

## ***An Evaluation of the Experiences of Rural MSM Who Accessed an Online HIV/AIDS Health Promotion Intervention***

Mark Williams, PhD  
Anne Bowen, PhD  
Sue Ei, PhD

*The purpose of this study was to assess rural MSM's satisfaction with an Internet-delivered HIV/AIDS intervention. Objectives were to evaluate if completion rates varied by characteristics, if completion varied by computer issues, if satisfaction changed from first to last modules, and if satisfaction was associated with module order. Data were collected from 300 rural MSM. Results showed few differences between men who completed the intervention and those who dropped out. Completion was associated with income, accessing the intervention at home, time to load screens, and finding navigation easy. For those completing the intervention, interest in and perceived usefulness of the information increased from first to the last module. Module order was associated with the knowledge module. Interest in the module was greatest if it was encountered last. Results indicate that rural MSM are willing to enroll in and complete an Internet-delivered HIV/AIDS risk reduction intervention.*

**Keywords:** *HIV/AIDS health promotion; Internet interventions; men who have sex with men; health*

Two-thirds of Americans have access to the Internet, and the majority of these have conducted an online search for health-related information (Fox & Fallows, 2003). The willingness of Americans to use the Internet as a source of health information suggests that it might be a platform for

widely delivering health promotion interventions. Online health promotion interventions have been developed to improve nutrition (Oenema, Frans, & Brug, 2001), prevent obesity and diabetes (Glasgow, Boles, McKay, Feil, & Barrera, 2003; McKay, King, Eaking, Seeley, & Glasgow, 2001; McCoy, Couch, Duncan, & Lynch, 2005), deal with depression (Andersson et al., 2005), and treat mental disorders such as alcohol abuse (Saitz et al., 2004), panic disorder (Carlbring et al., 2001; Carlbring et al., 2005), headache (Devineni & Blanchard, 2005), and psychological distress (Andersson et al., 2002). Recently, scientists have been working to develop online health promotion interventions designed to prevent HIV/AIDS (Bowen, Horvath, & Williams, 2006; Pequegnat et al., 2006). Internet-based health promotion interventions have a number of advantages, especially for some population groups. Online interventions can be extremely convenient for the user as they are accessible from anywhere there is a computer connected to the World Wide Web (Bowen, 2005). A user can access an intervention whenever he or she is ready to do so and as often as he or she likes (Binik, 2001; Mustanski, 2001). A particularly attractive feature of Internet-based interventions for maladies such as HIV/AIDS is that a user can access an intervention in private, thus reducing any fear of embarrassment or discovery a user might feel (Kling, Lee, Teich, & Frankel, 1999; Williams, Bowen, & Horvath, 2005).

Accessibility of online health promotion interventions may be particularly relevant for men who have sex with men (MSM) living in rural areas who are at

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### **The Authors**

**Mark Williams**, PhD, is professor of behavioral sciences at the University of Texas School of Public Health in Houston, Texas.

**Anne Bowen**, PhD, is professor of psychology at the University of Wyoming Department of Psychology in Laramie, Wyoming.

**Sue Ei**, PhD, is a postdoctoral fellow in clinical psychology at Geisinger Medical Center in Danville, Pennsylvania.

risk for HIV/AIDS (Williams et al., 2005). Rural MSM are geographically isolated and socially cut off from supportive gay communities, which tend to be in large urban areas, and in which most HIV/AIDS interventions targeting MSM are available. Rural MSM, especially those who seldom travel to urban areas, may be unaware that intervention materials exist. Furthermore, materials designed to address the concerns of urban MSM may not be relevant to MSM living in rural areas. A recent study conducted by Bowen et al. (2006) suggests that the Internet may be an effective venue for delivering HIV/AIDS information and health promotion interventions to rural MSM. This study found that rural MSM participating in an online risk reduction intervention significantly increased HIV-related knowledge, positive condom use outcome expectancies, and condom use self-efficacy across time and when compared to a wait-listed group.

Although the results of the Bowen et al. (2006) study are encouraging, the study did not address how likely it was that rural MSM who began the study's intervention would complete it or how satisfied they were with the experience. Such an assessment is critically important for online-delivered risk reduction and health promotion interventions. People who use the Internet often have specific reasons for being online and quickly navigate away from sites that neither match their interests nor somehow engage their attention (Pequegnat et al., 2006). If online HIV/AIDS health promotion interventions are to be successful, they must be sufficiently engaging and entertaining to attract and keep users' attentions. The Wyoming Rural AIDS Prevention Project is one of the first Internet interventions developed to engage MSM residing in rural areas in HIV risk reduction activities. The purpose of this study was to assess how participants in an Internet HIV/AIDS health promotion intervention perceived the experience. The intervention, the HOPE Project, consisted of three modules that addressed HIV/AIDS knowledge, motivation, and strategies to

reduce risk behaviors. Specific objectives of the study were to evaluate if completion of the intervention varied by participant characteristics, if completion of the intervention varied by computer issues or satisfaction with delivery of the intervention, if there were changes in measures of satisfaction from the first to the last modules, and if measures of satisfaction were associated with the order in which intervention modules were encountered. Because it is easy to cease participating in an Internet intervention by navigating away from it, it was reasoned that in addition to other measures, completion of the online intervention indicates satisfaction with it.

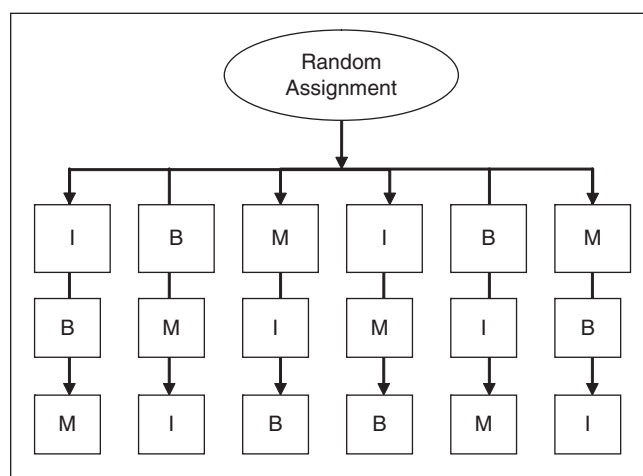
### **METHOD**

**Procedures.** Prospective participants gained access to the HOPE Project by clicking a banner ad posted on a popular MSM dating Web site. Clicking on the banner took men to the HOPE Project homepage. After reading a brief description of the project and the evaluation study, those who were interested were screened for eligibility by completing a brief questionnaire. Eligible men were automatically taken to consent pages that provided information about intervention activities, data collection procedures, and study risks and benefits. Men who chose not to participate clicked a button and were automatically routed to a "thank you" page. Men choosing to participate clicked a button that took them to a "signature page." Choosing a study username and password signified consent.

After providing consent, participants completed a baseline questionnaire and were randomly assigned to one of three intervention module orders. Module orders are shown in Figure 1. The modules were accessed by entering the username and password. Participants had 14 days to complete both sessions of a module and the post-module assessment. Those who failed to do so within 14 days were dropped from the study.

**Participants.** The study was designed for sexually active MSM residing in rural areas. To be eligible to participate in the study, participants were required to be male, 18 years of age or older, have had sex with another man in the past year, and reside in a rural area at least an hour's drive from a major urban area. To confirm rural residency, an algorithm was used to compute the distance from an individual's reported town of residence to the nearest metropolitan area. Rural was defined as an area or town with a population of less than 75,000 (Bowen, 2005).

**The intervention.** The HOPE Project intervention was composed of three modules, each consisting of two



**FIGURE 1** The HOPE Project Intervention Showing Random Assignment to the Information (I), Motivation (M), and Behavior (B) Modules

20-minute sessions. Each module was designed to address an element of the information, motivation, and behavior model (Fisher & Fisher, 1993). The knowledge (information) module is described in detail elsewhere (Bowen et al., 2006). Briefly, the knowledge module presented HIV-related facts germane to rural MSM using a conversation between an expert, an HIV-positive gay man, and a second gay man, representing the participant, who has recently had high-risk sex as the intervention delivery format. The knowledge module primarily dealt with topics related to prevention of HIV infection during sex and living with HIV after infection which formative research had shown to be of interest to rural MSM. Dialogue was interspersed with interactive activities and “tell me more” buttons that, if clicked, provided access to Web links for sites providing more information.

The motivation module used a discussion between five gay male friends, one of whom represented the participant, as the format for delivering intervention content. The module focused on motivating participants to reduce their risk of HIV infection by helping them clarify long-term life goals, identify excuses for not using condoms, and assess ways to deal with their excuses in relation to their life goals. The module also used interactive dialogue to help participants identify personal situations associated with past episodes of unsafe sex and choose approaches for convincing partners to use condoms. Printable feedback was provided at the end of the module summarizing participants’ responses to interactive components.

The behavior module also used an interactive format and was presented as a group discussion among five friends, with one of the friends again playing the role of the participant. The module was intended to help men adopt behaviors that would reduce their risk of engaging in risky sexual behaviors with partners met in a bar or on the Internet. Formative research had shown that rural MSM most often frequent these two venues when looking for sex partners. Interactive components of the module dealt with indentifying personal situations in each setting associated with past episodes of unsafe sex after meeting a partner and identifying behaviors to increase safer sex with partners. Printable sheets were provided as a summary of the participant’s choices made during interactive activities.

*Measures.* Sociodemographic and computer-related data were collected before random assignment to the modules. Other data were collected after completion of each module.

Data collected on the sociodemographic characteristics of participants were age in years (recoded to 10-year intervals), race and ethnicity, marital status (single, married, having a male partner, and widowed, separated or divorced), sexual orientation (heterosexual, bisexual, and homosexual), education (less than a high school education, a high school education, and some college), student status (full-time student, part-time student, and nonstudent), and annual income ( $1 < \$15,000$ ,  $\$15,000$  to  $\$24,999$ ,  $\$25,000$  to  $\$49,999$ , and  $\geq \$50,000$ ).

Participant satisfaction was assessed using a number of measures. Completion of the intervention measured as completing all three intervention modules. Failure to complete the intervention, or dropping out of the study, was measured as completing only one intervention module. The variable related to Internet access or one’s computer were measured by modem speed (dial up or high speed), location of the computer (at home or in a public place), and time of day the intervention was initially visited (6:00 a.m. to 12:00 p.m., 12:00 p.m. to 6:00 p.m., 6:00 p.m. to 12:00 a.m., and 12:00 a.m. to 6:00 a.m.). Participants were asked to assess intervention delivery by time to load screens (“took too long” or “time was acceptable”) and ease of navigating within modules (5-point scale that ranged from *very difficult* to *very easy*).

Factors related to the format used to deliver the content of an intervention module were assessed by participants’ ratings of the pictures and stories used in a module. Assessments were recorded using bivariate items, “get rid of the pictures” or “keep the pictures” and “no story, just information” or “use the story.” Another variable related to intervention delivery was

time to complete module activities (“took too long” and “time was acceptable”).

Personal variables measured were interest in module activities (low, moderate, high) and perceived usefulness of the module content (low, moderate, high). Participants were also asked if they would participate in the module again (yes or no) and if they would recommend the intervention module to a friend (yes or no).

*Analysis.* Four analyses were conducted. First, baseline data were examined to determine if there were differences in characteristics between participants who completed all intervention modules and those who completed only the first module. Second, data were examined to determine if there were differences in computer access and satisfaction between those completing all modules and participants dropping out after completing one module. Third, for those completing all modules, data were analyzed to determine if there were significant changes in measures after completing the first module and after completing the last modules (all three modules). Finally, the order in which participants encountered the intervention modules was assessed to determine if interest in and perception of module usefulness varied by the order in which modules were encountered. Comparisons were made between those who encountered a module first compared to the group encountering the module last. Sample sizes vary by comparison.

Comparisons between groups were made using chi-square, *t* tests, and Mann Whitney test of proportions where appropriate. The significance level for all comparisons was set at  $p < .05$ . For those measures showing significant differences, odds ratios and 95% confidence intervals were calculated to aid in interpreting the results.

## ► RESULTS

*Sample.* Characteristics of the 300 men enrolled in the study are shown in Table 1. About two-thirds were 29 years or younger, and almost three-quarters were White and single. Approximately four-fifths self-identified as gay. More than half had attended college and half were nonstudents at the time they participated. More than a third had incomes of \$15,000 or less per year.

*Completion by sociodemographic characteristics.* Of the 300 men enrolled in the study, 252 (84%) completed the first and second modules, and 219 (73%) completed all three modules of the intervention. There were no significant differences in the sociodemographic characteristics of participants who completed all three modules compared to those who completed only the first module,

except by income ( $\chi^2 = 5.73$ ,  $p = .017$ ). Half of those who dropped out after the first module earned \$15,000 or less, compared to a third of those who completed all three modules. The odds of completing all three modules was 1.88 (CI = 1.11 – 3.14) greater if a participant earned more than \$15,000 per year.

*Completion, computer issues, and satisfaction with intervention delivery.* As shown in Table 2, almost 80% of the participants enrolling in the intervention had high-speed internet connections, and 9 out of 10 accessed the Web site from home. More than half visited the intervention website after 6:00 p.m., although about a fifth accessed the program in the morning or the afternoon respectively.

Men who completed the intervention were significantly different from those who dropped out of the intervention after completing one module on one computer-related variable, as shown in Table 2. Those who dropped out were significantly more likely to have accessed the intervention using a computer at home ( $\chi^2 = 4.18$ ,  $p = .040$ ). The odds of dropping out were 4.24 times greater if a participant was using a home computer compared to a participant using a computer in a public place, although the 95% confidence intervals were borderline (CI = .955 – 18.82).

Almost half of the men who accessed the intervention found that the modules were very easy to navigate. Half reported that the modules were interesting, and nearly three quarters said that the information presented in the modules was useful. The majority also reported that they would be willing to participate in the intervention again.

Completion of the intervention was significantly associated with only ease of navigation in the modules ( $\chi^2 = 8.10$ ,  $p = .017$ ). The odds of dropping out were 2.28 times greater (CI = 1.28 – 4.08) if a participant found the module very easy to navigate compared to those who found them difficult.

*Change from Module 1 to Module 3.* As shown in Table 3, for participants completing all three modules, there was no change in satisfaction with the time it took to load new screens, timing of the text, use of pictures, or the story lines used to illustrate modules. Likewise, there was no change in the number of participants who said they would participate in a module again or who would recommend participating to a friend.

There were significant differences after completing the first and the third modules in the proportions of individuals who found module activities interesting and useful. The proportion who found the modules very interesting increased from 52% after completing the first module to

**TABLE 1**  
**Sample Characteristics**

	<i>Sample</i> n = 300	<i>Completed</i> n = 219	<i>Dropped Out</i> n = 81
Age			
18 to 29	67%	66%	66%
30 to 39	18%	21%	18%
> 40	15%	14%	16%
Race and ethnicity			
White	77%	77%	84%
African American	3%	2%	3%
Hispanic	10%	10%	10%
Asian	3%	8%	3%
Native American	5%	4%	1%
Marital status			
Single, never married	77%	75%	85%
Married, female partner	4%	4%	5%
Male partner	13%	15%	5%
Widowed, separated, or divorced	6%	6%	5%
Sexual orientation			
Heterosexual or bisexual	15%	15%	13%
Homosexual	85%	85%	86%
Education			
< High school	31%	4%	3%
High school	12%	15%	17%
College	57%	82%	80%
Student			
Full time	31%	31%	33%
Part time	12%	13%	12%
Nonstudent	57%	57%	54%
Income			
< \$15,000	39%	34% *	49% *
\$15,000 to \$24,999	25%	28% *	14% *
\$25,000 to \$49,999	27%	27% *	26% *
≥ \$50,000	9%	11% *	11% *

\* $p < .05$ .

63% after completing all three modules. Participants who found the information very useful increased from 70% after the first module to 79% after completing the last module. The increase in proportions was reflected in mean evaluation scores. Interest increased from 4.20 after the first module to 4.38 after the second module ( $p < .013$ ). Usefulness scores increased from 4.58 to 4.67 ( $p < .044$ ).

*Module order.* Of 219 participants who completed all three modules of the intervention, 71 encountered the knowledge module first, 74 the motivation module, and 74 the behavior module. The order in which participants

encountered a module made no difference with regard to the modules' interest or usefulness, except for those enrolled in the knowledge module. As shown in Table 4, of those enrolled in the knowledge module first, about half found the module very interesting compared to three quarters who participated in the knowledge module last ( $\chi^2 = 8.01$ ,  $p = .018$ ).

