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HIV/AIDS Knowledge Among Female Migrant Farm Workers in the Midwest

Keri Fitzgerald,[1] Joana Chakraborty,[2] Trupti Shah,[1] Sadik Khuder,[3] and Joan Duggan[2–4]

The rate of HIV infection in the migrant farm worker community is 10 times the national average. A survey was conducted of 106 female migrant farm workers in rural Northwest Ohio to assess HIV knowledge. The average participant's age was 28.7 years, 78 spoke Spanish, and 47 had an ≤8th- grade education. Fifty-six women received their information on HIV/AIDS from television. Eighty-seven women identified sexual contact as the major source of HIV transmission and 54 women identified the combination of sex, use of needles, and blood contact as the important routes. Sixty-nine women identified both homosexual and heterosexual intercourse as risk factors. Only 58 women identified perinatal infection as a route of HIV transmission and 59 women knew that treatment was available to prevent perinatal transmission. Although the majority of women had a good general knowledge of HIV transmission, further prevention education on perinatal transmission is needed among this population.

KEY WORDS: HIV/AIDS; female; migrant.

INTRODUCTION

Over 4 million people in the United States are migrant farm workers (1). According to 1999 census data, Ohio's migrant farm worker population is estimated to be 12,500 (2). There are approximately 144 camps in Ohio with the majority of these camps concentrated in Northwest Ohio. The workers from these camps are predominantly from the Midwest and Eastern Migratory Streams. The Eastern Migratory Stream primarily consists of workers who migrate from Florida into the other states on the East Coast and the Midwest. The Midwest Stream primarily consists of workers from Texas, Mexico, and Latin America. In these migrant populations, the actual rate of HIV seropositivity is unknown, but is perceived to be higher than the national rates. In CDC studies of two migrant communities in 1987 and 1992, the HIV seropositivity rate was 2.6–5% (3, 4). By comparison, the overall estimated rate of seropositivity in the United States was 0.28% (700,000/248,000,000) (5).

Unfortunately, the migrant community often lacks access to routine health care in general and subspecialty Infectious Diseases care for diseases like HIV is essentially nonexistent. Federally subsidized migrant health centers exist in the United States, but those serve only a small section of the target population. In addition, multiple other barriers, including transportation, harvesting deadlines, isolation, lack of education, and language barriers, often make accessing treatment impossible.

Federally funded treatment programs for complicated chronic illnesses, such as HIV, are often not available to migrant farm workers (6). In the migrant community, HIV remains a stigmatizing disease (7). Multiple cultural influences, such as lack of condom use, female acceptance of multiple sex partners by their husbands or boyfriends, and lack of male and female discussion of sexuality, may contribute to

[1]School of Medicine, Medical College of Ohio, Toledo, Ohio.
[2]Department of Physiology and Molecular Medicine, Medical College of Ohio, Toledo, Ohio.
[3]Department of Medicine, Medical College of Ohio, Toledo, Ohio.
[4]Correspondence should be directed to Joan Duggan, M.D., Department of Medicine, Medical College of Ohio, 3120 Glendale Avenue, Toledo, Ohio, 43614-5809; e-mail: jduggan@mco.edu.

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a higher HIV risk (8, 9). In addition, other factors including the rise of alcohol and drug use, and prostitution create additional barriers to care, and increase the risk of HIV transmission. Injectable vitamins and antibiotics continue in popularity among the migrant population, which makes them vulnerable to HIV infection due to needle sharing (10). Thus, migrant workers remain a high-risk population with limited access to care and multiple barriers to delivery of care. Major efforts have consequently focused on prevention education in fighting the epidemic in this community. Multiple culturally sensitive prevention education initiatives have been implemented at the local, state, and federal levels to disseminate general information about HIV infection and risk factors for transmission (11–13). One example of this includes the widespread use of the Promatoras de Salud (lay health educators) to deliver peer education regarding HIV in a culturally sensitive manner (14). As we enter the third decade of the HIV epidemic, a survey was undertaken of a group of female migrant workers regarding their HIV knowledge and secondary HIV/STD risk behaviors.

