Published in final edited form as:

Sex Transm Infect. 2016 December ; 92(8): 587–592. doi:10.1136/sextrans-2015-052496.

Recruiting the Social Contacts of STI Patients for HIV Screening in Lilongwe, Malawi: Process Evaluation and Assessment of Acceptability

Nora E. Rosenberg[1,3,4,§], **Christopher Stanley**[1], **Sarah E. Rutstein**[2,4], **Naomi Bonongwe**[1], **Gift Kamanga**[1,2], **Audrey Pettifor**[3], **Clement Mpanje**[1], **Francis Martinson**[1,4], **Irving F. Hoffman**[1,4], and **William C. Miller**[3,4]

[1]UNC Project, UNC Chapel Hill, Lilongwe, Malawi

[2]Department of Health Policy and Management, UNC Chapel Hill, Chapel Hill, USA

[3]Department of Epidemiology, UNC Chapel Hill, Chapel Hill, USA

[4]Department of Medicine, UNC Chapel Hill, Chapel Hill, USA

Abstract

Objectives—To explore acceptability of recruiting social contacts for HIV and STI screening in Lilongwe, Malawi.

Methods—In this observational study, three groups of "seed" patients were enrolled: 45 HIV-infected STI patients, 45 HIV-uninfected STI patients, and 45 community controls, who were also tested for HIV as part of the study. Each seed was given five coupons and asked to recruit up to five social contacts to the STI clinic. Seeds were told the programme for contacts would include HIV testing, STI screening, and general health promotion. Seeds were asked to return after one month to report on the contact recruitment process. Seeds received $2 for each successfully recruited contact.

Results—Eighty-nine seeds (66%) returned for one-month follow-up with no difference between the three seed groups (p=0.9). Returning seeds reported distributing most of their coupons (mean=4.1) and discussing each feature of the programme with most contacts—HIV testing (90%), STI screening (87%), and health promotion (91%). Seeds reported discussing their own HIV status with most contacts (52%), with a lower proportion of HIV-infected seeds discussing

[§]Corresponding Author: Nora E. Rosenberg, University of North Carolina Project, Tidziwe Centre, Private Bag A-104, Lilongwe, Malawi, +265 (0)99 109 0676, Nora_Rosenberg@unc.edu.

Author Contributions

GK, WCM, NER, and AP conceptualized the study with guidance from IH and FM. NER, SER, AP and GK developed data collection tools. GK, CM, and NB oversaw study implementation. CS conducted all analyses under the guidance of NER. NB, NER, and CS drafted the initial manuscript. All authors provided substantive edits to the manuscript and approved the final draft.

Disclaimers: None

their HIV status (22%) than HIV-uninfected seeds (81%) or community seeds (64%) (p<0.001). Contact recruitment did not vary with socioeconomic status.

Conclusions—Most seeds distributed all coupons and reported describing all aspects of the programme to most contacts. STI patients are able to act as health promoters within their social networks and may be a critical link to increasing STI and HIV status awareness among high risk groups.

Keywords

HIV; social network; sexually transmitted infection; HIV counseling and testing

INTRODUCTION

HIV testing is an essential gateway for life-saving antiretroviral therapy and the first pillar of the World Health Organization's 90-90-90 targets: 90% of HIV infected persons aware of their status, 90% of these persons on life-saving treatment, and 90% of these persons virally suppressed.[1] In sub-Saharan Africa, the epicentre of the HIV epidemic, most HIV-infected persons remain unaware of their HIV status, despite more than a decade of intensified HIV testing and counselling (HTC).[2] Although many different clinic and community based strategies have been implemented to increase HIV diagnosis,[3–6] many persons have never been tested, and others do not test routinely.[7] Many untested persons are members of hard-to-reach populations at high risk for HIV infection.