## ► DISCUSSION

The Wyoming Rural AIDS Prevention Project is one of the first Internet interventions developed to provide

**TABLE 2**  
**Internet Access, Intervention Delivery, and Satisfaction With the Intervention**

	<i>Sample</i> n = 300	<i>Completed</i> n = 219	<i>Dropped Out</i> n = 81
Modem			
Dial up	21%	22%	21%
High speed	79%	78%	79%
Computer location			
Home	87%	83% *	95% *
Public place	13%	17% *	5% *
Time of day participating			
Morning (6:00 a.m. to 12:00 p.m.)	21%	23%	16%
Afternoon (12:00 p.m. to 6:00 p.m.)	21%	19%	25%
Evening (6:00 p.m. to 12:00 a.m.)	42%	41%	46%
Late night (12:00 a.m. to 6:00 a.m.)	16%	17%	14%
First module assignment			
Knowledge	36%	38%	32%
Context	32%	29%	41%
Partner	31%	33%	27%
Time to load screens			
Too long	25%	25%	25%
Just right	75%	75%	75%
Time to complete modules			
Too long	18%	19%	18%
Just right	82%	81%	82%
Ease of navigating			
Difficult	6%	7% *	5% *
Easy	45%	49% *	31% *
Very easy	49%	44% *	64% *
Interest in modules			
Not interesting	21%	20%	25%
Interesting	31%	32%	26%
Very interesting	48%	48%	48%
Usefulness of information			
Not useful	8%	8%	8%
Useful	21%	15%	23%
Very useful	70%	77%	68%
Would participate again			
No	17%	16%	20%
Yes	83%	84%	80%

\* $p < .05$ .

rural MSM with HIV risk reduction strategies. The goal of this study was to examine the overall satisfaction with the interventions and to identify factors that affect satisfaction.

The majority of participants who completed the first intervention module returned to complete the entire intervention. The demographic characteristics most

associated with dropping out of the intervention after one module was earning less than \$15,000 per year. In general, men in this income category were college students or men with less than a high school diploma who were working full time. For the latter group, comprehension should not have presented a problem, as module text was at a 3rd-grade level. For these men,

**TABLE 3**  
**Change From 1<sup>st</sup> Module to 3<sup>rd</sup> Module (n = 219)**

	<i>1<sup>st</sup> Module</i>	<i>3<sup>rd</sup> Module</i>
Time to load screens		
Too long	25%	27%
Just right	75%	73%
Timing of the text		
Too long	25%	27%
Just right	75%	73%
Pictures		
Get rid of them	14%	18%
2	20%	15%
3	22%	20%
4	19%	19%
Keep them	25%	28%
Story		
No story, just facts	17%	5%
2	16%	21%
3	23%	20%
4	22%	21%
Use a story	21%	30%
Interest in modules		
Not interesting	17% *	15% *
Interesting	31% *	22% *
Very interesting	52% *	63% *
Usefulness of information		
Not useful	8% *	1% *
Useful	22% *	12% *
Very useful	70% *	79% *
Participate again	83%	87%
Recommend to a friend	94%	97%

\**p* < .05

a lack of interest in reading may have presented a barrier to completing the intervention. The intervention may simply have felt too academic. College students may have also found the intervention insufficiently interesting for a related deficiency. College students may have advanced computer skills and experience with more advanced Internet Web sites. For these men, the intervention may not have been sufficiently sophisticated to be challenging or interesting. Increasing the sophistication of the intervention, including more interactive activities that rely on audio rather than text, may lead to greater retention of both types of men.

Finding the intervention very easy to navigate and accessing the intervention at home were also associated with dropping out of the intervention. Ease of navigation may contribute to dropping out in a couple of ways. First, participants may not have found the intervention sufficiently challenging to hold their interest and have expected a higher level of sophistication than was presented. It may also be that men who found the intervention easy to navigate also tend to “surf” rapidly through many sites. The intervention was designed so that men would spend a lengthy, in Internet terms, amount to time participating in intervention modules. Rapids surfers may have found the time demanded of them to be too great. Similarly, men who accessed the intervention from home may have been interested in other things, such as dating or chatting with friends. When the intervention site did not match their desired agenda, the time required to complete the intervention may have been too great. Alternatively, those accessing the Internet in public places, like schools or libraries, are usually searching for specific types of information. Men who accessed the intervention in a public setting

**TABLE 4**  
**Interest in the Intervention and Evaluation of Its Usefulness by the Order in Which the Modules Were Encountered**

	<i>Knowledge</i> n = 154		<i>Motivation</i> n = 146		<i>Behavior</i> n = 138	
	<i>1<sup>st</sup></i>	<i>3<sup>rd</sup></i>	<i>1<sup>st</sup></i>	<i>3<sup>rd</sup></i>	<i>1<sup>st</sup></i>	<i>3<sup>rd</sup></i>
Interesting						
Not at all	21%	9%	20%	18%	17%	20%
Interesting	28%	18%	35%	27%	36%	30%
Very interesting	52%	73%	46%	56%	47%	50%
Useful						
Not at all	5%	9%	7%	8%	17%	10%
Useful	24%	13%	25%	15%	20%	11%
Very useful	71%	80%	69%	77%	64%	80%

may have been searching for HIV/AIDS-related information, and the HOPE Project met their agenda. Once interested, these men may have been more motivated to complete the intervention. Although men who accessed the intervention using dial-up connections were no more likely to drop out than men who used high speed connections, they did report that the modules took too long to load. This combination of findings supports the need for further research on the interaction between program sophistication and time to load that may affect satisfaction.

Overall, the majority of participants found the information presented in the intervention interesting and useful and would recommend it to their friends. Additionally, for men who completed all three modules, the proportions who found the content interesting and useful increased. It is interesting to note that the proportion of men who found the knowledge module interesting was higher for those who participated in it last. This may be because MSM, especially younger men, are overexposed to facts about HIV and the risks of infection. Men who began the intervention with the knowledge module may have found it less interesting because it appeared to them to be just more of the same information they had encountered elsewhere. On the other hand, men who first participated in the motivation and behavior modules may have received sufficiently new and different information that was also sufficiently salient to important areas of their lives that when they finally participated in the knowledge module, they were more interested in learning basic facts about HIV. The question of ordering information needs more study, but the findings do suggest that MSMs' satisfaction with an Internet intervention and willingness to learn basic HIV prevention facts may increase if they first experience prevention activities related to their life goals and sexual behaviors.

The overall external validity of these findings is limited in terms of generalizability across populations or time. Participants were not randomly generated from a list of all possible persons who met study eligibility criteria. Although this limitation is not uncommon for studies involving hidden and elusive populations, the representativeness of the sample in terms of the population of rural MSM is unknown. Furthermore, the findings cannot be generalized to urban MSM or non-MSM population groups. Given the rapid pace of the evolution of Internet technology, and user sophistication, the generalizability of the findings across time may be limited.

Internal validity of this study and Internet studies in general is difficult to assess. An advantage of the Internet

is that participants can respond when and where they like, but this advantage also raises questions as to the veracity of participants' identities and responses. Although there is little reason to assume that participants in this study falsely claimed to be a man who has sex with men living in a rural area, it is possible that some participants may have falsely claimed to possess characteristics that matched study criteria. There is also little reason to believe that participants falsely responded to any of the questionnaire items, as there was little incentive for them to do so. Nevertheless, some participants, for unknown reasons, may have exaggerated their responses, have not taken care in responding, or provided false answers.

Despite these limitations, the finding of this study support the belief that online interventions could be an important means for providing needed HIV knowledge and risk reduction skills training to MSM residing in rural areas. Many rural MSM are geographically and socially isolated with few opportunities to participate in HIV risk reduction interventions (Williams et al., 2005). Even if rural MSM travel to urban areas to participate in interventions, many may find that the content does not address issues of concern to them. The circumstances encountered by rural MSM on a day-to-day basis vary greatly from those faced by MSM in urban areas. Applying existing interventions in rural areas also holds little promise. Many interventions formats, such as face-to-face group encounters, are inappropriate in rural areas, where most MSM live hidden lives. Even if interventions could be adapted for delivery in a rural area, the number of rural MSM living within reasonable travel time to the program may be too small for a program to be cost-effective. Internet-delivered HIV risk reduction interventions targeting rural MSM may provide a way to overcome these difficulties, but more research on the effectiveness and efficacy of online health promotion interventions needs to be conducted.

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Query 1: Does this refer to the CHASE project?  
Was it a project or a study?

Query 2: Is this ongoing?

Query 3: I've changed "waiting group" to "control group." Would you like to reword this explanation?

# Young Citizens as Health Agents: Use of Drama in Promoting Community Efficacy for HIV/AIDS

| Norifumi Kamo, BA, Mary Carlson, PhD, MPA, Robert T. Brennan, EdD, and Felton Earls, MD

A community-based cluster randomized control trial in a medium-sized municipality in Tanzania was designed to increase local competence to control HIV/AIDS through actions initiated by children and adolescents aged 10 to 14 years. Representative groups from the 15 treatment communities reached mutual understanding about their objectives as health agents, prioritized their actions, and skillfully applied community drama to impart knowledge about the social realities and the microbiology of HIV/AIDS. In independently conducted surveys of neighborhood residents, differences were found between adults who did and did not witness the skits in their beliefs about the efficacy of children as HIV/AIDS change agents. (*Am J Public Health*. 2008;98:XXX-XXX. doi:)

## THE CHILD HEALTH AND SOCIAL

Ecology (CHASE) project was initiated in 2003 to evaluate the effectiveness of children and adolescents aged 10 to 14 years ("young adolescents") as primary change agents in a social and behavioral intervention to strengthen community approaches toward reducing risks and stigma of HIV/AIDS. The CHASE team implemented the project in Moshi Municipality, an urbanized area of 143 000 in the Kilimanjaro region of Tanzania with an HIV prevalence rate of 7.3%.<sup>1</sup> The study is a cluster randomized controlled trial in which neighborhood subwards, called *mitaa* (*mitaa* is the singular)—the smallest democratically elected administrative areas of the municipality—are the units of analysis (Figure 1).

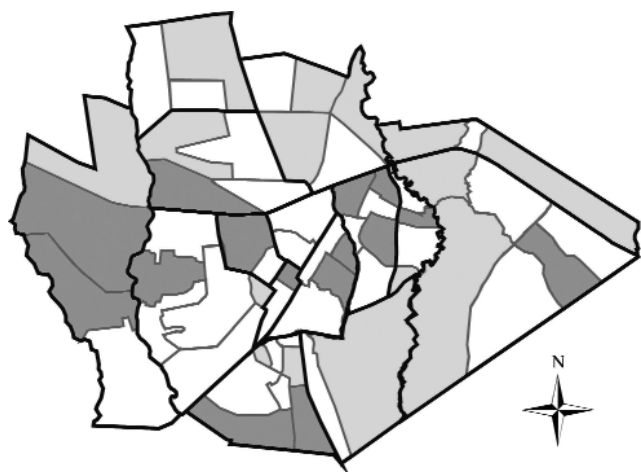
The research components are standardized cross-sectional com-

munity surveys, standardized health assessments, and health promotions intervention. The community surveys asked about demographic characteristics, social perceptions, and health attitudes, with independent samples of adult residents at baseline and 1 month postintervention. The standardized health assessments were individual interviews with young adolescents and their caregivers covering health status, behavioral strengths and problems, young adolescents' knowledge and attitudes about sexuality, parental efficacy, and HIV/AIDS at baseline and 3 months postintervention. The health promotions intervention was a fully scripted yet highly participatory curriculum for young adolescents facilitated by young adults who had recently graduated from secondary school or college to develop deliberative health promotion skills and HIV/AIDS knowledge. We grouped 30 of the 61 *mitaa* in the municipality into 15 pairs matched on significant demographic variables. One *mitaa* per pair was randomly assigned to treatment and the other to control. The independent sample of 24 young adolescents and their caregivers were selected for participation in the trial from the 15 *mitaa* pairs. The control group was designated as a control group (the control group eventually would see the

skits); it is currently in an advanced phase of the intervention.

The intervention, known as the Young Citizens Program, is based on the integration of theories of human capability, communicative action, and social learning.<sup>2-7</sup> The Young Citizens Program aims to develop citizenship and health promotion skills through a series of 4 progressive modules (Box 1). The goal of the intervention is for the young adolescents to plan and implement integrated health promotion activities that educate their communities and encourage them to take action toward HIV/AIDS prevention, testing, and treatment.

We recruited and trained Tanzanian adults (in teams of 1 university graduate and 2 secondary school graduates) to facilitate the groups. Facilitators scheduled weekly 2- to 3-hour afterschool or weekend sessions with each treatment group over a period of 28 weeks. During modules 1 through 3, the teams read, discussed, and rehearsed session scripts before holding sessions at primary school facilities. Teachers were trained to provide independent monitoring of the fidelity to scripts and relative degree of participation. In module 4, the young adolescent groups performed HIV/AIDS skits in public spaces throughout their *mitaa* for maximum impact.



**FIGURE 1—Administrative units of local government, Moshi municipality, Tanzania.**

*Note.* Thick lines surround 15 wards and fine lines surround 61 subwards, or *mitaa* (60 of the 61 are residential). Treatment *mitaa* are more darkly shaded than control *mitaa*. The remaining 31 *mitaa* are not shaded. We matched the 30 randomized controlled trial *mitaa* on selected demographic variables and randomly assigned them to treatment and control arms in such a way that the treatment and control areas were not adjacent.

ous real-life community scenarios that place youths at risk of infection, that encourage voluntary counseling and testing, and that expose the burdensome stigma surrounding HIV/AIDS. (See community performances at <http://www.hms.harvard.edu/chase/projects/tanzania/restricted/multimedia.html>.)

To assess the impact of the Young Citizens Program and its skits, a postintervention community survey conducted in the 30 trial *mitaa* measured attitudes and knowledge about HIV/AIDS and perception of young adolescents' roles as community health promoters. The survey asked respondents if they had witnessed youths acting as HIV/AIDS health educators during the previous 3 months to assess the impact of witnessing the dramas regardless of the residential *mitaa*. We will later report on separately conducted postintervention stan-

dardized assessments that measured health and behavioral changes in the program participants and their caregivers.

## DISCUSSION AND EVALUATION

As noted in Table 1, 40% of community members (17% of the control group and 57% of the treatment group) from the 30 *mitaa* surveyed after the intervention reported having seen groups of youths perform skits about HIV/AIDS. Those who had seen the skits were significantly more likely than those who had not to respond favorably on young adolescents' capability as health promoters in the community. They also were more likely to agree that parents should disclose their HIV status to their children. Survey items about HIV knowledge showed no differences between those

Facilitators recorded the number of community members of all ages viewing the performances.

## 4 DRAMATIZATION OF THE MICROBIOLOGY OF HIV/AIDS

Drama was selected as an innovative and interactive way for young adolescents to acquire knowledge about HIV/AIDS and openly engage community members in public performances and discussions of a complex and stigmatized topic. In Tanzania<sup>8</sup> and elsewhere in Africa<sup>9–10</sup> drama has been an effective participatory method for HIV/AIDS education. The community-based drama in the Young Citizens Program actively engages the community to participate in and ask questions raised by the performances.<sup>11</sup>

Module 3 is a critical transition point from building deliberative skills and research skills in the first 2 modules to understanding the corporal and social context of disease. In module 3, the young adolescents encounter the "microworld" by personifying the roles of HIV and specialized cells of the immune system interacting within the human body. In the 14 weeks of module 4, the 15 groups perform the skits in the community once or twice a week to an average of 50 citizens per session, for a total of more than 10 000 person hours. They depict the microbiology to expose the community to the scientific principles behind HIV transmission, testing, and treatment. "Macroworld" skits precede and follow the microworld skits. In the macroworld skits, the young adolescents develop vari-



**A community performance in Tanzania in which young adolescents depict HIV (in the purple cape) on its knees, T4/CD4 (dressed in white with ropes around the midsection of this HIV-infected character) standing tall, and the newly arrived antiretroviral drugs (costumed in confetti). The drugs have effectively arrested replication of HIV in the T4/CD4 cell.**

who had seen the skits and those who had not. Treatment and control *mitaa* overall were similar on indicators of standard of living, access to information, and civic engagement. Yet when respondents were stratified by self-reported “did not see skit” and “did see skit,” the latter group endorsed civic engagement items more often than did the former group. A multiple linear regression model of the engagement items did not significantly alter the effect size for having seen a skit.

Drama-based interventions by adults can significantly increase the use of voluntary counseling and testing services for HIV/AIDS.<sup>10</sup> Furthermore, primary school students in East Africa have acted as health change agents, effectively imparting knowledge to their communities through participatory approaches.<sup>12</sup> Our findings indicate that young adolescents can effectively open public channels of communication with adults and increase their sensitivity toward the impact of the HIV/AIDS pandemic on children, particularly on issues of stigma and disclosure of HIV status. Witnessing the dramas did not change adults’ information or knowledge about certain aspects of HIV/AIDS. We think the dramatic dialogue suffers from limited projection to large audiences, causing many viewers to be unable to hear the information. The length of exposure of the skits to audiences also varies. We are improving these elements in the current performances in the control *mitaa*.

