudan, as in much of the north of the country, the epidemic is thought to be concentrated among high risk groups such as sex workers, prisoners, tea-sellers, and long-distance truck drivers[1]. A recent review of the HIV epidemic in Northern Sudan reported that in 2009 the HIV prevalence in the region was 0.7% compared to 1.1% nationally, and that there was with an estimated 23,766 new infections that year[2]. In the same time period there was an estimated 122,216 individuals living with the disease of whom 21,404 persons were in need of ART and 6,715 women were in need of prevention of mother to child transmission (PMTCT) services[3]. The ministry of health is currently conducting a national household survey partly to obtain a more precise estimate of HIV prevalence. However, up to date information regarding the prevalence of HIV knowledge and sexual risk behaviours is lacking, especially among refugee populations.

1.2 Survey rationale and objectives

HIV sentinel surveillance is the traditional cornerstone of tracking HIV prevalence, but it becomes less sensitive as the HIV epidemic matures and stabilizes. Periodic behavioural surveillance surveys (BSSs) can capture trends in behaviour, and provide critical information to planning and adjusting HIV prevention programmes. This is especially in conflict affected populations where assertions are often made, without sufficient evidence, that conflict and forced displacement lead to increased levels risky sexual behaviours and the spread HIV infection into host communities.

Therefore, we conducted two behavioural surveillance surveys (BSSs) to examine behavioural risk factors for HIV among refugees living in Wad Sharifey refugee camp and members of the host community living in the surrounding areas. This will provide baseline information upon which HIV prevention programmes can be planned and against which future BSSs can be compared.

The specific objectives were to:

- Establish baseline behavioural data among residents of the refugee camp and those in the surrounding host community to:
  - Inform programme planning
  - Enable comparison with other behavioural surveillance and future evaluation of the HIV interventions
- Assess interactions between refugee and surrounding host community residents

[1] SNAP (2009). Review of HIV Epidemic in Northern Sudan: Situation Analysis by Dr. Jesus M. Garcia Calleja, August 2-8, 2009, Khartoum.
[2] SNAP (2009). Estimation and Projection of HIV epidemic in Northern Sudan
[3] SNAP (2009). Estimation and Projection of HIV epidemic in Northern Sudan

2. METHODS

2.1 Study setting

Wad Sharifey refugee camp is located in Kassala State, north eastern Sudan and covers an area of approximately 4 Square Kilometres. The camp is situated at a distance of 17 Kilometres from Kassala main town. Wad Sharifey opened as a reception centre for refugees in 1982 following the arrival of thousands of asylum seekers fleeing from the internal conflict within Ethiopia, which later culminated into the declaration of independence for Eritrea. Wad Sharifey again served as a reception centre from 2004 to 2007, after which the camp was closed to newly arrived asylum seekers. Currently the camp hosts a protracted refugee population composed largely of Eritrean refugees. There are approximately 7,035 refugees between the ages of 15-49 years registered as living in the camp. The primary health care provision covers preventive and curative health services administered through four clinics and one hospital. Reproductive health and nutrition services are integrated into the primary health care services. Voluntary counselling and testing (VCT) and PMTCT services were established in 2008.

The surrounding host community included one large town and nine smaller villages. The borders of the hosting community were delineated by wad Sharifey town to the north west, the Gash River to the west, Abu-Alaga ravine to the east, and the Eritrean border to the south west. The total population in the host community villages was estimated at 44,399 individuals with approximately 16,650 (38%) between the ages of 15-49 years. Villagers in the host community could move freely to and from the camp and often travelled there to shop and trade at the camp market, or to seek health care at the camp hospital.

2.2 Design and participants

We conducted two observational, population-based, cross-sectional surveys. One survey was conducted in Wad Sharifey refugee camp and the second in the surrounding host community

The specific inclusion and exclusion criteria for individuals within a sampled household were as follows:

Inclusion

- Between 15-49 years of age

AND

- Living and sharing meals in the sampled household for more than 2 weeks

Exclusion

- Declining to provide oral informed consent

2.3 Expected sample size

2.3.1 Number of participants

We calculated the sample size for the current baseline surveys to enable the detection of an at least 15% change in the proportion of key factors at later follow-up surveys. There were no previous estimates of the proportions of key factors at baseline. In the absence of this information, we assumed a baseline proportion of 50% for any given factor of interest. This was a conservative estimate to yield the maximum sample size required.

Based on the above we calculated the sample size using Stata 10 software (Stata, Corp., College Station, Texas, USA). We based the sample size calculation on the following formula[4].

$$n = \frac{\left\{u\sqrt{[\pi_1(1-\pi_1)+\pi_0(1-\pi_0)]}+v\sqrt{[2\bar{\pi}(1-\bar{\pi})]}\right\}^2}{(\pi_0-\pi_1)^2}$$

Where:

u=1.28 (power=90%)
v=1.96 (significance level=5%)
π_0=0.50 (proportion at baseline)
π_1=0.65 (proportion at follow-up)
$\bar{\pi}=\frac{\pi_0+\pi_1}{2}$

We adjusted the sample size for both surveys upwards by 20% to account for expected non-response. In the host community survey we used a cluster sampling approach and therefore made an adjustment for the design effect. We had no previous information on the design effect in this population. Therefore we assumed a design effect of 2, i.e. the sample size was multiplied by 2.

Based on the above, the number of individuals to be recruited in the refugee and in the host community surveys was as follows:

TABLE 4: SAMPLE SIZE REQUIREMENTS

Population	Unadjusted sample size	Adjusted for design effect of 2	Final sample size (including 20% upward adjustment for non-response)
Refugee	240	n.a.	288
Host	240	480	576*

*Host community sample size adjusted by a factor of 2 to account for design effect of cluster sampling

[4] Kirkwood BR, Sterne JAC. Essential Medical Statistics. 2nd ed. Oxford: Blackwell publishing; 2003.

2.3.2 Number of households

In the refugee camp, we calculated the number of households to be sampled by dividing the number of eligible participants per household by the sample size required. The number of 15-49 year olds living in each household according to the UNHCR registration list was approximately 3 persons. However, based on anecdotal evidence from the camp service providers and discussions with camp leaders, we adjusted this number downwards to approximately 1.5 persons. This is because the UNHCR registration list was known to include many individuals who, although registered as living in the household, were actually living and working away from the camp. Based on the above, 192 households were estimated to enable us to reach the sample size required (288 persons needed/1.5 eligible persons per household=192 households).

In the host community, we recruited participants from 40 clusters. We calculated the number of households per cluster by multiplying the average household size (estimated conservatively at 4 individuals) by the proportion of the total population that is 15-49 years of age (estimated at 50%)[5]. Again we conservatively down-adjusted the number of eligible participants from 2 per household to 1.5 per household to account for increased migration among working persons in this area. The number of households needed to reach the sample size of 576 was 384 households (576 persons needed/1.5 eligible persons per household=384 households). Accordingly, the number of households per cluster was estimated at 9.6 households (384 households/40 clusters=9.6 households). The number of households per cluster was rounded up from 9.6 to 10.

2.4 Sampling procedures

In the refugee camp, we selected potential households using systematic random sampling. This was done using the UNHCR database which listed the location of each household by zone, block, and house number (the list was last updated in September 2009). We selected the households from this list based on a sampling step calculated by dividing the number of households in the camp by the number of households required. Before selecting households, we re-sorted the list by assigning a random number to each household in order to remove any bias associated with the original order of the list. We then sorted the list of selected households by zone, block and household number to facilitate data collection on a block by block basis. We created a "Potential Household List" (Annex 1) which was maintained by the principal investigator. Each morning the principal investigator assigned each team supervisor a list of households to be visited that day. The team supervisors kept this list separate from any of the questionnaires.

In the selected household, we listed the household members by age and gender using the "Enrolment Log" (Annex 2). We offered study participation to household members aged 15-49 living and eating in the household for more than two weeks. We considered a household "abandoned" if neighbour(s) reported that no one had lived there for more than one month or if inhabitants had been resettled outside the country.

[5] Sudan 5th National Census, 2008. US census Bureau International Database. http://www.census.gov/ipc/www/idb/country.php. Accessed October 3, 2009.

Within a household, we recorded individuals who declined participation as "non-responders". We recorded details of eligible but absent individuals and made one subsequent attempt to contact them. If feasible, and if the head of household agreed, we obtained information on the location of the absent individual (e.g. market, hospital or workplace) and the person was traced on the same day. Otherwise, we made an appointment at a suitable time, within three days, to conduct the interview. We recorded those we still found absent after one tracing visit as "absent". That individual was not replaced. We did not trace those absent and known to not be returning home within three days, instead we recorded them as "absent".

In the host community, in the absence of a complete listing of households, we selected the sample using two stage cluster sampling. In the first stage, we defined the comprehensive list of villages in the hosting community. We defined the villages as the primary sampling units (PSUs), constituting a sampling frame of 10 villages. We sorted the sampling frame of villages randomly, with each village being assigned a number from a randomly generated list. We obtained the best estimates of population size in each village by triangulating and averaging from three sources: 1) EPI programme data; 2) local government council data; and 3) data from a service coverage survey conducted by the Sudanese Red Crescent Society in 2007. We used this list, and the corresponding running cumulative population size, as our sampling frame for cluster allocation. We then allocated clusters to villages proportional to their population sizes.

In the second stage, we selected households (defined as a group of individuals eating from the same pot) based on a modified Expanded Programme on Immunization method. In the largest PSU, the Wad Sharifey Sudanese town, which was allocated 18 clusters, we used segmentation to reduce the clustering of households selected. We did this by dividing the town along clear geographical markers into 10 blocks or secondary sampling units (SSUs). We then allocated the 18 clusters to the 10 blocks or SSUs using PPS. Within each SSU, we divided the SSU into roughly equal segments, with each segment containing approximately 100-150 households. We assigned the clusters to randomly selected segments within the SSU. For example in the first SSU, which was assigned two clusters, we divided the SSU into four segments of approximately 150 households each. We chose two segments at random (corresponding to the two clusters allocated to the SSU). Within each of the two segments selected a team of four data collectors and a supervisor numbered and mapped each household (

ANNEX **3**). We then used the complete list of households in the segment as our sampling frame for the cluster. We selected 10 households from the list using systematic sampling based on a sampling step calculated by dividing the number of households in the segment by the number of households needed per cluster (10). We used our maps to locate the selected households

In the outlying villages we could not map households due to the absence of sufficient geographical markers within each village. In these areas, we selected the first household within each cluster using the standard Expanded Programme on Immunisation (EPI) methodology, whereby a pen is spun in the geographic centre of the village, households in the direction indicated by the pen were numbered from 1 to n until reaching the edge of the village, and a random number between 1 and n was chosen (using a random number table) corresponding to the first household to be interviewed in the cluster.

We selected the remaining households in the cluster by a rule of proximity. The interviewers left the household in which the interview was just concluded and skipped the next 4 houses (moving from one house to the next nearest house, proximity being dictated by the distance between main entrances of each household) until they reached the 5th house. In villages were there was a higher degree of clustering due to multiple household compounds, we used EPI 10 (skipping 9 households and conducting the interview in the 10th) to minimize clustering.

In villages where there was more than one cluster to be sampled, we divided the village into roughly equal sized segments equalling the number of clusters to be sampled there. From the centre of the village, and facing towards one of the segments, we spun a pen until it pointed in a random direction within that segment. We repeated the above mentioned steps for selecting households. We repeated this exercise for each segment within the village. This was to minimize clustering and avoid repeatedly selecting the same households.

In the selected household, we followed the same procedures as those described above for the refugee camp in terms of: abandoned households, enumeration of eligible individuals, offer of study participation, recording of refusal and absence.

2.5 Ethical considerations

The Ethics Committee of the Federal Ministry of Health in Khartoum, Sudan reviewed the study protocol and questionnaire and granted ethical approval for the conduct of the study in December 2009. We obtained verbal informed consent from each participant and participation was strictly voluntary.

2.6 Survey preparation and training

2.6.1 Community outreach

In October 2009 we invited all community leaders including community council members, camp leaders, religious leaders, and health care providers to a meeting to describe the goals of the study, the procedures and the questionnaire. We used this as an opportunity to explain three main issues: 1) study selection will be random and not based on any personal characteristics, 2) participation will be completely voluntary and confidential, and 3) the questionnaire will include questions regarding sexual history and practices that some in the community may consider sensitive. The leaders welcomed the study and provided advice on how best to conduct data collection, chief among these suggestions was that data collectors be selected from outside the study community to encourage disclosure and ensure confidentiality.

We visited the leaders in each community two to three days before data collection took place in their community. In these meetings we re-explained the study procedures especially how households and participants were selected and answered any concerns about the study, especially taking care to address any rumours that may have arisen from other communities in which data collection had already taken place.

2.6.2 Team composition

Data collectors were divided into four teams. Each team was comprised of four interviewers (two male and two female) and one team supervisor. There were also four data entry persons. In keeping with the community leaders' advice team members were not residents of the survey

area. Most team members were seconded from the ministry of health and from collaborating NGOs; all had had previous experience either with working in HIV and/or reproductive health programmes, and many had participated in the conduct of previous nutritional surveys.

2.6.3 Training

In October 2009 we conducted a four day training for all team members, including the data entry staff. In the first two days of training we reviewed the objectives and design of the study and also reviewed the translated Arabic questionnaire item by item. This served as an initial pilot of the questionnaire. At this stage we were able to identify problems with the skip patterns, translation and the transitional texts preceding sensitive questionnaire items. We also listed the various different ways that individuals in the target population may refer to key terms in the survey, such as sex, condoms, regular and irregular partners. In the remaining two days of the training we role played the survey procedures from enumerating eligible household members to obtaining consent and conducting the interview.

Data collection activities were delayed from October 2009 to February of 2010, at which time we held a three day refresher training for the team. The refresher training focused mainly on revision of the study objectives and design as well as role playing the interview process.

2.6.4 Pre-testing

We conducted a one day questionnaire pre-test exercise in a village adjacent to the survey area. Approximately 30 individuals were interviewed. Based on information from this pilot and the initial review of the questionnaire during the team training, we finalized the questionnaire and translated into Arabic, the *lingua franca* used throughout the survey area.

2.7 Data collection procedures

Once the team leader identified all eligible individuals in the household, in keeping with local customs, male participants were interviewed only by male interviewers and vice versa. The two sat or stood in a private place where their conversation could not be over heard by others. At this point, the interviewer reconfirmed that the participant was between 15-49 years and explained the study procedures, especially why the questionnaire included sensitive questions regarding sexual history and practices. He or she also stressed that study participation was not related to any provision or removal of benefits such as food distribution and that participation was strictly voluntary. If the individual was willing to participate the interviewer requested verbal consent for study participation. Once provided, the interviewer signed to confirm that verbal consent was obtained (

ANNEX **3**). The interviewer then administered the questionnaire. The participant's name was not recorded on the questionnaire; instead a participant identification number (PID) was used to identify the questionnaire.

The interview was most often conducted in Arabic, but multi-lingual interviewers were on hand to administer the questionnaire in any of the four main languages spoken in the area (Tigreniya, Bany-Amer, Housa, and Bija). After interviewing all eligible, available and consenting household members, and before leaving the household, the interviewer updated the enrolment Log (Annex 2) to note the outcome of the visit.

2.8 The questionnaire

The survey questionnaire was a modified version of the Family Health International (FHI) BSS guidelines (ANNEX 4). It was divided into six main sections. Section 1: included socio-demographic questions (age, sex, nationality, religion, income, marital status, previous military activity). It also included questions on alcohol and drug use. Section 2: Knowledge, attitudes and use of male and female condoms. Section 3: Sexual history and risk behaviour (age at first sex, history of sexual behaviour with regular, irregular and transactional partners, forced sex and anal sex). Section 4: Sexually transmitted infections (knowledge about STIs, experience of STI symptoms, use of condoms during last STI episodes). Section 5: Knowledge and opinions about, and attitudes towards, HIV (comprehensive knowledge of HIV transmission modes, perception of risk of acquiring HIV). Section 6: Exposure and access to HIV prevention intervention (source of HIV information, knowledge of and experience with HIV testing including during previous pregnancy).