One strategy to increase HIV testing of high risk persons is to ask high risk people to recruit their social contacts. This strategy feasibly and effectively identifies HIV-infected persons previously unaware of their HIV status.[8–10] In a previously published study, we found in a sexually transmitted infection (STI) clinic in Lilongwe, Malawi, that patients attending routine services ("clinic seeds") were able to recruit their social contacts, suggesting feasibility. Additionally, HIV-infected clinic patients were more likely to have newly diagnosed HIV-infected contacts compared to the contacts of community controls ("community seeds"), suggesting effectiveness.[9] However, key aspects of this social contact recruitment programme remain to be delineated: how many coupons seeds distributed, whether they were comfortable distributing coupons, what aspects of the clinical services seeds discussed with contacts, and whether those recruiting contacts discussed their own HIV status. Additionally, the impact that a small financial incentive might have on recruitment is unclear, and has implications for scalability. An in-depth understanding of the recruitment process is necessary to facilitate replication and refine social contact interventions.

Within a social contact recruitment programme in an urban STI clinic in Lilongwe, Malawi, we describe the nature of social contact recruitment, as characterized by study participants. Specifically, we describe the proportion of participants willing to recruit social contacts, their comfort level with recruitment, the way they describe the programme to contacts, and whether or not they discuss their own HIV status. Additionally, we assess the influence of recruitment incentives on recruitment, in particular among those of low socio-economic

status. These elements elucidate the process of social contact referral for these high risk persons in this high-prevalence setting.

METHODS

Study Setting

This study was conducted at the STI unit at Kamuzu Central Hospital in Lilongwe, Malawi from November 2010 through February 2012. As part of routine care, patients were assessed for STIs using Malawi's syndromic management algorithm and for HIV using parallel rapid tests. Participants were also screened for acute HIV infection (AHI) in an ongoing study.[11]

Study Design and Population

A total of 135 seeds were enrolled with 45 in each of the three groups: (1) newly diagnosed HIV-infected STI clinic patients with STI syndromes, (2) HIV-uninfected STI clinic patients with STI syndromes, and (3) frequency-matched community controls, as described previously. [9] Clinical seeds were randomly selected from the STI clinic roster. Seeds in the community control group were recruited from the same catchment area as the clinical seeds by using frequency matching based on age, gender, and geographic area. Procedures for control selection and recruitment have been described in detail.[9]

Seeds in all groups were eligible for participation if they were 18–45 years old and residing in the Lilongwe city catchment area. STI patients were eligible if they had been diagnosed with an STI syndrome in the past 2 weeks. HIV was not considered an STI syndrome. Patients were not eligible if they had previously received an HIV-positive test result or had been referred by a sexual contact, as these persons might recruit different network members. All patients recently diagnosed with AHI were eligible to participate as HIV-infected seeds. Thus, all HIV-infected clinic seeds, whether they had AHI or established HIV infection, were newly diagnosed with HIV.

After recruitment, study procedures in clinic and community seeds were similar. All seeds had one initial visit where they were consented by trained study staff and then completed an interviewer administered questionnaire. Clinic seeds underwent clinic-guided STI and HIV screening tests using established algorithms and community seeds received HTC in the community at this initial encounter, and were assessed for STIs using the clinic's syndromic management algorithm at follow up when they came to the clinic. All seeds were given 5 coupons linked to their study identification number to give their social contacts to come to the clinic for a health promotion visit. Seeds were encouraged to recruit social contacts, but were permitted to recruit sexual contacts. They were also asked to come to the clinic for follow-up one month later and physically traced in their homes by a community team if they failed to present. The follow-up visit included questions about the person's experience with study participation. Approximately $5 was given to each participant as travel reimbursement for each study visit. Seeds received an additional $2 for each social contact successfully referred to clinic before their one-month follow-up visit.

Social Contact Procedures

As with seeds, contacts were eligible if they were 18–45 years old and residing within the Lilongwe catchment area. Contacts that were not eligible were offered HTC services and released. All contacts reported only once for a study visit. During this visit, they were consented and interviewed about their demographic characteristics, sexual behaviour and HIV testing history. They were assessed for STIs using syndromic screening and underwent HTC. Contacts were also offered blood pressure screening and a general health promotion discussion on a topic of their choosing. These additional topics were included so seeds could use general health promotion messages, rather than HIV or sexual health messages, when recruiting contacts. All contacts received $5 for travel reimbursement. Contacts were not asked to recruit their contacts.