NEXT STEPS

5 The young adolescents in the intervention groups are joining

Table 1—Selected Items from the Posttreatment Community Survey: Moshi Municipality, Tanzania, 2006

Item	Did Not See Skit	Saw Skit
Respondents (N = 1114), no. (%)	674 (60.5)	440 (39.5)
<ems>Control group (n = 490), no. (%)	407 (83.1)	83 (16.9)
<ems>Treatment group (n = 624), no. (%)	267 (42.8)	357 (57.2)
<b>Indicators of living standards</b>		
<ems>Owns home, %	40.9	39.8
<ems>Water piped into home, %	16.5	17.0
<ems>Electricity in home, %	57.7	56.6
<ems>Owns a radio, %	90.8	91.6
<ems>Reads newspaper, %	75.8	80.2
<ems>Listens to radio, %	96.6	96.4
<ems>Regularly employed, %	27.9	25.5
<ems>Years lived in mtaa, mean (SD)	10.57 (11.38)	10.39 (10.02)
<b>Indicators of civic engagement, %</b>		
<ems>Knows mtaa leader	43.1	44.9
<ems>Plans to move out of mtaa	11.9	10.2
<ems>Knows most families in mtaa	71.6	80.2**
<ems>Very active in mtaa	37.5	43.6*
<b>Opinions about children and HIV/AIDS</b>		
<ems>Children can teach adults some scientific facts about HIV/AIDS, mean (SD) <sup>a</sup>	2.77 (0.90)	2.95 (0.88)***
<ems>Children in this neighborhood can decrease discrimination against HIV-positive persons, mean (SD) <sup>a</sup>	2.51, 0.87	2.88, 0.80***
<ems>Children can help fight crime, mean (SD) <sup>a</sup>	2.73, 0.87	3.06, 0.81***
<ems>Children and adults can converse freely and openly about HIV/AIDS, mean (SD) <sup>a</sup>	2.81, 0.85	2.96, 0.82***
<ems>Parents should tell children about their HIV status, %	73.8	78.6*
<ems>Efforts should be made to keep AIDS orphans in the community	39.5	38.1
<ems>Adult leaders should get tested for HIV, mean (SD) <sup>a</sup>	3.27 (0.92)	3.25 (0.95)
<b>HIV Knowledge</b>		
<ems>HIV is getting worse in neighborhood, mean (SD) <sup>a</sup>	3.20 (0.90)	3.00 (0.97)***
<ems>Leaders are not doing enough, mean (SD) <sup>a</sup>	2.84, 1.13	2.83, 1.13
<ems>Knows where to get tested in the neighborhood, %	17.4	16.5
<ems>Knows that blood test looks for antibodies, %	17.8	18.3
<ems>Knows that drugs cannot cure HIV, %	98.1	97.0

<sup>a</sup>1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.  
\*P < .10; \*\*P < .05; \*\*\*P < .01.

with facilitators in the current activities of the control groups in modules 3–4. *Mtaa* leaders of most of the 30 trial *mitaa* have endorsed incorporation of the Young Citizens Programs as standing committees within the democratic structure of the *mitaa*. To date, 7 treatment adolescent groups have mobilized their *mitaa* through public announcements and performances,

resulting in more than 600 neighbors (aged 16–86 years) across the communities volunteering for counseling and HIV testing by counselors over the course of 3 weekends. The ultimate goal of the Young Citizens Program is to promote a range of skills and behaviors for HIV community competence in adolescents, their families, and their community members. In the con-

text of the HIV/AIDS epidemic, children and adolescents have the most to gain in achieving HIV-competent communities by taking action to prevent their own orphanhood because of AIDS and to promote their own sexual health. ■

About the Authors

Norifumi Kamo is with Harvard Medical School, Cambridge, Mass. M. Carlson is with the Department of Psychiatry, Har-

## STRUCTURE OF INTERVENTION MODULES 1–4

- Module 1 aims to promote the formation of group identity and trust among adolescents and introduce concepts of deliberation, critical thinking, assuming the perspectives of others, and preference ranking to reach mutual understanding about health issues. (5 sessions)
- Module 2 educates adolescents about their potential for active citizenship by introducing their *mtaa* leadership and allowing them to acquire skill and confidence in observation, mapping, and interview techniques to plan and organize shared social action to build HIV/AIDS competence in their communities. (4 sessions)
- Module 3 introduces adolescents to detailed biological, behavioral, and social knowledge about social transmission of disease, especially malaria and HIV/AIDS. Through deliberation and dramatization, the adolescents learn the microbiology of these highly prevalent diseases and the social circumstances leading to acquisition, diagnosis, and treatment. Adolescents receive health promotion certificates following successful learning and performing of dramatic sequences. (5 weeks)
- Module 4 represents an extended period of interaction with the community, through scheduled and facilitated HIV/AIDS weekly or semiweekly performances in their *mtaa*. As the adolescents become increasingly skilled in presenting the social context and microbiology of HIV/AIDS in public spaces, fellow citizens engage in active public dialogue about prevention strategies, stigma reduction, and family issues. (14 sessions)

vard Medical School, Cambridge. R. T. Brennan and F. Earls are with the Department of Social Medicine, Harvard Medical School, Cambridge.

Requests for reprints should be sent to Felton Earls, MD, CHASE: Child Health and Social Ecology, Harvard Medical School, 2 Arrow St, Suite 400, Cambridge, MA 02138 (e-mail: felton\_earls@hms.harvard.edu).

### Contributors

N. Kamo and M. Carlson conceptualized the module 3 microbiology skits. N. Kamo is responsible for the maps (Figure 1) and photographs and the initial descriptions of module 3 sessions. M. Carlson designed protocols and schedules for training for modules 1–3 and, along with F. Earls, monitored the implementation of training for modules 1–3 and community performances. R. T. Brennan contributed to the neighborhood selection and was responsible for the data analyses and tables. F. Earls designed the structure of the randomized control trial, the community surveys and health assessments, and led the interpretation of findings and preparation of the article.

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### Human Participant Protection

This study was approved by the Human Studies Committee at Harvard Medical School, the Ethics Review Committee at Kilimanjaro Christian Medical College, the Tanzanian Commission on Science and Technology, and the National Institute of Medical Research (Tanzania). A data safety monitoring board oversaw all phases of the study.

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# **HIV/AIDS among Conflict-affected and Displaced Populations: Dispelling Myths and Taking Action**

**Paul B. Spiegel**

**United Nations High Commissioner for Refugees**

*Conflict, displacement, food insecurity and poverty make affected populations more vulnerable to HIV transmission. However, the common assumption that this vulnerability necessarily translates into more HIV infections and consequently fuels the HIV/AIDS epidemic is not supported by data. Whether or not conflict and displacement affect HIV transmission depends upon numerous competing and interacting factors. This paper explores and explains the epidemiology of HIV/AIDS in conflict and addresses the unique characteristics that must be addressed when planning and implementing HIV/AIDS interventions among populations affected by conflict as compared with those in resource-poor settings. These include targeting at-risk groups, protection, programming strategies, coordination and integration and monitoring and evaluation. Areas for future HIV/AIDS operational research in conflict are discussed.*

**Keywords:** HIV/AIDS, conflict, displaced persons, refugees.

## **Introduction**

Conflict, displacement, food insecurity and poverty have the potential to make affected populations more vulnerable to human immunodeficiency virus (HIV) transmission. The United Nations General Assembly Special Session (UNGASS) on HIV/AIDS passed the Declaration of Commitment on HIV/AIDS in June 2001, stating that 'populations destabilized by armed conflict ... including refugees, internally displaced persons and in particular, women and children, are at increased risk of exposure to HIV infection' (UN General Assembly, 2001). However, the common assumption that this vulnerability necessarily translates into more HIV infections and consequently fuels the HIV/AIDS epidemic is not supported by data. Whether or not conflict and displacement affect HIV transmission depends upon numerous competing and interacting factors.

Since the end of the cold war, armed conflicts, defined as open armed clashes between two or more centrally organised parties with continuity between the clashes in disputes about power over government and territory (Smith, 2000), have changed from being primarily interstate to intrastate. Of the 118 armed conflicts in over 80 states that occurred worldwide from 1990 to 1999, 10 (9 per cent) could be defined as interstate conflicts while 100 (85 per cent) were primarily or exclusively internal conflicts. The war in the Democratic Republic of Congo (DRC) was the only multi-state armed conflict in the 1990s. This increase in intrastate armed conflict brings new challenges

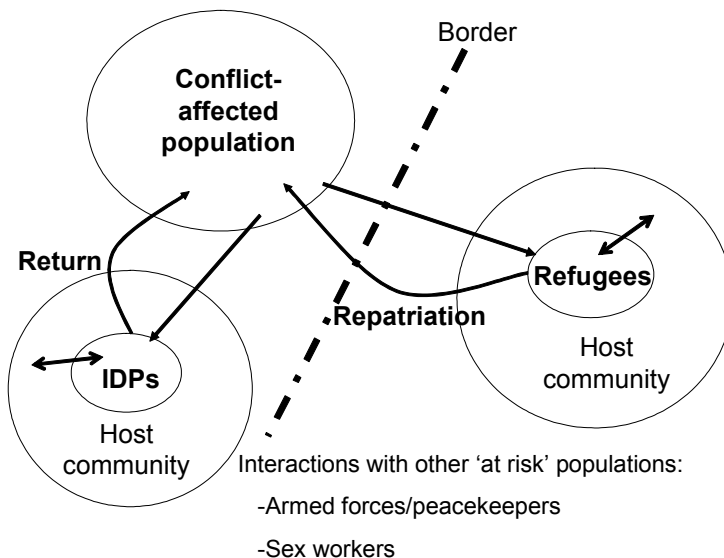
to the international community as issues of sovereignty may reduce access to affected populations (for example, Darfur, Chechnya).

Hundreds of millions of people worldwide are currently affected by armed conflict, both directly and indirectly. Conflict sends people fleeing to seek refuge either within their own country as internally displaced persons (IDPs) or across an international border to become refugees. By the end of 2002, there were approximately 40 million displaced people globally: 15 million refugees (UNHCR, 2003a; UNRWA, 2003) and 25 million IDPs (Global IDP Project, 2003). Many others are affected by the devastating consequences of conflict while remaining in their homes; their numbers are not known.

Sub-Saharan Africa is disproportionately affected by the HIV/AIDS epidemic, poverty and armed conflict. The epidemiology of HIV/AIDS during conflict is complicated, but conflict has been shown to be associated with several factors that render affected populations more vulnerable to HIV transmission, as described below. In addition, HIV/AIDS may reduce the coping mechanisms and resilience of populations affected by conflicts. While populations affected by conflict do not necessarily have high HIV-prevalence rates, they must be included in any successful effort to combat the epidemic (Lubbers, 2003). Forced-migrant populations have complex interactions with various communities and high-risk groups with whom they come into contact (see Figure 1).

## Epidemiology of HIV/AIDS and conflict

The complex relationship between HIV/AIDS and conflict is still not well documented. Many recent publications have asserted that conflict is directly associated with an increase in HIV/AIDS transmission (Hooper, 1999; McGinn et al., 2001; US Institute



**Figure 1** Possible forced migration in conflict situations

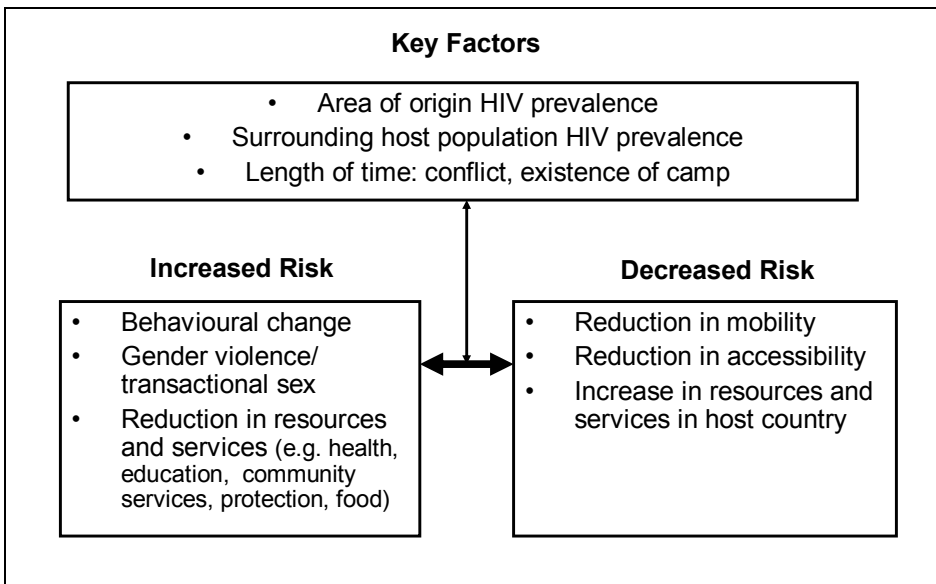
of Peace, 2001; Elbe, 2002; Save the Children, 2002; Pharoah and Schonteich, 2003). One paper claimed that women are six times more likely to contract HIV in a refugee camp than in the general population outside of the camp (Gardiner, 2001). However, when one examines available data, the picture is neither simple nor uniform. It must be clearly recognised at the outset that collecting data during and after conflict is difficult and fraught with biases (Salama and Dondero, 2001; Spiegel et al., 2001). Therefore, analysis and interpretation of these data must be undertaken carefully and biases clearly stated.

Factors that increase conflict-affected and forced-migrant populations' vulnerability are well documented (Khaw et al., 2000; Hankins et al., 2002; International Rescue Committee, 2002; Save the Children, 2002; Smith, 2002). These include breakdown in social structures, lack of income and basic needs, sexual violence and abuse, increased drug use and lack of health infrastructure and education. However, factors that may decrease HIV transmission in such situations are rarely considered. These include reduced mobility and accessibility (for example, destroyed infrastructure reducing travel to high-prevalence urban areas, displacement to remote locations and surviving in the 'bush') and in the case of many refugee camps, improved protection, health, education and social services. The ultimate influence of these factors is dependent on the HIV prevalence among the affected community pre-conflict, the HIV prevalence among the surrounding community for those who have been displaced, exposure to violence during conflict and flight and the level of interaction between the two communities. Complicating these factors are the duration of the conflict and the length of time the displaced population has resided in a particular camp (see Figure 2). The former may keep people isolated and inaccessible for years while the latter, depending upon the camp's location, may have the same result. Furthermore, long-term post-emergency refugee camps generally have better preventive and curative health services than do the surrounding local populations (Spiegel et al., 2002).

An analysis of available data has made it possible to describe several different scenarios in which the relationship between HIV/AIDS and conflict presents different epidemiological patterns.

### ***Prolonged conflict retarding the progression of HIV***

Population-based HIV behavioural and biological surveillance surveys from the US Centers for Disease Control and Prevention have shown lower than expected HIV-prevalence rates in Sierra Leone in 2002 (0.9 per cent in accessible areas covering 79 per cent of the adult population) and in southern Sudan in 2003 (2.3 per cent among pregnant women in antenatal clinics in both Yei town and surrounding villages with a population of approximately 100,000 and in Rumbek town with approximately 25,000 population (see Figure 3; Kaiser et al., 2002, 2003). These HIV-prevalence rates are lower than those in all of the respective surrounding countries, many of which have not been in conflict. Prior to these studies, both Sierra Leone and southern Sudan had been in protracted conflict situations for many years. Parts of their populations were isolated for long periods of time as accessibility and mobility were severely limited. Low HIV-prevalence rates relative to surrounding countries have also been reported in Angola, another country that endured decades of civil war (Spiegel and De Jong, 2003).

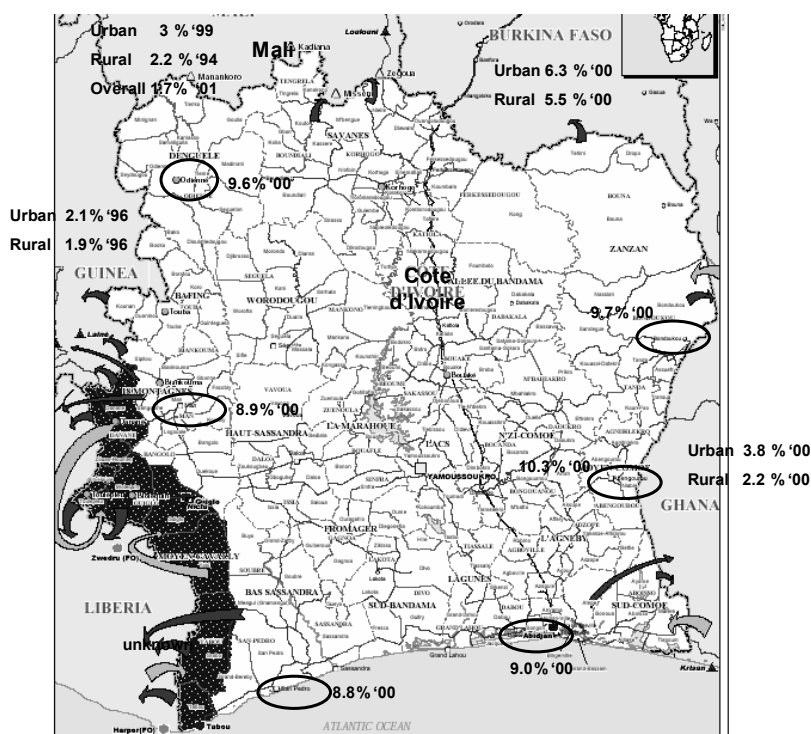


**Figure 2** HIV risk factors for conflict and displaced persons camps

Although sexual violence was reportedly high throughout all three wars, especially in Sierra Leone, the relatively low HIV prevalence among the pre-war populations and possibly the paramilitaries may not have been sufficient to accelerate HIV infection in the population. Despite the increased risk of HIV transmission due to rape as compared to consensual intercourse (Trisdale, 2003), perpetrators must be HIV positive to transmit the virus; the likelihood of this is low in a low-prevalence population. Furthermore, the number of people raped who become HIV positive must be compared to the total number of people in the country to estimate how these horrific acts affect the overall HIV incidence and prevalence.