2.9 Data management

2.9.1 Quality control

At the end of each day, interviewers within each team reviewed each other's questionnaires for completeness and consistency. The team leader then rechecked each questionnaire and met with the team members to revise mistakes and clarify misunderstandings on how questions should be asked and/or answers should be recorded. Finally, the study coordinator checked a 10% sample of the questionnaires collected that day. Every morning prior to resumption of data collection, the study coordinator debriefed the team on any issues that arose the previous day in terms of participant selection, consent procedures and questionnaire completion.

2.9.2 Data entry

Four data entry staff entered data in real time using an EpiData version 3.1 (The EpiData Association, Odense, Denmark) electronic data form, which contained range and consistency checks. After completing single entry of all questionnaires in each survey the data entry staff double entered 10% of questionnaires to check for discordance. We set an upper limit of 5% discordance, a threshold after which we would institute double entry. In the camp survey, initial double entry revealed systematic data entry mistakes in approximately 6% of the questionnaires and we instituted full double entry. In the host community survey, initial double entry revealed <5% discordance and we did not institute full double data entry.

2.10 Statistical methods

Descriptive data analysis was performed on Stata 10 software (Stata, Corp., College Station, Texas, USA).

3. RESULTS

3.1.1 Household response

Data collection was conducted during February 2010. In the Wad Sharifey camp, data collection was carried out between February 4th and February 8th. Participants were recruited from households, which were randomly selected from a UNHCR list of all households in the camp. Annex 6 shows a map of the camp divided into zones and blocks. In the surrounding host community survey, data were collected between February 10th and February 20th. Participants were recruited from 40 clusters allocated to the 10 villages in the community. Cluster allocations and the geographical location of villages are shown in ANNEX 7 and Annex 8.

Non-response among selected households was more than double in the camp compared to the host survey (22.8% and 8.7%, respectively) (Table 5). In the camp, among non-responsive households the majority were empty because their residents were said to be living and working away from the camp for extended periods of time. Others were empty because residents were resettled outside the country (Table 5).

TABLE 5: NON-PARTICIPATION AT THE HOUSEHOLD LEVEL

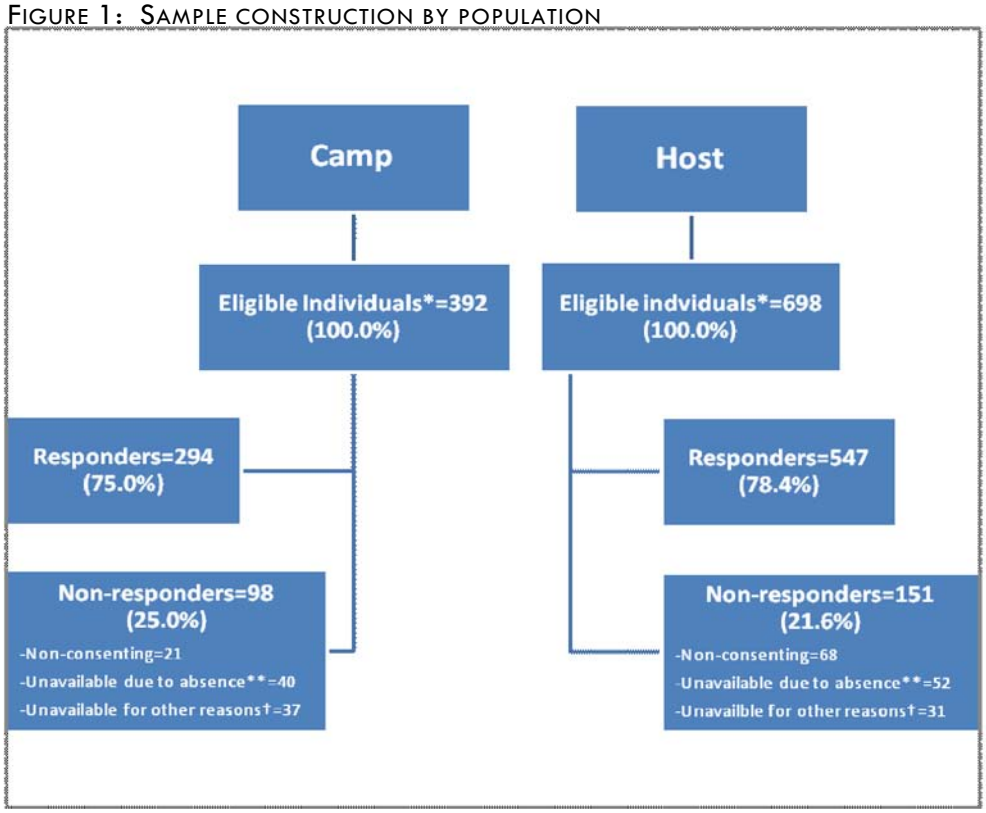
Location	Total number of HHs* Sampled	Number of HHs consenting	Number of HHs non-consenting	Number of HHs unavailable for participation due to:			% Non-participation (i.e. refused + unavailable)
				Extended travel	Resettlement	Not eligible (i.e. No 15-49 year olds in HH)	
Camp	364	281	10	49	15	9	22.8%
Host	446	407	17	5	12	5	8.7%

*HHs=Households

3.1.2 Individual response

Among eligible individuals living in the available households, non-response was high both in the camp and host surveys (25.0% and 21.6% respectively) (Figure 1). In the camp, 41% of those who did not respond were away at work during survey hours and 21% refused participation (Figure 1). In the host community, 45.0% of non-response was due to refusal to participate in the study, while 34.4% was due to being away at during survey hours (Figure 1). Though overall, non-response was high, refusal to participate in the study in the both communities was less than expected, especially given that this was the first population based HIV behavioural survey in these highly conservative communities.

FIGURE 1: SAMPLE CONSTRUCTION BY POPULATION



*Eligible individuals within consenting households
**Absence defined as not present in the household at the time of the survey after two visits
† Other reasons not specified

3.2 Observed design effect

In the host survey, participants were selected using cluster sampling wherein the sample size was multiplied by a factor of two to adjust for potential cluster design effect. The actual observed design effect for important variables of interest ranged from a low of 0.8 to a high of 1.9 (Annex 9). The clustering effect was well within the adjustment made, and in fact for many variables it was much lower than 2. These figures should be taken into account when calculating the sample size for future follow-up surveys in this setting (Annex 9).

3.3 Presentation of data

In the host survey, after data cleaning, cluster information was not available for five participants and the data was thus not analysable. Thus, complete data was available for 542 of the 547 individuals interviewed in the host community, and for all 294 individuals interviewed in the camp.

In this results section, the prevalence of key factors, disaggregated by gender, will be described separately for the camp and host survey. The 95% confidence interval will also be presented for each overall estimate[6]. This is in order to show the range within which the actual population estimate for the variable might fall. It is important to note that as the size of the sample used to

[6] For proportion that have a very small denominator (<10 individuals) the exact upper and lower limits of the 95% confidence interval were calculated assuming binomial distribution.

calculate a given estimate decreases, the confidence interval widens. In other words, for factors that have extremely low prevalence the survey estimate may not be a very precise indicator of the actual estimate among the general population.

3.4 Respondent characteristics

3.4.1 Socio-demographic characteristics

In both the camp and the host community, the female to male ratio was approximately 2:1 (Table 6). The mean level of education among women in both locales was 2.4 years, compared to 5.1 years among males in the camp and 4.6 years among males in the host community (Table 6). Accordingly, only 27.0% of women in the camp and 31.3% of women in the host community were literate, compared to 73.6% of men in the camp and 68.6% of men in the host community (Table 6). Employment was highest among men in the host community (73.6%), followed by men in the camp (56.3%), women in the camp (38.2%), and lastly women in the host community (21.3%) (Table 6).

The average age at first marriage for women in both surveys was approximately 17 years compared to approximately 24 years among men in both surveys (Table 8). Accordingly, in both communities approximately 67.0% of women were married, while only 34.5% of men in the camp and 45.9% in the host were married (Table 8). Among those married, the vast majority (97.7% in the camp and 93.7% in the host community) were in monogamous marriages.

TABLE 6: DEMOGRAPHIC CHARACTERISTICS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Gender								
Female	70.4	n.a.	70.4	65.2-75.7	76.7	n.a.	76.7	67.7-71.4
Male	29.6		29.6	24.3-34.8	32.3		32.3	28.6-36.0
female: male ratio	2.4:1		2.4:1		2.1:1		2.1:1	
Age (years)								
15-19	26.4	16.9	19.7	15.1-24.3	17.7	25.1	22.7	19.1-26.2
20-24	29.5	18.8	19.0	14.5-23.6	20.0	23.9	22.7	18.7-26.6
25-49	54.0	64.2	61.2	55.6-66.8	62.3	49.9	53.9	49.1-58.6
Don't know	0	0	0	-	0.0	1.1	0.7	0.2-1.9
Mean	28.3	27.8	28.0	27-29	28.0	25.8	26.5	25.8-27.3
Education in years								
0	32.2	63.8	54.4	48.6-60.1	34.3	58.0	50.4	41.9-58.8
1-6	25.3	19.3	21.1	16.4-25.8	30.3	28.1	28.8	23.8-33.8
>6	42.5	16.9	24.5	19.5-29.4	35.4	13.9	20.8	14.9-26.8
Mean	5.1	2.4	3.2	3.0-4.0	4.6	2.4	3.2	2.5-3.8

TABLE 7: DEMOGRAPHIC CHARACTERISTICS *CONT....*

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Literacy in at least one language	73.6	27.0	40.8	35.2-46.5	68.6	31.3	43.4	36.3-50.3
Easy	26.4	73.0	59.2	53.6-64.8	31.4	68.7	56.6	49.6-63.7
With difficulty or can't read								
Religious affiliation								
Muslim	96.5	98.1	97.6	95.9-99.4	99.4	99.7	99.6	99.1-100.0
Christian	3.5	0.5	1.4	0.2-2.6	0.6	0.3	0.4	0.0-0.8
Other	0.0	1.5	1.0	0.0-2.1	0.0	0.0	0.0	-
Regular wage/salary								
Yes	56.3	38.2	43.5	37.8-49.2	73.6	21.3	38.1	33.3-42.9
No	43.7	61.8	56.5	50.8-62.2	26.4	78.8	61.9	57.1-66.7

TABLE 8: MARITAL STATUS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Marital status								
Never married	57.5	20.8	31.6	26.3-37.0	50.0	25.6	33.5	28.6-38.3
Married	34.5	69.6	59.2	53.5-64.8	45.9	67.3	60.4	55.3-65.6
Divorced/separated/Widowed	8.1	9.7	9.8	5.9-12.5	4.1	7.1	6.1	4.0-8.2
Among ever married	**N= 37**	**N= 164**	***N= 201***		**N= 88**	**N= 273**	**N= 361**	
Age at first marriage in yrs								
<15	2.7	17.1	14.4	9.5-19.3	11	12.8	10.0	6.6-13.3
15-19	16.2	52.4	45.7	38.8-52.7	11.5	64.1	51.4	46.4-56.3
20-24	27.0	15.2	17.4	12.1-22.7	43.7	15.7	22.5	18.1-26.9
>25-49	57.3	7.3	15.4	10.4-20.4	39.1	2.6	11.4	7.7-15.1
Don't know	2.7	7.9	6.7	3.4-10.4	4.6	4.8	4.7	1.0-8.4
Mean	23.9	17.8	18.5	18-19	23.6	17.1	18.6	18.1-19.2

3.4.2 Refugee status and interaction between communities

In the camp, 48.8% of participants were born in Sudan and the majority (82%) had lived in the camp for more than five years (Table 9). In the camp, 87.1% of participants identified themselves as refugees, while in the host community 16.6% identified as refugees. 42.8% of the camp participants reported visiting the host community at least once a month (Table 9). By contrast, a higher prevalence (56.0%) of participants in the host community reported visiting the camp that regularly.

Being away from home for more than four weeks was more prevalent in the host community (25.6%) than in the camp (15.7%) (Table 9). The main reason for being away from home among men in both communities was work, and among women was "family reasons" (data not shown).

TABLE 9: LENGTH OF TIME LIVING IN CURRENT COMMUNITY, ABSENCES FROM HOME AND VISITS TO HOST COMMUNITIES OR CAMPS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Country of birth								
Eritrea	30.6	56.3	48.8	43.0-54.6	0.6	7.4	5.2	2.6-7.8
Ethiopia	0.0	1.5	1.0	0.0-2.1	0.0	0.0	0.0	-
Sudan	69.4	41.7	49.8	44.0-55.6	99.4	92.6	94.8	92.2-97.4
Other	0.0	0.5	0.3	0.0-1.0	0.0	0.0	0.0	-
Refugee status								
Refugee	77.0	91.3	87.1	83.4-91.1	1.7	23.7	16.6	11.8-21.5
Not refugee	23.0	8.7	12.9	8.9-16.6	98.3	76.3	83.4	78.5-88.2
Time living in current community in yrs								
5 or less	5.7	10.1	8.8	5.3-11.8	9.2	7.9	8.3	5.6-11.1
>5	56.3	72.9	68.0	62.7-73.4	48.5	60.9	57.0	50.1-63.8
Always	36.8	14.5	21.1	16.6-26.0	42.5	31.1	34.7*	27.6-41.7
Don't know	1.1	2.4	2.0	0.0-36.7	0.0	0.0	0.0	-
Frequency of visits to adjacent community								
Never	31.0	29.9	30.3	24.9-35.5	19.4	20.8	20.3	16.0-24.6
<once a month	14.9	31.9	26.9	21.7-31.9	14.9	27.9	23.7	20.0-27.3
Once a month	18.4	15.5	16.3	12.2-20.8	10.2	24.3	19.8	15.6-24.0
Many times per month	35.6	22.7	26.5	21.4-31.6	55.4	27.0	36.2	31.7-40.7
Away from home >4 weeks in last 12 months								
Yes	19.5	14.0	15.7	11.6-20.0	38.3	19.6	25.6	21.1-30.2
No	80.5	86.0	84.4	80.0-88.4	61.7	80.4	74.4	69.8-78.9

*N= 539

3.5 Sexual behaviour and condoms

3.5.1 Knowledge of and access to condoms

Only 9% of participants regardless of location had heard of female condoms (Table 10). By contrast, awareness about male condom was higher (56.8% in the camp and 52.6% in the host) (Table 10). Among those who had ever heard of male condoms, a low proportion (31.7% in the camp and 34.0% in the host community) knew where to obtain them, but among those who knew where to obtain them, the majority (62.3% in the camp and 60.4% in the host) could obtain them every time they needed them (Table 10).

The main constraints to obtaining male condoms were: fear of being seen purchasing them, unavailability, and the source not being open at convenient times. In both communities only a minority (5.4% in the camp and 10.9% in the host) reported ever using condoms (Table 10). Among those who used male condoms, the majority (70.1% in the camp and 66.7% in the host community) thought they were useful to protect against HIV (Table 10).