Data collection

At the initial visit, all seeds were asked to think of five social contacts to give their coupons to. Seeds were asked whether they had ever discussed HIV with these contacts, whether they knew the HIV status of these contacts, and whether they considered each contact to be at high risk for HIV or other STIs. At the follow-up visit, each seed was asked if they distributed coupons to these contacts, who else they gave coupons to, whether they were comfortable distributing coupons, and whether they discussed each aspect of the programme to contacts: HIV testing and counselling, STI screening, and other health services. They were also asked if they discussed their own HIV status with contacts, as we were interested if disclosure differed by HIV status, and hypothesized that it would be more difficult for HIV-infected seeds to disclose. Seeds were then asked whether each contact accepted the coupon and if the contact indicated whether they would attend the clinic. If they did not distribute all five coupons, they were also asked about the reasons why.

We also collected information on the seed’s socio-economic status to assess any influence of financial incentives on study participation. We hypothesized that the incentives might have an undue influence on those seeds with low socio-economic status.

We assessed programme acceptability based on the number of coupons that seeds distributed to social contacts and the scope of programme components that they reported discussing. We examined the scope of discussions and HIV status disclosures between seeds and their contacts as assessed at the seed follow-up visit.

Analytical Methods

The distribution of baseline demographic traits was described using numbers and percentages and compared between those with and without follow up using Pearson chi-squared tests. Among those with follow-up, we compared several indicators of acceptability between the three seed groups using Pearson’s chi-squared tests for categorical variables and analysis of variance (ANOVA) for continuous variables.

To explore the possibility that study incentives were motivating participation among the poorest seeds, we assessed whether socio-economic status (SES) was associated with recruiting contacts. Food insecurity, running out of money for basic needs, and employment

status were used as indicators of SES. We fit unadjusted generalised linear models with a log link and binomial distribution. All analyses were performed in Stata SE 12.1.

Ethical Approval

The study was approved by the National Health Sciences Research Commission in Malawi (#701) and the Institutional Review Board at the School of Medicine at the University of North Carolina, Chapel Hill (IRB # 09-2380). All seeds and contacts provided written informed consent to participate.

RESULTS

Study Population

We enrolled 135 seeds (45 HIV-uninfected clinic seeds, 45 HIV-infected clinic seeds and 45 community control seeds). Of these seeds, 89 (66%) returned for their follow-up visit; the proportion returning was similar among all three seed groups (p=0.9) (Table 1). Seeds were 55% female, with a mean age of 28 years. Few (24%) had completed secondary school and 61% were married. Many (30%) were concerned about running out of money for basic needs, 72% had run out of food in the last three months, and 67% were unemployed. Seeds with and without follow-up had similar distributions of gender (p=0.9), age (p=0.4), education (p=0.5), marital status (p=0.1), concern about food security (p=0.9), running out of basic needs (p=0.7), and unemployment (p=0.6). However, seeds who returned for follow-up were more likely to have at least one contact report to the clinic than seeds without follow-up (72% versus 26%, p<0.001). They were also more likely to have more contacts report to the clinic (2.6 versus 1.6, p <0.001).

At enrollment, seeds reported that they expected to recruit contacts that they knew well, had known for a long time, and saw at least weekly. However, seeds reported having had a past conversation about HIV with only 55% of these potential contacts and reported knowing the HIV status of 28% of these people (Table 2). Among seeds who reported knowing the HIV status of contacts, in most cases (88%), it was perceived to be HIV-negative. Seeds described that some contacts were at medium or high risk for getting or spreading HIV with differences by seed HIV status: 66% by HIV-infected clinic seeds, 49% by HIV-uninfected clinic seeds, and 32% by community seeds.

Similarity between Seeds and Contacts

Overall, seeds tended to recruit people like themselves. Contacts typically came from the same residential area as the recruiting seed (62%) and had the same gender (62%), marital status (68%), and employment status (72%). A substantial proportion of contacts (44%) were within five years of the age of the seed. Approximately one third of seeds (32%) were in the same education category as their contacts, with 36% in a higher category, and 32% in a lower category. Approximately half of the seeds (51%) had the same number of sex partners in the past four weeks as their referred contacts, with 28% of contacts reporting more sex partners and 21% reporting fewer.