### ***Conflict increasing the progression of HIV***

In contrast to Sierra Leone, southern Sudan and Angola, increases in HIV infection among the general population in eastern DRC (HIV prevalence is estimated to be between 15 and 24 per cent), primarily attributed to extensive sexual violence by paramilitary groups as well as foreign militaries (from, for example, Rwanda, Uganda and Zimbabwe) and a breakdown of health services, have been reported (Save the Children, 2001; Wax, 2003). However, many of the reports are anecdotal and further studies are needed to confirm these results and assess trends. In another scenario, there is concern that if the simmering instability in the Ivory Coast explodes and a large refugee crisis ensues, the HIV-infection rates may increase in the surrounding host countries. Ivory Coast had known stability and relative prosperity in West Africa for decades. Possibly because of these factors, it also has a higher HIV prevalence than do the countries surrounding it (Ghana, Mali, Burkina Faso and Guinea; the prevalence of HIV in Liberia is not known; see Figure 4) (UNAIDS, 2002).



**Figure 3** Scenario where conflict could possibly increase HIV progression

### *HIV in refugee camp situations*

A common misperception is that refugees bring HIV with them into host countries thereby spreading the infection to the surrounding host population; this is often not the case. On the whole, refugees migrate from countries in conflict with lower HIV prevalence to more stable host countries with higher HIV prevalence (see Figure 5). However, as seen in the two scenarios discussed above, it is contextual and each situation must be analysed independently and conclusions drawn accordingly.

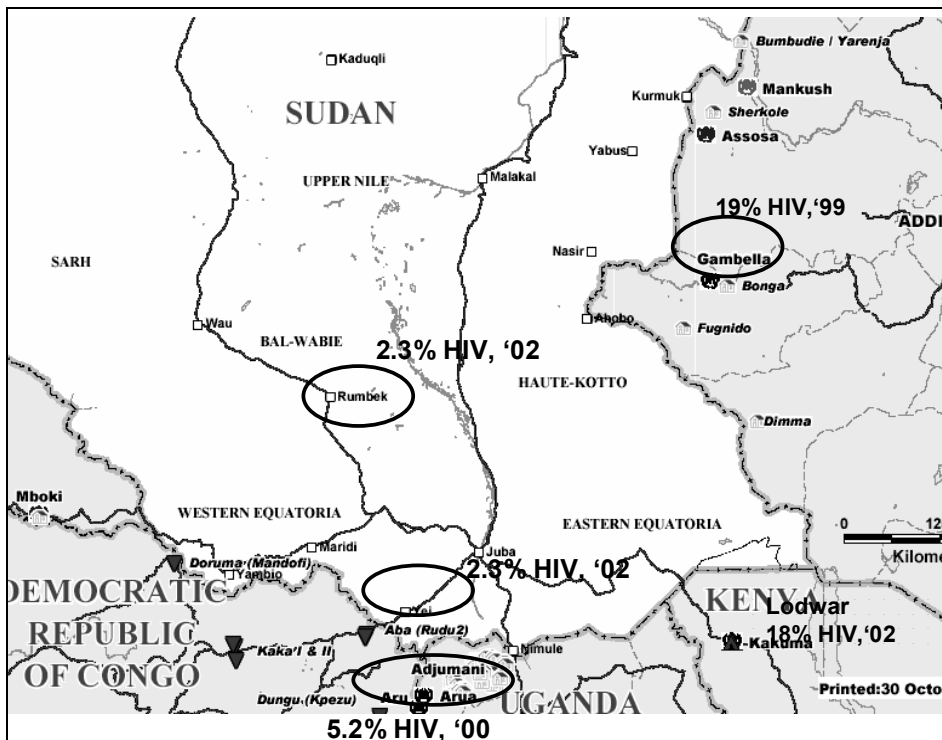
Since 2002, UNHCR and its partners have conducted HIV sentinel surveillance among pregnant women in more than 20 camps housing some 800,000 refugees in Kenya, Rwanda, Sudan and Tanzania. Refugees in three of the four countries (Kenya, Rwanda and Tanzania) examined had lower HIV-prevalence rates than did the surrounding host communities. Only in Sudan did the displaced and host communities have comparable rates (Lubbers, 2003). Furthermore, it is important to recognise the differences between refugees' HIV-prevalence rates and those in their countries of origin, as Figure 6 shows, especially when there is contact between the two communities or when repatriation occurs. In all situations, tracking HIV-prevalence trends among refugees and surrounding host populations is essential when examining the long-term effectiveness of HIV/AIDS programmes.

## The unique situation of refugees

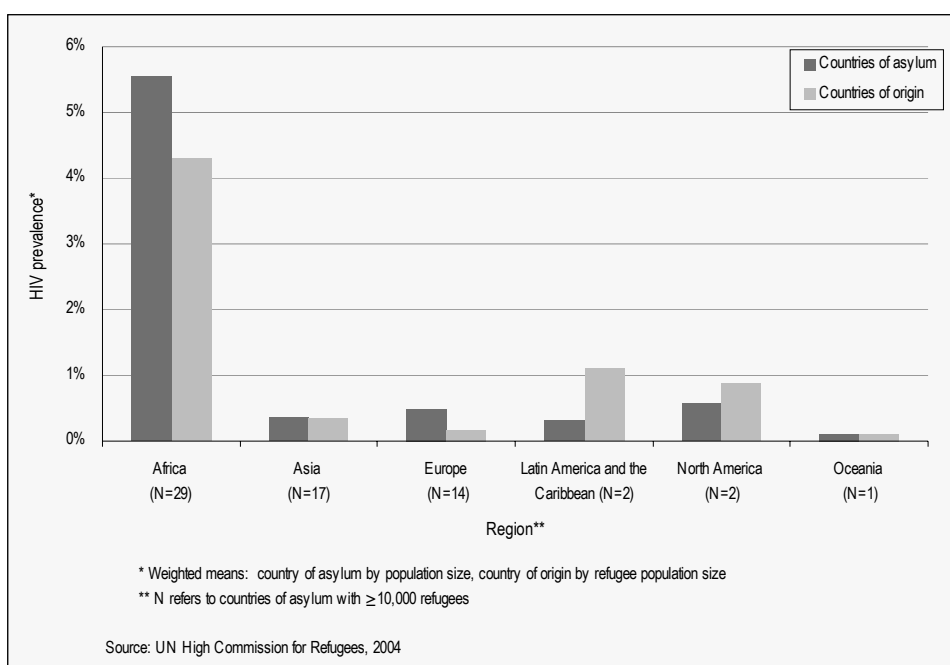
The declaration of the UN General Assembly Special Session on HIV/AIDS called upon:

all United Nations agencies, regional and international organisations, as well as non-governmental organisations (NGOs) involved with the provision and delivery of international assistance to countries and regions affected by conflicts ... to incorporate as a matter of emergency HIV/AIDS prevention, care and awareness elements into their plans and programmes (UN General Assembly, 2001).

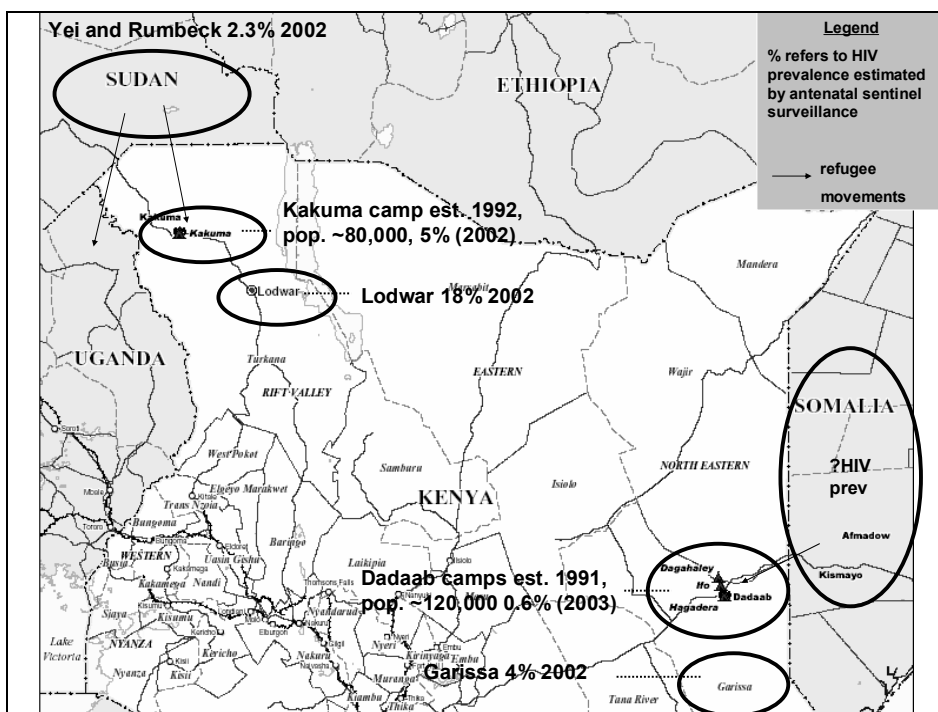
Countries of asylum are ultimately responsible for the protection and well-being of people living on their soil, including refugees. However, refugees have been consistently excluded from many host countries' HIV/AIDS National Strategic Plans and their needs have not been addressed in proposals submitted to major donors (Spiegel and Nankoe, 2004; Lubbers, 2003). Their consistent exclusion is not only discriminatory but also undermines effective HIV/AIDS prevention and care efforts since refugees and local populations interact daily. Furthermore, refugees are often hosted in remote and inaccessible areas, far from cities where HIV/AIDS programmes are most developed. Improving HIV/AIDS interventions in an integrated manner for the refugees and surrounding host population will invariably improve services for both communities.



**Figure 4** Scenario where conflict possibly retarded HIV progression



**Figure 5** HIV prevalence among refugees, surrounding communities in Kenya and their country of origin



**Figure 6** HIV prevalence by asylum country and country of origin by region, 2003

Of the 29 countries in Africa that host more than 10,000 refugees, UNHCR has been able to review 22 (76 per cent) National Strategic Plans (NSPs). While 14 (64 per cent) mention refugees, eight (36 per cent) fail to do so. Of those that do mention refugees, 10 (71 per cent) NSPs mention specific activities for refugees, while four (29 per cent) NSPs do not. The Global Fund for AIDS, Tuberculosis and Malaria (GFATM) and the Multi-Country HIV/AIDS Programmes (MAP) of the World Bank have funded HIV/AIDS projects in 25 (86 per cent) of these 29 refugee-hosting African states. Only a minority of proposals include refugees; in the 23 countries with approved GFATM proposals containing an HIV component only five (22 per cent) included activities for refugees while eight (55 per cent) of the 15 approved World Bank MAP projects included refugee-specific components (Spiegel and Nankoe, 2004).

The situation for refugees not living in camps (for example, urban refugees) as well as for IDPs is unknown but is likely to be worse than for refugees living in camps. Urban refugees are often undocumented, do not receive direct material support from UNHCR and rely upon existing host government services that may discriminate against refugees (Bruns and Spiegel, 2003a; Spiegel and Qassim, 2003). IDPs are often excluded from their governments' HIV/AIDS programmes and do not have a specialised agency to advocate for them and provide programmes to cover their needs, as the refugees have in UNHCR (Salama et al., 2001).

These conditions must be addressed when planning and implementing HIV/AIDS programmes among populations affected by conflict compared to those in resource-poor settings. The concerns include at-risk groups; protection needs; programming strategies; coordination and integration; and monitoring, evaluation and the need for future HIV/AIDS operational research in conflict.

## **At-risk groups**

### **Women**

In conflict and displacement, women are at increased risk of sexual violence and abuse (Amowitz et al., 2002). Food insecurity, hunger and unequal distribution of material goods put women and girls at risk of exploitation and abuse, including coercion into transactional sex for survival. Displacement may cause families and communities to split apart, destroying community structures and support systems that traditionally serve to protect women and children. This breakdown of communities may also lead men and women to engage in risky sexual behaviour. Displaced women often suddenly find themselves as heads of household, responsible for providing for their families in addition to caring for their children as male family members are more likely to be involved in the conflict itself. Targeted HIV/AIDS interventions that protect, train and educate women are essential.

### **Children**

In areas with high HIV prevalence and conflict, the vulnerability of children increases as can the number of children orphaned. Early efforts to identify vulnerable children, initiate family tracing and implement community-based programmes that provide care and support for orphans and other vulnerable children must be encouraged.

Educational opportunities may be limited in conflict situations, and thus, basic HIV-prevention messages targeting children must be a priority intervention. Displaced children, particularly orphans and children made vulnerable by HIV/AIDS, are at increased risk for many types of abuse and exploitation and may be coerced into transactional sex for survival. Additionally, the abusive use of children as soldiers and the extreme actions they are led to commit put this group at increased risk of contracting HIV.

### ***Armed personnel***

The presence of armed personnel may be a significant risk factor for the transmission of sexually transmitted infections (STIs), including HIV, among conflict-affected and displaced populations (Smallman-Raynor and Cliff, 1991; Hooper, 1999; Hankins et al., 2002). HIV-prevalence rates among military personnel in some countries have been documented to be two to five times greater than among their respective civilian populations (McGinn et al., 2001; Smith, 2002). Furthermore, many of the intra-state conflicts have undisciplined, irregular armies and militias. Finally, there is a risk that UN peacekeepers coming from countries with high HIV prevalence may also transmit HIV to conflict-affected and displaced populations because of their access to civilians, money and power. Conversely, those from low HIV-prevalence countries may be at increased risk of contracting the virus. HIV/AIDS prevention must be an important training component among militaries, demilitarisation efforts and UN peacekeepers.

### ***Humanitarian workers***

Humanitarian staff working in conflict situations often find themselves in isolated, unstable and unfamiliar surroundings. They may face increased occupational exposure to HIV in the health-care setting as well as increased exposure to sexual violence. They may take sexual risks which they might normally avoid. Furthermore, humanitarian workers are placed in a position of power in relation to refugees and sexual abuse instigated by the workers themselves has occurred (UN General Assembly, 2002). Humanitarian workers should receive training in and follow a code of conduct (Inter-Agency Standing Committee on Sexual Exploitation and Abuse in Humanitarian Crises, 2003; International Federation of Red Cross and Crescent Societies, 2003; UNHCR, 2003) as well as the humanitarian charter (Steering Committee for Humanitarian Response, 2004). As with UN peacekeepers and other military forces, adequate education and training must be provided to this group before their missions, and counselling and condoms should be available throughout their time in the field. Universal precautions and disposal of medical waste in a safe manner must be followed scrupulously.

## **Protection**

The link between the protection of human rights and effective HIV/AIDS programmes is apparent. People will not seek HIV-related counselling, testing, treatment and care when lack of confidentiality, discrimination, denial of access to the asylum procedure, threat of refoulement, restrictions to freedom of movement or other negative

consequences (real or perceived) exist. For these reasons, an essential component of any HIV/AIDS strategy is the facilitation and creation of a legal and ethical environment that aids in protecting human rights. Situations of conflict and displaced people are often more prone to human rights abuses, including sexual violence (Amowitz et al., 2002; Amnesty International, 2004; Human Rights Watch, 2003). Therefore, specific protection policies and programmes dealing with HIV/AIDS must be implemented in conflict-affected settings where human rights are frequently violated. Seven essential protection issues needed include:

- No denial of access to asylum procedure, refoulement or denial of right to return on the basis of HIV status.
- No mandatory HIV testing of displaced persons under any circumstances.
- When required by countries in which refugees have requested resettlement, HIV testing conducted in accordance with established standards (i.e., accompanied by pre- and post-test counselling and appropriate referral for follow-up support and services).
- Effective procedures in place to maintain confidentiality of individuals' HIV status.
- Informed consent by clients for disclosure of their HIV status if such disclosure is necessary to obtain community or protection services.
- Policies, laws and programmes in place to combat stigma and discrimination against people living with HIV/AIDS.
- No laws or regulations prohibiting displaced persons access to public sector HIV/AIDS programmes.

## **HIV/AIDS programmes**

In the past, HIV/AIDS interventions were generally not included in humanitarian organisations' immediate response to conflict and emergencies. It was considered a developmental and health issue and not an immediate life-threatening disease such as malaria or cholera. However, thinking has evolved and it is now generally accepted that HIV/AIDS interventions must be multisectoral, begin at the onset of a conflict or emergency and be continued through every stage (Inter-Agency Standing Committee, 2003; Steering Committee for Humanitarian Response, 2004). The Inter-Agency Standing Committee (IASC) reference group for HIV/AIDS in emergency settings recently completed guidelines that provide a step-wise approach for implementing HIV/AIDS interventions (IASC, 2003). They include response in a range of areas including behaviour-change communication and HIV/AIDS in the workplace<sup>1</sup> for: first, emergency preparedness; second, minimum response; and third, comprehensive response. A multisectoral response with emphasis on coordination was adopted. In 2004, the Sphere Project, which includes a humanitarian charter and minimum standards for disaster response, revised its manual to include HIV/AIDS as a cross-cutting issue (Steering Committee for Humanitarian Response, 2004).