METHODS

A 24-item survey questionnaire was developed to assess basic levels of HIV knowledge. It was translated into the Spanish language by one of the authors (K.F.), who is a former bilingual migrant community center administrator with extensive translational experience. Institutional Review Board (IRB) approval was obtained. Female migrant workers were recruited during July to September 2000 to participate in this study. Seven Promatoras employed through Rural Opportunities, Inc. (ROI), a free-standing migrant farm worker organization located in Liberty Center, Ohio (Northwest Ohio), partly funded by the Ohio Department of Health, were recruited to conduct face-to-face interviews of the participants and were trained by one of the authors (K. F.). Women were asked by the Promatoras during routine outreach camp visits to participate in an anonymous survey on HIV and AIDS. The survey was administered to the women in the language of their choice (Spanish or English) and answers were recorded by the Promatoras. The survey was conducted in nine counties in rural Northwest Ohio, including Wood, Sandusky, Seneca, Ottawa, Hancock, Putnam, Henry, Fulton, and Williams. The data entry and statistical analyses were performed by using a Statistical Analysis System (SAS). Chi-square tests were used for comparing categorical variables and nonparameter tests were used for comparing knowledge scores and other variables on the survey.

Besides demographic profile summary questions, three major types of questions were asked about the following: 1) HIV/AIDS basic knowledge; 2) HIV/AIDS specific knowledge; and 3) HIV/STD risk behavior. Demographic questions included age, home base and country, primary language for speaking and writing, education level, marital status, age when married, and number of children. Basic HIV/AIDS questions included ability to recognize the medical terms, and where information about HIV/AIDS was obtained. Questions regarding HIV/STD risk behavior included attitudes toward multiple sexual partners for men or women, presence of a vaginal infection, use of condoms during sex, ability to discuss HIV/AIDS with partner, and use of needles in camp. The specific knowledge questions were divided into three sets of questions. The first question set consisted of five questions about general transmission of HIV, such as casual contact, sexual contact, infectious fluid contact. The specific questions were. How can an infected person transmit HIV to you? kissing/sex/blood/needles/shaking hands. The Promatoras asked each question individually and circled the indicated answer on the survey sheet. The second question set consisted of six questions about more specific aspects of general transmission such as what type of sex and what type of needle or infectious fluid contact may result in transmission. The specific questions were who is at risk for getting HIV/AIDS? Homosexuals only; heterosexuals only; homosexuals, heterosexuals, and hemophiliacs? People who have had blood transfusions in the last 5 years? IV drug users and babies born to mothers with HIV? The Promatoras asked each question individually and circled the indicated answers on the survey sheet. The third question set consisted of three broad questions about diagnosis and prevention of HIV. The specific questions were Is there a vaccine for HIV? Can HIV be detected in a blood test? If HIV is detected in a woman during pregnancy, can the baby be helped? Respondents indicated a yes or no answer, which was circled on the survey sheets. The Promatoras were available to help women with any words they did not understand and adapt the survey to a lower educational group, as needed, through word substitution, and were able to administer the test in both English and Spanish.

RESULTS

One hundred and six women participated in this survey. Not all survey respondents answered each question. Demographic information is presented in Table I. The average age of respondents was 28.7 years. The majority of the respondents who indicated a home base had a home base in Texas ($n = 48$; 45%). The country of origin was the United States for 87 (82%). However, Spanish was the preferred language for speaking ($n = 78$; 74%) and writing ($n = 57$; 54%). The majority of respondents were married ($n = 66$; 62%) with age at marriage between 16 and 19 years ($n = 46$; 43%). The number of children varied from zero to eight, with a median of three children per respondent. Almost half of these women achieved an educational level of less than or equal to eighth grade ($n = 47$; 44%). Twenty-four (23%) had a 9–11th grade education. Twenty women (19%) had a high school degree or equivalent and four (3%) had ≤2 years of college education.

Women were surveyed regarding their basic knowledge of HIV/AIDS (Table II). The majority ($n = 80$; 75%) were familiar with the term HIV/VIH. Even more ($n = 96$; 91%) were familiar with the term AIDS/SIDA. Approximately 45 (42%) attended at least one lecture on HIV/AIDS presented at the camps or other farm worker gatherings by ROI. The major source for HIV knowledge for most women was television ($n = 56$; 53%). The other major sources of information were the clinic/doctor ($n = 34$; 32%), camp Promatoras/health care workers, and school ($n = 28$; 26%). Family and friends were an infrequent source of information ($n = 11$; 10% and $n = 12$; 11%, respectively).