Acceptability Indicators

Two-thirds of seeds returned for their follow-up visit (89/135, 66%). At baseline, these 89 seeds reported that they intended to distribute a mean of 4.6 coupons. At follow-up, these same seeds reported distributing a mean of 4.1 coupons, having 3.9 coupons accepted by contacts, having 3.6 contacts indicate that they would attend, and having 2.6 contacts attend (Figure 1). At the follow-up visit, all seeds reported distributing at least one coupon.

At the follow-up visit, seeds reported that most coupons were given to friends and peers (63%), family members (13%), or sex partners (12%). Most seeds (55%) reported giving a coupon to at least one sex partner. In most cases, seeds gave coupons to the persons they had expected to give them to at the initial visit. Of those coupons that were distributed, in a few cases (n=72, 17%), seeds reported distributing coupons to someone else. In some cases, coupons were given to another person who they considered higher risk (n=6), but in most cases the reason was not specified.

Seeds reported being comfortable offering coupons. Most seeds reported describing all aspects of the programme to most contacts. Seeds told 90% of their contacts that the programme involved HIV testing, 87% of their contacts that the programme involved STI screening, and 91% of their contacts that the programme involved general health promotion.

Many participants were reluctant to discuss their own HIV status and care-seeking with contacts, although this differed substantially by seed group. HIV-infected clinic seeds discussed their own HIV status with few contacts (22%) whereas HIV-uninfected clinic seeds and community seeds discussed their own HIV status with most contacts (77% and 57% respectively) ($p<0.001$). Similarly, HIV-infected clinic seeds discussed being an STI patient with 66% of their contacts whereas HIV-uninfected clinic seeds discussed being an STI patient with 97% of their contacts ($p<0.001$). Community seeds were not asked this question as they were not active STI patients.

The role of incentives

At follow-up, the 89 returning seeds reported that the $2 study incentives had not driven recruitment. 85 (96%) stated that they would have recruited contacts, even if they had not received any incentive to do so. Additionally, in the full population, concern about food insecurity, running out of money for basic needs, and employment status were not associated with recruiting at least one contact. Persons with food insecurity were as likely to recruit a contact as those without food insecurity (PR: 1.3, 95% CI: 0.9, 1.9). Persons who had run out of money for basic needs in the last month were as likely to recruit a contact as those who had not run out (PR: 1.1, 95% CI: 1.0, 1.2). Unemployed persons were as likely to recruit a contact as employed persons (PR: 1.3, 95% CI: 0.9, 1.8).

DISCUSSION

Social contact recruitment was acceptable for randomly selected STI clinic patients in Lilongwe, Malawi and community controls. Among the seeds who returned for follow-up, most seeds reported distributing most social contact coupons and being comfortable

distributing these coupons. HIV-infected seeds who had just received an HIV diagnosis were able to distribute coupons, with or without sharing their own HIV status.

Most seeds reported describing all aspects of the health promotion programme to their contacts: HTC, STI screening, and general health promotion. This finding was surprising, and may reflect socially desirable reporting as we had no contact information to verify self-report. However, seeds were told that they did not need to mention all aspects of the programme: if they were uncomfortable discussing STIs and HIV they could frame the programme as general health promotion. Describing HIV and STI testing as a component of the programme suggests that seeds were able to have open discussions about HIV with a few close social contacts, even though many of them did not have these discussions before.

HIV-related discussions have been associated with HTC uptake in other sub-Saharan African settings. In Ethiopia, communities that had well-functioning HIV-related community conversation groups had higher uptake of HTC than communities that did not.[12] Similarly, in Tanzania and Zimbabwe, communities with mobilization activities, including community-based and volunteer-led discussions about HIV, had substantially higher HTC uptake than control communities.[13] In these intervention communities, the nature of the conversations, not the number of conversations, was important. Persons in intervention communities were more likely to frame their conversations in personal experience and more likely to directly discus HTC.[14]

On average, HIV-infected seeds were less successful at recruiting contacts and less likely to disclose their HIV status to contacts. These two findings may be related. The failure to disclose one’s own HIV status may have made these seeds less persuasive. This phenomenon has been observed elsewhere. HIV-infected “agents of change” in Uganda were more likely to encourage HTC when their social contacts knew their HIV status.[15, 16] Disclosure of HIV status, even among HIV-infected persons, may be an important component in effective social contact recruitment. Disclosure counselling for HIV-infected patients may enable them to be more effective recruiters. Indeed, this subgroup is the most important group to support, as they were responsible for identifying the most previously undiagnosed HIV-infected persons.[9]