A structured approach to the assessment and planning of HIV/AIDS programmes is needed to ensure that well-planned, multisectoral and integrated HIV/AIDS interventions are implemented in an appropriate manner. The IASC matrix discussed above is one such structured approach (IASC, 2003). UNHCR has developed a framework for assessment of and planning for HIV/AIDS in conflict and

displaced person situations (see Box 1; Bruns and Spiegel, 2003b). Like the IASC guidelines, the UNHCR framework ensures that the most important HIV/AIDS interventions are assessed and allows for the evaluation of programmes over time as well as for comparison across different programmes. This framework has been used by UNHCR to undertake HIV/AIDS assessment and planning missions in over 15 countries throughout Africa.

As stated in the IASC guidelines, minimum essential HIV/AIDS interventions must be provided before comprehensive activities are initiated. This focused, hierarchal approach is essential given the security and resource constraints in, and the remoteness of, most conflict and displaced persons situations. Essential services (for example, including but not limited to, safe blood supply, universal precautions, treatment for STIs, condom distribution and information/education/communication materials) must be made available before more complicated and resource-intensive interventions, such as the prevention of mother-to-child transmission (PMTCT) or long-term anti-retroviral therapy (ART), are provided.

However, comprehensive programmes that link HIV/AIDS prevention with care and treatment programmes are essential to combat the epidemic (Mukherjee et al., 2003) and conflict-affected and displaced populations should not be excluded from these approaches once the minimum HIV/AIDS activities have been implemented. Interventions ranging from voluntary counselling and testing (VCT), PMTCT, behavioural and sentinel surveillance, population-based surveys and ART have been implemented among refugee populations in the past few years (Kaiser et al., 2002; Spiegel, 2002a, 2002b; Kaiser et al., 2003; Médecins Sans Frontières, 2003).

The issue of ART is more complex in humanitarian settings than in typical resource-poor settings due to migration and the consequent difficulties with access and follow-up. Although there are some similarities to the treatment of tuberculosis (TB) in such situations, such as the need for a stable security environment, population in situ for at least six months and sufficient funds (WHO and UNHCR, 1997), there are also distinct differences in delivering ART. These include more complicated diagnosis and follow-up, life-long treatment and significantly more funding. In situations of repatriation, people undergoing TB treatment and their families are recommended to finish their treatment before returning home. This is not applicable to HIV/AIDS as treatment is life-long and numerous problems may arise, including the possibility of increased drug resistance, if refugees on ART repatriate to areas where ART is not available. Pilot projects are necessary to examine modalities of drug distribution and other logistical factors, laboratory, compliance, surveillance, side-effects and resistance. A community-based infrastructure adapted to the specific situation should be employed when providing ART.

HIV/AIDS programming for refugees presents unique challenges. UNHCR's HIV/AIDS and Refugees Strategic Plan for 2002–04 requires '...UNHCR to work with governments through their National AIDS Control Programmes' (2002). Together with its implementing partners, UNHCR follows the existing national protocols and guidelines of the host country. However, at times, such protocols and guidelines do not exist, are outdated or are not being implemented in the remote areas in which refugees and displaced persons are often situated. Different languages and cultures require a modification of educational materials and other interventions to suit the populations that are mixed together in conflict settings. The interaction between displaced people and the surrounding population requires strong coordination and cooperation among the host government, international and local organisations and the communities themselves.

## **Box 1 Conflict and Displaced Persons Assessment and Planning Tool Framework**

### **1. Policies**

Existing national AIDS control policy, guidelines and manuals.

Displaced persons specifically targeted as a vulnerable population under National AIDS Control Strategic Plans.

### **2. Protection**

No mandatory HIV testing of displaced persons under any circumstances.

No denial of access to asylum procedure, refoulement or denial of right to return on basis of HIV status.

When required by resettlement countries, HIV testing conducted in accordance with established standards (i.e., accompanied by pre- and post-test counselling and appropriate referral for follow-up support and services).

No laws or regulations prohibiting refugee access to public sector HIV/AIDS programmes in countries of asylum.

Specific programmes in place to combat stigma and discrimination against people living with HIV/AIDS.

Programmes in place to prevent and respond to sexual violence.\*

### **3. Coordination and supervision**

Regular meetings among various partners in the field and in capital.

HIV/AIDS programmes specifically included in planning, implementation, monitoring and evaluation stages of programme cycle.

Regular attendance at meetings of UN Theme Group on HIV/AIDS and associated Technical Working Groups at capital level.

### **4. Prevention**

Safe blood supply.

Universal precautions.

Condom promotion and distribution.

Behavioural change and communication (including development of educational/awareness materials in appropriate languages; programmes for in-school and out-of-school youth; peer education; youth centres; sports/drama groups; programmes aimed at reducing teen-age pregnancy and combating sexual violence).

Voluntary counselling and testing.\*

Prevention of mother-to-child transmission.

Prophylaxis of opportunistic infections.

Post-exposure prophylaxis.

### **5. Care, support and treatment**

Sexually transmitted infections.\*

Opportunistic infections, including tuberculosis.

Nutrition and food.\*

Home-based care.

People living with HIV/AIDS.

Orphans and child-headed households.  
Anti-retroviral therapy.

#### **6. Surveillance, monitoring and evaluation**

Behavioural surveillance surveys.  
AIDS clinical case and mortality reporting.  
Blood donors.  
Syphilis among antenatal-clinic attendees.  
Sexually transmitted infections (by syndrome).  
Condom distribution.  
Opportunistic infections, including incidence of pulmonary tuberculosis.  
HIV sentinel surveillance among pregnant women and high-risk groups such as those attending sexually transmitted infection clinics.  
Voluntary counselling and testing.  
Prevention of mother-to-child transmission.  
Sexual violence.  
Post-exposure prophylaxis.

\* Activity has both prevention as well as care and treatment components

*Source:* Bruns and Spiegel (2003b).

The global community must adopt a broader and more innovative approach to fighting the HIV/AIDS epidemic across international boundaries. Recent conflicts in Ivory Coast, Liberia and DRC, for example, saw armed military groups, refugees and economic migrants moving across many borders in West and Central Africa. Individual country plans are not enough; subregional approaches must be undertaken in conflict and displaced persons situations to combat the epidemic effectively. Some subregional initiatives, such as the Great Lakes Initiative on AIDS (UNAIDS, 2003a), the Oubangui-Chari HIV/AIDS Initiative and the Mano River Union Initiative on HIV/AIDS (UNAIDS, 2003b) exist but need more international support and government cooperation. The current repatriation of Angolan refugees from numerous countries including Namibia, Zambia and DRC to Angola has shown the importance of subregional programming (Bruns and Spiegel, 2003; Spiegel and De Jong, 2003).

## **Coordination and integration**

Coordination and integration are key components for all HIV/AIDS strategies, policies and programmes. They are essential for HIV/AIDS in conflict and displaced settings given the multisectoral and cross-border programming needs. In these settings, numerous disparate groups must come together to improve their communication and coordination and to integrate their activities. This must occur at all levels: at the international level (for example, UN System Strategic Plan for HIV/AIDS); at the regional/subregional level (UNAIDS Inter-country Teams); at the country level (UN Theme Group on HIV/AIDS and national AIDS control programmes); and at the field level (multisectoral HIV/AIDS committees that include service providers, political and religious leaders, women's group representatives, students, youth, teachers, NGO representatives and representatives from the host community).

The development of coordinated, integrated HIV/AIDS strategies would be given an enormous boost if donor governments would permit their funds to be used more flexibly to provide services to both displaced persons and local communities through both humanitarian and development organisations. This is currently being done in Uganda where a self-reliance strategy includes delivery of numerous HIV/AIDS activities, including VCT, for refugees and local populations.

## **Assessment, monitoring, evaluation and operational research**

Despite the difficulties of undertaking assessments, monitoring and evaluation as well as operational research in conflict and displaced persons settings, it is imperative to do so. Recent work by UNHCR, Save the Children, the International Rescue Committee and the Centers for Disease Control and Prevention, among other organisations, shows that it is possible to carry out HIV sentinel surveillance surveys, HIV population-based surveys and HIV behavioural surveillance surveys in conflict and displaced persons settings (Save the Children, 2001; Kaiser et al., 2002; Spiegel, 2002b; Kaiser et al., 2003). Although outside technical expertise may be required for many organisations to undertake such activities, behavioural and serological surveillance have allowed organisations to prioritise and target their programmes, provide a baseline and trends to evaluate their effectiveness and act as an advocacy tool. Finally, such data have allowed us to understand better the complex interactions among conflict, displacement and the transmission of HIV that will ultimately allow us to combat the epidemic more effectively.

Recently UNHCR, the World Food Programme (WFP) and Unicef have undertaken a joint HIV/AIDS, food and nutrition operational research project in Zambia and Uganda to explore options for the effective use of food aid to improve HIV/AIDS prevention, care and treatment in refugee camp settings. There are numerous other areas of research requiring examination, including the effects of interactions among armed groups, conflict-affected populations (displaced and non-displaced populations) and surrounding communities on intra-country and inter-country HIV transmission; methods to improve integration of HIV/AIDS programmes in displaced and non-displaced populations; policies and programmes to reduce HIV/AIDS stigma and discrimination towards displaced populations from local communities and governments; development of innovative prevention, care and support strategies that utilise the unique context of conflict and disaster-affected settings (including food distribution, reception centres, censuses); and provision and compliance of ART to conflict-affected populations including post-exposure prophylaxis to refugees following sexual violence or occupational exposure, PMTCT and long-term ART.

## **Conclusion**

An examination of new epidemiologic data sheds light on the complex relationship between HIV and conflict. It is a misperception that refugees' HIV rates are always higher than those in their host countries; in fact, evidence suggests that the opposite is more likely, but it is always context-specific (see Figure 6).

The well-documented factors that increase the vulnerability to HIV of conflict-affected and forced migrant populations must be considered alongside other key factors, such as reduced mobility and accessibility of the population, that may work to decrease HIV transmission. HIV-prevalence levels among the forced migrant and surrounding communities also influence HIV transmission as do the levels of interaction between the two communities and their exposure to violence. Collection and examination of data have permitted documentation of situations in which prolonged conflict has retarded the progression of HIV (for example, Sierra Leone, southern Sudan and Angola) and in which conflict may have increased the progression of HIV (for example, eastern Congo). The context-specific circumstances in which forced migrants live must be better understood and used to guide HIV/AIDS programmes.

Collecting data in harsh forced-migration settings is difficult but critical, and has been successfully carried out as discussed above. Despite the similar difficulties in providing HIV/AIDS interventions in such settings, it is imperative that comprehensive programmes linking HIV/AIDS prevention with care and treatment be made available to conflict-affected populations. Guidelines and frameworks have been developed as tools for good HIV/AIDS programming. The interaction between the displaced and surrounding populations requires strong coordination and integration among the host government, international and local organisations and the communities themselves. On a broader scale, coordination, communication and integration at the international, regional, country and field levels are key components for all HIV/AIDS strategies, policies, proposals and programmes globally.

The development of coordinated, integrated HIV/AIDS strategies could be given an enormous boost if donor governments would permit their funds to be used more flexibly to provide services to both displaced persons and local communities through both humanitarian and development organisations. The global community must adopt a subregional and more innovative approach to fighting the HIV/AIDS epidemic across international boundaries.

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### **Note**

1. The sectors covered in the Inter-Agency Standing Committee (IASC) guidelines for HIV/AIDS in emergency settings are coordination, assessment and monitoring, protection, water and sanitation, food security and nutrition, shelter and site planning, health, education, behavioural-communication change and information/education/communication and HIV/AIDS in the workplace.

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**Address for correspondence:** Paul B. Spiegel, United Nations High Commissioner for Refugees, DOS-HCDS, Case Postale 2500, 1211 Geneva 2 Depot, Switzerland. E-mail: <<spiegel@unhcr.ch>>

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## **Grassroots Advocacy Campaign for HIV/AIDS Prevention: Lessons From the Field**

Caroline Moseley, Larry Doug Melton and Vincent T. Francisco  
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# Grassroots Advocacy Campaign for HIV/AIDS Prevention: Lessons From the Field

Caroline Moseley, MEd, CHES  
Larry Doug Melton, MPH  
Vincent T. Francisco, PhD

*There are many guides written for developing strategies and tactics related to advocacy, and many pages of text are devoted to developing advocacy plans. Less well described is the context within which grassroots advocacy campaigns can be successful. This article describes a successful campaign to establish a needle-exchange program (NEP) in Guilford County, North Carolina. The authors briefly describe NEPs in general, the history of NEPs in North Carolina, the mission of the North Carolina Harm Reduction Coalition (NCHRC), and why this approach was considered particularly important for Guilford County. Then the context of the successful adoption of an NEP in Guilford County and the progress to make it legal will be examined, including describing the specific advocacy activities facilitated by members of NCHRC. The article concludes with a discussion of lessons learned that may be applicable to other grassroots advocacy initiatives.*

**Keywords:** needle-exchange program; advocacy; community mobilization; health policy

One of the more politically controversial interventions to reduce the spread of human immunodeficiency virus (HIV/AIDS) is the needle-exchange program (NEP). According to the Centers for Disease Control and Prevention (CDC, 2004), 19% of men who have HIV and 27% of women who have it contracted it through injection drug use. NEPs tackle the HIV/AIDS and Hepatitis B and C (HBV and HCV) epidemics by replacing dirty needles used by intravenous drug users

(IDUs) with clean ones. NEPs have operated throughout the United States for nearly 25 years; however, it was not until the early 1990s when these programs became legal in major cities such as New York City, Philadelphia, and San Francisco. Many organizations in positions of power, such as the American Public Health Association, American Medical Association, and National Association of State and Territorial Health Directors (Lurie, Arthur, & Jones, 1998), with experience in public health have publicly expressed their support to make NEPs legal. For instance, former U.S. Health and Human Service Secretary Donna Shalala stated, "Needle exchange programs can be an effective part of a comprehensive strategy to reduce the incidence of HIV transmission and do not encourage the use of illegal drugs" (Kenen, 1997, p. A4). Although nationwide longitudinal studies clearly show that NEPs reduce the spread of HIV/AIDS, HBV, and HCV (Lurie et al., 1998), the battle to receive state funding to support NEPs and the battle with the judicial system to make them legal prevented many communities from operating successful, publicly supported NEPs.

Several empirical research articles provide statistics demonstrating the public health significance of NEPs and suggest that advocacy and community action should occur at both the federal and state level to remove laws that prevent the use of NEP strategies. These articles appeared in journals such as *American Journal of Public Health* (Holmberg, 1996), *Journal of the American Medical Association* (Gostin, Lazzarini, Jones, & Flaherty, 1997), and *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* (Alter & Moyer, 1998). The efforts of the North Carolina Harm Reduction Coalition (NCHRC) ran parallel to many of the recommendations in these articles. Such efforts were clearly demonstrated in the groups' ability to activate community health theory into practice in hopes of improving public health and maximizing the impact of policy for HIV/AIDS and HBV/HCV prevention.

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### **The Authors**

**Caroline Moseley**, MEd, CHES, is an assistant epidemiologist with the Guilford County Health Department in Raleigh, North Carolina.

**Larry Doug Melton**, MPH, is a recent graduate of the master's of public health program at the University of North Carolina in Greensboro, North Carolina.

**Vincent T. Francisco**, PhD, is director of the DrPH program and associate professor with the Department of Public Health Education at the University of North Carolina in Greensboro, North Carolina.

Around the world and in more than 80 cities in 38 states in the United States, NEPs address drug-injection risks (Lurie & DeCarlo, 1998). Public health practitioners deeply rooted in community health interventions established research studies in their communities while supporting NEPs, producing mutual benefits for both the community and the researchers (Eicher et al., 1995; Lurie & DeCarlo, 1998). This type of HIV-prevention partnership between practitioners and the community can be seen at the University of California at San Francisco's Center for AIDS Preventions Studies (CAPS). This program affects the spread of HIV through the support of NEP and involves health policy experts to better understand the relationship between their research and the development of HIV-prevention policy (Morin & Khan, 2006). Like several other NEPs in urban and metropolitan areas supported by clinicians and public health practitioners, CAPS is successful because it uses a comprehensive approach of incorporating preventative medicine, research, and public policy into one unified community-health project. North Carolina and several other Southern states had difficulties in applying a similar holistic approach because of state laws and regulations regarding the possession of drug paraphernalia (North Carolina Drug Paraphernalia Act, 1981). However, despite these legal limitations, the U.S. federal government has still acknowledged that NEPs reduce rates of HIV infection and do not increase drug use rates, but it still refuses to provide funding for NEPs (Goldstein, 1998, p. 1).