Regarding specific knowledge on HIV/AIDS (Table III), women were asked a total of 14 questions. These 14 questions were grouped into three question sets. Question set #1 (five questions) evaluated general forms of HIV transmission. Question Set #2 (six questions) evaluated more specific forms of general transmission. Question Set #3 (three questions) consisted of broad questions on the diagnosis and nonsexual prevention of HIV. Demographics of correct responders for the questions are not listed in the tables, but are discussed in the text.

Out of 106 women, 54 (51%) answered the entire Question Set #1 correctly by indicating HIV transmission occurs through sex, blood, and needle contact and not through kissing and handshaking. Only a small percentage ($n = 2$; 2% and $n = 4$; 3%) of 106 women in question set #1 stated that HIV could be transmitted by kissing and handshaking, respectively. The vast majority correctly identified sex ($n = 87$; 82%), blood contact ($n = 72$; 68%), and use of needles ($n = 65$; 61%) as important routes of HIV transmission. Half ($n = 27$; 50%) of the 54 women, who

Table I. Demographic Information of Survey Respondents

Number of respondents	106	
Age range	13–61	
Average age	28.7	
	n	%
Home base by state/country		
Texas	48	(45)
Florida	21	(20)
Mexico	3	(3)
Other	19	(18)
Country or origin		
USA	87	(82)
Mexico	9	(8)
Other	10	(9)
Language (primary)		
speaking		
Spanish	78	(74)
English	24	(23)
Unknown	4	(3)
writing		
Spanish	57	(54)
English	33	(31)
Unknown	16	(15)
Marital age		
≤ 15	9	(8)
16–19	46	(43)
20–27	24	(23)
Marital status		
Married	66	(62)
Single	21	(20)
Widowed	1	(1)
Live-in partner	11	(10)
Divorced	4	(3)
Not specified	3	(3)
Children		
0	9	(8)
1	11	(10)
2	19	(18)
3	25	(24)
4	16	(15)
≥ 5(max. 8)	11	(10)
Highest educational level achieved		
Unknown	15	(14)
≤8th-grade education	47	(44)
High school 9–11	24	(23)
High school degree/equivalent	20	(19)
College (≤2 years)	4	(3)

Note. Not all respondents answered all questions. Therefore, percentages do not always equal 100 and total responses do not always equal 106. 106 was used as the denominator for all statistical calculations.

Table II. Basic HIV/AIDS Knowledge Base

	Yes		No	
	n	%	*n*	%
Familiar with term HIV/VIH	80	75	20	19
Familiar with term AIDS/SIDA	96	91	7	7
Attendance at a camp lecture for HIV/AIDS	45	42	57	54
Additional source of HIV knowledge (participants were asked to indicate all sources that applied)				
TV	56	53	45	42
Radio	17	16	84	79
Clinic/doctors	34	32	67	63
Camp (Promatoras/health care workers)	28	26	73	69
School	28	26	73	69
Friend	12	11	89	84
Family	11	10	90	85
Other	10	9	91	86

Note. Not all respondents answered all questions. Therefore, percentages do not always equal 100 and total responses do not always equal 106. 106 was used as the denominator for all statistical calculations.

Table III. Specific Knowledge Question Sets

	Yes		No	
	n	%	*n*	%
Knowledge Question Set 1 (based on 106 respondents)				
HIV Transmission (general aspects)				
Kissing	2	2	99	93
Hand shake	4	3	97	92
Sex	87	82	14	13
Blood	72	68	29	27
Needles	65	61	36	34
Knowledge Question Set 2 (based on 106 respondents)				
HIV transmission (specific examples)				
Homosexuals only	6	6	93	88
Heterosexuals only	0	0	99	93
Both	69	65	30	28
IVDA	71	67	28	26
Hemophiliacs	49	46	50	47
Infants	58	55	35	33
Knowledge Question Set 3 (based on 106 respondents)				
Diagnosis and nonsexual prevention				
Vaccine for HIV	8	8	89	84
Detection of HIV by a simple blood test	88	83	11	10
Help for baby if HIV is detected during pregnancy	59	56	37	35

Note. Not all respondents answered all questions. Therefore, percentages do not always equal 100 and total responses do not always equal 106. 106 was used as the denominator for all statistical calculations.