In general, persons recruited others like themselves with respect to gender, marital status, employment status, and geographical area. This finding has important implications; finding one person from a specific hard-to reach population could serve as a gateway to others from this same population. This phenomenon has been observed with frequency in sub-Saharan African high risk populations, such as sex workers, injection drug users, and men who have sex with men,[17–23] but this phenomenon is less well-described among STI patients who primarily experience risk from heterosexual sexual contact with the general population.[24–27] This observation is important since heterosexual transmission in the general population is the primary source of HIV transmission in sub-Saharan Africa.

Seeds received a small sum for each contact successfully recruited. One concern was that those of lower socio-economic status would recruit more contacts as a result of an incentive set at this level. We did not observe this phenomenon. Food insecurity, concerns about basic

needs, and unemployment status were not associated with social contact recruitment. Additionally, nearly all seeds said that they would have recruited contacts even without the study incentive. However, we did not vary the incentive amount, and therefore do not know how much it motivated the population overall. Understanding the role of the incentive is an important future question to inform scalability.

Our analyses were conducted among the two thirds of seeds who came for a follow-up visit. Although this response rate is quite high, especially given the random nature of seed recruitment, we were not able to assess those who failed to return. The seeds who came for follow-up were similar with respect to demographic and socio-economic characteristics, as well as the types of contacts they expected to recruit. However, they differed substantially with respect to the number of contacts successfully recruited. Seeds who did not recruit any contacts may have distributed fewer coupons or had fewer coupons accepted by contacts. They may have experienced greater stigma with respect to HIV or STIs, or may have had poorer communication skills or lower motivation. However, these were not factors that we measured, and thus formal exploration was not possible.

In a setting with endemic HIV, typical STI clinic patients can serve as effective recruiters for HTC, STI, and other health promotion services. Contact recruitment can lead to a first conversation about HIV between friends, and often as discussion about their own HIV statuses. As countries in sub-Saharan Africa work towards the first “90”, helping nearly all HIV-infected persons learn their status, social contact recruitment by STI clinic patients should be considered as part of the programmatic mix. This strategy is not only feasible and effective at finding new HIV-infected persons, as demonstrated previously [9], but also acceptable to patients.

Acknowledgments

Source of Funding

This research was funded by a 2010 developmental grant from the University of North Carolina at Chapel Hill Center for AIDS Research (P30 AI50410) and NIAID (R01 AI083059, R01 AI114320). NER was supported by NIH HIV/STD training grant (T32 AI007001-34), UNC Hopkins Morehouse Tulane Fogarty Global Health Fellows Program (R25 TW009340), and K99MH104154-01A1. SER is funded by F30 MH098731-01 and T32 GM008719.

We gratefully acknowledge the study participants and the dedicated clinic staff.

References

1. WHO Guidelines Approved by the Guidelines Review Committee. Geneva: 2015. Consolidated Guidelines on HIV Testing Services 2015.
2. UNAIDS. The Gap Report. 2014.
3. Bateganya M, Abdulwadud OA, Kiene SM. Home-based HIV voluntary counselling and testing (VCT) for improving uptake of HIV testing. Cochrane Database Syst Rev. 2010; (7):CD006493.
4. Roura M, Watson-Jones D, Kahawita TM, et al. Provider-initiated testing and counselling programmes in sub-Saharan Africa: a systematic review of their operational implementation. AIDS. 2013; 27(4):617–26. [PubMed: 23364442]
5. Sabapathy K, Van den Bergh R, Fidler S, et al. Uptake of home-based voluntary HIV testing in sub-Saharan Africa: a systematic review and meta-analysis. PLoS Med. 2012; 9(12):e1001351. [PubMed: 23226107]