Advocacy activity at the state and local community level is critical (Goldstein, 1998; Lurie & DeCarlo, 1998; United States General Accounting Office, 1993). Although the literature contains examples of grassroots advocacy for a variety of outcomes (Galer-Unti, Tappe, & Lachenmayr, 2004; Ochs & Samour, 2004; Stivers, 1994; Wolff, 2001), little is discussed about grassroots

advocacy specifically for NEPs. Identifying and examining the successes and failures of the needle exchange movement during the past 5 years in North Carolina will aid other community-health organizations from Southern states by providing a blueprint for developing NEPs to reduce the spread of AIDS and other infectious diseases.

Guilford County, North Carolina is one such community. Like many other Southeastern communities, HIV/STD rates increased in the past 10 years (Guilford County, 2002). Many communities in the South share this problem as well as shrinking public health infrastructure, high rates of poverty, and racial and economic health disparities (Southern States AIDS/STD Work Group, 2003). Guilford County's rate of HIV infection in 2004 was 27.8 per 100,000: 12.3 and 56.8 for Whites and non-Whites, respectively (Guilford County, 2002). To combat these rates, Guilford County adopted many best practice models of STD prevention (i.e., street and Internet outreach, prevention case management, and peer education; Church, 2006; Moseley, Valentine, & Foust, 2002) through the collaborative partnerships between the Guilford County Department of Public Health and community-based HIV prevention and care organizations. It is no surprise that Guilford County, along with other North Carolina counties (like Buncombe), was one of the first communities in the South to initiate an NEP and to join the fight to make NEPs legal in North Carolina.

Guilford County's entrance into this arena began through grassroots organizations like the NCHRC and the Wright Focus Group. Both organizations support NEPs because of the burden that sharing needles causes for North Carolina residents. Pro-needle-exchange organizations are specifically supporting NEPs in Guilford County because there is an estimated 5,000 IDUs in the county (Friedman et al., 2004). High rates of HIV, a long history of community collaboration, and a history of social and political rights movements has made Guilford County ripe for a successful NEP and advocacy campaign. A more in-depth understanding of the politics behind NEPs in North Carolina will explain the context in which this campaign happened.

### **Political History of NEPs in North Carolina**

There are elected officials in North Carolina who publicly do not support NEPs. For example, in 1999, U.S. House Representative Richard Burr (R-NC) voted for House Bill 3064, which would allow for the prohibition of NEPs in Washington, D.C. By voting for House Bill 3064, the now first-term U.S. senator not only indicated that he did not support federal funding for NEPs

in Washington, D.C. but nationwide as well. Other U.S. House of Representatives members representing districts in North Carolina, such as Sue Myrick (NC-9) and John Howard Coble (NC-6), also voted for the prohibition of NEPs. On the state level, certain members of the North Carolina General Assembly (NC Assembly) voted against funding for NEPs because they contend that NEPs encourage illicit drug use. For instance, Sen. Jeanne Lucas (D-Durham) and Rep. Thomas Wright (D-Wilmington) introduced bills for NEPs in North Carolina, but neither bill gained enough support to make it to the house floor in 1997 or 2001. Anti-NEP legislators argue that they cannot support the programs because such bills are illegal, as stated in the North Carolina Drug Paraphernalia Act (1981). They also claim that there is no evidence to influence belief that such a program would be effective in North Carolina. One reason why some legislators voted against NEPs is because studies conclude that such programs often are not effective in reducing needle sharing among injection drug users who then are at risk to HIV/AIDS because of high HIV sero-prevalence in returned syringes (Robles et al., 1998).

In sum, the voting history of elected officials of North Carolina clearly indicates that they do not support NEPs. It is evident that one of the central tenants to the opposition of drug use in the South is the view that such programs condone drug use. The reason why this sentiment resonates among both public officials and among the general public is the lack of scientific studies conducted on the effectiveness of NEPs in Southern communities. By providing scientific evidence that such programs do not promote drug use and are effective in reducing HIV, NEP advocates and supporters will have stronger ammunition to use when convincing decision makers about the adoption of legalized NEPs (Burris, Finucane, Gallagher, & Grace, 1996).

## ► A GRASSROOTS ADVOCACY CAMPAIGN FOR NEPs

Guilford County is blessed with a long history of coalition building in HIV/AIDS advocacy and intervention. For example, the Guilford Community AIDS Partnership (operated since 1991) is an organization that provides funding, technical assistance, and advocacy around issues relating to HIV/AIDS. This organization provides a forum for the affected/infected community to discuss critical issues regarding prevention and care. This organization discussed the merits of needle exchange for several years, but the collective was not ready to actively organize advocacy efforts for

needle exchange. One of its members, Thelma Wright, decided to take on needle-exchange advocacy herself and started the NCHRC so that people from North Carolina (in particular, Guilford County) would have an organization under which to unify to move the state government to take notice of needle exchange as a science-based intervention.

Specifically, this coalition made its first priority to support a bill introduced into the NC Assembly titled "Funds for Clean Syringe Programs" (House Bill 411). This bill asked the NC Assembly to establish three pilot NEPs in the state of North Carolina and to appropriate \$500,000 a year for 2 years to support these programs. The bill also provides an exemption to North Carolina's paraphernalia law (1981), which makes it illegal for anyone to possess equipment related to using illicit drugs, including syringes, cotton balls, cookers, and so on. This means that people giving out needles to known users to prevent the spread of HIV and other blood-borne pathogens (needle-exchange workers) could be arrested for possession of paraphernalia. The bill also required that a proposed NEP must have the written support of its County Commissioners, County Board of Health, the County Health Director, and County Board of Mental Health and Substance Abuse Services.

## *History of the NEPs in Guilford County*

The Guilford Exchange Network (GEN) began in 2000 under the auspices of the Wright Focus Group, which was founded by Thelma Wright, a local community activist who has dedicated her life to preventing HIV and other blood-borne pathogens and promoting harm reduction as the most effective model for prevention. In 1996, a group of statewide HIV-prevention providers started meeting to discuss how they could assist in passing a house bill that went through three rejections and revisions to become House Bill 411.

During this evolving process of House Bill 411, Ms. Wright decided she was tired of waiting for needle exchange to become legal. She worked with the Needle Exchange Program of Asheville (the first needle exchange in North Carolina) and with other harm-reduction supporters in the national movement to start her own in High Point, North Carolina. She received a start-up grant from the North American Syringe Exchange Network that included basic supplies. She then began engaging those in her community by connecting with the people she worked with on the street to let them know that this new service was available. Not long after, she was swamped with requests. And thus GEN was born. Through several dedicated volunteers,

the program grew and eventually Ms. Wright hired someone to run the Wright Focus Group (including GEN) so that she could go back to the legislature to advocate for her work to become legal. Her experience with GEN taught her that underground exchanges are a good start, but there are many disadvantages to operating this way. For example, addicts are skeptical of coming to a specific location at a specific time to engage in known illegal activity for fear that they will be arrested. This makes it hard to recruit people into the program. To come full circle, the program needed to operate legally, and that meant championing another house bill.

Fortunately, Rep. Thomas Wright from New Hanover County (Wilmington, NC) decided to introduce an updated version of the original bill, and it became House Bill 411. Ms. Wright connected with Representative Wright and thus began the journey to win statewide support for House Bill 411. Even though House Bill 411 did not make it out of committee in the NC Assembly fall session of 2005, it did make more progress than previous efforts. The bill received more broad-based support in the latest session. The Guilford County Delegation almost unanimously supported the legislation and actively solicited support from their colleagues. Through the NCHRC's advocacy efforts, Guilford County was able to win the support of its County Commissioners, Board of Health, Health Director, and Board of Mental Health and Substance Abuse Services. The NCHRC got Guilford County to meet all the requirements to apply to be a pilot NEP site had the bill passed. Along the way, it was also able to garner more vocal support from the middle ground, or the organizations that privately supported needle exchange but had not said so publicly.

### ***Specific Advocacy Activities Relating to NEPs***

The following three activities were critical in the development of the advocacy campaign: education, advocacy, and resource development.

*Education.* Educating the general public on the details of the public policy issue is an essential key to gaining support. People often fear what they do not know; therefore, educating the public on the details of your proposed public policy will provide them with the details needed for them to feel comfortable with the issue. For NCHRC, this meant informing the general public about the true toll that blood-borne pathogens were having on Guilford County, why current prevention strategies were not enough, and how NEPs could fill that gap.

*Advocacy.* Advocacy is a 24-hour job that takes place in the workplace setting, in the home, or any other venue where people engage in conversation. Advocacy is about trying to gain support from policy makers as well as constituents outside the normal range of influence. NCHRC's campaign not only focused on people of influence, like legislators and influential organizations, but also on everyday citizens, especially those affected by substance abuse, HIV, HBV, or HCV. With some training, these everyday citizens became advocates themselves so that NCHRC could work behind the scenes and let them be the real voice of the movement.

*Resource development.* Knowing how and when to use available resources facilitates progress toward the established goal. From holding meetings at the church fellowship hall to getting petition signatures at a friend's local car wash, certain activities can increase the awareness of grassroots efforts at a very low cost. Getting a close friend who may have a good relationship with a policy maker to say a sentence or two about the grassroots work of your organization can make all the difference. For instance, in Guilford County, public health officials had good relationships with the county sheriff who was supportive of needle exchange and willing to speak to lawmakers. NCHRC also organized a low-cost letter-writing campaign and took letters to both formal and informal events, which resulted in more than 500 letters sent in support of House Bill 411 to the NC General Assembly.

Table 1 contains a more detailed accounting of the action steps taken by NCHRC and provides examples of NCHRC's target audiences and outcomes for each action step. It is important to note that this list of activities is a general one to make the components of the campaign as clear as possible. The actual campaign developed more organically, and a number of these steps occurred in an overlapping manner rather than one at a time.

### ***Advocacy to Policy Formulation***

Another way to look at NCHRC's campaign is to consider the following more general framework for policy formation. Although many of the steps occurred simultaneously, the logical flow provided by this framework helps to represent the general progression of the steps followed. Once a few key people were moved to consider NEPs as an HIV-prevention intervention, NCHRC provided more detailed research to help policy makers understand the effective program components and elements as well as the dimensions of IV drug use and HIV

**TABLE 1**  
**Action Steps Taken by People Involved in the Project, the Target Groups, and Intended Impacts of the Action Steps**

<i>Action Step</i>	<i>Target Group</i>	<i>Impact</i>
Collect support from local, regional, state health-related organizations.	The Guilford County Substance Abuse Coalition, Guilford AIDS Partnership, NC AIDS Advisory Council, High Point and Greensboro Medical Societies, Nursing Association.	Increase the amount of support from well-respected and trained leaders in the health profession from medical doctors to community nurses.
Develop a Speaker's Bureau that can be available to speak to community groups, including people who can share their stories. Train them on legal issues.	Former intravenous drug users, families that lost a loved one to AIDS from intravenous drug use, community members, lay health workers.	Increase community buy-in, educate those in the community to be mobile advocates, create a network of citizens that can speak at board of health meetings at the state capital.
Schedule meetings with public officials to educate them on harm reduction.	Local community leaders, County Board of Health and Mental Health, state and local officials.	Get needle exchange programs (NEP) on the agenda at the Board of Health (BOH), county commissioners, and mental health meetings. Increase the knowledge of NEP for critics and public officials.
Work with agency heads behind the scene.	Hospital heads, BOH director, mental health director, health department.	The ability to better understand what would help create a more effective advocacy campaign.
Mount a public information campaign, including news releases, letters to the editor, press conferences, neighborhood and community awareness days, and distribute education packet.	Trying to reach the "middle group" through media literacy.	Convince those who may be on the fence about the issue and why it is important to them and their community.
Have supporters write letters and/or make phone calls to our congressional delegation.	Those in high positions of power that you may not be able to reach continually through one-on-one meetings.	Getting your message across to those with the ability to implement policy.

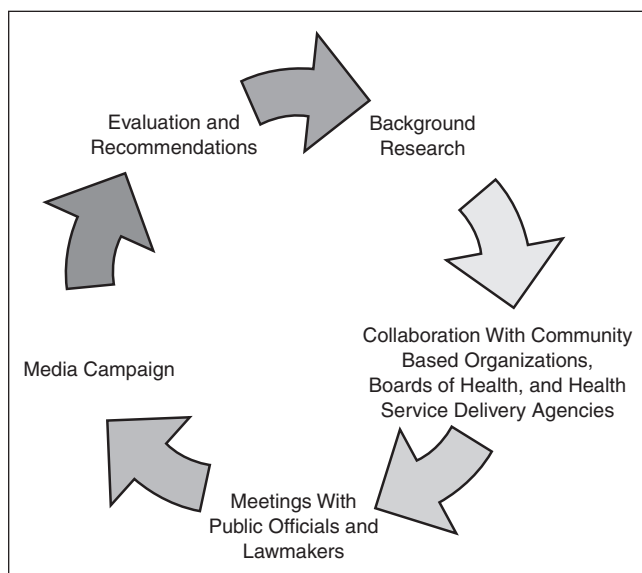
incidence and prevalence in Guilford County. Facilitating collaborations between groups such as community based organizations and the Guilford County Board of Health (GC Health Board) came next on the agenda. Meeting with public officials and lawmakers soon followed. A media campaign facilitated more broad public support. Finally, the process culminated with a qualitative (retrospective) evaluation and development of lessons learned, which serves as the basis of this article. This framework guided NCHRC activities from initial conceptualization through completion of the project.

Others using this framework might want to consider several key issues as they plan their strategy. One is that this process needs to be reinvented for their circumstances. Not every category will fit exactly as it is

presented for every community. On a related note, implementers of future advocacy campaigns in this area may need to be doing all of these components at roughly the same time. Although some phases depend on others (e.g., the media campaign would benefit greatly from completed background research), it is also the case that one needs to revisit phases of the framework periodically as to not miss opportunities or miss important new pieces of information not available previously.

## ► LESSONS LEARNED

This section outlines the most significant of the lessons learned through this project. Although not



**FIGURE 1** A Model of Advocacy Followed by the People Working on the Guilford County, North Carolina Needle-Exchange Program Advocacy Project

often included in the published literature, these lessons learned provide valuable insight to communities trying to implement a grassroots advocacy effort. They are also highly valuable to researchers interested in this area, as theory is often developed independent of grassroots wisdom—and can be significantly limited as a result (Schorr, 1997).

### ***The Importance of National Statistics and Community-Based Research***

To make a stronger argument and defend NCHRC's position from critics, NCHRC initially had to cite effective needle-exchange demonstration projects that took place and were successful in other states, such as California and Pennsylvania, to show that such programs would be effective locally. On the local level, elected officials, the GC Health Board, GC Board of Mental Health, and GC Board of County Commissioners wanted concrete evidence illustrating a need for NEP programs in North Carolina and specifically Guilford County. Statistics on IDUs and those with HIV in Guilford County and the surrounding community were of the utmost importance but were hard to collect because service providers collect data differently and data on who injects drugs is not routinely collected by any one agency in Guilford County. However, local community-based and public health agencies did have the good fortune of participating in a study (Friedman

et al., 2004) that estimated the number of injecting drug users in the Triad Area, which includes High Point, Greensboro, and Winston-Salem, North Carolina. High Point and Greensboro make up the majority of Guilford County, whereas Winston-Salem is in neighboring Forsyth County. It is critical that local communities develop their own surveillance systems for tracking community indicators for substance abuse (including injecting drug use) so they can flesh out the local story of this national problem. A concrete picture of the impact of substance abuse on local constituents stands a better chance of compelling lawmakers to change policy than does an example from another community. For instance, one of Guilford County's local public health officials was not convinced that injecting drug use was a problem in Guilford County because local data was not adequate.

### ***A Big Difference Between Lobbying and Advocacy***

In NCHRC's efforts to clearly define the difference between lobbying and advocacy, a theme for the 21st century is grassroots lobbying, which is really a modern version of advocacy. One participates in grassroots lobbying when stating her or his position to the general public and asking the general public to contact legislators or other government employees who participate in lawmaking. Direct lobbying on legislation and engaging in public policy advocacy through voter and candidate education is also important for an organization because it can achieve the following:

- Raise awareness of the mission,
- Attract favorable media attention,
- Establish and expand government investment in important social programs,
- Reform laws and regulations that govern the operation and evaluation of programs, and
- Confer benefits far beyond that of any one direct service program by changing the context of the problem.

Lobbying firms mainly work this way and are often at an advantage by using political expertise and influence to change policy as opposed to using local resources through advocacy (Center for Lobbying in the Public Interest, 2004). However, lobbying cannot always win the fight, especially with an issue fraught with moral controversy. Winning over the masses can win the vote on the local level. For example, there was a pervading belief among county leaders that the average Guilford County citizen would not support needle exchange. Before the GC Health Board made a decision

to endorse House Bill 411, it wanted to hear from both sides of the issue. The NCHRC organized people to speak for and against needle exchange, but it was nearly impossible to find someone who would speak against it. Even at subsequent meetings where those in opposition were specifically invited to speak again, the overwhelming majority of people who attended the meeting were there to vocalize their support for needle exchange. This support helped the GC Health Board feel more comfortable endorsing House Bill 411.