TABLE 10: KNOWLEDGE OF AND ACCESS TO CONDOMS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=357	% Overall N=542	95% CI
Ever heard of FEMALE condom								
Yes	21.8	3.4	8.8	5.6-12.1	20.6	2.7	8.5	6.3-10.7
No	78.2	96.6	91.6	87.9-94.4	79.4	97.3	91.5	89.3-93.7
Ever heard of MALE condom								
Yes	79.3	47.3	56.8	51.1-62.5	78.9	40.0	52.6	46.7-58.5
No	20.7	52.7	43.2	37.5-48.9	21.q	60.0	47.4	41.5-53.3
Among those who heard of male condoms	**N= 69**	**N= 98**	***N= 167***		**N= 138**	**N= 147**	**N= 285**	
Ever used a male condom								
Yes	11.6	1.0	5.4	1.9-8.8	18.1	4.1	10.9	7.5-14.3
No	88.4	99.0	94.6	91.1-98.1	81.9	95.9	89.1	85.7-92.5
Male condoms used for:								
Protection against HIV	87.0	58.2	70.1*	63.0-77.1	82.6	51.7	66.7*	60.2-73.1
Prevention of pregnancy	31.9	36.7	34.7	27.4-42.0	23.9	45.6	35.1	29.3-40.8
Family Planning	2.9	0.0	1.20	0.0-2.8	7.2	2.0	4.6	0.8-8.3
Know where to obtain a condom								
Yes	52.2	17.3	31.7	24.6-38.9	44.9	23.8	34.0	27.6-40.5
No	47.8	83.6	68.3	61.1-75.4	55.1	76.2	66.0	59.5-72.4
Among those who knew where to obtain condoms	***N= 36***	***N= 17***	***N= 53***		**N= 62**	**N= 35**	**N= 92**	
Condoms USUALLY obtained from:								
Pharmacy	41.7	17.6	3.0	20.8-47.1	59.7	37.1	51.5	39.8-63.3
Health facility	52.8	41.2	49.1	35.1-63.0	29.0	31.4	29.9	18.4-41.3
Other/Don't know	5.7	41.2	17.0	6.5-27.4	11.3	31.4	18.6	9.0-28.1
Can obtain condom every time needed								
Yes	55.6	76.5	62.3	48.8-75.8	54.1	71.4	60.4	49.5-71.3
No	44.4	23.5	37.7	24.2-51.2	45.9	28.6	39.6	28.7-50.5
Among those who couldn't obtain a condom every time needed	N= 16	N= 4	N= 20		N= 28	N= 10	N= 38	

TABLE 11: KNOWLEDGE OF AND ACCESS TO CONDOMS ***CONT....***

	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=357	% Overall N=542	95% CI
Constraint to obtain condom								
Source closed at convenient hrs	18.7	0.0	15.0	2.2-32.1	10.7	10.0	8.1	
Not available	18.7	0.0	15.0	2.2-32.1	53.6	0.0	40.5	
Fear of being seen	25.0	0.0	20.0	0.7-39.2	14.3	30.0	18.9	
Health worker's attitude	12.5	25.0	15.0	2.1-32.1	0.0	0.0	0.0	
Other	6.2	25.0	10.0	4.4-24.4	0.0	20.0	5.4	
Don't know	18.7	50.0	25.0	4.2-45.8	21.4	40.0	27.0	

*Respondents could provide more than one answer therefore the cumulative total of response does not add up to 100%

3.5.2 Sexual debut

In both communities, the average age of sexual debut among women was approximately 17 years, while among men it was 20.8 years (Table 12). The number of 15-24 year olds who have had sexual intercourse before the age of 15 was approximately 10% in both settings. Among never married 15-24 year olds the majority (18.0% in the camp and 16.6% in the community) had had sex before marriage (Table 12). However, sex before marriage was more common among men than women in both settings (Table 12).

TABLE 12: EARLY SEXUAL EXPERIENCE, DISAGGREGATED BY SETTING AND AGE

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Ever had sexual intercourse								
Yes	57.5	80.2	73.5	68.4-78.5	68.0	76.0	73.4	69.4-77.4
No	42.5	19.8	26.5	21.4-31.6	32.0	24.0	26.6	22.6-30.5
Among 15-24 year olds	***N= 40***	***N= 74***	***N= 144***		***N= 66***	***N= 180***	***N= 246***	
Had sex before the age of 15								
Yes	12.5	9.5	10.5	4.8-16.2	13.6	8.9	10.2	6.2-14.2
No	86.4	91.1	89.8	85.9-93.8	87.5	90.5	89.5	83.7-95.2
Among never married 15-24 year olds	***N= 40***	***N= 38***	***N= 78***		***N= 57***	***N= 88***	***N= 145***	
Had sex before marriage								
Yes	30.0	5.3	18.0	9.2-26.6	35.1	4.6	16.6	9.8-23.3
No	70.0	94.7	82.0	73.3-90.7	64.9	95.4	83.4	76.7-90.2

3.5.3 Recent sexual experiences and condom use

3.5.3.1 REGULAR PARTNERS

In the refugee community 60.9% of 15-49 year olds reported having sex with a regular partner in the past 12 months, and 1.7% reported using a condom at last sex with a regular partner (Table 13). Similarly in the host community, 64.0% of participants reported having sex with a regular partner in the past 12 months, and 2.4% reported using a condom at last sex with a regular partner (Table 13). Both in the refugee and in the host community, women tended to have regular partners who were on average 10 years older than themselves (Table 13). Men on the other had regular partners who were on average nine years younger in the camp and eight years younger in the host community (Table 13).

TABLE 13: REPORTED SEX WITH A REGULAR PARTNER THE LAST 12 MONTHS AND CONDOM USE AT LAST SEX WITH REGULAR PARTNER

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Sex with a regular partner in the past 12 months								
Yes	41.4	69.1	60.9	55.3-66.5	55.4	68.1	64.0	60.0-68.1
No	58.6	30.9	39.1	33.5-44.7	44.6	31.9	36.0	31.9-40.0
Condom use at last sex with a regular partner								
Yes								
No or didn't have a regular partner in the last 12 months	3.5 96.5	1.0 99.0	1.7 98.3	0.2-3.2 96.1-99.4	4.0 96.0	1.6 98.4	2.4 97.6	1.2-3.6 95.9-98.7
Among ever had sexual intercourse	***N= 50***	***N= 166***	***N= 216***		***N= 119***	***N= 279***	***N= 398***	
Regular sex partner in the last 12 months								
Yes	72.0	86.1	82.9	77.8-87.9	82.2	89.6	87.4	83.5-91.3
No	28.0	13.9	17.1	12.1-22.2	17.8	10.4	12.6	8.6-16.5
Mean age difference between respondent and regular partner, years	-9.0	10.8	6.7	5.0-8.4	-8.1	10.4	4.8	3.6-6.0

3.5.3.2 NON-REGULAR PARTNERS

Among15-49 year olds in the camp, 1.7% had engaged in sex with a non-regular partner in the last 12 months, and only 0.7% had used a condom at last sex with a non-regular partner. In the host community, 3.0% had engaged in sex with a non-regular partner in the last 12 months, and 1.5% had used a condom at last sex with a non-regular partner. Among sexually active participants in both communities, the prevalence of non-regular sex was markedly higher among men than women (Table 14).

TABLE 14: SEXUAL EXPERIENCE WITH A NON-REGULAR PARTNER IN THE LAST 12 MONTHS AND CONDOM USE AT LAST SEX, AMONG 15-49 YEAR OLDS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Sex with a non-regular partner in the past 12 months								
Yes	3.5	1.0	1.7	0.1-3.2	5.7	1.6	3.0	1.3-4.6
No	9.6	99.0	98.3	9.7-99.8	94.3	98.4	97.0	95.4-98.7
Condom use at last sex with non-regular partner in the past 12 months								
Yes	2.3	0.0	0.7	0.0-2.4	4.0	0.3	1.5	0.3-2.6
No or no non-regular partner in past 12 months	97.7	100.0	99.3	97.6-99.9	96.0	99.7	98.5	97.3-99.7
Among ever had sexual intercourse	***N= 50***	***N= 166***	***N= 216***		***N= 119***	***N= 279***	***N= 398***	
Non-regular sex partner in the last 12 months								
Yes	6.0	1.2	2.31	0.2-4.3	8.5	2.1	4.0	1.8-62.9
No	94.0	98.8	97.7	95.7-99.7	91.5	97.9	96.0	93.7-98.2
Among those with non-regular partner in the past 12 months	***N= 3***	***N= 2***	***N= 5***		***N= 10***	***N= 6***	***N= 16***	
Condom use at last sex with a non-regular partner								
Yes	66.7	0	40.0	5.2-8.5*	70.0	16.7	50.0	15.7-84.2
No	33.3	100.0	60.0	14.7-94.7*	30.0	83.3	50.0	15.7-84.2

3.5.3.3 TRANSACTIONAL PARTNERS

In the camp among the general population of 15-49 year olds, 0.3% (none of whom were male) had had sex with a transactional partner in the past 12 months, and no participants reported using condoms at last sex with a transactional partner (Table 15). Similarly, in the host community only 1.1% of 15-49 year olds reported engaging in transactional sex in the past 12 months, and 0.4% reported using a condom at last sex with a transactional partner (Table 15).

Among sexually active participants the proportion reporting ever having transactional sex (not restricted to the last 12 months) was 2.3% in the camp and 7.0% in the host community. In both locales men had a higher proportion of life time transactional sexual experience than women (Table 15). Among sexually active men, transactional sex was more prevalent in the host community (18.5%) than in the camp (4.0%) (Table 15).

TABLE 15: LIFE TIME SEXUAL EXPERIENCE WITH A TRANSACTIONAL PARTNER AND IN THE LAST 12 MONTHS AND CONDOM USE AT LAST SEX, AMONG 15-49 YEAR OLDS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Sex with a transactional partner in the past 12 months								
Yes	0.0	0.5	0.3	0.0-1.8*	2.3	0.5	1.1	0.1-2.1
No	100.0	99.5	99.7	98.1-100.0*	97.1	99.5	98.9	97.9-99.9
Condom use at last sex with a transactional partner								
Yes	0.0	0.0	0.0	-	1.1	0.0	0.4	0.0-1.3
No or didn't have transactional partner in the last 12 months	100.0	100.0	100.0		98.9	100.0	99.6	98.7-99.9
Among ever had sexual intercourse	***N= 50***	***N= 166***	***N= 216***		***N= 119***	***N= 279***	***N= 398***	
EVER had transactional sex								
Yes	4.0	1.8	2.31	0.2-4.3	18.5	2.1	7.0	4.3-9.7
No	96.0	98.2	97.7	95.7-99.7	81.5	97.9	93.0	90.3-95.6
Among ever had sexual intercourse and ever had transactional sex	***N= 2***	***N= 3***	***N= 5***		***N= 22***	***N= 6***	***N= 28***	
Transactional sex in the last 12 months								
Yes	0.0	33.3	20.0	0.0-75.5	18.1	33.3	21.4	3.1-39.7
No	100.0	66.7	80.0	24.4-100.0	81.9	66.7	78.5	60.8-96.9
Among those with transactional sex partner in the past 12 months	***N= 0***	***N= 1***	***N= 1***		***N= 4***	***N= 2***	***N= 6***	
Condom use at last sex with a transactional partner								
Yes	0.0	0.0	0.0	-	50.0	0.0	33.3	4.3-77.8*
No	0.0	100.0	100.0	-	50.0	100.0	66.7	22.3-95.7

* An exact confidence interval was calculated assuming a binomial distribution to account for the small number of outcomes

3.5.3.4 MULTIPLE PARTNERS

Among 15-49 year olds in the refugee camp 2.4% reported having had multiple partners in the past 12 months. While, 1.0% reported both having multiple partners in the past 12 months and using a condom at last sex. In the host 2.2% of 15-49 year olds had had multiple partners in the past 12 months. 1.3% had multiple partners and used a condom at last sex (Table 16). Among sexually active men in the camp multiple partnerships were more prevalent (13.5%), as compared to sexually active men in the host community (8.7%) (Table 16).

TABLE 16: SEXUAL EXPERIENCE WITH MULTIPLE PARTNERS AND CONDOM USE IN THE LAST 12 MONTHS, AMONG 15-49 YEAR OLDS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Had more than one partner (regular or irregular or transactional) in the past 12 months								
Yes	5.7	1.0	2.4	0.6-4.1	5.1	0.8	2.2	0.0-3.4
No	94.3	99.0	97.6	95.9-99.4	94.9	99.2	97.8	96.5-99.0
Had more than one partner in the past 12 months and used a condom at last sex								
Yes	3.5	0.0	1.0	0.2-3.0	2.3	0.8	1.3	0.5-2.6
No or didn't have multiple partners in the past 12 months	96.5	100.0	9.0	97.0-99.8	97.7	99.2	98.7	97.0-99.5
Among sexually active in past 12 months	***N= 37***	***N= 144***	***N= 181***		***N= 103***	***N= 251***	***N= 354***	
Had more than one partner in the past 12 months								
Yes	13.5	1.4	3.9	1.0-6.7	8.7	1.2	3.4	1.3-5.5
No	73.0	98.6	93.4	89.7-97.0	87.4	98.9	95.5	93.4-97.6
Don't know	5.4	0.0	1.7	0.2-3.5	3.9	0.0.	1.1	0.1-2.2
No Answer	8.1	0.0	1.1	0.4-2.6	0.0	0.0	0.0	-
Among those with more than one sex partner in the past 12 months	***N= 5***	***N= 2***	***N= 7***		***N= 9***	***N= 3***	***N= 12***	
Condom use at last sex								
Yes	60.0	0.0	42.9	19.4-99.4*	44.4	100.0	58.3	20.6-96.2
No	40.0	100.0	57.1	18.4-90.1*	55.6	0.0	41.7	3.8-79.6

* An exact confidence interval was calculated assuming a binomial distribution to account for the small number of outcomes

3.5.3.5 SEXUAL EXPERIENCES AMONG NEVER MARRIED YOUNG MEN

In the host community, among the 145 never married young adults (15-24 years old), 16.5% had had sex, while among the 78 unmarried young adults in the camp 18.0% were sexually active (Table 17). The majority of unmarried young adults who had had sex were men; with 30.0% of young unmarried men the camp and 35.1% in the host being sexually active compared to only 5.3% of women in the camp and 4.5% of women in the host community (Table 17).

In the host community, of the 20 sexually active unmarried young men 35.0% had had a non-regular partner in the last 12 months and 45.0% reported having had transactional sex in the past. In the camp of the 12 sexually active unmarried young men 16.7% had a non-regular partner in the last 12 months, and the same proportion had had transactional sex since becoming sexually active (Table 17).

TABLE 17: SEXUAL EXPERIENCE AMONG NEVER MARRIED 15-24 YEAR OLDS

Characteristics	Camp				Host			
	% Male N=40	% Female N=38	% Overall N=78	95% CI	% Male N=57	% Female N=88	% Overall N=145	95% CI
Ever had sex								
Yes	30.0	5.3	18.0	9.2-26.7	35.1	4.5	16.5	10.4-22.7
No	70.0	94.7	82.0	73.3-90.8	64.9	94.5	83.4	77.3-89.6
Among ever had sexual intercourse	***N= 12***	***N= 2***	***N= 14***		***N= 20***	***N= 4***	***N= 24***	
Mean age at first sex	13.8	13.0	13.5	11.3-16.2	15.3	15.2	15.3	14.3-16.4
Non-regular sex in past 12 months								
Yes	16.7#	50.0	21.4	4.6-50.8*	35.0#	75.0	41.7	16.2-76.1
No	83.3	50.0	78.5	49.2-95.3*	65.0	25.0	58.3	32.9-83.4
Ever had transactional sex								
Yes	16.7^	0.0	14.2	1.8-42.8*	45.0^	25.0	41.7	17.6-65.7
No	83.3	100.0	85.7	57.2-98.2*	35.0	75.0	58.3	34.3-82.4
Had more than one partner in the past 12 months								
Yes	33.3	0.0	28.6	1.5-55.6	20.0	25.0	20.8	7.1-42.1*
No	66.7	100.0	71.4	44.3-98.5	80.0	75.0	79.2	57.8-92.8*

* An exact confidence interval was calculated assuming a binomial distribution to account for the small number of outcomes

Exact 95% CI for proportion of non-regular sex among camp males=2.1-48.4, Exact 95% CI for proportion of non-regular sex among host males=15.3-59.22

^ Exact 95% CI for proportion of transactional sex among camp males=2.1-48.4, Exact 95% CI for proportion of transactional sex among host males=23.1-68.4

3.5.4 Anal sex and forced sex

A sizable minority of participants in both locales reported having been forced to have sex in the past (3.1% in the camp and 3.5% in the host community) (Table 18). Only 1.0% of participants in the camp and 0.7% of those in the host community reported having anal sex in the last 12 months (Table 18).

