

## HIV Risk Reduction among Young Minority Adults in Broward County

WayWay M. Hlaing, MBBS, MS, PhD  
William W. Darrow, PhD

*Abstract:* We examined changes in perceptions of HIV risk, abstinence, condom use, and intentions to use condoms for disease protection among African American, Hispanic, Haitian, and Afro-Caribbean unmarried and married men and women living in Broward County, Florida. Data were collected through computer-assisted telephone interview surveys conducted during 2001, 2002, and 2003 with cross-sectional probability samples of 18–39 year old residents of 12 high AIDS incidence ZIP code areas. Perceptions of HIV risk increased over time for men, but not for women. Unmarried Haitian women 18–22 years old were most likely to report abstinence. Condom use during the last 12 months increased among sexually active respondents. Among residents reporting exposure to project interventions, condom use increased from 53.6% in 2001 to 64.7% in 2002 and 71.6% in 2003. HIV-prevention programs should (1) consider locally collected data; (2) take into account cultural, living situation, and other significant differences; and (3) be evaluated to assess differentiated impact.

*Key words:* Abstinence, condom, community intervention, ethnicity, disparities, heterosexual transmission, HIV prevention, impact evaluation.

Worldwide, heterosexual transmission is believed to be responsible for the majority of human immunodeficiency virus (HIV) infections.<sup>1</sup> Heterosexual women are at greater risk for HIV infection per sexual exposure than heterosexual men. Heterosexually acquired HIV infections represented 35% of new HIV cases reported in the United States (U.S.) in 2003; 64% of these infections occurred in women.<sup>2</sup> Most women in the U.S. who acquire HIV infection through heterosexual contact are of reproductive age (20 to 44 years old) and are African American or Latina.<sup>3</sup> Although African Americans and Latinos represent about 12% and 14% of the U.S. population, respectively, they accounted for 50% and 20% of new Acquired Immunodeficiency Syndrome (AIDS) diagnoses in 2002, respectively.<sup>4–5</sup>

In a national survey on public attitudes towards HIV/AIDS,<sup>6</sup> HIV/AIDS was perceived to be the most urgent health problem facing the U.S. by about 35%, 30%, and 13% of African Americans, Latinos, and non-Latino Whites, respectively. High HIV-risk behavior has been associated with greater barriers to using condoms among African Americans. In a community-based study conducted in San Francisco

---

*WAYWAY HLAING and WILLIAM DARROW are affiliated with the Robert R. Stempel School of Public Health at Florida International University. WayWay Hlaing can be reached at hlaingw@fiu.edu.*

in 1988–1990,<sup>7</sup> over half of those at sexual risk for HIV infection reported never using condoms. Of those at risk, about 75% of African American women and 62% of African American men reported that they had not used a condom within the last 12 months. In a national survey of 4,658 heterosexual Hispanic respondents from 23 U.S. cities, only 20% of those with multiple partners reported using a condom regularly.<sup>8</sup>

Since the mid-1980s, the U.S. Public Health Service has advocated and supported a multifaceted strategy for the primary prevention of sexually transmitted HIV infections.<sup>9</sup> The three major components of this approach are abstinence, monogamy for uninfected couples, and the proper and consistent use of latex condoms for people at risk for HIV transmission.<sup>10</sup> To carry out HIV-prevention efforts, the federal government has invested heavily in biomedical research and programs that emphasize screening for selected populations, anonymous and confidential counseling and testing, contact tracing and partner notification, health education for risk reduction, and surveillance systems to measure morbidity and mortality trends.<sup>11</sup>

To complement the essential services of HIV-prevention programs in the U.S.,<sup>12</sup> community demonstration projects have been developed for (and evaluated with) high-risk populations, such as men who have sex with men, sex workers, injection drug users, and their sexual partners.<sup>13</sup> In contrast to public health programs that were designed by teams of biomedical experts on the basis of epidemiologic data and trends, the AIDS Community Demonstration Projects (ACDP) were designed by social and behavioral scientists on the basis of interpersonal theories of behavior change.<sup>14–15</sup> In addition, ACDP required substantial input from local community members before implementation.<sup>13</sup> Results were encouraging<sup>16</sup> and led us to consider a similar approach for the elimination of disparities in HIV disease among racial and ethnic minority populations living in our area.<sup>17</sup>

Broward County is a richly diverse metropolitan area where four major racial/ethnic minority populations reside: African Americans, Hispanics, Haitians, and other Caribbean Islanders of African ancestry.<sup>17</sup> Surveillance data suggest each is at higher risk for infection with HIV than the predominant non-Hispanic White population.<sup>18</sup> The most likely mode of transmission among minority residents appears to be heterosexual contact. Therefore, our Coalition proposed an innovative community demonstration project aimed at reducing HIV transmissions among 18–39 year old African American, Hispanic, Haitian, and Afro-Caribbean adults living in 12 (out of 53) ZIP-code areas of Broward County, Florida reporting a high incidence of AIDS cases among minority residents.<sup>17,19</sup> The approach that we adopted and began implementing in winter 2001 would encourage community members to become actively involved in deciding for themselves how their community could best stop the spread of HIV, either by emphasizing abstinence, mutual monogamy, or condom use for persons at risk, or by trying to find the right balance of these three behavioral choices.<sup>17,20</sup>