6. Choko AT, Desmond N, Webb EL, et al. The uptake and accuracy of oral kits for HIV self-testing in high HIV prevalence setting: a cross-sectional feasibility study in Blantyre, Malawi. PLoS Med. 2011; 8(10):e1001102. [PubMed: 21990966]
7. National Statisticas Office and ICF Macro. Malawi Demographic and Health Survey 2010. Zomba, Malawi and Calverton, Maryland, USA: 2011.
8. McCoy SI, Shiu K, Martz TE, et al. Improving the Efficiency of HIV Testing With Peer Recruitment, Financial Incentives, and the Involvement of Persons Living with HIV Infection. J Acquire Immune Defic Syndr. 2013; 63(2):e56–63.
9. Rosenberg NE, Kamanga G, Pettifor AE, et al. STI patients are effective recruiters of undiagnosed cases of HIV: results of a social contact recruitment study in Malawi. J Acquire Immune Defic Syndr. 2014; 65(5):e162–9.
10. Kimbrough LW, Fisher HE, Jones KT, et al. Accessing social networks with high rates of undiagnosed HIV infection: The social networks demonstration project. Am J Public Health. 2009; 99(6):1093–9. [PubMed: 19372521]
11. Rosenberg NE, Kamanga G, Phiri S, et al. Detection of acute HIV infection: a field evaluation of the determine(R) HIV-1/2 Ag/Ab combo test. Journal Infectious Dis. 2012; 205(4):528–34.
12. Tekletsadik E, Fantahun M, Shaweno D. Is Community Conversation Associated with Human Immunodeficiency Virus Voluntary Counseling and Testing Service Uptake in Rural Communities in Ethiopia? A Comparative Cross-sectional Study N. Am J Med Sci. 2014; 6(2):77–83.
13. Sweat M, Morin S, Celentano D, et al. Community-based intervention to increase HIV testing and case detection in people aged 16–32 years in Tanzania, Zimbabwe, and Thailand (NIMH Project Accept, HPTN 043): a randomised study. Lancet Infect Dis. 2011; 11(7):525–32. [PubMed: 21546309]
14. Maman S, van Rooyen H, Stankard P, et al. NIMH Project Accept (HPTN 043): results from in-depth interviews with a longitudinal cohort of community members. PloS One. 2014; 9(1):e87091. [PubMed: 24489841]
15. Ssali S, Wagner G, Tumwine C, et al. HIV Clients as Agents for Prevention: A Social Network Solution. AIDS Res Treat. 2012; 2012:815823. [PubMed: 22666563]
16. Green HD Jr, Atuyambe L, Ssali S, et al. Social networks of PLHA in Uganda: implications for mobilizing PLHA as agents for prevention. AIDS Behav. 15(5):992–1002.
17. Malekinejad M, Johnston LG, Kendall C, et al. Using respondent-driven sampling methodology for HIV biological and behavioral surveillance in international settings: a systematic review. AIDS Behav. 2008; 12(4 Suppl):S105–30. [PubMed: 18561018]
18. Stahlman S, Johnston LG, Yah C, et al. Respondent-driven sampling as a recruitment method for men who have sex with men in southern sub-Saharan Africa: a cross-sectional analysis by wave. Sex Transm Infect. 2015; doi: 10.1136/sextrans-2015-052184
19. Baral SD, Ketende S, Schwartz S, et al. Evaluating respondent-driven sampling as an implementation tool for universal coverage of antiretroviral studies among men who have sex with men living with HIV. J Acquire Immune Defic Syndr. 2015; 68(Suppl 2):S107–13.
20. Nala R, Cummings B, Horth R, et al. Men who have sex with men in Mozambique: identifying a hidden population at high-risk for HIV. AIDS Behav. 2015; 19(2):393–404. [PubMed: 25234252]
21. Kimani SM, Watt MH, Merli MG, et al. Respondent driven sampling is an effective method for engaging methamphetamine users in HIV prevention research in South Africa. Drug Alcohol Depend. 2014; 143:134–40. [PubMed: 25128957]
22. Hladik W, Barker J, Ssenkusu JM, et al. HIV infection among men who have sex with men in Kampala, Uganda--a respondent driven sampling survey. PloS One. 2012; 7(5):e38143. [PubMed: 22693590]
23. Tafuma TA, Merrigan MB, Okui LA, et al. HIV/sexually transmitted infection prevalence and sexual behavior of men who have sex with men in 3 districts of Botswana: results from the 2012 biobehavioral survey. J Sex Transm Dis. 2014; 41(8):480–5.
24. Ramjee G, Wand H. Geographical clustering of high risk sexual behaviors in “hot-spots” for HIV and sexually transmitted infections in Kwazulu-Natal, South Africa. AIDS Behav. 2014; 18(2): 317–22. [PubMed: 23934268]