TABLE 18: FORCED AND ANAL SEX

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Ever been forced to have sex								
Yes	3.4	2.9	3.1	1.1-5.0	6.3	3.5	4.4	2.3-6.5
No	96.6	97.1	96.9	94.9-98.9	93.7	94.5	95.6	93.5-97.7
Forced sex in past 12 months								
Yes	1.1	1.0	1.0	0.2-2.9*	0.6	0.8	0.7	0.2-1.9*

TABLE 19: FORCED AND ANAL SEX *CONT....*

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
No	98.9	99.0	99.9	97.0-99.8*	99.4	99.2	99.3	98.1-99.8*
Ever had anal sex with a man or a woman								
Yes	2.3	0.5	1.0	0.2-2.9*	1.7	0.3	0.7	0.0-1.4*
No	97.7	99.5	98.0	97.1-99.8*	98.3	99.7	99.3	98.1-99.8*
Among men								
Ever had anal sex with another man								
Yes	1.1	n.a.	1.1	0.0-6.2*	0.6	n.a.	0.6	0.0-3.1*
No	98.9		98.9	93.7-99.9*	99.4		99.4	96.8-99.9*

* An exact confidence interval was calculated assuming a binomial distribution to account for the small number of outcomes

3.6 Co-factors related to HIV transmission and vulnerability

3.6.1 Sexually transmitted infections

The proportion of those experiencing STI symptoms in the past 12 months was 7.8% in the camp and 8.7% in the host community (Table 20). Among those who experienced STI symptoms the majority sought treatment (Table 20).

TABLE 20: STI EPISODES, TREATMENT AND PREVENTION OF ONWARD TRANSMISSION

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Had STI symptoms in the past 12 months[a]								
Yes	3.5	9.7	7.8	4.7-10.9	3.4	11.2	8.7	6.2-11.1
No	96.5	90.3	92.2	89.1-95.3	96.6	88.8	91.3	88.9-93.8
Among those who had STI symptoms in past 12 months	***N= 3***	***N= 20***	***N= 24***		***N= 6***	***N= 39***	***N= 45***	
Sought treatment the last time had symptoms								
Yes	100.0	85.7	87.5	73.2-100.0	83.3	82.0	82.2	70.6-93.8
No	0.0	14.3	12.5	1.7-2.7	16.7	18.0	17.8	6.2-29.4

[a] had either genital ulcers or genital sores

3.6.2 Alcohol, drugs, military activity and circumcision

The reported prevalence of alcohol consumption and illegal substance abuse was less than 1.0% in both settings (Table 21). The proportion who had served in the military was higher in the host (7.9%) than in the camp (2.0%) (Table 21). Finally, circumcision was almost universal in both locales (Table 21).

TABLE 21: HISTORY OF ALCOHOL AND DRUG USE, MILITARY ACTIVITY AND CIRCUMCISION

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Alcohol use in past 4 weeks								
Everyday	1.15	0.5	0.7	0.2-1.6	1.7	0.3	0.7	0.0-1.4
At least once a week	1.15	1.4	1.4	0.0-20.7	10.3	0.8	3.9	0.2-5.6
At least once a month	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0
Never	97.7	98.1	97.9	96.3-99.6	88.0	98.9	95.4	93.6-97.1
Substance abuse in the past 12 months								
Yes	0.0	0.0	0.0	-	2.3	0.0	0.7	0.0-1.6
No	100	100	100	-	97.7	100.0	99.3	98.4-100.0
Circumcised								
Yes	100.0	96.6	96.6	97.3-100.0	100.0	78.5	85.4	77.8-93.1
No	0.0	1.4	1.4	0.0-2.7	0.0	21.5	14.6	6.9-22.2
Previous military activity								
Yes	6.9	0.0	2.0	0.4-3.7	23.4	0.5	7.9	5.3-10.5
No	93.1	100.0	98.0	96.3-99.6	76.6	99.5	92.1	89.6-94.6

3.7 HIV knowledge and attitudes

3.7.1 HIV prevention knowledge

Overall, almost all participants had heard of HIV (Table 22). However, only a minority (8.5% in the camp and 7.5% in the host community) had comprehensive HIV knowledge of how to prevent it[7]. In the camp, a far lower proportion (2.5%) of women had comprehensive knowledge of HIV, as compared to men (22.1%) of men (Table 22). Similarly, in the host only 4% of women, compared to 14.5% of men had comprehensive knowledge. While comprehensive HIV knowledge did not seem to vary with age; it did increase with education. Specifically, in the camp, comprehensive knowledge among those with no formal education was 2.0%, compared with 9.8% among those with 1-6 years, and 20.8% among those with >6 years of education. Similarly, in the host community, only 0.8% of those with no formal education reported

[7] Composite of 5 factors: 1. A healthy-looking person can have HIV, the virus that causes AIDS; 2. People can protect themselves from HIV infection by using a condom correctly every time they have sex; 3. People can protect themselves from HIV infection by staying faithful to one uninfected faithful sex partner; 4. A person cannot become infected by sharing food with a person who has the AIDS virus; and 5. The AIDS virus cannot be transmitted by mosquito bites

comprehensive knowledge of HIV, compared to 9.8% of those with 1-6 years of education, and 19.5% of those with more than 6 years of education. This pattern persisted regardless of gender.

TABLE 22: KNOWLEDGE OF HIV PREVENTION METHODS

Characteristics	Camp				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Ever heard of HIV								
Yes	100.0	94.7	95.9	93.6-98.2	97.7	94.8	95.8	93.8-97.7
No	1.1	5.3	4.1	1.8-6.3	2.3	5.2	4.2	2.3-6.2
Among those who had heard of HIV: knowing that it can be prevented by:	**N= 86**	**N= 196**	**N= 282**		**N= 171**	**N= 348**	**N= 517**	
Staying faithful								
Yes	80.2	65.3	69.9	64.5-75.2	72.8	75.9	74.8	69.8-80.0
No	15.1	28.6	24.5	19.4-29.5	17.7	16.4	16.8	13.1-20.6
Don't know	4.6	6.1	5.7	3.0-8.4	9.5	7.8	8.3	4.9-11.7
Abstaining from sex								
Yes	69.7	51.5	57.1	51.3-62.9	71.8	64.7	66.7	62.4-71.6
No	23.3	41.3	35.8	30.2-41.4	22.3	27.6	25.9	21.6-30.2
Don't know	7.0	7.1	7.1	4.1-10.1	5.9	7.8	7.1	4.6-9.6
Using condoms								
Yes	67.4	25.5	38.3	32.6-44.0	59.8	22.7	34.8	29.4-40.2
No	8.1	19.9	16.3	12.0-20.7	16.0	10.1	12.0	9.3-14.7
Don't know	24.4	54.6	45.4	39.5-51.2	24.3	67.2	53.2	47.3-59.1
Comprehensive knowledge[7]								
Yes	22.1	2.5	8.5	5.1-11.7	14.6	4.0	7.5	5.3-9.7
No	77.9	97.5	91.3	88.3-94.8	85.4	96.0	92.5	90.3-94.7

3.7.2 Accepting attitudes towards people living with HIV/AIDS

Overall, the proportion of participants who held accepting attitudes towards people living with HIV[9] was low (28.0% in the camp and 31.3% in the host community) (Annex 14). A lower proportion of women (26.0% in the camp and 26.7% in the host community) compared to men (32.6% in the camp and 40.6% in the host community) held accepting attitudes towards people living with HIV (Annex 14).

3.8 Exposure and access to interventions

3.8.1 Access to HIV programmes and behaviour change communication

Respectively only 1.0% and 1.5% of camp and host participants reported having been reached by an HIV programme (defined as knowing where to receive an HIV test and receiving condoms from an HIV programme in the past 12 months).

Annex 10 shows the actual and preferred methods of receiving HIV information among participants. The majority of participants in the camp and host community (71.1% and 79.5% respectively) had received information about HIV in the past 12 months (Annex 10). In the camp 65.6% preferred radio as their main source of HIV information, and 61.7% reported actually receiving HIV information from the radio. In the host community, 81.0% preferred radio and 76.8% received information from the radio (Annex 10). In the camp, 41.1% of men compared to 29.4% of women preferred to receive HIV information in a health facility. Similarly, in the host community, 25.2% of men compared to only 14.8% of women preferred to receive information in a health facility (Annex 10).

3.8.2 HIV testing and counselling

Less than half of survey participants (47.4% in the camp and 41.7% in the host) knew of an HIV testing facility (Table 23). Only 13.3% of participants in the camp and 10.5% in the host community had ever tested for HIV (Table 23). Most of those who had tested did so in a governmental health facility, had received counselling and obtained their results. However, women were more likely to undergo provider initiated or provider mandated testing (72.4% in the camp and 76.4% in the host), compared to men (20.0% in the camp and 28.5% in the host) (Table 23).

The majority of participants (67.5% in the camp and 68.3% in the host community) said they would test for HIV in the future (Table 23). Among those that did not want to test in the future, 71.9% in the camp and 78.5% in the host community said they wouldn't test because they felt they were not at risk of HIV infection (Table 23).

TABLE 23: KNOWLEDGE AND USE OF HIV TESTING AND COUNSELLING SERVICES

Characteristics	Camp				Host			
	% Male N=86	% Female N=207	% Overall N=293	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Know a place for HIV test								
Yes	45.3	58.3	47.4	41.6-53.2	54.9	35.4	41.7	35.5-47.9
No	54.7	51.7	52.7	46.8-58.3	451	64.6	58.3	52.1-64.5
If know a place	***N= 39***	***N= 100***	***N= 139***		***N= 96***	***N= 130***	***N= 226***	
Where can obtain test								
In local community	53.8	57.0	56.1	47.8-64.7	56.2	54.6	55.3	47.1-63.5
In refugee camp	35.9	37.0	36.7	28.6-44.8	21.9	30.8	27.0	20.1-33.9
In both sites	7.7	3.0	4.3	0.9-7.7	21.9	10.0	15.0	9.2-20.9
Don't know	2.6	3.0	2.9	0.0-5.7	0.0	4.6	2.7	0.7-4.6
Ever tested for HIV								
Yes	11.5	14.0	13.3	9.4-17.2	12.1	9.8	10.5	7.6-13.5
No	88.5	85.5	86.7	82.8-90.6	87.9	90.2	89.5	86.5-92.4
If ever tested for HIV, then at last test	***N= 10***	***N= 29***	***N= 39***		***N= 21***	***N= 34***	***N= 55***	

TABLE 24: KNOWLEDGE AND USE OF HIV TESTING AND COUNSELLING SERVICES *CONT....*

Characteristics	Camp				Host			
	% Male N=86	% Female N=207	% Overall N=293	95% CI	% Male N=175	% Female N=367	% Overall N=542	95% CI
Time of last test	70.0	72.4	71.8	47.0-86.6	66.7	79.4	74.5	62.7-81.4
Last 12 months	10.0	17.2	15.4	3.5-27.2	23.8	11.8	16.4	5.5-27.2
>1yr - 2 yrs ago	20.0	10.3	12.8	1.8-23.8	9.5	8.8	9.1	1.0-6.3
>3 or more yrs ago								
Testing reasons								
Client-initiated	80.0	27.6	41.0	24.9-54.2	71.4	23.5	41.8	27.0-56.6
Test offered & accepted	10.0	55.2	43.6	27.3-59.9	9.5	58.8	40.0	29.1-50.9
Mandatory	10.0	17.2	15.4	3.5-27.2	19.0	17.6	18.2	7.5-28.8
Counselling received								
Yes	100.0	79.3	84.6	72.8-96.5	61.9	91.2	80.0	65.5-94.5
No	0.0	20.7	15.4	3.6-27.2	38.1	8.8	20.0	5.5-34.5
Result obtained								
Yes	90.0	89.7	89.7	79.7-99.7	80.9	88.2	85.4	75.1-95.8
No	10.0	6.9	7.7	1.1-6.4	19.0	11.8	14.5	4.2.-24.9
Don't know	0.0	3.4	2.6	2.6-7.8	0.0	0.0	0.0	-
Future testing	***N= 87***	***N= 207***	***N= 294***		***N= 175***	***N= 367***	***N= 542***	
Would test in the future								
Yes	77.0	63.3	67.5	62.0-72.7	73.1	65.9	68.3	63.1-73.4
No	23.0	36.7	43.7	27.3-38.0	26.9	34.1	31.7	26.6-36.8
If wouldn't test in future	***N= 20***	***N= 76***	***N= 96***		***N= 47***	***N= 125***	***N= 172***	
Reason for not testing								
Don't know where to test	5.0	6.0	7.3	2.0-12.6	0.0	8.0	5.8	2.4-9.2
Sure of not being infected	65.0	73.7	71.9	6.3-81.0	83.0	71.8	78.5	70.5-86.4
Other	15.0	14.5	14.6	7.4-21.8	12.7	8.8	9.9	4.4-15.3
Don't know	15.0	3.9	6.3	1.3-11.2	4.3	6.4	5.8	1.6-10.0

3.8.3 PMTCT

Among women who were pregnant in the last five years and accessed antenatal care (ANC), 37.7% in the camp were offered an HIV test compared to only 21.3% in the host community (Annex 12).

4. LIMITATIONS

We identified the following study limitations:

- The survey highlighted important differences between men and women and between 15-24 year olds and 25-49 year olds. However, the survey sample was not stratified by age or by gender, thus the number of participants within each sub-group who reported engaging in the main factors of interest was relatively small (e.g. sexually active never married 15-24 year olds). In order to obtain a more precise population estimate of key factors (especially among younger men) the follow-up survey should be stratified by age (15-24 and 25-49 year olds), and if at all possible by gender.

- In the absence of a recent census in the host community, cluster allocation relied on triangulation of sometimes divergent sources of population figures, and may have over- or underrepresented certain villages.

- Non-response among eligible participants in sampled households was high (25% in the camp and 21.6% in the host). This higher rate of non-response in the camp was largely due to families being registered as camp residents but in actuality living and working for extended periods of time away from the camp. Moreover, absence tended to be higher among men many of whom were away from home during data collection hours and could not be available for an appointment. This may have introduced a selection bias with males being underrepresented in our sample. Indeed, the expected female: male ratio based on the 2008 census in rural Kassala was 0.8:1.8. In our sample the female: male ratio was 2:1. Males were more likely to report engaging in risky sexual behaviour, such as transactional sex, and thus those parameters may have been underestimated in our survey.

In addition to the above study-specific limitations, our study is also subject to other potential sources of bias, including:

- Recall bias, especially as regards to life time experiences. The chances of this bias were minimized by asking questions about behaviour and experiences over the past 12 months whenever appropriate.

- Response bias (due to purposeful under-reporting of risky behaviour and over-reporting of protective behaviours) may have occurred. In particular under-reporting of non-regular, transactional and anal sex, as well as drug or alcohol use.

- Measurement bias due to differences in questioning among interviewers. Upon inspection of the data we did not find any evident patterns in questionnaire responses according to interviewer team (results not shown). This suggested that there were no major differences in the data collection process among interviewers.

- Non-systematic error due to mistakes in filling questionnaires or data entry. We checked the questionnaires in three stages on the day of collection. Firstly, each questionnaire was checked by one of the data collectors (someone other than the person who completed the questionnaire) then by the team supervisor and finally by the study coordinator. Data were entered on screens containing multiple range and consistency checks. Double entry was

[8] http://www.cbs.gov.sd/Tiedadat/Tiedadat%205th.htm

instituted if there were more mistakes in more than 5% of records. Data cleaning further subjected data to various checks, and any errors were corrected if possible based on source questionnaires.