The community action plan we have been implementing includes four educational interventions: (1) horizontal outreach to community members at potential risk of HIV infection; (2) vertical outreach to gatekeepers, stakeholders, and other

influential persons and organizations in Broward County; (3) strategic communications through mass (radio, television, and newspapers) and small (neighborhood newsletters, flyers, and promotional items) media; and (4) capacity building for community based organizations (CBOs) combined with public health infrastructure development.<sup>17</sup> Interventions were introduced gradually in 2001, peaked in 2002, and began to taper off in 2003 as annual budget cuts of 2% to 5% began to take effect. Public service announcements, advertisements, and posters typically listed and portrayed images of the behavioral choices of abstinence, mutual monogamy, and condom use (Figure 1).

For this report, we examined perceptions of HIV risk and self-report of abstinence, condom use, and intentions to use a condom in the past year, by sex, race/ethnicity, and marital status of 18 to 39 year old adults living in a 12 ZIP code area of high AIDS incidence. To determine if our intervention efforts showed signs of effectiveness, we examined changes in HIV risk perception, abstinence, use of the condom, and intentions to use condoms for disease protection over a three-year period, 2001–2003. Our aim was to assess our progress towards preventing HIV transmissions in four priority populations.

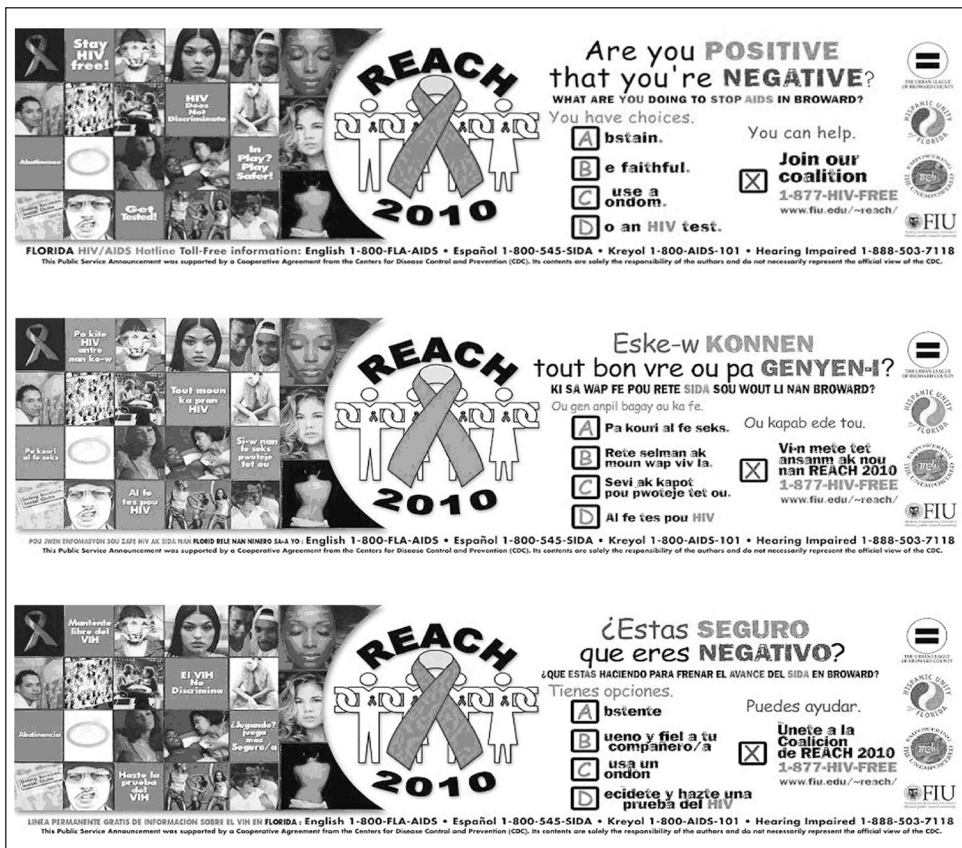


Figure 1. REACH 2010 poster portraying the behavioral choices of abstinence, mutual monogamy, and condom use in English, Haitian Creole, and Spanish.

## Methods

Research subjects were recruited for a series of three cross-sectional computer assisted telephone interview (CATI) surveys.<sup>17</sup> Multilingual interviewers uniformly trained and employed by the Institute of Public Opinion Research (IPOR) at Florida International University (FIU) placed telephone calls, screened respondents for eligibility, asked questions, and recorded responses. They gave their names to the person who answered the telephone call and identified their affiliation with FIU. As an incentive, a gift certificate worth \$10.00 or less was offered to those who agreed to complete “a brief survey about a major health initiative, funded by the federal government, to help people living in Broward County.”

**Sample.** Telephone numbers believed to belong to residents of the 12 ZIP-code areas where interventions were being carried out were selected at random. Cell-phone numbers were excluded from the sample. The baseline CATI survey was conducted as interventions were being developed and introduced in the first half of 2001. Subsequent CATI surveys were conducted in 2002 and 2003.