answered the question set correctly, attended a lecture on HIV at the camp or other farm worker gathering, 29 (54%) acquired their knowledge through television, 23 (43%) from the doctor/clinic, and 21 (39%) from school. Of these 54 women who answered question set #1 correctly, 29 were between the ages of 20 and 29, which constituted the largest group ($n = 22$; 41%). Of the other ages, 8 (15%) women were less than 20, 12 (22%) were between 30 and 39, and 9 (17%) women were 40 years or older who answered this question set correctly. The majority of the women were married ($n = 36$; 67%), while 2 (4%) women were divorced, 7 (13%) had live-in partners, and 8 (15%) women were single. Twenty-four of these women (44%) had achieved an educational level of less than or equal to the eighth grade. Twelve (22%) women had a high-school degree or equivalent and three (6%) had ≤2 years of a college or post-high-school education. Spanish was the primary written language for 26 (48%) and the primary spoken language for 36 (67%) women. Among these women, very few had a vaginal discharge ($n = 6$; 6%) or used a pill or injection to treat vaginal infection ($n = 10$; 9%). Thirteen (12%) of the 54 women used a condom every time they had sexual intercourse with their partner and 34 (32%) said that they had discussed HIV or AIDS with their partner.

Only 37 women answered Question Set #2 correctly by indicating that heterosexuals and homosexuals, hemophiliacs, blood transfusion recipients, intravenous drug abusers, and infants were at risk for HIV transmission. In Question Set #2, no respondents stated that HIV was a disease limited only to heterosexuals and just six respondents (6%) indicated HIV was a disease limited only to homosexuals. The majority ($n = 69$; 65%) indicated that both homosexuals and heterosexuals were at risk for acquiring HIV/AIDS. A slightly higher number of women perceived intravenous drug abuse ($n = 71$; 67%) as a risk factor. Approximately half recognized that hemophiliacs ($n = 49$; 46%) and infants ($n = 58$; 55%) were at risk. Of the 37 women who answered Question Set #2 correctly, 22 (60%) attended an HIV lecture at a camp or other farm worker gathering. Twenty-one (57%) acquired their knowledge from television, 16 (43%) from a clinic or doctor, and 15 (41%) from school. The largest age group of women to answer the question set correctly was between the ages of 20 and 29 years ($n = 17$; 46%). Three (8%) were less than 19 years old, 6 (16%) were 30–39 years of age, and 11 (30%) were 40 years or older. The majority of the women were married ($n = 25$; 68%) and 7 (19%) were single.

Thirteen (35%) women had less than or equal to an eighth- grade education, 14 (38%) had a high-school degree or equivalent, and three (8%) had some education beyond high school. Seventeen (46%) and 22 (60%) women primarily wrote and spoke in Spanish, respectively. Four (11%) and 3 (8%) women out of 37 admitted to a history of having an STD or vaginal discharge, respectively. Eight of them (22%) used a pill or injection to treat a vaginal infection. Only five (14%) women used a condom every time they had sexual intercourse with their partner.

Regarding Question Set #3, 42 (40%) women answered this set correctly by indicating that vaccination against HIV is not available, HIV is detected by a blood test, and perinatal transmission is preventable. The vast majority of respondents knew that there was no vaccine available for HIV ($n = 89$; 84%) and that HIV was detected through a simple blood test ($n = 88$; 83%). However, a significant minority ($n = 37$; 35%) did not know that treatment was available to successfully prevent perinatal transmission of HIV. Out of 42 women who answered question set #3 correctly, 26 (62%) attended a lecture on HIV at a camp or farm worker gathering, 20 (48%) acquired HIV information from a Promatora or lay health worker, and 17 (40%) from television. Only 11 (26%) and 10 (24%) women gained their knowledge from a clinic or doctor and school, respectively. The age of the women was almost equally distributed with eight (19%) less than 20 years old, 13 (31%) between 20 and 29 years, 11 (26%) between 30 and 39 years, and nine (21%) 40 years or older correctly responded to this question set. The majority of the women were married ($n = 27$; 64%); only seven (17%) were single. Eighteen (43%) of the 42 women had eighth-grade level of education or less. Nine (21%) of them had a high school degree or equivalent, and three (7%) had completed $\leq$2 years of post-high-school education. Spanish was the primary language for writing ($n = 21$; 50%) and speaking ($n = 31$; 74%). Some women had a history of an STD ($n = 7$; 17%), a vaginal discharge ($n = 6$; 14%), or history of treatment for a vaginal infection with a pill or injection ($n = 9$; 21%). Fourteen (33%) reported using a condom every time they had sexual intercourse with their partner and 17 (40%) stated that they had discussed HIV or AIDS with their partner.