5. SUMMARY OF MAIN FINDINGS

5.1 Differences between the camp and the hosting community

Overall, the camp and host community were very similar demographically and had a similar prevalence of HIV prevention knowledge, condom use, and access to services. However, within each community the prevalence risky sexual behaviours varied between men and women. There were much more similarity between women in the two different communities than between men and women in the same community. Therefore in this section whenever appropriate overall as well as gender-specific prevalence data will be discussed.

5.2 Interactions between the communities

Interaction between the two communities was high. More than half of participants in the host community reported visiting the camp at least once a month; while 42.8% of the camp participants reported visiting the host community regularly. This was not surprising given the fact that the long established camp also had the largest market and only hospital in the area, both of which were frequently used by members of the host community, especially men. Not only was visitation regular between the two communities, but so was cross-habitation, with refugees living in the host community (16.6%) and non-refugees (12.9%) living in the camp. However, this may partially reflect the fact that in long established camp more than half of the residents in the survey and the majority of the 15-24 year olds were born in Sudan and had lived in the camp all their lives. It was not uncommon for children of refugees to consider themselves as Sudanese nationals even if they were not legally naturalized. ***High levels of interaction and demographic similarities between the two communities may explain the observed similarity in terms of HIV awareness, knowledge, and condom use. Future HIV prevention efforts should focus less on the difference between the two communities and more on the differences between men and women within each community.***

5.3 Sexual behaviour

5.3.1 Non-regular, transactional and multiple partnerships

Among 15-49 year olds the prevalence of sex with non-regular partners in the past 12 months was 1.7% in the camp and 3.0% in the host community. The prevalence of transactional sex in the past 12 months was 0.3% in the camp and 1.1% in the host. Lastly, the prevalence of multiple partnerships in the past 12 months was 2.4% in the camp and 2.2% in the host community. The prevalence of these behaviours was higher among men than women. Moreover, among sexually active men, transactional sex was five times more prevalent in the host community than in the camp. Multiple partnerships were 1.5 times more prevalent among sexually active men in the camp compared to sexually active men in the community.

5.3.2 Risky sexual behaviour among never married young men

Approximately 10% of 15-24 year old men and women had sexual intercourse before the age of 15, and among those who were never married a sizable minority (18.0% in the camp and 16.6% in the community) had had sex before marriage. ***Though the sample size is small, the data suggests that unmarried young never married men who were sexually active may have an elevated prevalence of non-regular sex, transactional and multiple partnerships.*** Almost half of the young men surveyed were never married (57.5% in the camp and 50.0% in the host community). This is not surprising given that the average age for marriage among men is 24 years (compared to approximately 17 years among women). However, unexpectedly in this conservative community, where sex before marriage is widely believed to be rare or non-existent, many unmarried young men (30.0% in the camp and 35.1% in the host community) reported that they had had premarital sex, and that they did so at a fairly early age (approximately 14 years in the camp and 15 years in the host community). Though the sample size of the sexually active unmarried young men surveyed is small (12 in the camp and 20 in the host community) the data suggests that this group may have an elevated prevalence of non-regular sexual partnerships. In the host community almost half of the sexually active, unmarried, young men had previously engaged in transactional sex; while 35.0% had had a non-regular partner in the last 12 months. By contrast, 16.7% among the same group in the camp reported engaging in either transactional sex or non-regular sex was. ***Despite the small sample size, we observed that an unexpectedly high proportion of young unmarried men had had sex before marriage at an early age, and of these a relatively high frequency did so with transactional and non-regular partners. Thus members of this subgroup should be considered at potentially higher risk of HIV infection and the mapped to determine the size of the population at risk. This is in order HIV prevention programmes focused on unmarried youth and incorporating condom promotion components should be developed.***

5.3.3 Men who have anal sex with men

The proportion of participants who reported having anal sex was quite low. Even lower were men reporting have anal sex with other men. However, anal sex among men may be underreported in our survey given the extreme social taboo of disclosing this behaviour. A rapid assessment to MSM and other MARPS groups with an aim of setting up and implementing a MARPs project in the camp and host community may be useful. Additionally, qualitative research, especially among unmarried young men, may be better suited for exploring the prevalence of high risk behaviours such as anal sex with other men.

5.3.4 HIV prevention knowledge and practices

5.3.5 Condom availability and use

Overall in both communities among 15-49 year olds, condom use at last sex, regardless of partner type in the past 12 months, was extremely low. Only about 9.0% of participants in both communities had ever heard of female condoms. Awareness about male condoms was higher by comparison (56.8% in the camp and 52.6% in the host), but among those who had ever heard of male condoms, a low proportion (31.7% in the camp and 34.0% in the host community) knew where to obtain them. ***Not surprisingly, in both communities only a minority (5.4% in the camp and 10.9% in the host) reported ever using a condom.*** Prevention activities should continue to raise awareness about the existence and role of male condoms in preventing HIV, as well as find ways to promote condom use among those at highest risk of infection.

5.3.6 Awareness of HIV and comprehensive knowledge

Awareness of the existence of HIV was high, but comprehensive knowledge of how to prevent infection was extremely low. Almost all participants, regardless of location, had previously heard of HIV, however only 8.5% in the camp and 7.5% in the host community had comprehensive knowledge of how HIV can be prevented (i.e. knew that abstinence, staying faithful and using condoms are preventive measures against HIV). ***The majority of participants knew that abstaining from sex and staying faithful prevented HIV, however a far lower proportion (38.3% n the camp and 34.8% in the host) knew that condoms prevented HIV.*** Among this limited number, only a tiny minority were women (2.5% in the camp and 4.0% in the host). Due to the conservative cultural norms in Sudan, government prevention programmes have generally focused on raising awareness of about the role of abstinence and sexual monogamy in preventing HIV and less on the role of condoms. ***However, as mentioned above, this survey has found that a high proportion of unmarried young men are sexually active and many of them may be engaging in unprotected sex with transactional and non-regular partners. Therefore, stepping up efforts to promote of condom use among this group and their transactional and non-regular sex partners will be critical to future HIV prevention efforts.*** To that end, qualitative research aimed at understanding sexual practices among young unmarried men should be undertaken to inform the design of more effective behavioural change interventions aimed at reducing risky sexual behaviour and increasing condom use among those at highest risk in the community.

HIV knowledge was lowest among those with no formal education and those who could not read. This partly explains the lower levels of HIV knowledge observed among women, the majority of whom had no formal education and were illiterate. Efforts to reach women should focus on non-printed HIV prevention messages delivered through radio but also public meetings and gatherings of women groups within each community.

5.4 Sexually transmitted infections

The prevalence of those experiencing STI symptoms in both communities was low especially among men (7.8% in the camp and 8.7% in the host community) and among the limited number that experienced STI symptoms the majority sought treatment.

5.5 Exposure and access to Interventions

5.5.1 Reach of HIV programmes and behaviour change communication

Respectively only 1.0% and 1.5% of camp and host participants were reached by a HIV programme in the past 12 months (i.e. knowing where to receive an HIV test and receiving condoms from an HIV programme).

The majority of participants in the camp and the host community (71.1% and 79.5% respectively) had received information about HIV in the past 12 months, mostly through radio; the most widely preferred method of receiving HIV information. HIV programmes have been successful in raising awareness about HIV, especially through radio, but other popular sources of information such as public meetings and gathering places within each village should be also be utilized. This is especially considering that while many women may currently be receiving HIV information from health centres or through ANC services, only a minority of them (29.9% in the camp and 14.8% in the host) actually indicated this as their preferred method of receiving HIV information.

5.5.2 HIV testing and counselling

HIV testing rates were low in both communities (13.3% in the camp and 10.5% in the host community). Among those who tested, the large majority did so in a government hospital or health facility, where most received counselling and obtained their results. Most women underwent provider-initiated or mandated testing. The main reason for not wanting to test in the future was lack of perceived risk of HIV infection. Low perception of risk is not surprising in a low prevalence setting, where HIV infection is likely concentrated among high risk groups. ***Therefore, population wide efforts to increase HIV testing may continue to have limited response. Optimally, HIV testing in this setting should be targeted to those at highest risk, but practically this may be less feasible given the stigma associated with membership in these groups and the difficulty of identifying and reaching member of the community. Therefore, if efforts to extend HIV testing to those in the general community are stepped up, wherever possible these campaigns be conducted close to areas with larger concentrations of high risk groups.***

5.5.3 Prevention of mother to child transmission

Offer of HIV testing during pregnancy to women who were pregnant in the last 5 years and accessed antenatal care (ANC), was lower in the host community compared to the camp (21.3% compared with 37.7% respectively).

5.6 Alcohol and drug use

Alcohol consumption and substance abuse was very limited. Almost all participants (97.9% in the camp and 95.4% in the host community) reported having never drank alcohol in the past four weeks; while, almost no participants reported having used illegal substances in the past 12 months (0.0% in the camp and 0.7% in the host community). The prevalence of alcohol consumption was most likely underestimated in our survey as alcohol is illegal in northern Sudan and while it may be socially tolerated public acknowledgment of alcohol use is a social taboo. Thus, the effect of alcohol use in elevating risky behaviour among those with high consumption levels may remain poorly understood in this community.

6. CONCLUSIONS

- The camp and host community were very similar demographically and interaction was high between the two communities. This may explain the observed similarity in terms of HIV awareness, knowledge and the levels of condom use.

- Overall in both communities, the proportions of 15-49 year olds who reported engaging in sex with either a non-regular, transactional or multiple partners were very low. Nonetheless, the prevalence of these behaviours was higher among men than women, and higher still among unmarried young men a surprisingly high proportion of whom were sexually active.

- Overall in both communities condom use at last sex, regardless of partner type, was extremely low. The majority of participants had heard of male condoms, but most did not know that they could prevent HIV. Not surprisingly, most participants neither knew where to obtain a condom nor ever used one. Comprehensive knowledge of how to prevent infection was also very low in both communities and especially among those with no formal education; the majority of whom were women.

- The proportion of participants who knew where to receive an HIV test and those had an HIV test in the past 12 months was very low.

7. MAIN RECOMMENDATIONS

- Overall in both communities, the proportion of men and women aged 15-49 years old who reported engaging in sex with non-regular, transactional or multiple partners was low. Refugee camp residents did not have a higher prevalence of risky sexual behaviour compared to those in the host community. Instead, the prevalence of risky sexual behaviours in both communities was higher among men than among women. Future HIV prevention efforts should focus less on the difference between the two communities and more on the higher risk of exposure to HIV among men and their transactional and non-regular partners.

- Unexpectedly in this conservative community where sex before marriage is widely believed to be rare, almost a third of young unmarried men had had sex before marriage and did so when they were 15 years of age or younger. Thus, despite the small sample size, we noted that a high proportion of young unmarried men were sexually active, and of these many had had sex with transactional and non-regular partners. This subgroup should thus be considered at high risk of HIV infection and should be mapped to estimate programming needs.

- While current levels of non-regular, transactional and multiple partnerships were low, given the almost negligible rates of condom use it will be critical to intervene early to promote condom use and HIV testing among those at highest risk without exposing them to increased harassment and discrimination. This in order to maintain the levels of HIV risk low, even if the rates of non-regular, transactional or multiple partnerships were to increase in the future.

- Mobile and community based HIV testing campaigns reaching out to members of high risk groups, who are neither ill nor pregnant, must remain a priority.

ANNEXES

ANNEX 1: POTENTIAL HOUSEHOLD LIST

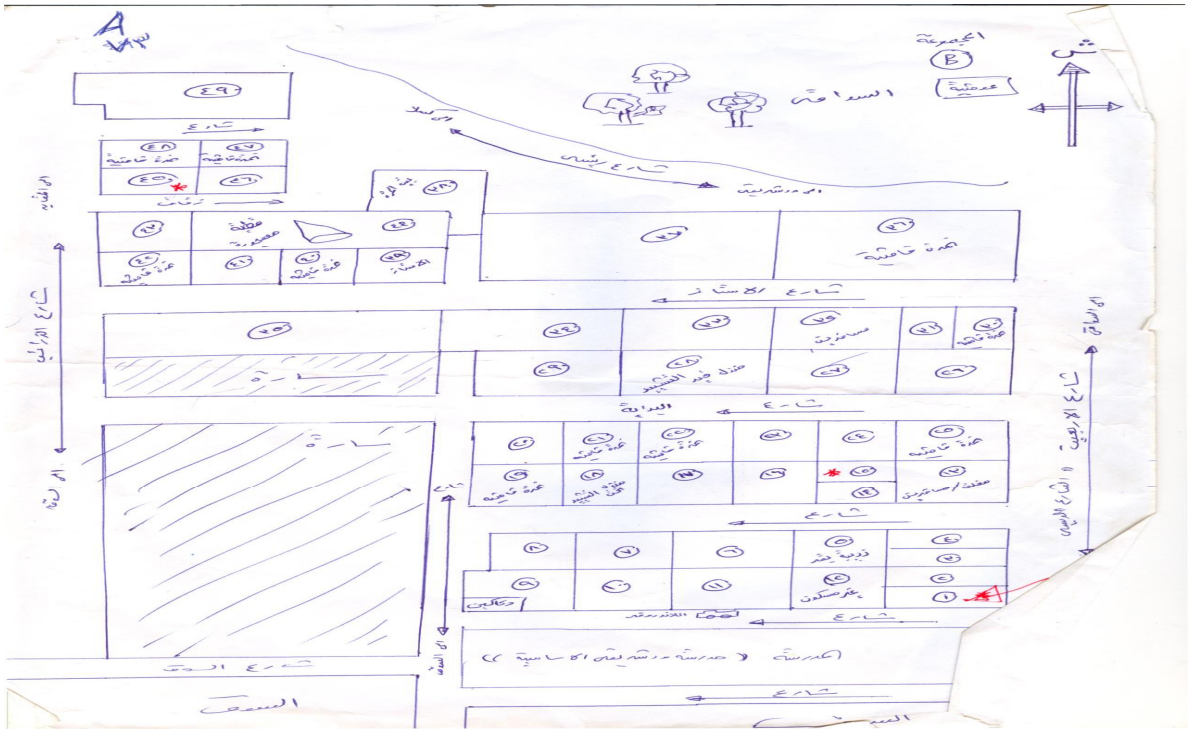
Zone	Block	Household number	Outcome of visit 1=Located &interviews (full or partial) conducted 2=Abandoned 3=Could not be located

ANNEX 2: ENROLMENT LOG

To be completed by interviewers recruiting the household (one per household)

Cluster number	Serial number of household	Participant ID number	Age (yrs)	Gender 1. Male 2. Female	Relationship to the head of household 1. Household Head 2. Spouse 3. Son/ Daughter 4. Father/ Mother 5. Brother/ Sister 6. Other relative 7. Living in household but not a relative	Visit 1 1 = Refusal 2 = Individual not eligible 3 = Questionnaire completed 4 = Questionnaire partly completed 5 = Household member absent 6 = Others (Specify) *(for each household member record the correct answer)*	Visit 2 1 = Refusal 2 = Individual not eligible 3 = Questionnaire completed 4 = Questionnaire partly completed 5 = Household member absent 6 = Others (Specify) *(for each household member record the correct answer)*

ANNEX 3: EXAMPLE OF A MAP DRAWN TO ENUMERATE A SSU SEGMENT



ANNEX 4: CONSENT FORM IN ENGLISH

Wad sharifey BEHAVIOURAL SURVEILLANCE SURVEY

ENGLISH

Serial number of questionnaire
|___|___|___|___|

Household serial number
|___|___|___|___|

CONSENT FORM

Hello Sir/ Madam,

My name is ……I am an interviewer from the Ministry of Health. We are conducting a behavioural survey in this community and requesting people to participate. This will help in developing better health services in your community, especially related to HIV/AIDS.