Enrollment was restricted to adults who were 18–39 years old and self identified as African American, Hispanic, Haitian, or Caribbean Islander of African ancestry. All resided in the 12 ZIP code area of Broward County where project interventions were carried out and materials were distributed and displayed. The area selected for study accounted for about three-fourths of the AIDS cases reported among Black and Hispanic 18–39 year old adults from 1994 through 1999.<sup>17</sup>

Since women are more likely than men to participate in telephone surveys,<sup>21</sup> the interviewer asked, “Is there a male in your household 18 to 39 [years old] of African American, Hispanic, Caribbean or Haitian descent?” If the answer was, “Yes,” the interviewer asked to “speak with him.” If not, the interviewer asked if there was a female in the household with the same age and racial/ethnic characteristics. If no one was eligible, the interviewer politely concluded the telephone call. If someone was eligible but unavailable, an appointment was made to call back. If an eligible person was ready to participate, the interview began. Interviews were conducted over the telephone in English, Spanish, or Haitian Creole, as preferred by the respondent. All research procedures were reviewed and approved by the University Institutional Review Board (IRB).

**Survey script and procedures.** The data-collection instrument was created to evaluate the impact of REACH 2010 interventions on the four populations of interest. Of particular concern was awareness in various communities of our primary HIV-prevention project, “Have you heard about REACH 2010?” The interview began, however, by asking about the respondent’s general state of health and health insurance coverage, then asked about four specific health problems that most affected the respondent, his (or her) family, and community: diabetes, drug abuse, gonorrhea, and AIDS.

After the interviewer inquired about testing and receiving test results for the four specific health conditions, attention shifted to awareness of organizations working in the county to address these and related health concerns, and what the respondent had done, if anything, to help solve these health problems. Questions

about the extent of the AIDS problem in Broward County, sources of information about AIDS, and the respondent's possible risk of exposure to HIV followed. The latter section was introduced with two transition sentences, "Now, I want to ask you a few questions about the risk of HIV infection and how people might protect themselves. If you don't want to answer any of these questions, that's O.K., just let me know as I read them."

The four questions that are the primary focus of this report were then asked: "First, what are your chances of getting HIV, that is the virus that causes AIDS: Would you say high, medium, low, or none?" Response categories included the four levels of risk and, *Already have AIDS or HIV*. Next, an introductory statement and a question on lifetime use of condoms were read: "People use condoms for different reasons including birth control and disease protection. Have you ever used condoms with a partner for birth control only, for disease protection only, both for birth control and disease protection, have you never used a condom with a partner, or have you never had sex?" The third question in this sequence was, "What about in the last 12 months? In the last 12 months, have you used condoms with a partner for birth control only, for disease protection only, both for birth control and disease protection, have you not used a condom with a partner in the last 12 months, or have you not had sex in the last 12 months?" The series concluded with this last question, "Were there any times during the last 12 months when you meant to use condoms for disease protection but then for some reason didn't?"

Classification questions of age in years, racial and ethnic identity, and sex of respondent were raised when the respondent agreed to be interviewed. Others were asked at the end. They included marital status, country of origin, highest grade in school completed, and annual household income.

**Analyses.** The Statistical Package for the Social Sciences (SPSS) and Statistical Analysis System (SAS®) were used to manage and analyze CATI survey data. Independent variables included age, age group, sex, race/ethnicity (African American, Hispanic, Haitian, and Afro-Caribbean), current marital status (single, never married, separated, widowed, and divorced were coded as *unmarried*; married and cohabitating partnership were coded as *married*), educational attainment (12 years or less vs. more than 12 years completed), and income (less than U.S. \$30,000 vs. U.S. \$30,000 or more per year). Age group was treated either as a dichotomous (18–29 vs. 30–39 years) or categorical (18–22, 23–28, 29–34 vs. 35–39 years) variable.

Dependent variables included (1) perception of HIV risk (high and medium were re-coded as *high-medium*, low and none were re-coded as *low-none*, and those who voluntarily admitted that they had HIV or AIDS were treated separately), (2) abstinence (those who indicated that they never had sex or had not had sex in the past year were coded as *yes*), (3) condom use in the past year (for birth control, disease protection, or both were re-coded as *yes*; other presumably sexually active persons were re-coded as *no*), and (4) failure to use condoms for disease protection was determined by answers to the fourth question in the series (*meant to use condom* was coded as *yes*).

The major intervening variable used to assess trends was the year that the respondent was enrolled. Descriptive analyses included frequencies in various categories by

year of enrollment. Pearson's chi-square test for statistical significance was used to assess differences between categories of respondents. Cochran Armitage tests were performed to evaluate trends in certain variables during the three survey years.

Multivariable logistic regression models were fitted to assess the probability of condom use in the past 12 months among sexually active participants. The dependent variable was the binary outcome of those who said they had used a condom for any reason versus those who had not. Independent variables were dichotomized and included age group, sex, marital status, and race/ethnicity (African American or other). Whether the participant had heard of REACH 2010 activities (yes or no) was also included as a covariate. Odds ratios and corresponding confidence limits were mutually adjusted for other variables in the model. Wald chi-square statistics for significance testing of parameter estimates and confidence intervals for adjusted odds ratios were computed.