There was no difference in knowledge scores in all three question sets for women when compared with age or state of origin. However, women who spoke or wrote English or had a $\geq$12th-grade education did statistically better answering Question Set #2 than did Spanish speaking and writing women, or women with <12th-grade education ($p \leq 0.003$). In question sets 1 and 3, there were no differences among these groups.

When question sets were analyzed by the source of HIV information, women who indicated radio, television, clinics, and/or camp lectures were their primary source of information did better in Question Sets 1 and 2 than those who did not cite those sources. However, in question set #3, women who obtained their information from radio, clinics, and television did worse than women who obtained information from camp lectures. When examined by specific question, women citing camp lectures as a major source of HIV information did marginally better on the preventative vaccine question ($p = 0.05$) and significantly better on the question regarding perinatal transmission ($p = \leq 0.001$).

All women ($n = 106$) were surveyed regarding HIV/STD risk behaviors (Table IV). The majority had zero or one sexual partner ($n = 69$; 65%). Only 21 (20%) had two or more sexual partners. Of 21 respondents with multiple sexual partners, all were $\geq$20 years old. Twenty-seven (25%) used a condom during each sexual encounter. Nearly half of the women did not discuss HIV or AIDS with their sexual partner ($n = 52$; 49%). The majority of women denied ever having a STD ($n = 91$; 86%); however, 15 (14%) stated they have had a vaginal discharge due to an infection and 23 (22%) stated they had been treated with a pill or an injection for a vaginal infection. While the majority of women were monogamous or abstinent, 40 (38%) indicated that they felt the men in the camps had multiple sex partners ($\geq$2 sexual partners).

Table IV. HIV/STD Risk Behavior

	n	%
Number of sexual partners		
0	12	11
1	57	54
2	11	10
≥3	10	9
No response	16	15

	No		Yes	
	n	%	*n*	%
Discussion of HIV/AIDS with partner	52	49	50	47
Presence of STD	91	86	13	12
Vaginal discharge	76	72	15	14
Treatment with pill/IM for an infection	68	64	23	22

Note. All respondents were ≥20 years old. Not all respondents answered all questions. Therefore, percentages do not always equal 100 and total responses do not always equal 106. 106 was used as the denominator for all statistical calculations.

The majority of women ($n = 80$; 75%) indicated that rape occurs infrequently in the camps. Only four (4%) indicated that prostitutes are commonly seen in the camps. Only two respondents (2%) indicated that needles (used for either intravenous drug or medicinal purposes) were observed in the camp environment.

DISCUSSION

It is estimated that 4.1 million people in the United States are migrant farm workers (1). The vast majority of these workers are Latino (6). Among migrant workers in the United States, the extent of HIV infection is estimated at 10 times the national rate and rates of HIV infection among migrant farm workers can be as high as 13.5% (3,9). Given these alarming rates of HIV infection, prevention education efforts have been implemented at local, state, national, and international levels (11,13,15). Our survey attempted to sample female Latino migrant farm workers to assess basic HIV knowledge and risk perception in this population. Our respondents were primarily from the Midwest migratory stream and were demographically similar to female migrant farm workers in other surveys (16). These women were young, married with children, with little education beyond high school and were predominantly Spanish speaking. The sample was too small and homogeneous to allow any demographic trends to be evaluated. There may be subgroups of women in the migrant community who are at higher risk and lack adequate HIV prevention education, but this survey did not identify that group.