### ***Values Are an Issue for Leadership***

Every time one documents the importance of a problem and research about solutions, the opposition raises the bar to keep it off the agenda. Sometimes they do so by requesting more information and saying that there is not enough information yet to act. This type of stalling may turn out to be an issue of values rather than a research or data issue. At the GC Health Board's initial meeting about needle exchange, NCHRC had three speakers to comment on the benefits of needle exchange from three different perspectives: a physician who treated HIV patients who were injectors; a recovering addict with HIV, HCV, and HBV; and a mother who was raising her nine grandchildren because her daughter died of AIDS-related complications that she contracted from an IDU. The GC Health Board called for another meeting to further explore the issue, and NCHRC provided additional speakers to advocate for each side of the issue. After these formal speeches, the GC Health Board asked questions of the speakers. Many in the audience explained why they supported needle exchange and how injecting drug use had killed their loved ones (through HIV and HCV). The GC Health Board then asked for another meeting at which they wanted to hear from another physician, an attorney, and law enforcement. NCHRC produced yet another cadre of speakers, and finally, after much debate, the GC Health Board voted almost unanimously to endorse House Bill 411. This process took approximately 7 months.

### ***Identify the Middle Ground and Work From There***

It is important to have plenty of meetings just to talk about the issues and potential solutions. One needs to find a way to engage those people in the middle to take a stand, as it is usually a small group of people on the extremes that are most vocal about a problem. The important historical movements were all about the middle ground, including the civil rights, women's rights, and voter rights movements. Finding the voice of the people in the middle ground can allow people in

power to take more risky positions because they can lean on the support from an (often) very silent majority. The cliché is really true: "If I tell two people and you tell two people, then you can change the world." The NCHRC developed short, easy-to-read educational material about needle exchange and why it was needed in Guilford County. They proceeded to distribute it in as many venues and through as many methods as possible. Members brought the materials to every community meeting they had regardless of whether the meeting was related to substance abuse or HIV. Members took the materials to their churches, into their homes, and into their friends' homes. No personal or professional venue was left untouched. NCHRC made it easy for the masses to communicate with their legislators by providing letters for signature (NCHRC hand delivered them to legislators), phone numbers, and e-mail addresses to write. Grassroots advocacy is not really about trying to change the minds of the opposition as much as it is making up the minds of the masses that are generally undecided.

### ***Politicians Can Be Our Friends***

In rallying support from the middle ground, one may be creating a context in which somewhat supportive politicians can be even more supportive. As community organizers, we can help them by generating new political support for them in return for their assistance on challenging issues in public health. One of these politicians was in Guilford County's delegation. This legislator played devil's advocate for a long time, not completely wanting to support the issue. Eventually the legislator, who was more on the conservative side, supported NCHRC and helped strategize on how to win over other legislators who were on the fence. This conversion helped NCHRC get more attention for House Bill 411 than had ever been generated in previous attempts.

### ***Minds May Not Change About an Issue***

The opposition might be a minority, but they may be a very powerful minority because of the overwhelming silence of the majority. One can rally the majority (or the middle ground) to be more vocal, but sometimes organizing enough people to vote the opposition out of office is the only other choice. Sometimes even in the face of an overwhelming majority opinion, a politician or decision maker simply will not change his or her mind. NCHRC did not have to vote anyone out of office, but it was fortunate that one of its most formidable opponents did not get re-elected and that the incumbent's

opponent turned out to be very supportive of needle exchange. Instead of wasting energy on the other legislator in Guilford County's delegation who had publicly stated that he did not support needle exchange, NCHRC turned to the ones who did and supported them to use their influence among their colleagues. Whatever the opposition requested, NCHRC produced via Guilford County's delegation.

### ***People in Communities Are Used to a "Paternalistic" Paradigm***

It is not always good to tell people what to do. Sometimes it is important to help the world save itself—let others do the work. We might think we see clearly what needs to be done, but the rest of the group is not there yet (and we could be wrong). It can be important to let the learning or growth process work itself out, and you may not get everything you want, but the group may develop something better in the long run. Our public-health-worker roles may be better suited to support others' efforts, rather than be the director of activities ourselves. Rather than "throwing power and influence around," it can be better to grow new leadership from within. We might need to just make ourselves available to get them to where *they* want to be, rather than focusing so much on where *we* think they should be—and we will grow in the process ourselves. Our entire effort epitomizes this lesson. Citizens in Guilford County and from other communities in North Carolina have been advocating for needle exchange for at least 10 years. Educating the masses takes time. For the NCHRC, legalizing syringe exchange is a process, not a product. It continues to educate the public and policy makers because it is the right thing to do. When you are doing the right thing, it is not about the prize, but about the race. Eventually, Guilford County will reach the tipping point of that critical mass. At that point, there will be no more need for convincing because the majority, both citizens and policy makers, will have aligned their thinking with what we know now to be scientific fact.

### **► CONCLUSION**

NEPs in the United States grew up and thrived because of committed grassroots advocates who believed that needle exchange was necessary regardless of what local and state laws and policies stated on the subject. Large urban cities in the United States (e.g., San Francisco, Los Angeles, Chicago, New York, and Miami) have NEPs, both legal and illegal. Smaller, mid-sized communities have them as well (e.g., Baltimore, New Haven, and Honolulu).

In the Southeast United States, however, there are no NEPs that are sustainable and consistent, except for Asheville and High Point, North Carolina. The advocacy efforts in North Carolina, and in these local communities, had few examples to guide their work. The grassroots leaders of these communities spent considerable time learning about other communities' experiences with grassroots advocacy and running NEPs, but without having a road map to follow that fit the particular circumstances, Asheville and High Point were true pioneers. These NEPs rose up in the "Bible Belt" with great controversy about their moral and political value. It is true that these battles were fought in all other communities that created and supported needle exchanges. However, the Southeast has a much deeper and entrenched legacy of faith community politics than most other areas in the country (Reif, Geonnotti, & Whetten, 2006; Reif, Golin, & Smith, 2005; Southern States AIDS/STD Work Group, 2003). In spite of this context, grassroots advocates managed to get local and state government and community leadership to support needle exchange.

Grassroots advocacy on the surface appears to be unpredictable and turbulent. There are so many different groups who could support the effort and a mass of invisible public who seem unconcerned about major health problems affecting our community health and productivity. Lawmakers often appear unsympathetic to issues that affect those who are most disenfranchised in our communities. The media never seem to cover these issues with the thoroughness and regularity deserved. When taking a bird's eye view of the situation, it does appear unmovable. However, on the ground there is a small group of people who are motivated and educated who then go out to educate and motivate others, and the masses seem to be more sympathetic and the policy makers more receptive. The situation becomes a never-ending stream of possibility that then becomes organized flowing to one goal—to win health-supporting legislation that strengthens local communities. Reaching this tipping point, as Malcolm Gladwell (2002) might say, leads to real and permanent change, because local citizens are actively engaging themselves in the process of holding their elected officials accountable for laws that affect their everyday lives. Grassroots advocacy is the benchmark of a true democracy, one that is collectively healthy because everyone truly has a voice.

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# Efficacy of an HIV Prevention Program Among Female Adolescents Experiencing Gender-Based Violence

Gina M. Wingood, MPH, ScD, Ralph J. DiClemente, PhD, Kathy F. Harrington, MPH, MAEd, Delia L. Lang, PhD, MPH, Susan L. Davies, PhD, MEd, Edward W. Hook III, MD, M. Kim Oh, MD, and James W. Hardin, PhD

HIV prevention interventions have been developed for several at-risk adolescent populations, including homeless and HIV-positive adolescents, and these programs have been conducted at a range of venues such as schools and clinics.<sup>1-4</sup> However, 1 subgroup of adolescents at considerable risk for HIV—young women who have experienced gender-based violence—has been relatively neglected by HIV prevention programs.

Research has shown that the prevalence of gender-based violence among adolescents ranges from 9% to 39%<sup>5-9</sup> and that rates may be higher among African American female adolescents than among female adolescents from other racial/ethnic groups.<sup>5,7</sup> In addition, a seroepidemiological study of Job Corps applicants showed that HIV prevalence rates among African American female adolescents were significantly higher than rates among their White or Hispanic female peers (4.9, 0.7, and 0.6 per 1000, respectively) and exceeded those observed among White, Hispanic, and African American male adolescents (0.8, 1.5, and 3.2 per 1000, respectively).<sup>10</sup>

Several studies have shown that adolescents with sexually or physically violent partners engage in HIV risk-taking practices, including having multiple sexual partners, initiating sexual intercourse at an early age, and abusing drugs.<sup>11-17</sup> Moreover, studies have revealed associations between gender-based violence and HIV infection.<sup>18-21</sup> According to this body of research, gender-based violence may either operate indirectly, through social mechanisms (e.g., women are predisposed to engage in HIV risk taking because they perceive that they lack the power to negotiate and practice safe sex), or operate directly, through biological mechanisms (e.g., having nonvolitional intercourse with an HIV-infected partner). Given the relation between gender-based violence, HIV risk, and HIV infection, designing HIV prevention programs for this vulnerable population is critical.

**Objectives.** We examined the efficacy of an HIV prevention intervention among African American female adolescents reporting a history of gender-based violence.

**Methods.** In this analysis of a subgroup of participants involved in a randomized controlled trial, consistent condom use, psychosocial mediators associated with HIV-preventive behaviors, and presence of sexually transmitted diseases were assessed at 6- and 12-month follow-ups. The intervention emphasized ethnic and gender pride, HIV knowledge, condom attitudes, healthy relationships, communication, and condom use skills.

**Results.** Relative to the comparison condition, participants randomized to the intervention reported using condoms more consistently, had fewer episodes of unprotected vaginal sex, engaged in a greater proportion of protected intercourse acts, were more likely to have used a condom during their most recent intercourse, were less likely to have a new sexual partner, were less likely to have a sexually transmitted disease, and demonstrated more proficient condom skills.

**Conclusions.** Given the substantial prevalence of gender-based violence among female adolescents and the associations observed between gender-based violence, HIV risk, and HIV infection, it is essential that HIV interventions involving young women address partner violence. (*Am J Public Health*. 2006;96:1085–1090. doi:10.2105/AJPH.2004.053595)

In an earlier study, DiClemente et al.<sup>22</sup> described the efficacy of an HIV prevention program, conducted among sexually experienced African American women, in reducing risky sexual behaviors, decreasing the incidence of sexually transmitted diseases (STDs), and enhancing psychosocial mediators (e.g., HIV prevention knowledge, condom use self-efficacy) associated with HIV-preventive behaviors. We examined the efficacy of the intervention among a subsample of participants in the same study who reported a history of gender-based violence.

## METHODS

The study methods have been described in detail elsewhere.<sup>16</sup> Briefly, from December 1996 through April 1999, recruiters screened 1130 African American female adolescents seeking services at community health agencies in Birmingham, Ala. Of these young women, 609 (53.9%) met the study's eligibility criteria, which included being female and African American, being 14 to 18 years of age, reporting vaginal intercourse in the

preceding 6 months, and providing written informed consent. Eighty-seven young women were eligible but did not participate, most of whom had conflicts with other activities or were not interested. Thus, 522 adolescents agreed to participate in the original study, completed baseline assessments, and were randomized to study conditions.

The present analyses focused on the subset of 146 participants who reported a history of gender-based violence at the baseline assessment. We categorized young women who had ever been coerced into having intercourse against their will by their boyfriend or who had been physically abused (i.e., they had been kicked, slapped, hit, or pushed or had had something thrown at them) by their boyfriend as having experienced gender-based violence.<sup>16</sup>

## Procedures

We used a randomized controlled trial design. Participants were randomly assigned to either the 4-session HIV prevention intervention or a 4-session general health promotion condition. The HIV prevention intervention

consisted of 4 interactive group sessions, each 4 hours in duration, conducted on consecutive Saturdays. Sessions included 10 to 12 participants on average, and they were implemented by a trained African American female health educator assisted by 2 African American female peer educators. Participants randomized to the general health promotion condition also attended 4 interactive group sessions (again, 4 hours in duration) taking place on consecutive Saturdays. These sessions focused on the importance of exercise and proper nutrition, provision of information on local venues for purchasing healthy foods, and the health consequences of a poor diet.

Two complementary theoretical frameworks, social cognitive theory<sup>23</sup> and the theory of gender and power,<sup>24,25</sup> guided the design and implementation of the HIV prevention condition. Session 1 of the intervention emphasized ethnic and gender pride, self-actualization, and self-worth by discussing the joys and challenges of being a young African American woman, acknowledging the accomplishments of African American women, reading poetry written by African American women, and framing artwork created by African American female artists. The goals of session 2 were to increase awareness of strategies for reducing the risk of HIV and other STDs and to explore common myths regarding HIV prevention.

Session 3 built on the knowledge base established in session 2 to enhance adolescents' condom use and communication skills and examined gender roles, partner influences, and societal myths that contribute to attitudes toward using condoms. Session 4 sought to promote attitudes toward having healthy relationships, define how imbalances of power and control could influence having a healthy dating or sexual relationship, provide information about community resources for adolescents in unhealthy relationships, and discuss adolescents' choices in selecting dating partners. These activities were designed to enhance participants' perception that they had greater control in their sexual relationships (see DiClemente et al.<sup>22</sup> for further discussion of the intervention).

### Data Collection

Data were collected at baseline and at 6- and 12-month follow-ups. Recruitment

occurred 1 month before randomization. Specifically, the final baseline cohort was recruited in April 1999, and follow-ups were conducted in November 1999 and May 2000. During each assessment, participants completed a self-administered survey that addressed sociodemographic characteristics and psychosocial mediators of HIV-preventive behaviors. Also, a trained African American female interviewer conducted an interview assessing participants' sexual behaviors and, using a structured scoring protocol, rated participants on their skill in correctly applying condoms. Finally, participants provided (self-administered) vaginal swab specimens that were analyzed to determine the presence of STDs.

### Measures

Self-reported consistent condom use, the primary outcome assessed, was defined as use of a condom during every episode of vaginal intercourse in the preceding 30 days. We calculated consistent condom use by dividing the number of condom-protected episodes of vaginal intercourse by the total number of episodes of vaginal intercourse. Consistent condom use in the preceding 30 days was measured at the 6-month and 12-month assessments and computed over the entire 12-month study period (from baseline to the 12-month follow-up).

Other outcomes measured at the 6- and 12-month assessments and computed over the entire period (from baseline to 12 months) included (1) condom use at most recent sexual intercourse, (2) proportion of condom-protected vaginal intercourse episodes in the preceding 30 days, (3) proportion of condom-protected vaginal intercourse episodes in the previous 6 months, (4) number of unprotected vaginal intercourse acts in the preceding 30 days, (5) number of unprotected vaginal intercourse episodes in the preceding 6 months, (6) whether participants had had a new sexual partner in the previous 30 days, (7) demonstrated proficiency in applying condoms, and (8) acquisition of an STD (*Neisseria gonorrhoeae*, *Chlamydia trachomatis*, or *Trichomonas vaginalis*) over the 12-month follow-up period.

As mentioned, participants provided vaginal swab specimens that were analyzed to determine the presence of STDs. One vaginal swab was placed in a specimen transport tube and evaluated for *C trachomatis* and *N gonorrhoeae*

via ligase-chain reaction assay; newly developed DNA amplification technology (Abbott LCx Probe System, Abbott Labs, Abbott Park, Ill)<sup>26,27</sup> was used in conducting these analyses. A second swab was used to inoculate culture medium for *T vaginalis* (In Pouch TV test; Bio-Med Diagnostics Inc, Santa Clara, Calif). This culture was incubated at 37°C and examined daily, via light microscopy (100× magnification), for 5 days to determine the presence of motile trichomonads.<sup>28</sup>

All STD assays were conducted at the research laboratory of the Division of Infectious Diseases at the University of Alabama, Birmingham. Adolescents identified with an STD were provided directly observable single-dose treatment (i.e., they were observed taking their medication), received appropriate risk reduction counseling in accord with the recommendations of the Centers for Disease Control and Prevention, and were encouraged to refer their sexual partners for treatment.

Psychosocial mediators of HIV-preventive behaviors were derived from social cognitive theory and the theory of gender and power, and we assessed these constructs using scales that had satisfactory psychometric properties and had previously been used with young African American women.<sup>29–31</sup> The psychometric properties and other elements of these continuous measures have been discussed in detail elsewhere; here we provide only a brief description of each measure.<sup>22</sup>

*HIV prevention knowledge* assessed participants' knowledge of HIV risk reduction practices. *Perceived partner-related barriers to condom use* assessed attitudes impeding participants' ability to effectively use condoms. *Attitudes toward using condoms* assessed hedonistic beliefs about using condoms. *Frequency of sexual communication* assessed the frequency with which participants discussed HIV-preventive practices with their sexual partners. *Condom use self-efficacy* assessed participants' confidence in their ability to properly use condoms. Participants' demonstrated proficiency in applying condoms was assessed as a measure of condom skills.