## Results

Altogether, 5,035 different individuals were enrolled in the three CATI surveys. In 2001, 2,011 residents were recruited, 1,810 were recruited in 2002, and 1,214 in 2003. Over 70,000 telephone calls were placed each year to obtain these 5,035 respondents who met our strict requirements for eligibility.

All 1,675 African American and 98.9% of 952 Afro-Caribbean participants asked to be interviewed in English. Slightly more than half (51.4%) of the 1,544 Hispanic participants chose to be interviewed in English; the rest (48.5%) were interviewed in Spanish. The majority (70.4%) of Haitian respondents preferred English; the remainder (29.6%) were interviewed in Haitian Creole. The average interview time was 18.6 ( $\pm 5.3$ ) minutes.

The mean age of the 5,035 respondents was 28.5 ( $\pm 6.7$ ) years. Although we attempted to enlist equal numbers of men and women, participants more often were women (64.1%). They also tended to be unmarried (58.9%) and to have annual incomes of less than U.S. \$30,000 (Table 1).

Characteristics of participants were similar in all three years except for annual income, education, and race/ethnicity. As indicated in Table 1, a large proportion of respondents either did not know their household income or were unwilling to provide this information. The highest proportion of participants in one racial/ethnic group were African American in 2001 (34.6%) and in 2002 (34.9%). In 2003, however, more Hispanic (36.8%) than African American (28.7%) residents participated (Figure 2).

**Perceptions of risk.** Altogether, 8.3% of survey respondents thought they were at high risk of acquiring HIV, 9.2% at medium risk, 32.7% at low risk, 45.3% at no risk, 0.2% voluntarily admitted that they had HIV or had developed AIDS, and 1.1% either could not judge their risk or refused to answer this question. The eight respondents with HIV/AIDS tended to be older (median=34.5) than the average respondent (median=29). They included five men, three women, and at least one member of each of our four priority communities.

Among those who estimated their risk, African American (20.0%), Haitian

**Table 1.**  
**SURVEY PARTICIPANTS ENROLLED**  
**IN 2001, 2002, AND 2003 (N=5035)**

Characteristics	2001 n (%)	2002 n (%)	2003 n (%)	Total N	p-value
<b>Gender</b>					>.05
Male	712 (35.4)	671 (37.1)	426 (35.1)	1809	
Female	1299 (64.6)	1139 (62.9)	788 (64.9)	3226	
<b>Ethnicity</b>					<.01
African American	695 (34.6)	632 (34.9)	348 (28.7)	1675	
Hispanic	520 (25.9)	577 (31.9)	447 (36.8)	1544	
Haitian	392 (19.5)	270 (14.9)	202 (16.6)	864	
Caribbean	404 (20.1)	331 (18.3)	217 (17.9)	952	
<b>Age (years)</b>					>.05
18–29	1061 (52.8)	948 (52.4)	675 (55.6)	2684	
30–39	950 (47.2)	862 (47.6)	539 (44.4)	2351	
<b>Marital status<sup>a</sup></b>					>.05
Unmarried	1185 (58.9)	1077 (59.5)	705 (58.1)	2967	
Married	819 (40.7)	732 (40.4)	505 (41.6)	2056	
<b>Education<sup>b</sup></b>					<.05
≤12 years	1055 (52.5)	851 (47.0)	616 (50.7)	2522	
>12 years	946 (47.0)	952 (52.6)	592 (48.8)	2490	
<b>Annual income<sup>c</sup></b>					.01
< US \$30,000	963 (47.9)	713 (39.4)	504 (41.5)	2180	
≥\$30,000	590 (29.3)	544 (30.1)	319 (26.3)	1453	

<sup>a</sup>12 missing data.

<sup>b</sup>23 missing data.

<sup>c</sup>1402 missing data.

(19.7%), and Hispanic (18.2%) residents were more likely than Caribbean Islanders (14.3%) to believe that they could be exposed to HIV ( $p < .01$ ). Men (22.9%) were more likely than women (15.8%) to consider themselves to be at medium to high risk of becoming infected ( $p < .01$ ). During the three-year intervention period, perceptions of risk increased for men, but not for women (Table 2).

**Abstinence.** In response to the question about ever using a condom for birth control or disease protection, 3,648 respondents (72.5%) said they had used a condom for birth control, 3,242 (64.4%) had used a condom for disease protection, 583 (11.6%) had never used a condom, 336 (6.7%) had never had sexual intercourse, 118 (2.3%) refused to answer, and 45 (.9%) didn't know or weren't sure. In addition to the 336 respondents who had never had sex, 325 (8.1%) of the 3,999