The women were surveyed in a nine-county area of Northwest Ohio, which generally experiences the entry of 6,400 migrant workers into the area during the harvest season. This area has been served by ROI. From 1990–95, ROI delivered a series of lectures and outreach initiatives on AIDS education and prevention that reached approximately 11,800 farm workers. In 1994–96, HIV prevention education occurred during camp lectures, migrant Head Start parent programs, migrant education summer school, migrant health fairs, and WIC clinics (Fitzgerald K, Ohio Migrant Head Start Health Coordinator, ROI). These educational initiatives were not unique to ROI, and similar educational efforts have been undertaken in other geographic areas and at local, state, and national levels. Given the number of prevention education initiatives targeting the Latino migrant farm worker community in the region, the current survey attempted to assess basic HIV knowledge in this population. The survey was conducted in the migrant camps by ROI Promatoras, some of whom had been involved in the original camp lecture series. The women in the current survey did surprisingly well when compared to other surveys on HIV knowledge in Latino migrant farm worker groups (17–22). In this survey, over 95% of women recognized the disease AIDS/SIDA. Recognition of the disease SIDA was much higher than recognition of VIH/HIV, but this is probably due to the more widespread use of the term SIDA in the Spanish community as opposed to VIH. The vast majority of women (>95%) recognized that casual contact (kissing/handshakes) did not transmit HIV. The important routes of HIV transmission (sex/blood contact/use of needles) were also identified by the majority of women. The majority of women (65%) recognized that both heterosexual and homosexual intercourse were risk factors for HIV transmission as opposed to homosexual intercourse only (6%). However, the perception of sexual contact as a route of transmission was higher than the perception of blood/needle use or a perinatal transmission route. These may represent areas that need further educational initiatives. For example, the use of injectables such as vitamins and antibiotics is high in this community (10) and the associated risk may not be fully appreciated.

The analyses of the survey indicated that HIV educational efforts have resulted in a significant understanding of major modes of HIV transmission, diagnosis, and treatment, with notable exceptions. The majority of women surveyed received HIV information primarily from television, radio, and clinics/health care workers and these educational interventions appear to have been successful but limited. The survey did not evaluate the extent or depth these sources contributed to HIV education and did not evaluate whether other educational interventions would have been more successful. Overall, more directed educational efforts (such as camp lectures) were correlated with better results on certain questions, such as treatment to prevent perinatal HIV transmission.

Previous surveys have indicated significant misperceptions regarding HIV transmission in the Latino and migrant communities. In a survey of 32 Mexican migrant women, Organista *et al.* (1) found that 34% of the respondents felt that HIV was transmitted by kissing. This is consistent with other reports citing significant misconceptions about HIV transmission in addition to some basic knowledge about transmission. In our survey, only 2% of respondents identified casual contact (kissing/hand holding) as a route of

HIV transmission. However, in Organista *et al.*'s (1) survey, 81–100% of respondents did correctly identify the major modes of HIV transmission (blood, semen, vaginal fluid).

For the majority of women, television was the major source of information on HIV. Access to television is widespread in the migrant community and Spanish language television stations are available in many metropolitan areas. Television has been used in prevention education efforts in Mexico with significant success (15). This is an important consideration when education interventions are planned. Medical advances in the treatment of HIV occur rapidly and information dissemination to affected populations may be slow. For example, while most women correctly knew that there was no vaccine to prevent AIDS and that HIV was detected by blood testing, half of them did not know that perinatal transmission was preventable.

One interesting aspect of this survey was the number of women who had discussed HIV or AIDS with their partners. Nearly half of the women stated they had discussed this sexually transmitted disease with their sexual partner. Discussions of sexual issues between men and women are often difficult in the Latino community. The survey was not designed, however, to assess the depth or direction of these conversations.

The American College of Obstetrics–Gynecology recommends that all pregnant women receive HIV testing in order to decrease the risk of perinatal transmission. However, in a survey of physicians in Northwest Ohio, only 42% of doctors (110/261) offered routine HIV testing to all women as part of a routine perinatal testing battery (Duggan *et al.*, manuscript in preparation). Women who do not perceive the need for testing may decline it. This may result in women with undetected HIV unnecessarily transmitting the virus to their infant. In addition, information about decreased rates of perinatal transmission with effective treatment may affect the family planning choices of HIV positive women as well (23). Interestingly, women who received their HIV information from camp lectures were significantly more aware of effective treatment to prevent perinatal transmission than other women. This may reflect the lack of radio and television educational efforts on this topic and may represent an area for future educational interventions.

In summary, this survey of demographically similar female migrant workers revealed a better understanding among the women of risk factors for HIV transmission than shown in previously published surveys. It was also clear from this survey that the knowledge of current decreased rates of perinatal transmission through medical intervention were not appreciated by a significant segment of the migrant farm worker population and that different educational initiatives were associated with varying levels of knowledge. In addition, perception of blood contact and needle use as mechanisms of HIV transmission was not as high as that of sexual contact. These may be additional areas for increased educational efforts among this population. Successful educational effects have previously involved use of one-on-one and small group initiatives, such as the Promatoras program and also use of television on Spanish-speaking stations. These two types of interventions may be successful in educational efforts addressing these specific forms of transmission, as well.

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