[Ask of the household head for household consent: Your household has been randomly selected and we wish to have permission to interview eligible members of your household. May we proceed? ___Yes ___No]

You've been selected randomly and we wish, with your permission, to interview you.

Be assured that we want to learn from your experience and all the information we collect will be used to help us fight against AIDS in your community, country and region. Some of the questions asked, are of a sensitive nature, but please note that your name will not be recorded in the questionnaire, and any details related to your privacy will be kept confidential. It will not be used in relation to registration, food distribution or any other services.

Your participation in this survey is very important and we rely on you to provide us with accurate information that will help us to develop effective activities to fight HIV spread.

The interview will take approximately __ minutes, but with your cooperation it can be done quickly.

May I have your permission to undertake this interview? Yes ☐ No ☐

If you do not want to participate, why……

Signature of the interviewer that a verbal consent was obtained:_____

ANNEX 5: QUESTIONNAIRE BACK-TRANSLATED FROM ARABIC TO ENGLISH

IDENTIFICATION
A. COUNTRY..... |___|
B.REGION/ PROVINCE ..... |___|___|
C.CAMP/ SURROUNDING AREA (Camp = 1, Surrounding area = 2) ..... |___||___|
D.NAME OF CAMP/ SURR AREA ..... |___|___|
E.URBAN/ RURAL (Urban = 1, Rural = 2) ..... |___|

F. NAME AND CODE OF INTERVIEWER

_____ |____|____|____|

CONTROL				
NAME DATE	G.CONTROL ON FIELD LEVEL ----------|__||__| ----------	H.CONTROL IN CENTRAL OFFICE ----------|__||__| ----------	I.DATA ENTRY CLERK 1 ----------|__||__| ----------	J.DATA ENTRY CLERK 2 ----------|__|__| ----------
REMARKS				

Date of interview: __/__/ day

Start of interview: __/__/ h

SECTION I: BACKGROUND CHARACTERISTICS (33 questions)

N°	QUESTIONS	ANSWERS	SKIP
A. Socio-demographic			
101.	**Record sex of the respondent**	1 = Male 2 = Female |___|	
102.	How old are you? **Record age in years**	Record number of years 99 = DON'T KNOW |___|___|	
103.	In which country were you born?	1 = Eriterian 2 = Ethiopian |___| 3 = Somali 4 = Sudanese 5 = Other (Specify) _____ 99=Don't know	
104.	What is your current nationality?	1 = Eriterian 2 = Ethiopian |___| 3 = Somali 4 = Sudanese 5 = Other (Specify) _____ 99=Don't know	
105.	Are you currently a refugee?	1 = Yes 2 = No |___|	
106.	What is your religion?	1 = Catholic 2 = Protestant 3 = Moslem |___| 4 = Other (Specify) _____	
107.	How many years of schooling did you complete? (not including religious schools or illiteracy programmes)	Record number of years |___|___| 99 = UNKNOWN	
108.	How easy is it for you to read a paper written in i. Tegrinya ii. Arabic? iii. English? iv. Other language? ***(Hold up a paper written in each language)*** ***CIRCLE ONE ANSWER FOR EACH QUESTION***	1 = Easy 2 = Difficult 3 = Do not read at all 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
109.	In what sector do you earn a living? ***(Only one answer is possible. Record the principal income sector.)***	0 = None 1 = Agriculture 2 = Trading 3 = Pastoralism 4 = Transport |___|___| 5 = Fishing 6 = Crafts 7 = Private services 8 = Public services 9 = Humanitarian or development group 10 = Other (Specify) _____	
110.	Do you have a regular source of income?	1 = Yes 2 = No |___|	
111.	How long have you been living in the community where you currently live?	1 = Always 2 = Less than 6 months 3 = 6-12 months 4 = more than 1-2 years |___|___| 5 = more than 2-5 years 6 = More than 5 years 99 = Don't Know	
112.	**Refugees only: Cross-check 105 =Yes** How long ago did you leave the country where you were born?	Record number of years |___|___| 99 = UNKNOWN In case of less than one year record 00	
113.	**Refugees only: Cross-check 105 =Yes** How many countries have you transited through or lived in since you left your home country, including the country where you currently live?	Record number of countries |___|___| 99 = UNKNOWN	
114.	In the last 12 months have you been away from the community where you currently live for one continuous month or more?	1 = Yes 2 = No |___|	IF **NO** GO TO **116**

SECTION I: BACKGROUND CHARACTERISTICS (33 questions) *cont….*

N°	QUESTIONS	ANSWERS	SKIP
115.	Why were you away from this place for one month or more?	1 = Employment 2 = Trade 3 = Family-related 4 = Political reasons 5 = Military-related |___|___| 6 = School-related 7 = In jail 8 = Health-related 9 = Holiday 10 = Religion-related 11 = Other (specify) _____	
116.	How often do you go to the camp/surrounding community to visit?	0 = Never 1 = Less than once a month 2 = Once a month |___| 3 = Many times in a month	IF **NEVER** GO TO **118**
117.	The last time you visited the refugees/ host community, what was your reason? ***Only one answer can be recorded***	1 = Employment 2 = Trade 3 = Shopping/ Market 4 = Health care 5 = School 6 = Entertainment |___|___| 7 = Food 8 = Visit relative/friend 9 = Collect firewood 10 = Attend religious service 11 = Other (specify) _____	
118.	Have you ever been married? (dowry or registered)	1 = Yes 2 = No |___|	IF **NO** GO TO **122**
119.	How old were you when you first married?	Age in years 99 = Don't Know |___|___|	
120.	What is your current relationship status?	1 = Currently married 2 = Never married 3 = Divorced/Separated |___| 4 = Widow/ Widower	If not currently married go to 122
121.	Are you in a monogamous or polygamous marriage?	1 = Monogamous 2 = Polygamous |___|	
122.	Are you currently living with a long-term partner?	1 = Yes 2 = No |___|	
B. Alcohol and drug use			
123.	In the past 4 weeks, how often have you had drinks containing alcohol?	1 = Everyday 2 = At least once a week |___| 3 = At least once a month 4 = Never	
124.	In the past 12 months, have you taken any illicit or sedative/mind altering drugs ? (This can include orally, sniffing, or injection,)	1 = Yes 2 = No |___|	IF **NO** GO TO **128**
125.	What drugs have you taken?	1 = Hasish |___| 2 = Heroin |___| 3 = Opium |___| 4 = Amphetamines |___| 5 = Drugs/herbs from traditional healer |___| 6 = Other (Specify) _____ |___|	
126.	Have you injected any drugs that were not prescribed by a health professional in the past 12 months? **Note: A health professional does not include traditional medical practitioners**	1 = Yes 2 = No |___|	IF **NO** GO TO **128**
127.	Have you used a needle or syringe to inject drugs that had already been used by another person in the past 12 months?	1 = Yes 2 = No |___|	
C. Circumcision			
128.	Some men and women have been circumcised, have you been circumcised?	1 = Yes 2 = No |___|	IF **No**, GO TO **130**
129.	At what age were you circumcised?	Record number of years 99 = DON'T KNOW |___|___|	

SECTION I: BACKGROUND CHARACTERISTICS (33 questions) *cont….*

N°	QUESTIONS	ANSWERS	SKIP
D. Military Activity			
130.	Have you ever been involved in any official or unofficial military, paramilitary or police activities?	1 = Yes 2 = No |___|	IF **NO** GO TO **201**
131.	For how long were you involved in military, paramilitary or police activities?	1 = Less than 6 months 2 = 6 to 12 months 3 = 1 to 2 years |___| 4 = more than 2 to 4 years 5 = 5 or more years	
132.	Are you currently involved in military, paramilitary or police activities?	1 = Yes 2 = No |___|	IF **YES** GO TO **201**
133.	How long ago did you leave your military, paramilitary or police activities?	Record number of years If less than one year, record 00 99 = Don't know |___|___|	

SECTION II: MALE and FEMALE CONDOMS (11 questions)

N°	QUESTIONS	ANSWERS	SKIP
201.	Have you ever heard of male condoms?	1 = Yes 2 = No |___|	IF **NO**, GO TO **208**
202.	What do you think male condoms are used for? ***(Unprompted question. Record all answers given.)***	1 = Protects against STI/HIV/AIDS |___| 2 = Prevents pregnancy |___| 3 = Family Planning |___| 4 = Other (Specify) _____ |___| 5 = Don't know |___|	
203.	Have you ever used a male condom? Should come first	1 = Yes 2 = No |___|	IF **NO**, GO TO **401**
204.	Do you know where you can obtain a male condom?	1 = Yes 2 = No |___|	IF **NO**, GO TO **307**
205.	Where do you usually get male condoms? **Only one answer possible**	1 = Pharmacy 2 = Health facility 3 = At the market 4 = From my friends |___|___| 5 = At the shop 6 = Community health worker 7 = Other (Specify) _____ 99 = Don't know	
206.	Can you obtain a male condom every time you need one?	1 = Yes 2 = No |___|	IF **YES,** GO TO **308**
207.	What is the *main* constraint to obtaining a male condom every time you need one? ***Only one answer possible***	1 = Too far away (geographical access) 2 = Too expensive 3 = Places not open at convenient hours 4 = Not available |___|___| 5 = Fear of being seen 6 = Health worker's attitude 7 = Other (specify) _____ 99 = Don't know	
208.	Have you ever heard of a female condom?	1 = Yes 2 = No |___|	IF **NO**, GO TO **401**
209.	Have you ever used a female condom?	1 = Yes 2 = No |___|	
210.	Would you/your partner be willing to use a female condom if available?	1 = Yes 2 = No |___|___| 99 = Don't know	
211.	Do you know where you can obtain a female condom?	1 = Yes 2 = No |___|	

SECTION III: SEXUAL HISTORY AND RISK BEHAVIOUR (49 questions)

N°	QUESTIONS	ANSWERS	SKIP
A. SEXUAL ACTIVITY			
301.	Have you ever had sexual intercourse? ***(Sexual intercourse is defined as penetrative vaginal or anal sex)***	1 = Yes 2 = No |___|	IF NO, GO TO 334
302.	At what age did you first have sexual intercourse?	Age in years 99 = Don't know |___|___|	
303.	The last time you had sexual intercourse, did you use a condom?	1 = Yes 2 = No |___|	
B. REGULAR SEX PARTNERS			
304.	Have you had a regular sex partner in the past 12 months? ***(A regular sexual partner is defined as spouse or live-in sexual partner)*** **Cross check: If 120 does not equal 1, then probe to make sure the definition of "regular partner" is understood**	1 = Yes 2 = No |___|	IF No GO TO 309
305.	In last the 12 months, How many regular sexual partners did you have ?	Record number 98 = No answer |___|___| 99 = Don't know	
306.	What was the nationality of your most recent regular sexual partner?	1 = Eriterian 2 = Ethiopian3 = Somali 4 = Sudanese 5 = Other (Specify) _____	
307.	How old was your most recent regular sexual partner?	Record age in years 99 = Don't know |___|___|	
308.	The LAST TIME you had sex with your regular sexual partner, did you use a male condom?	1 = Yes 2 = No |___|___| 99 = Don't know	
C. NON REGULAR PARTNERSHIP			
309.	In the past 12 months, have you had a casual sexual partner? **(A casual sex partner is defined as any sexual partner different from the one with whom you live or are married to and from whom you did not receive or give money, gifts or favours for sex)**	1 = Yes 2 = No |___|___| 98 = No answer 99 = Don't know	IF No GO TO 320
310.	In last the 12 months, how many casual sexual partners did you have?	Record number 98 = No answer |___|___| 99 = Don't know	
311.	What was the nationality of your most recent casual sexual partner?	Eretrian Ethiopian4 = Somali 7 = Sudanese 8 = Other (Specify) _____	
312.	How old was your most recent casual sexual partner?	Record age in years 99 = Don't know |___|___|	
313.	What was the marital status of your most recent sexual casual partner?	1 = Currently married 2 = Never married 3 = Divorced/Separated |___|___| 4 = Widow/ Widower 5 = Other (Specify) _____ 99 = Don't know	
314.	What was the profession of your most recent casual sexual partner?	1 = Businessperson 2 = Trader 3 = Student 4 = Driver/ Truck driver |___|___| 5 = Housemaid 6 = Pastoralist 7 = Farmer 8 = Military, paramilitary, police 9 = Commercial sex worker 10 = Humanitarian or development worker 11 = Unemployed 12 = Other (Specify) _____ 99 = Don't know	

SECTION III: SEXUAL HISTORY AND RISK BEHAVIOUR (49 questions) *cont....*

N°	QUESTIONS	ANSWERS	SKIP
315.	The last time you had sex with a casual partner, had you taken any alcohol?	1 = Yes 2 = No |___|___| 99 = Don't know	
316.	The last time you had sex with a casual partner did you use a male condom?	1 = Yes 2 = No |___|___| 99 = Don't know	IF **No** GO TO **217**
317.	Who suggested using a male condom r?	1 = My partner 2 = Myself |___|___| 3 = Joint decision 99 = Don't know	GO TO **218**
318.	What was the *main* reason you did not use a male condom the last time you had sex with a casual partner? ***Record all answers***	1 = No condoms available 2 = Free condoms not available 3 = Too expensive 4 = Partner objected 5 = Don't like them 6 = Used other contraceptive |___|___| 7 = I trust my partner 8 = Didn't think of using one 9 = Don't know what condom is 10 = Want to have a child 11 = Religious reasons 12 = Unplanned sex 13 = Didn't think it was necessary 14 = Other (Specify) _____ 99 = Don't know	
319.	In the past 12 months, how often did you use a male condom with all of your casual sex partners?	1 = Every time |___|___| 2 = Frequently (more than 50% of the time) 3 = Sometimes (less than 50% of the time) 4 = Never 99 = Don't know	
D. TRANSACTIONAL SEX			
320.	Have you ever had sex in exchange for money, a gift or a favour ?	1 = Yes 2 = No |___|	IF **No** GO TO **334**
321.	The last time you exchanged sex, was it for money, a gift or a favour?	1 = Money 2 = Gift |___| 3 = Favor 4= More than one thing (eg: Money and gift, money and favor, gift and favor)	
322.	Who was the last person with whom you exchanged sex for money, a gift or a favor?	1 = Refugee 2 = Person from local community 3 = Military, paramilitary, police |___|___| 4 = Humanitarian or development worker 5 = Other (Specify) _____ 99 = Don't know	
323.	**Refugees only : Cross-check 105 =Yes** During which period in your life did you exchange sex for money, a gift or a favor? ***Record all answers***	**A. Before displacement** |___| 1 = Yes 2 = No **B. = During displacement** |___| 1 = Yes 2 = No **C. = After displacement** |___| 1 = Yes 2 = No	
324.	**Nationals only: Cross-check 105=No** During which period in your life did you exchange sex for money, a gift or a favor? ***Record all answers***	**A. = Before refugees arrived** |___| 1 = Yes 2 = No **B. = After refugees arrived** |___| 1 = Yes 2 = No	
325.	Have you had sex in exchange for money, a gift or a favor in the past 12 months?	1 = Yes 2 = No |___|	IF **No** GO TO **334**
326.	In the past 12 months, how many partners did you have sex with in exchange for money, a gift or a favor?	Record number |___|___| 99 = Don't know	
327.	In the past 12 months, how often did you use a condom with all of the people with whom you exchanged sex for money, a gift or a favor?	1 = Every time 2 = Frequently (more than 50% of the time) 3 = Sometimes (less than 50% of the time)	