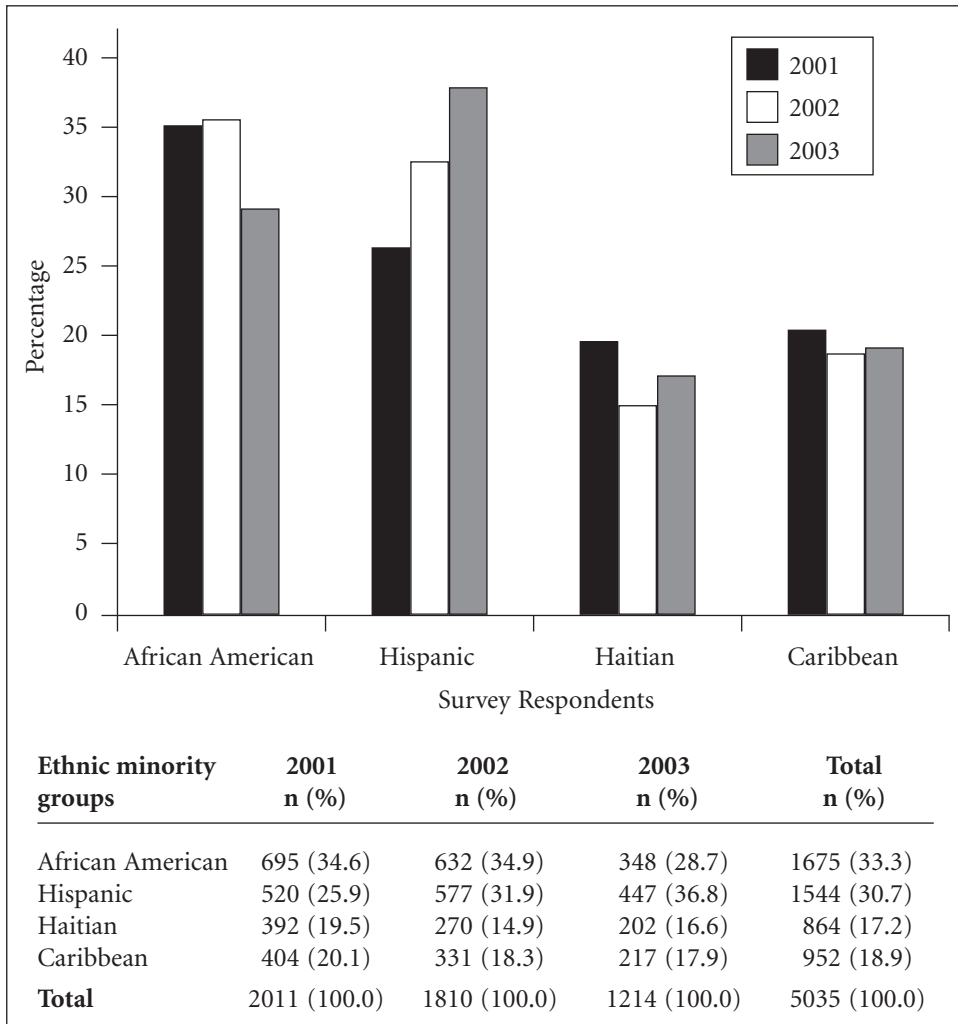


Figure 2. Ethnic distribution of survey respondents, 2001–2003.

who were asked the follow-up question said they had not had sexual intercourse in the last 12 months. Thus, 661 (15.5%) of the 4,265 participants who provided information about their sex histories were abstinent in the 12-month period before enrollment in CATI surveys.

Abstinence was associated with the youngest age group (18–22 years old), being unmarried, and being a woman ( $p < .05$ ). It was also associated with race/ethnicity. Haitian respondents (18.7%), especially unmarried Haitian women 18–22 years old (46.3%), were more likely than others to refrain from sexual intercourse during the past year. Those who were abstinent were significantly more likely to consider themselves at no or low risk of HIV infection (87.6%) than those who had used condoms (76.6%) in the past year ( $p < .001$ ).

When compared with respondents who were sexually active in the past 12

**Table 2.**  
**PERCEPTIONS OF HIV RISK AMONG**  
**MINORITY MEN AND WOMEN, 2001–2003**

Perception of HIV risk	2001 n (%)	2002 n (%)	2003 n (%)	Total N (%)
<b>Men<sup>a</sup></b>				
High-medium	133 (19.9)	145 (22.6)	116 (28.2)	394 (22.9)
Low-none	536 (80.1)	497 (77.4)	296 (71.8)	1329 (77.1)
<b>Total</b>	669 (100.0)	642 (100.0)	412 (100.0)	1723 (100.0)
<b>Women<sup>b</sup></b>				
High-medium	195 (15.9)	178 (16.3)	114 (14.9)	487 (15.8)
Low-none	1029 (84.1)	917 (83.7)	650 (85.1)	2586 (84.2)
<b>Total</b>	1224 (100.0)	1095 (100.0)	764 (100.0)	3083 (100.0)

<sup>a</sup>Chi-square=9.9; df=2, p=.007, Trend: p=.002.

<sup>b</sup>Chi-square=.6; df=2, p=.73, No Trend.

months, abstinence declined slightly (Table 3). Among 2,668 women enrolled over the three-year period, abstinence declined from 19.2% in 2001 to 16.6% in 2002 and to 15.3% in 2003.

**Condom use.** Two thirds (68%) of the 2,600 respondents who used condoms in the past year said they were used for the dual purpose of birth control and disease protection. Therefore, those who reported using condoms for either purpose in the past 12 months were combined and compared with respondents who were abstinent, never used condoms, or may have used condoms previously, but not in the past year.