25. Townsend L, Johnston LG, Flisher AJ, et al. Effectiveness of respondent-driven sampling to recruit high risk heterosexual men who have multiple female sexual partners: differences in HIV prevalence and sexual risk behaviours measured at two time points. AIDS Behav. 2010; 14(6): 1330–9. [PubMed: 20625926]

26. Lindan CP, Anglemyer A, Hladik W, et al. High-risk motorcycle taxi drivers in the HIV/AIDS era: a respondent-driven sampling survey in Kampala, Uganda. Int Journal STD AIDS. 2015; 26(5): 336–45.

27. Decker MR, Marshall BD, Emerson M, et al. Respondent-driven sampling for an adolescent health study in vulnerable urban settings: a multi-country study. J Adolesc Health. 2014; 55(6 Suppl):S6–S12. [PubMed: 25454005]

Key Messages

- Most STI patients and community members were willing to distribute coupons to their social contacts for a health promotion programme.
- Patients were able to explain that the programme included STI and HIV screening, even though they could have simply provided general health promotion messages.
- HIV-infected seeds were able to distribute coupons and explain programme components, even, in many instances, without sharing their own HIV status.

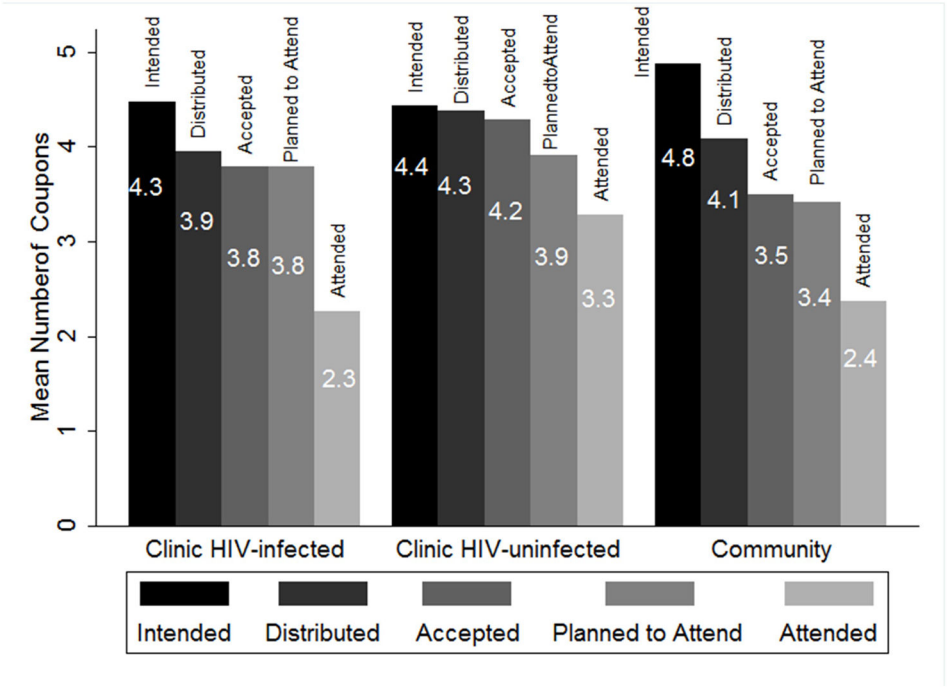

Figure 1. Coupon Distribution among Contacts with Follow-up (N=89)

Each seed was given five coupons. At baseline seeds self-reported how many contacts they "intended" to distribute coupons to. At follow-up, they self-reported on the number of coupons they "distributed," the number their contacts "accepted," and the number of contacts who "planned to attend." The number who "attended" is based on those who actually came to the clinic. All figures are means.