SECTION III: SEXUAL HISTORY AND RISK BEHAVIOUR (49 questions) *cont....*

N°	QUESTIONS	ANSWERS	SKIP
		4 = Never |___|___| 99 = Don't know	
328.	Who was the last person with whom you exchanged sex for money, a gift or a favor?	1 = Refugee 2 = Person from local community 3 = Military, paramilitary, police |___|___| 4 = Humanitarian or development worker 5 = UN peacekeeper 6 = Other (Specify) _____ 99 = Don't know	
329.	How old was the last person with whom you exchanged sex for money, a gift or a favor?	Record age in years 99 = Don't know |___|___|	
330.	The last time you exchanged sex for money, a gift or a favor, had you taken any alcohol?	1 = Yes 2 = No 99 = Don't know |___|___|	
331.	The last time you exchanged sex for money, a gift or a favor, did you use a male condom?	1 = Yes 2 = No 99 = Don't know |___|___|	IF **NO** GO TO **333**
332.	Who suggested using a male condom the last time you exchanged sex for money, a gift or a favor?	1 = My partner 2 = Myself |___|___| 3 = Joint decision 99 = Don't know	GO TO **233**
333.	What was the *main* reason you did not use a male condom the last time you exchanged sex for money, a gift or a favor? ***Record more than one answer if applicable***	1 = No condoms available 2 = Free condoms not available 3 = Too expensive 4 = Partner objected 5 = Don't like them 6 = Used other contraceptive |___|___| 7 = I trust my partner 8 = Didn't think of using one 9 = Don't know what condom is 10 = Want to have a child 11 = Religious reasons 12 = Unplanned sex 13 = Didn't think it was necessary 14 = Other (Specify) _____ 99 = Don't know	
E. FORCED SEX			
334.	Have you ever been forced to have sex against your will?	1 = Yes |___| 2 = No	IF **NO**, GO TO **344**
335.	**REFUGEE ONLY : Cross-check 105 =Yes** During which period in your life were you forced to have sex? ***Record all answers***	**A. Before displacement** |___| 1 = Yes 2 = No **B. = During displacement** |___| 1 = Yes 2 = No **C. = After displacement** |___| 1 = Yes 2 = No	
336.	**Nationals only: Cross-check 105=No** During which period in your life were you forced to have sex? ***Record all answers***	**A. = Before refugees arrived** |___| 1 = Yes 2 = No **B. = After refugees arrived** |___| 1 = Yes 2 = No	
337.	Who forced you to have sex? ***More than one answer can be given. Record all answers***	1 = Regular partner |___| 2 = Family member other than regular partner |___| 3 = Non-family member |___|	IF **REGULAR PARTNER OR OTHER FAMILY MEMBER**

SECTION III: SEXUAL HISTORY AND RISK BEHAVIOUR (49 questions) *cont....*

N°	QUESTIONS	ANSWERS	SKIP
			(1 OR 2) ONLY, GO TO 2338
338.	If you were forced to have sex by a non-family member, who forced you? ***More than one answer can be given. Record all answers***	1 = Refugee |___| 2 = Person from local community |___| 3 = Military, paramilitary, police |___| 4 = Humanitarian or development worker |___| 5 = UN peacekeeper |___| 6 = Other (Specify) _____ |___| 99 = Don't know |___|___|	
339.	In the past 12 months, have you been forced to have sex against your will?	1 = Yes 2 = No |___|___| 99 = Don't know	IF NO, GO TO 344
340.	In the past 12 months, how many times were you forced to have sex?	Provide Number |___|___| 99 = Don't know	
341.	Who forced you to have sex? ***More than one answer can be given. Record all answers***	1 = Regular partner |___| 2 = Family member other than regular partner |___| 3 = Non-family member |___|	IF REGULAR PARTNER OR OTHER FAMILY MEMBER ONLY, GO TO 342
342.	If you were forced to have sex by a non-family member, who forced you? ***More than one answer can be given. Record all answers***	1 = Refugee |___| 2 = Person from local community |___| 3 = Military, paramilitary, police |___| 4 = Humanitarian or development worker |___| 5 = UN peacekeeper |___| 6 = Other (Specify) _____ |___| 99 = Don't know |___|___|	
343.	How old was the last person who forced you to have sex?	1 = Older than me 2 = Younger than me |___|___| 3 = Same age as me 99 = Don't know	
F. ANAL SEX			
344.	In the past 12 months, have you had anal sex with a man or a woman? ***(Anal sex included both penetrative and receptive anal intercourse)***	1 = Yes 2 = No |___|___| 99 = Don't know	IF NO, GO TO 401
345.	**Women only:** The last time you had anal sex with a man, did you or your partner use a condom?	1 = Yes 2 = No |___|___| 99 = Don't know	
346.	**Men only:** Have you had anal sex with a man in the past 12 months?	1 = Yes 2 = No |___|___| 99 = Don't know	IF NO, GO TO 348
347.	**Men only:** The last time you had anal sex with a man, did you or your partner use a condom?	1 = Yes 2 = No |___|___| 99 = Don't know	
348.	**Men only:** Have you had anal sex with a woman in the past 12 months?	1 = Yes 2 = No |___|___| 99 = Don't know	IF NO, GO TO 401
349.	**Men only:** The last time that you had anal sex with a woman, did you or your partner use a condom?	1 = Yes 2 = No |___|___| 99 = Don't know	

SECTION IV: SEXUALLY TRANSMITTED INFECTIONS (8 questions)

N°	QUESTIONS	ANSWERS	SKIP
401.	Have you ever heard about diseases that can be transmitted through sexual intercourse?	1 = Yes 2 = No 99= Don't know |___|___|	
402.	Have you had any unusual genital discharge in the past 12 months?	1 = Yes 2 = No 99= Don't know |___|___|	
403.	Have you had any genital ulcers or sores in the past 12 months?	1 = Yes 2 = No 99= Don't know |___|___|	IF **NO** TO BOTH **402** AND **403**, GO TO **501**
404.	During the last time you had genital discharge, ulcer or sore, did you seek treatment?	1 = Yes 2 = No 99= Don't know |___|___|	IF **NO** GO TO **406**
405.	Where was the FIRST place that you went for treatment? ***Only one answer possible***	1 = Public health center 2 = Private health center 3 = Traditional healer/doctor/ practitioner |___| 4 = Pharmacy 5 = Friend or relative 6 = Other (specify) _____	
406.	During the last time you had a sexually transmitted infection did you inform your sexual partner(s)?	1 = Yes, all of them 2 = Some of them, not all |___| 3 = No, none of them	
407.	The last time you had STIs, did you practice sex with any of your sexual partners?	Yes No No response	
408.	If yes, did you use a male condom	Yes No No response	

SECTION V: KNOWLEDGE, OPINIONS, and ATTITUDES towards HIV/AIDS (18 questions)

N°	QUESTIONS –	ANSWERS	SKIP
501.	Have you ever heard of HIV or a disease called AIDS?	1 = Yes 2 = No |___|	IF **NO**, GO TO **614**
502.	Can people protect themselves from AIDS virus by staying faithful to one uninfected faithful sex partner?	1 = Yes 2 = No 99 = Don't know |___|___|	
503.	Can people protect themselves from HIV infection by using a condom correctly every time they have sex?	1 = Yes 2 = No 99 = Don't know |___|___|	
504.	Can people protect themselves from HIV infection by abstaining from sex?	1 = Yes 2 = No 99 = Don't know |___|___|	
505.	Can people get infected with HIV through a mosquito bite?	1 = Yes 2 = No 99 = Don't know |___|___|	
506.	Can people get infected with HIV by sharing a toothbrush with someone who is infected?	1 = Yes 2 = No 99 = Don't know |___|___|	
507.	Can people get infected with HIV by having anal sex with a male partner and not using a condom?	1 = Yes 2 = No 99 = Don't know |___|___|	
508.	Can a person get the AIDS virus by getting injected with a needle that was already used by someone else?	1 = Yes 2 = No 99 = Don't know |___|___|	
509.	Can people get infected with HIV by sharing food with someone who is infected?	1 = Yes 2 = No 99 = Don't know |___|___|	
510.	Is it possible for a healthy-looking person to have HIV, the virus that causes AIDS?	1 = Yes 2 = No 99 = Don't know |___|___|	
511.	Can a pregnant woman with HIV/AIDS, transmit the virus to her unborn child during pregnancy or delivery?	1 = Yes 2 = No 99 = Don't know |___|___|	
512.	Can a woman with HIV/AIDS transmit the virus to her baby during breastfeeding?	1 = Yes 2 = No 99 = Don't know |___|___|	
513.	If a member of your family got infected with the virus that causes AIDS, would you want it to remain a secret?	1 = Yes (keep it secret) 2 = No 99 = Don't know |___|___|	
514.	If a relative of yours became sick with the virus that causes AIDS, would you be willing to care for him/her in your own household?	1 = Yes 2 = No 99 = Don't know |___|___|	
515.	If a teacher is infected with the virus that causes AIDS, should he/ she be allowed to continue teaching?	1 = Yes 2 = No 99 = Don't know |___|___|	
516.	Would you buy fresh vegetables from a shopkeeper who is infected with the virus that causes AIDS?	1 = Yes 2 = No 99 = Don't know |___|___|	
517.	Should young adolescents be taught how to use condoms?	1 = Yes 2 = No 99 = Don't know |___|___|	
518.	What are the chances that you might get HIV?	1 = high 2 = Moderate chance 3=low |___|___| 4 = No chance 5 = Already infected with HIV 99 = Don't know	

SECTION VI: EXPOSURE and ACCESS to INTERVENTIONS (15 questions)

N°	QUESTIONS	ANSWERS	SKIP
601.	Have you received information on HIV/AIDS in the past 12 months?	1 = Yes 2 = No |___|___| 99 = Don't know	IF **NO**, GO TO **603**
602.	From what sources have you received information on HIV/AIDS in the past 12 months? ***Unprompted question. Record all answers given***	***Mass media*** 1 = Radio |___| 2 = TV/ Video |___| 3 = Newspaper |___| 4 = Poster/pamphlet |___| ***Health services*** 5 = Health facility |___| 6 = VCT center |___| 7 = ANC/PMTCT center |___| ***People*** 8 = Community health worker |___| 9 = Friend |___| 10 = Family member |___| 11 = Person living with HIV/AIDS |___| 12 = Peer outreach worker |___| ***Other place***s 13 = School |___| 14 = Place of worship |___| 15 = Public meeting |___| 16 = Others (specify) _____ |___|	
603.	From what sources would you *prefer* to receive information on HIV/AIDS? ***Unprompted question. Record all answers given***	***Mass media*** 1 = Radio |___| 2 = TV/ Video |___| 3 = Newspaper |___| 4 = Poster/pamphlet |___| ***Health services*** 5 = Health facility |___| 6 = VCT center |___| 7 = ANC/MTCT center |___| ***People*** 8 = Community health worker |___| 9 = Friend |___| 10 = Family member |___| 11 = Person living with HIV/AIDS |___| 12 = Peer outreach worker |___| ***Other place***s 13 = School |___| 14 = Place of worship |___| 15 = Public meeting |___| 16 = Others (specify) _____ |___|	
604.	Do you know a place where a person can be tested for HIV?	1 = Yes |___|___| 2 = No 99 = Don't know	IF **NO OR DON'T KNOW**, GO TO **606**
605.	Where can a person be tested for HIV?	1 = In local community 2 = In refugee camp |___|___| 3 = In both sites 99 = Don't know	
606.	I do not want to know the results, but have you ever been tested for HIV? ***(State that you do not want to know the result of the test)***	1 = Yes |___|___| 2 = No 99 = Don't know	IF **NO**, GO TO **612**
607.	When was the last time you were tested for HIV?	1 = In the past 12 months 2 = 1-2 years ago 3 = 3 or more years ago |___|___| 99 = Don't know	
608.	The last time you were tested for HIV did you yourself ask for the test, was it offered to you and you accepted, or was it required?	1 = I asked for the test 2 = It was offered and I accepted |___|___| 3 = It was required 99 = Don't know	
609.	The last time you were tested for HIV did you receive counselling?	1 = Yes |___|___| 2 = No	

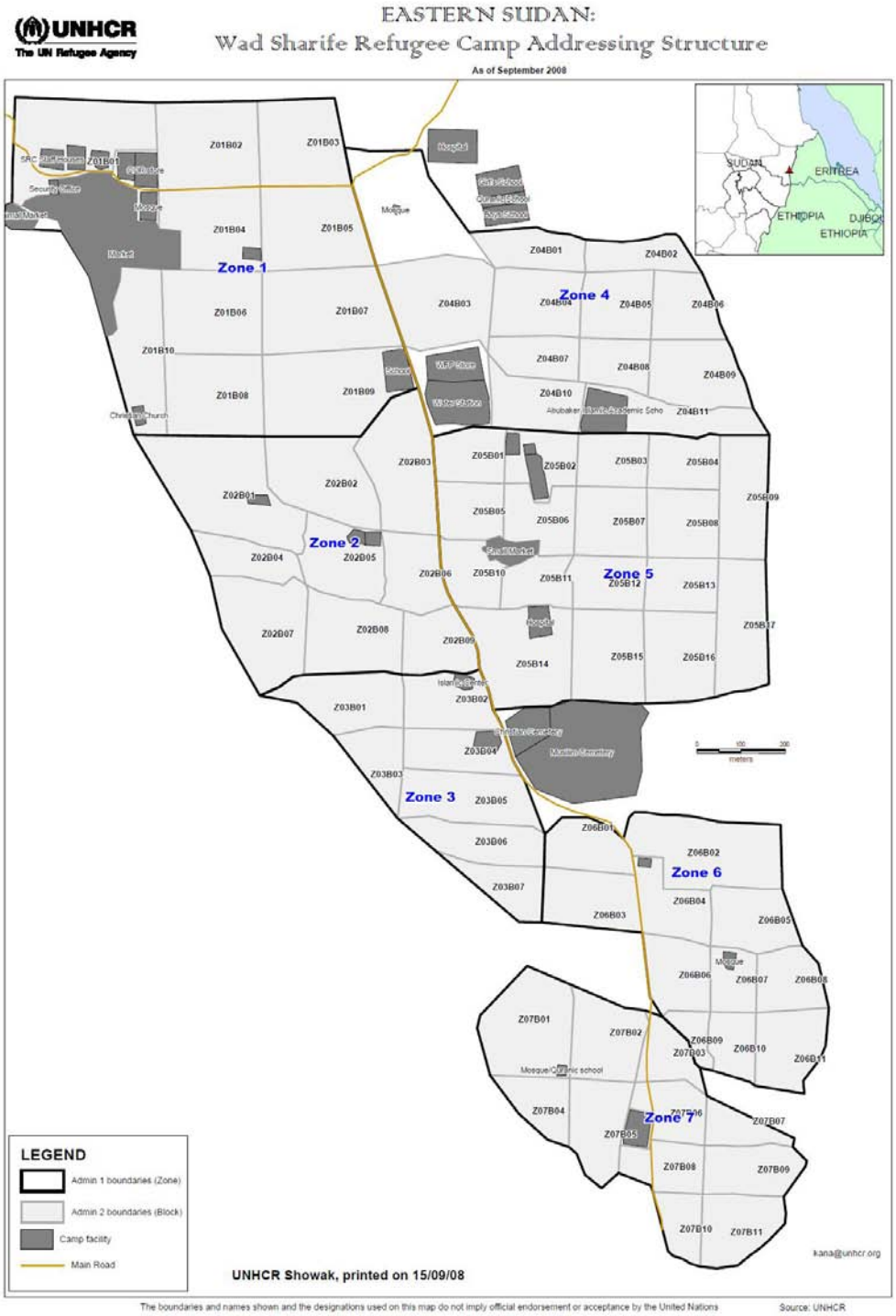
SECTION VI: EXPOSURE and ACCESS to INTERVENTIONS (15 questions) *cont....*

N°	QUESTIONS	ANSWERS	SKIP
		99 = Don't know	
610.	The last time you were tested for HIV, where did you go to get tested? ***Only one answer possible.***	**Public sector** 1 = Hospital |___|___| 2 = Health facility government 3 = Clinic/ family planning 4 = Mobile Clinic **Private Sector** 5 = Private hospital/ Clinic 6 = Pharmacy 7 = Private medical doctor 8 = Mobile clinic 9 = Traditional healer 10 = Other (Specify) _____	
611.	I do not want to know the result, but, the last time you were tested for HIV did you obtain the result of the test? ***(State again that you do not want to know the test result)***	1 = Yes 2 = No |___|___| 99 = Don't know	
612.	Would you go for an HIV test in the future?	1 = Yes 2 = No |___|___| 99 = Don't know	IF **YES**, GO TO **614**
613.	What is the *primary* reason you don't want to go for a test? ***Only one answer possible***	1 = Don't know where to go for a test 2 = Sure of not being infected 3 = Afraid of the result 4 = Afraid of the blood taking |___|___| 5 = (Afraid of) catching an infection 6 = Fear of stigmatisation 7 = Don't think testing is confidential 8 = Too expensive 9 = Other (Specify) _____ 99 = Don't know	
614.	Have you been given condom by an HIV prevention program in the past 12 months?	Yes No No answer Don't know	
615.	Women only Have you been pregnant in the past 5 years?	1 = Yes 2 = No |___|	IF **NO**, **END** INTERVIEW
616.	Women only When you were pregnant did you go to an ante-natal clinic?	1 = Yes 2 = No |___|___| 99 = Don't know	
617.	During your last pregnancy, did they offer you HIV test in the antenatal care?	Yes No Don't know	

THAT IS THE END OF THE QUESTIONNAIRE. THANK YOU FOR TAKING THE TIME TO ANSWER OUR QUESTIONS. WE APPRECIATE YOUR HELP.