**Table 3.**  
**ABSTINENCE, CONDOM USE, AND**  
**SEXUAL ACTIVITY WITHOUT CONDOMS**

Sex in past year	2001 n (%)	2002 n(%)	2003 n (%)	Total N (%)
Abstinent	300 (17.4)	219 (14.2)	142 (14.2)	661 (15.5)
Used condom	975 (56.4)	964 (62.7)	630 (63.1)	2569 (60.2)
Without condom	454 (26.3)	354 (23.0)	227 (22.7)	1035 (24.3)
<b>Total</b>	1729 (100.0)	1537 (100.0)	999 (100.0)	4265 (100.0)

Chi-square=18.4; df=4, p=.001.

Condom use in the past year was more frequently reported by men (63.7%), unmarried respondents (65.8%), and by African American men and women (60.0%) than by all others ( $p < .01$ ). It also tended to decrease with age, from 71.9% for those 18–22 years old, to 59.6% for those 23–28, to 50.0% for those 29–34, to 41.2% for those 35–39 ( $p < .001$ ). Community members who had used condoms in the past year had a higher perception of possible risk of exposure to HIV than those who did not ( $p < .001$ ).

Condom use in the past year increased from 53.6% in 2001 to 64.7% in 2002 and 71.6% in 2003 among those who said they had heard about or seen our community demonstration project materials. It remained unchanged at about 54% for those who had not been exposed to project materials. In a logistic regression model, significant independent correlates of condom use in the past year among sexually active respondents interviewed in 2003 included exposure to project messages. Other correlates were younger age, and being African American, male, and unmarried (Table 4).

**Failure to use condoms.** One sixth of 3,596 respondents (15.7%) said there was at least one time in the last 12 months when they meant to use a condom for disease protection, but then for some reason did not. The proportion did not change

**Table 4.**

**LOGISTIC REGRESSION MODEL OF CONDOM USE  
IN THE LAST 12 MONTHS REPORTED BY SEXUALLY  
ACTIVE MINORITY RESIDENTS INTERVIEWED IN 2003**

Variable	Adjusted odds ratio	95% Confidence interval	Wald chi-square	p
<b>Age</b>				
18–29 years old	2.3	1.7–3.1	32.0	<.01
30–39 years old	1.0			
<b>Sex</b>				
Male	1.9	1.4–2.6	17.8	<.01
Female	1.0			
<b>Race/ethnicity</b>				
African American	1.6	1.2–2.2	8.4	<.01
Other	1.0			
<b>Marital status</b>				
Unmarried	2.4	1.8–3.3	34.8	<.01
Married	1.0			
<b>Heard about REACH 2010</b>				
Yes	2.6	1.3–5.0	7.9	<.01
No	1.0			

over the three-year period covered by our CATI survey. Failure to use condoms for disease protection was strongly associated with both a perception of medium to high risk of exposure to HIV and a history of having used condoms in the past year ( $p < .001$ ).

Among respondents who thought that they might be at medium to high risk of HIV infection, 22.1% of 837 said they meant to use a condom, but then did not. Among the 567 who had used a condom in the past 12 months, the percentage increased to 28.6%. Among the 270 who had not used a condom in the past year, the percentage dropped to 8.5%.

Among respondents who considered themselves to be at low to no risk of HIV infection, 10.0% of 3,579 said they meant to use a condom, but then did not. Among the 1,860 who had used a condom in the past 12 months, the percentage increased to 17.0%. Among the 1,719 who had not used a condom in the past year, the percentage fell to 2.3%.

## Discussion

The Abstinence, Be faithful, and Condom use (ABC) approach to primary HIV prevention has recently received considerable attention because of its apparent success in reducing HIV prevalence in Uganda.<sup>22</sup> Although the U.S. (and other countries) embarked on this same strategy in the mid-1980s, the ABC effort in the U.S. (and other countries) has been considered a failure by some critics because it has emphasized biomedical rather than primary behavior change solutions.<sup>23</sup> However, other differences between the U.S. and Uganda must be considered: (1) Uganda had extremely strong political support and leadership on ABC from its president, (2) Uganda experienced and many Ugandans witnessed extremely high rates of AIDS-related mortality, and (3) Uganda was able to pull together diverse organizations to focus on a universal message (“zero grazing”) to address a generalized epidemic that affected all segments of society.<sup>24</sup> Americans have not benefited from similarly strong presidential leadership on HIV/AIDS programs in general or ABC in particular or suffered from such devastating death rates among all social classes.

With the objective of trying to eliminate disparities in HIV by the year 2010, Coalition members decided to allow 18–39 year old adults living in areas of high AIDS incidence to choose for themselves the behavioral option that best suited their personal situations. We found that the most popular response was to use condoms at least some of the time, but there were variations in choices by social structural variables, such as age, sex, marital status, and racial/ethnic identification. Abstinence was a far more common choice for the youngest age group, women, unmarried respondents, and Haitian members of the community. Older and married residents, and particularly African American men and women, were more likely than the youngest and unmarried residents to indicate that they were sexually active and were using condoms for the dual purposes of birth control and disease prevention.

Simultaneously with the delivery of our interventions in Broward County, the

percentage of residents who reported using condoms increased as the percentage of residents reporting abstinence and sexual intercourse without any use of condoms decreased. The effects were small but statistically significant. Coupled with our finding that perceptions of risk of HIV infection increased for men over the initial three-year period of intervention, increases in condom use may indicate that young men are more likely to use condoms as they begin to engage in sexual intercourse or as they begin to realize their risks of infection with HIV. These findings suggest our community demonstration project might be reaching some members of the community with information they need to begin responding responsibly to their personal risk assessments, but we must be very cautious in drawing any causal connection between these trends.