### Analysis

Analyses included only adolescents reporting a history of gender-based violence at baseline. An intention-to-treat protocol was used in

**TABLE 1—Comparability of the HIV Prevention and General Health Promotion Groups on Selected Characteristics**

	HIV Prevention (n = 73)		General Health Promotion (n = 73)		P
	Mean (SD)	No. (%)	Mean (SD)	No. (%)	
Sociodemographic characteristics					
Age, y	16.18 (1.23)		15.97 (1.19)		.31
Did not complete 10th grade		28 (38.4)		34 (46.6)	.32
Not attending school		7 (9.6)		7 (9.6)	1.00
Receiving public assistance		19 (26.0)		4 (19.2)	.32
Living in a single-parent home		34 (61.8)		42 (70.0)	.36
Employed		11 (15.1)		14 (19.4)	.49
Has children		19 (26.0)		21 (28.8)	.71
Consumed alcohol in previous 30 d		32 (43.8)		24 (32.9)	.17
Age at first nonvolitional intercourse, y	13.42 (2.53)		13.67 (2.81)		.69
Mediators					
HIV knowledge	9.25 (3.25)		9.26 (3.40)		.99
Condom attitudes	36.03 (4.40)		34.75 (4.82)		.10
Partner-related condom barriers	42.97 (13.56)		45.43 (14.86)		.31
Condom use self-efficacy	31.92 (9.16)		31.01 (8.83)		.55
Demonstrated skill in applying condoms	3.01 (1.29)		3.20 (1.19)		.38
Sexual behaviors and STDs					
No. of times used condoms in past 30 d	0.72 (0.41)		0.76 (0.37)		.53
No. of times used condoms in past 6 mo	0.65 (0.38)		0.61 (0.42)		.57
No. of times had unprotected vaginal sex in past 30 d	1.89 (3.81)		0.90 (1.72)		.07
No. of times had unprotected vaginal sex in past 6 mo	7.34 (17.18)		6.32 (11.15)		.69
Consistent condom use in past 30 d		42 (64.6)		41 (65.1)	.96
Condom use during most recent sexual intercourse		36 (55.4)		39 (61.9)	.45
New partner in past 30 d		5 (6.8)		9 (12.3)	.26
Positive for any STD		20 (28.2)		19 (26.4)	.81
Covariates					
Douching		21 (29.1)		26 (36.2)	.10
Gang involvement		12 (16.8)		9 (12.0)	.12
Pregnancy desire		24 (32.7)		20 (26.9)	.15

Note. STD = sexually transmitted disease.

calculated odds ratios using logistic regression generalized estimating equations. We report differences between the study conditions on continuous variables as unadjusted means at the 6- and 12-month assessment intervals and as adjusted means over the entire 12-month period, calculated via linear regression generalized estimating equation models. To calculate adjusted mean differences, we used a procedure not assuming normality of distributions; in this procedure, models were repeatedly estimated from bootstrap samples drawn with replacement at the level of the participant.

Each model included a time-independent variable (study condition) as well as time-dependent variables (covariates and outcomes). We adjusted all outcome measurement models by the corresponding baseline measure and other identified covariates to obtain adjusted odds ratios and adjusted mean differences. In addition, we included a time period indicator in each model to capture any temporal effects that had not been taken into account.<sup>35,36</sup> In generalized estimating equation analyses, the 95% confidence intervals (CI) around adjusted odds ratios were calculated (intervals including 1.0 were not significant), as were the 95% confidence intervals around adjusted mean differences (intervals including 0.0 were not significant).

## RESULTS

Of the 522 adolescents from the original sample who completed baseline assessments, 14% (n=73) reported that their boyfriend had coerced them into having intercourse against their will, and an additional 14% (n=73) reported that their boyfriend had physically abused them. Thus, 28% of the participants (n=146) reported a history of gender-based violence and were randomized to the study conditions, yielding 73 participants in the HIV prevention condition and 73 participants in the general health promotion condition. At baseline (Table 1), we assessed the comparability of the 2 groups in terms of sociodemographic characteristics, psychosocial mediators linked to HIV-preventive behaviors, sexual behaviors, and presence of STDs. There were no statistically significant differences between the groups.

Of the 73 participants assigned to the HIV prevention condition, 63 (86.3%) completed

which participants were analyzed according to their original assigned study conditions irrespective of the number of sessions they attended.<sup>32,33</sup> At baseline, descriptive statistics were calculated to summarize differences in sociodemographic variables, psychosocial mediators, sexual behaviors, and STD prevalence rates between study conditions. We used Student *t* tests (for continuous variables) and  $\chi^2$  analyses (for categorical variables) to assess differences between conditions.<sup>34</sup> Variables

that involved statistically significant differences ( $P \leq .05$ ) or that were theoretically determined to be potential confounders (douching, gang involvement, pregnancy desire in past 30 days) were included as covariates in longitudinal analyses.

We report differences between the study conditions on dichotomous variables as unadjusted percentages at the 6- and 12-month assessment intervals and as odds ratios (ORs) over the 12-month follow-up period; we

**TABLE 2—Effects of HIV Intervention on Measures of Safe Sex and Frequency of Sexually Transmitted Infection**

	6-Month Assessment		12-Month Assessment		GEE Model Odds Ratio <sup>a</sup> (95% Confidence Interval)	P
	Intervention Group, Unadjusted %	Comparison Group, Unadjusted %	Intervention Group, Unadjusted %	Comparison Group, Unadjusted %		
Consistent condom use in past 30 d	61.3	38.3	72.6	48.9	2.71 (1.24, 5.93)	.01
Condom use during most recent sexual intercourse	66.0	34.0	64.7	48.9	3.69 (1.78, 7.65)	.0001
New sex partner in past 30 d	3.1	11.1	4.9	6.8	0.31 (0.09, 1.08)	.07
Positive for any sexually transmitted infection	16.9	39.7	18.5	23.0	0.47 (0.25, 0.87)	.02

Note. GEE = generalized estimating equation.

<sup>a</sup>Adjusted by baseline value of outcome variable and theoretical covariates (douching, gang involvement, and pregnancy desire in past 30 days).

the 6-month assessment, and 61 (83.6%) completed the 12-month assessment. Of the 73 participants allocated to the general health promotion condition, 65 (89.0%) completed the 6-month assessment and 65 (89.0%) completed the 12-month assessment. There were no differences in attrition between participants in the 2 study conditions at either the 6-month ( $P=.62$ ) or 12-month ( $P=.34$ ) assessment.

Effects of the HIV intervention on dichotomous measures of safe sex and STDs

are shown in Table 2. Over the entire 12-month period, participants in the HIV prevention condition were more likely than participants in the general health promotion condition to report using condoms consistently (OR=2.71; 95% CI=1.24, 5.93;  $P=.01$ ) and to report using a condom at their most recent sexual intercourse (OR=3.69; 95% CI=1.78, 7.65;  $P=.0001$ ); conversely, they were less likely to have acquired a sexually transmitted infection

(OR=0.47; 95% CI=0.25, 0.87;  $P=.02$ ), and (although this result was not statistically significant) and were less likely to have a new sexual partner (OR=0.31; 95% CI=0.09, 1.08;  $P=.07$ ).

Effects of the HIV intervention on continuous safe sex measures are shown in Table 3. Over the entire 12-month period, participants in the HIV prevention condition reported significantly fewer episodes of unprotected vaginal intercourse in the preceding 30 days (adjusted mean difference=−1.48; 95% CI=−3.19, 0.23;  $P=.04$ ) than participants in the general health promotion condition, as well as significantly fewer episodes of unprotected vaginal intercourse in the previous 6 months (adjusted mean difference=−13.34; 95% CI=−25.07, −1.61;  $P=.008$ ). Also, the percentage of condom-protected sexual episodes in the previous 30 days was significantly higher in the HIV prevention group (adjusted mean difference=17.00; 95% CI=2.01, 32.00;  $P=.03$ ). Finally, participants in the HIV prevention group reported a slightly higher (nonsignificant) percentage of condom-protected sex acts in the preceding 6 months (adjusted mean difference=16.00; 95% CI=4.00, 28.00;  $P=.08$ ).

Effects of the HIV intervention on psychosocial mediators of safe sex are shown in Table 4. In comparison with participants in the general health promotion condition, participants in the HIV intervention had higher HIV prevention knowledge scores (adjusted mean difference=1.79; 95% CI=1.05, 2.57;  $P=.0001$ ), had more favorable attitudes toward using condoms (adjusted mean difference=1.81; 95% CI=0.79, 2.83;  $P=.005$ ), reported fewer perceived partner-related condom barriers (adjusted mean difference=−5.51; 95% CI=−9.21, −1.82;  $P=.05$ ), demonstrated greater proficiency in applying condoms (adjusted mean difference=1.03; 95% CI=0.68, 1.38;  $P=.0001$ ), and had higher condom use self-efficacy scores (adjusted mean difference=3.21; 95% CI=0.39, 6.04;  $P=.04$ ). The frequency with which they negotiated safe sex was not higher than the frequency observed among participants in the general health promotion condition.

We also assessed whether the HIV prevention intervention increased participants' subsequent risk of experiencing gender-based

**TABLE 3—Effects of HIV Intervention on Continuous Measures of Self-Reported Sexual Behaviors**

	6-Month Assessment		12-Month Assessment		GEE Model Adjusted Mean Difference (95% Confidence Interval)	P
	Intervention Group, Unadjusted Mean (SD)	Comparison Group, Unadjusted Mean (SD)	Intervention Group, Unadjusted Mean (SD)	Comparison Group, Unadjusted Mean (SD)		
No. of episodes of unprotected vaginal sex in past 30 d	2.15 (5.13)	3.28 (5.71)	0.94 (2.13)	3.04 (5.75)	−1.48 (−3.19, 0.23)	.04
No. of episodes of unprotected vaginal sex in past 6 mo	5.89 (14.84)	17.50 (38.54)	6.20 (14.16)	17.51 (36.74)	−13.34 (−25.07, −1.61)	.008
Condom use in past 30 d, %	74.25 (38.91)	53.91 (42.52)	76.72 (40.61)	54.96 (47.64)	17.00 (2.01, 32.00)	.03
Condom use in past 6 mo, %	73.57 (36.12)	52.20 (39.62)	60.90 (41.76)	53.33 (42.47)	16.00 (4.00, 28.00)	.08

Note. GEE = generalized estimating equation. Mean differences were adjusted by baseline value of outcome variable and theoretical covariates (douching, gang involvement, and pregnancy desire in previous 30 days).

**TABLE 4—Effects of HIV Intervention on Psychosocial Mediators**

Measure	6-Month Assessment		12-Month Assessment		GEE Model Adjusted Mean Difference (95% Confidence Interval)	P
	Intervention Group, Unadjusted Mean (SD)	Comparison Group, Unadjusted Mean (SD)	Intervention Group, Unadjusted Mean (SD)	Comparison Group, Unadjusted Mean (SD)		
HIV knowledge (range: 0–18)	11.65 (2.73)	10.00 (3.27)	11.75 (2.55)	10.21 (3.32)	1.79 (1.00, 2.57)	.0001
Condom attitudes (range: 8–40)	37.69 (3.11)	35.56 (4.54)	36.42 (4.26)	35.29 (4.50)	1.81 (0.79, 2.83)	.005
Partner-related condom barriers (range: 10–50)	38.62 (15.19)	45.32 (16.43)	40.49 (15.41)	42.85 (14.48)	–5.51 (–9.21, –1.82)	.05
Condom use self-efficacy (range: 9–45)	35.66 (9.47)	32.08 (9.83)	36.42 (9.54)	32.92 (9.50)	3.21 (0.39, 6.04)	.04
Demonstrated skill in applying condoms (range: 0–6)	4.38 (0.91)	3.30 (1.40)	4.17 (1.28)	3.68 (1.28)	1.03 (0.68, 1.38)	.0001

Note. GEE = generalized estimating equation. Mean differences were adjusted by baseline value of outcome variable and theoretical covariates (douching, gang involvement, and pregnancy desire in previous 30 days).

violence. Over the entire 12-month period of the study, the odds of experiencing gender-based violence did not differ between participants in the HIV prevention intervention and participants in the general health promotion condition (OR = 1.01; 95% CI = 0.19, 5.18;  $P = .99$ ).

## DISCUSSION

This secondary analysis of a randomized controlled HIV prevention trial involving female adolescents demonstrated that, among young women who had a history of gender-based violence, the HIV intervention led to substantial reductions in HIV-associated sexual behaviors, favorable changes in theoretically derived psychosocial mediators, and, most important, reductions in frequencies of sexually transmitted infections. These results are in contrast to previous research suggesting that adolescents with a history of gender-based violence may face significant barriers in enacting many of the safe sex messages of HIV interventions with their male sex partners.<sup>16</sup>

The efficacy of the HIV intervention assessed in this study might be attributed to its conceptualization within a gender-tailored framework, the theory of gender and power. Specifically, the intervention focused on reducing emotional stressors (e.g., low self-esteem)

that can interfere with young women having healthy relationships, reducing partner-related barriers associated with not using condoms, enhancing their competency in using condoms, making informed choices about partner selection, and perceiving control in their sexual relationships. Because female adolescents who have experienced gender-based violence are more likely than those who have not to report having riskier sexual partners,<sup>16</sup> lower perceptions of control over safe sex,<sup>16</sup> and lower self-esteem,<sup>37</sup> addressing these gender-based characteristics as part of the intervention may have encouraged participants to engage in self-protective HIV behaviors.

Another noteworthy finding of this study was that the HIV prevention intervention did not increase the incidence of subsequent abuse during the 12-month follow-up period. Thus, the intervention reduced these young women's risk of HIV without placing them at harm for further victimization. Also interesting was that, in comparison with participants in the general health promotion condition, participants in the HIV intervention condition did not report increasing the frequency with which they negotiated safe sex. Previous research has shown that female adolescents who report a history of gender-based violence are more likely than female adolescents who do not report such a history to incur abuse as

a result of requesting condom use from their male sex partners.<sup>16</sup> To reduce further victimization and risk of HIV, participants in the HIV intervention may have elected to use alternative HIV prevention strategies that did not involve negotiation with their partners.

Although our study involved a number of methodological strengths, such as use of a randomized controlled design, use of a comparison condition structurally similar to the intervention condition, and inclusion of laboratory-confirmed data on STDs, it was not without limitations. First, our analyses included only a subgroup of the overall study sample, and statistical power to detect differences between the conditions was limited as a result of the small size of this subgroup. Second, the study population was limited to sexually experienced African American adolescent girls recruited from clinical venues. Thus, our findings may not be applicable to female adolescents who have different risk profiles (i.e., injection drug use history) or who are recruited from nonclinical venues.

Third, although the incidence of sexually transmitted infections was significantly lower among participants in the intervention condition than among those in the comparison condition, future interventions should include relapse prevention strategies to reinforce or amplify educational messages and further reduce frequencies of sexually transmitted infections. Fourth, our limited definition of gender-based violence did not include forms of violence known to be associated with HIV risk taking (e.g., child sexual abuse).<sup>38</sup>

Finally, a limitation of our measure of abuse is that it did not assess a defined time period. Thus, participants may have experienced recent abuse or abuse that took place many years in the past. Also, because we did not have information on this time frame, we were unable to determine whether the HIV intervention would have had the same effects among adolescent girls reporting a proximal abuse history and those reporting a distal abuse history. Future researchers examining HIV intervention efficacy may want to include participants reporting proximal and distal violence.

Overall, the observed magnitudes, consistency, and scope of the effects observed strengthen our confidence in the efficacy of the HIV intervention assessed. Furthermore,

our study contributes new evidence that HIV interventions might be effective among high-risk adolescent populations, including female adolescents with a history of gender-based violence. Given the substantial prevalence of gender-based violence experienced by female adolescents and the significant associations we observed between gender-based violence, HIV risk, and HIV infection, future HIV intervention research involving adolescent girls should address partner violence. ■

### About the Authors

Gina M. Wingood is with the Department of Behavioral Sciences and Health Education, Rollins School of Public Health, the Emory Center for AIDS Research, and the Department of Women's Studies, Emory University, Atlanta, Ga. Ralph J. DiClemente is with the Department of Behavioral Sciences and Health Education, Rollins School of Public Health, the Emory Center for AIDS Research, and the Department of Pediatrics, Emory University School of Medicine. Kathy F. Harrington and M. Kim Oh are with the Department of Pediatrics, School of Medicine, University of Alabama. Delia L. Lang is with the Department of Behavioral Sciences and Health Education, Rollins School of Public Health, and the Emory Center for AIDS Research. Susan L. Davies is with the Department of Health Behavior, School of Public Health, University of Alabama. Edward W. Hook III is with the Department of Medicine, School of Medicine, University of Alabama. James W. Hardin is with the Department of Biostatistics, School of Public Health, University of South Carolina, Columbia.

Requests for reprints should be sent to Gina M. Wingood, MPH, ScD, 4279 Roswell Rd, Suite 102-256, Atlanta, GA 30342 (e-mail: gwingoo@sph.emory.edu).

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### Contributors

G.M. Wingood and R.J. DiClemente contributed to the conceptualization and design of the study. G.M. Wingood, R.J. DiClemente, D.L. Lang, E.W. Hook III, and J.W. Hardin contributed to data analysis and interpretation. G.M. Wingood, R.J. DiClemente, K.F. Harrington, D.L. Lang, S.L. Davies, S.W. Hook III, M.K. Oh, and J.W. Hardin contributed to revisions of the article.

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This study was approved by the institutional review board of the University of Alabama, Birmingham. Participants provide written informed consent to take part in the study.

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