End of the interview: __/__/ h /__/__/

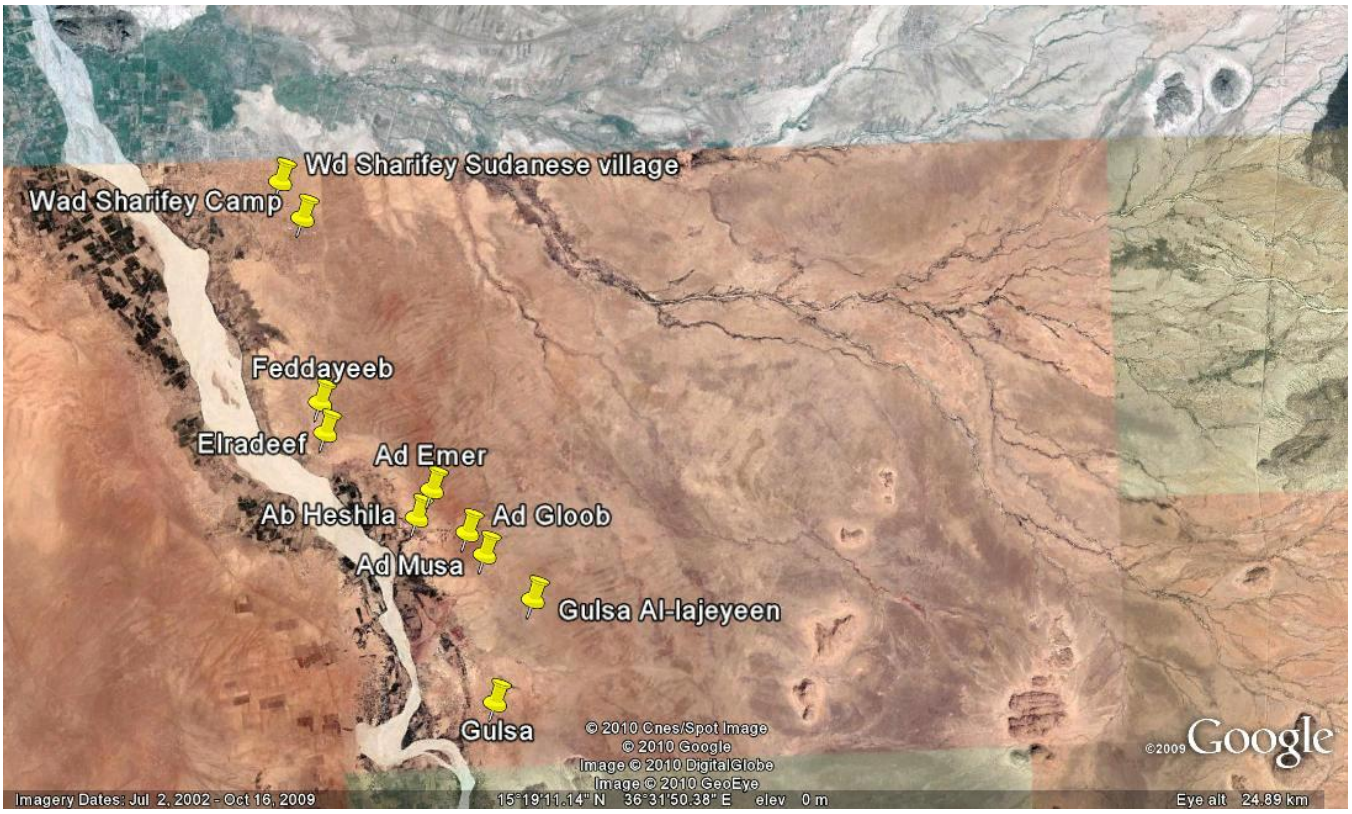
ANNEX 6: MAP OF WAD SHARIFEY CAMP



ANNEX 7: CLUSTER ALLOCATION FOR EACH VILLAGE IN THE HOST COMMUNITY

Villages	Population	Cluster number
Gulsa Al-lajeyeen	1000	1
Feddayeeb	5000	2-5
Wad Sahrifey	20049	6-23
Ad Musa	1000	24
Sabdarat	150	-
Ad Gloob	700	25
Ab Heshila	1000	26
Ad Emer (Tal-aweet)	1500	27
Gulsa	10000	28-36
Elradeef	4000	37-40
Total	**44399**	

ANNEX 8: MAP OF HOST COMMUNITY



ANNEX 9: OBSERVED DESIGN EFFECTS IN THE HOST SURVEY

Variable	Host		
	Proportion	95% Confidence Interval (CI)	Design effect
Among 15-24 year olds			
Never had sex			
Yes	49.2	42.6-55.7	1.0
No	50.8	44.3-57.4	1.0
Had sex before the age of 15			
Yes	20.0	12.8-27.2	1.0
No	80.0	72.8-87.2	1.0
Among 15-49 year olds in past 12 months			
>1 sex partner			
Yes	3.4	1.2-5.5	1.2
No	95.5	93.4-97.6	0.9
Don't know	1.1	0.0-2.1	0.8
>1 sex partner and used condom at last sex	58.3	20.4-96.2	1.2
Yes	41.7	3.8-79.6	1.2
No			
Sex with a non-regular partner			
Yes	4.0	1.8-6.3	1.3
No	96.0	93.7-98.2	1.3
Condom use at last sex with a non-regular partner	50.0	15.8-84.2	1.4
Yes	50.0	15.8-84.2	1.4
No			
Sex with a transactional partner			
Yes	21.4	31.1-39.7	1.2
No	78.6	61.2-96.9	1.2
Condom use at last sex with a transactional partner	66.7	2.1-100.0	1.2
Yes	33.3	0.0-97.9	1.2
No			
Forced to have sex in the past 12 months			
Yes	16.7	0.0-34.9	1.2
No	83.3	65.1-100.0	1.2
Had a STI symptom and sought treatment			
Yes	85.4	73.1-97.6	1.1
No	14.6	2.3-29.6	1.1
Received an HIV test and know their results	85.4	75.1-95.8	1.1
Yes	14.5	4.2-24.9	1.1
No			
Have comprehensive correct knowledge of HIV/AIDS	7.5	5.3-9.8	0.9
Yes	92.5	90.3-94.7	0.9
No			
Have accepting attitudes towards PLHIV			
Yes	31.3	25.6-36.9	1.9
No	68.7	63.1-74.4	1.9

ANNEX 10: CHANNELS FOR THE DELIVERY OF INFORMATION ON HIV/AIDS AMONG THOSE WHO RECEIVED HIV INFORMATION IN PAST 12 MONTHS

Characteristics	Refugees				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N= 175	% Female N=367	% Overall N=542	95% CI
Preferred Source of info								
Mass media								
Radio	51.8	70.6	65.6	59.1-72.0	70.1	85.5	81.0	75.7-86.3
TV/ Video	14.3	8.5	10.1	59.3-14.2	14.2	8.9	10.4	6.2-14.7
Newspaper	1.8	2.0	1.9	0.0-3.7	2.4	0.7	1.2	0.2-2.2
Poster/pamphlet	12.5	4.6	6.7	3.2-10.1	4.7	2.0	2.8	1.4-4.2
Health services								
Health facility	41.1	29.4	32.5	26.1-38.9	25.2	14.8	17.9	12.6-23.1
VCT centre	21.4	3.3	8.1	4.4-11.9	8.7	3.3	4.9	2.9-6.8
ANC/PMTCT centre	5.4	3.3	3.8	1.2-6.4	0.8	1.6	1.4	0.0-2.4
People			21.5					4.1-8.8
Community health worker	14.3	24.2	10.1	15.9-27.1	6.3	6.6	6.5	3.1-7.6
Friend	10.7	9.8	5.7	5.9-14.2	4.7	5.6	5.3	0.9-4.2
Family member	5.4	5.9	9.6	2.5-8.9	1.6	3.0	2.5	6.3-14.6
Peer outreach worker	17.9	6.5		5.5-13.0	12.6	9.5	10.4	
Other places			6.2					4.7-10.6
School	12.5	3.9	3.8	2.9-9.5	11.8	5.9	7.6	2.0-5.9
Place of worship	10.7	1.3	9.6	1.2-6.4	4.7	3.6	3.9	10.9-20.2
Public meeting	14.3	7.8		5.5-13.6	25.6	10.5	15.5	
Received HIV information in the past 12 months								74.8-
Yes	64.4	73.9	71.1	65.9-76.3	72.6	82.8	79.5	84.2
No	35.6	26.1	28.9	23.7-34.1	27.4	17.2	20.5	15.8-25.2
If received HIV information	***N= 56***	***N= 153***	***N= 209***		***N= 127***	***N= 304***	***N= 431***	

ANNEX 11: CHANNELS FOR THE DELIVERY OF INFORMATION ON HIV/AIDS AMONG THOSE WHO RECEIVED HIV INFORMATION IN PAST 12 MONTHS *CONT....*

Characteristics	Refugees				Host			
	% Male N=87	% Female N=207	% Overall N=294	95% CI	% Male N= 175	% Female N=367	% Overall N=542	95% CI
Actual information source								
Mass media	55.4	64.0	61.7	55.1-68.4	64.6	81.9	76.8	72.4-81.2
Radio	19.6	5.2	9.1	5.1-13.0	7.9	4.6	5.6	2.8-8.3
TV/ Video	1.8	1.3	1.4	0.1-3.1	4.7	1.0	2.1	0.0-3.7
Newspaper	16.1	7.2	9.6	5.5-13.6	16.7	4.3	8.8	5.8-11.8
Poster/pamphlet								
Health services	42.9	34.0	36.7	29.8-42.9	22.8	17.8	19.3	14.4-24.1
Health facility	16.1	5.9	8.6	4.8-12.4	3.1	2.3	2.5	0.1-4.0
VCT centre	5.3	8.5	7.7	4.0-11.0	0.0	4.3	3.0	1.2-4.8
ANC/PMTCT centre								
People	10.7	19.6	17.7	12.1-22.4	5.5	8.2	7.4	4.5-10.3
Community health worker	19.6	12.4	14.3	9.5-19.4	15.7	13.2	13.9	9.3-18.4
Friend	0.0	3.3	2.4	3.0-4.4	2.4	6.6	5.3	2.7-7.9
Family member	0.0	0.0	0.0	-	0.8	0.3	0.5	0.0-1.1
Person living with HIV	1.8	5.2	4.3	1.5-7.1	3.9	8.2	6.7	3.8-10.0
Peer outreach worker								
Other places	14.3	11.1	12.0	7.5-1.6	7.9	6.6	7.0	3.9-10.0
School	0.0	3.9	2.9	0.5-1.4	2.4	3.6	3.2	1.4-5.1
Place of worship	10.7	9.8	10.1	5.9-14.1	22.8	4.9	10.2	6.6-13.9
Public meeting								

Annex 12: EXPOSURE TO PMTCT

Characteristics	Refugee		Host	
	% Female N=207	95% CI	% Female N=362	95% CI
Pregnant in last 5 years				
Yes	52.5	45.5-59.4	56.3	50.2-62.5
No	47.5	40.6-54.4	43.6	37.5-49.8
If pregnant in last 5 years	***N=107***		***N=203***	
Antenatal care last pregnancy				
Yes	99.1	97.2-100.0	96.1	93.6-98.6
No	0.9	0.0-2.8	3.9	1.4-6.4
If had ANC last pregnancy	***N=106***		***N=194***	
HIV test offered in ANC				
Yes	37.7	22.4-47.1	21.3	14.5-27.8
	51.9	42.2-61.6	75.3	68.9-81.6

Annex 13: EXPOSURE TO PMTCT *cont….*

Characteristics	Refugee		Host	
	% Female N=207	95% CI	% Female N=362	95% CI
No	10.4	44.8-16.3	3.6	0.4-6.8
Don't know				

ANNEX 14: ACCEPTING ATTITUDES TWARDS THOSE LIVING WITH HIV/AIDS

Characteristics	Refugees				Host			
	% Male N=86	% Female N=196	% Overall N=282	95% CI	% Male N=171	% Female N=348	% Overall N=519	95% CI
If ever heard of HIV/AIDS								
Willing to care for HIV+ family member								
Yes	62.8	51.5	56.0	50.2-61.9	49.4	44.0	45.8	40.0-51.5
No	32.6	46.9	42.5	36.7-48.4	46.5	46.5	51.7	45.9-57.5
Don't know	4.7	1.5	1.4	0.0-2.8	4.1	4.1	2.5	0.9-4.1
Prefer to keep secret if family member is HIV+								
Yes	66.3	44.9	50.4	44.5-56.2	53.2	50.6	51.4	45.6-57.3
No	32.6	53.6	47.2	41.3-53.0	43.2	46.3	45.3	39.7-50.8
Don't know	1.2	1.5	2.5	0.6-4.3	3.5	3.2	3..3	1.8-4.8
Teacher with AIDS should be allowed to teach								
Yes	54.6	47.4	40.7	43.8-55.1	51.5	43.7	46.2	39.9-52.6
No	44.2	45.4	45.1	39.2-50.9	45.6	51.1	49.3	43.5-55.1
Don't know	1.2	7.1	5.3	2.7-7.9	2.9	5.2	4.4	2.6-6.2
Would buy vegetables form shopkeeper who has AIDS								
Yes	31.4	15.8	20.7	15.8-25.3	34.5	19.0	24.1	19.3-28.8
No	67.4	83.2	78.4	73.5-83.2	64.3	79.0	74.2	69.5-78.9
Don't know	1.2	1.0	1.1	0.0-2.2	1.2	2.0	1.7	0.4-3.0
Has accepting attitudes on all four indicators[9]								
Yes	32.6	26.0	28.0	122.7-33.3	40.6	26.7	31.3	25.6-36.9
No	67.4	74.0	72.0	66.7-77.3	59.4	73.3	68.7	63.1-74.4

[9] Willing to care for HIV+ family member and refer not to keep secret if family member is HIV+ and teacher with AIDS should be allowed to teach and would buy vegetables form shopkeeper who has AIDS