Randomized control trials are very difficult and expensive to conduct when communities are the units of analysis. Among the 24 REACH 2010 projects funded in 2000 for 4 years of intervention and evaluation, only 2 focused on HIV/AIDS. The other HIV/AIDS project was limited to Haitian Americans living in Boston and its surrounding suburbs.<sup>25</sup> Different priority populations, interventions, and methods of evaluation made meaningful comparisons between our accomplishments and their achievements impossible.<sup>26</sup> Since we have no control group, we don't know if the effects we have observed are due to our intervention efforts or to secular trends that would have occurred if we had done nothing at all.

Our community demonstration project has other limitations as well. Our sample was limited to those we could reach by telephone and who were willing to talk about intimate matters with an unknown interviewer over the telephone. Our outcome variable measured any condom use in the past year, when proper and consistent use of latex condoms between HIV-discordant sexual partners is necessary to prevent disease transmission. Our observations relied on unverifiable self-reports of sexual behaviors, and we did not attempt to gather any information about the numbers and characteristics of sexual partners, sexual practices, or other factors that are known to be associated with sexually transmitted infections.<sup>27</sup>

Despite the limitations, our community demonstration project tried to provide community residents and their representatives working in CBOs ample opportunities to help select, create, and implement culturally competent interventions and to help evaluate the delivery, impact, and outcomes of the program. Telephone interviews were selected as one of the ways in which information could be gathered from residents with minimal intrusion into their private lives. We were successful to the extent that 5,035 eligible residents agreed to speak with us, and over 95% of respondents were willing to respond to questions about lifetime and more recent sexual experiences when condoms were used, were not used, might have been used, or were irrelevant.

More importantly, the responses obtained have been useful in providing feedback to our diverse communities about their similarities and differences, working with each other to improve communication and build mutual trust, and the next steps that must be taken by the Coalition to continue to mobilize for effective action against HIV. Abstinence was clearly a viable option for the youngest members of our

sample who were unmarried, but even in this group the majority of respondents reported that they were sexually active and had some experience with condoms. With this evidence in hand, the Coalition decided to continue to promote abstinence as an effective way of eliminating the sexual transmission of HIV and other sexually transmitted diseases, but to consider adding persuasive messages about partner reduction and the proper and consistent use of latex condoms for those who are or might be involved in riskier relationships.<sup>28</sup>

## **Conclusion**

As part of an overall evaluation plan involving outreach worker field notes, personal interviews about sensitive sexual and drug-using behaviors, and urine testing for evidence of HIV-antibody, Chlamydia, and gonococcal DNA,<sup>17</sup> we conducted a series of three cross-sectional CATI surveys with 5,035 adults 18 to 39 years old living in high AIDS-incidence areas of Broward County, Florida. We found evidence of an increasing perception of HIV risk among men over the course of 3 years and increasing reports of condom use in the last 12 months by both sexually active men and women, accompanied by decreasing reports of sexual intercourse without condoms. Sexually active residents who had been exposed to our interventions were significantly more likely than others to report using a condom in the past year. HIV-prevention programs should carefully consider locally collected data, take into account cultural, living situation, and other significant differences among populations, and be evaluated to assess differentiated impact.

## **Acknowledgments**

This study was supported under Cooperative Agreements U50/CCU417341 and U50/CCU422194 with the Centers for Disease Control and Prevention (CDC). Ms. Julie Montanea served as Project Manager during the duration of this study and guided the development and implementation of interventions. Ms. Ula Zucker directed the creation of strategic communications, including the multilingual posters shown in Figure 1. Professor Hugh Gladwin and Ms. Ann Gorazco of FIU's Institute for Public Opinion Research supervised data collection. Dr. Paula Fernandez was responsible for data management. The opinions expressed in this article are those of the authors and not necessarily those of CDC.

## **Contributors**

Professor Hlaing assisted in conceptualizing the study, conducted data analyses, and drafted the manuscript; Professor Darrow was primarily responsible for developing the program plan and all research protocols, obtaining and managing support to implement and evaluate the project, coordinating activities, and collaborating in the analysis of survey data, interpretation of findings, and editing of this report.