Table 1

Comparison of Seeds with Follow up Versus Seeds without Follow up

	Seeds with Follow up n (%)	Seeds with no Follow up n (%)	p-value
Arm			
HIV-uninfected clinic seeds	30 (34)	15 (33)	
HIV-infected clinic seeds	29 (33)	16 (35)	
Community seeds	30 (34)	15 (33)	0.9
Age (years)			
18–25	31 (35)	21 (46)	
26–35	45 (51)	21 (46)	
36–45	13 (15)	4 (9)	0.4
Gender			
Male	40 (45)	21 (46)	
Female	49 (55)	25 (54)	0.9
Education level			
None or some primary	36 (40)	17 (37)	
Completed primary or some secondary	30 (34)	20 (43)	
Completed secondary or post-secondary	23 (26)	9 (20)	0.5
Marital Status			
Never married	18 (20)	17 (37)	
Married	58 (65)	25 (54)	
Separated/Divorced/widowed	13 (15)	4 (9)	0.1
Currently living with spouse(if married)			
Yes	55 (95)	21 (84)	
No	3 (5)	4 (16)	0.1
Currently living with stable partner(if Separated/Divorced/widowed)			
Yes	0 (0)	2 (10)	
No	31 (100)	19 (90)	0.1
Worried about having enough food in past 3 months			
Yes	27 (30)	14 (30)	
No	62 (70)	32 (70)	0.9
Ran out of money for basic needs in past 3 months			
Never	24 (27)	14 (30)	
1–2 times	25 (28)	16 (35)	
3–4 time	15 (17)	6 (13)	
5 or more times	25 (28)	10 (22)	0.7
Currently employed			
Yes	28 (32)	17 (37)	
No	59 (66)	29 (63)	0.6
Recruited at least 1 contact			
Yes	64 (72)	12 (26)	

	Seeds with Follow up n (%)	Seeds with no Follow up n (%)	p-value
No	25 (28)	34 (74)	<0.001

*Column totals may not add up to column Ns due to missing data.

Table 2

Indicators of Acceptability by Study Arm

	Clinic (HIV-uninfected) N=30 seeds		Clinic (HIV-infected) N=29 seeds		Community N=30 seeds	
	N (%)		N (%)		N (%)	
Total coupons offered to contacts (N=89 seeds)	133		128		150	
Total coupons accepted by these contacts						
Yes	131	99%	125	98%	130	87%
No	2	2%	3	2%	19	13%
Contact who said they would attend a clinic visit						
Yes, would attend	113	86%	112	88%	124	84%
No, would not attend	7	5%	6	5%	16	11%
Did not say	12	9%	10	8%	8	5%
Contacts who told seed they attended clinic						
Yes, attended	80	60%	50	39%	80	54%
No, did not attend	11	8%	8	6%	21	14%
Did not say	42	32%	70	55%	48	32%
Seed comfortable offering coupon						
Yes	133	100%	123	99%	150	100%
No	0	0%	1	1%	0	0%
Described HIV testing to contact						
Yes	129	97%	109	85%	136	91%
No	4	3%	19	15%	14	9%
Described STI services to contact						
Yes	121	91%	110	86%	130	87%
No	12	9%	18	14%	20	13%
Seed described other health services						
Yes	123	92%	120	94%	130	87%
No	10	8%	8	6%	20	13%
Seed discussed own HIV status						
Yes	108	81%	28	22%	94	64%

	Clinic (HIV-uninfected) N=30 seeds		Clinic (HIV-infected) N=29 seeds		Community N=30 seeds	
	N (%)		N (%)		N (%)	
No	25	19%	99	78%	52	36%
Seed discussed being an STI patient						
Yes	127	97%	76	66%	NA	
No	4	3%	40	34%	NA	
Seed's perception of contact's HIV risk						
Low	73	51%	42	32%	101	68%
Medium	34	24%	29	22%	30	20%
High	35	25%	61	46%	18	12%
Seed reported conversation about HIV/AIDS with contact previously						
Yes	86	60%	80	60%	68	46%
No	57	40%	53	40%	81	54%
Seed reports knowing contact HIV status previously						
Yes, HIV positive	2	2%	5	5%	2	3%
Yes, HIV Negative	37	36%	3	3%	27	37%
No, do not know	65	63%	86	92%	44	60%
Seed believes he/she could invite person						
Yes	138	96%	131	99%	147	99%
No	1	1%	0	0%	2	1%
Unsure	4	3%	2	2%	0	0%

*Column totals may not add up to column Ns due to missing data.