## Notes

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). 2004 Report on the global AIDS epidemic: 4th global report. Geneva, Switzerland: UNAIDS, 2004 Jul.
2. Centers for Disease Control and Prevention (CDC). Heterosexual transmission of HIV—29 states, 1999–2002. *MMWR Morb Mortal Wkly Rep.* 2004 Feb 20;53(6):125–9.
3. Cohn SE, Clark RA. Sexually transmitted diseases, HIV, and AIDS in women. *Med Clin North Am.* 2003 Sep;87(5):971–95.
4. Centers for Disease Control and Prevention (CDC). Racial/ethnic disparities in diagnoses of HIV/AIDS—33 states, 2001–2004. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5505a1.htm>.
5. Centers for Disease Control and Prevention (CDC). HIV/AIDS Surveillance Report 16, cases of HIV infection and AIDS in the United States, 2004. Available at <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2004report/pdf/2004SurveillanceReport.pdf>.
6. The Washington Post, Kaiser Family Foundation (KFF), Harvard University. National survey on the public's attitudes towards HIV/AIDS in the U.S. and the world. Menlo Park, CA: KFF, 2002. Available at <http://www.kff.org/kaiserpolls/upload/National-Survey-on-the-Public-s-Attitudes-towards-HIV-AIDS-in-the-U-S-and-the-World-Survey-Toplines.pdf>.
7. Peterson JL, Grinstead OA, Golden E, et al. Correlates of HIV risk behaviors in black and white San Francisco heterosexuals: the population-based AIDS in multiethnic neighborhoods (AMEN) study. *Ethn Dis.* 1992 Fall;2(4):361–70.
8. Sabogal F, Faigees B, Catania JA. Data from the National AIDS Behavioral Surveys. II. Multiple sexual partners among Hispanics in high risk cities. *Fam Plann Perspect.* 1993 Nov-Dec;25(6):257–62.
9. Mason JO, Noble GR, Lindsey BK, et al. Current CDC efforts to prevent and control human immunodeficiency virus infection and AIDS in the United States through information and education. *Public Health Rep.* 1988 May-Jun;103(3):255–60.
10. Koop CE. Surgeon General's report on acquired immune deficiency syndrome. *JAMA.* 1986 Nov 28;256(20):2783–9.
11. Kalichman SC. Preventing AIDS: a sourcebook for behavioral interventions. Mahwah, NJ: Lawrence Erlbaum, 1998.
12. Centers for Disease Control and Prevention (CDC). Advancing HIV prevention: new strategies for a changing epidemic—United States, 2003. *MMWR Morb Mortal Wkly Rep.* 2003 April 18;52(15):329–32.
13. O'Reilly KR, Higgins DL. AIDS Community Demonstration Projects for HIV prevention among hard-to-reach groups. *Public Health Rep.* 1991 Nov-Dec;106(6):714–20.
14. Prochaska JO, Redding CA, Harlow LL, et al. The transtheoretical model of change and HIV prevention: a review. *Health Edu Q.* 1994 Winter;21(4):471–86.
15. Fishbein M, Middlestadt SE, Hitchcock PJ. Using information to change sexually transmitted disease-related behaviors. In: DiClemente RJ, Peterson JL, eds. *Preventing AIDS: theories and methods of behavioral interventions.* New York: Plenum, 1994; 61–77.
16. Anonymous. Community-level HIV intervention in 5 cities: final outcome data from the CDC AIDS Community Demonstration Projects. *Am J Public Health.* 1999 Mar;89(3):336–45.
17. Darrow WW, Montanea JE, Fernández PB, et al. Eliminating disparities in HIV disease:

- community mobilization to prevent HIV transmission among Black and Hispanic young adults in Broward County, Florida. *Ethn Dis.* 2004 Summer;14(3 Suppl 1): S108–16.
18. Broward County Health Department (BCDH). Broward County HIV and AIDS statistics. Fort Lauderdale, FL: BCDH, 2004. Available at <http://browardchd.org/Services/AIDS/Statistics.htm>.
  19. Racial and Ethnic Approaches to Community Health 2010 (REACH 2010); Demonstration Projects; Notice of Availability of Funds. Centers for Disease Control and Prevention. *Fed Regist.* 1999 May 18; 64(95):26977–81.
  20. Darrow WW, Montanea JE, Fernández PB, et al. Implementation and impact evaluation of a community-based prevention program to eliminate racial and ethnic disparities in HIV disease in a multicultural environment. In: *International Proceedings of the 8th World STI/AIDS Congress, Punta del Este (Uruguay), December 2–5, 2003.*
  21. Catania JA, Coates TJ, Stall R, et al. Prevalence of AIDS-related risk factors and condom use in the United States. *Science.* 1992;258(5085):1101–6.
  22. Stoneburner RL, Low-Beer D. Population-level HIV declines and behavioral risk avoidance in Uganda. *Science.* 2004 Apr 30;304(5671):714–8.
  23. Green EC. *Rethinking AIDS prevention: learning from success in developing countries.* Westport, CT: Praeger, 2003.
  24. Barnett T, Whiteside A. *AIDS in the twenty-first century: disease and globalization.* New York: Palgrave Macmillan, 2002.
  25. Metayer N, Jean-Louis E, Madison A. Overcoming historical and institutional distrust: key elements in developing and sustaining the community mobilization against HIV in the Boston Haitian community. *Ethn Dis.* 2004 Summer;14(3 Suppl 1):S46–52.
  26. Madison A, Hung R, Jean-Louis E. The Boston Haitian HIV Prevention Coalition formative evaluation: a participatory approach to community self-assessment. *Ethn Dis.* 2004 Summer;14(3 Suppl 1):S20–6.
  27. Jemmott JB 3rd, Jemmott LS, Fong GT. Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial. *JAMA* 1998 May 20;279:1529–36.
  28. Holmes KK, Levine R, Weaver M. Effectiveness of condoms in preventing sexually transmitted infections. *Bull World Health Organ.* 2004 Jun;82(6):454–61.