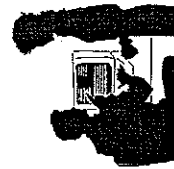


*Special Bibliographic Notes related to special journal issues (separates) and indexing/abstracting:*

- indexing/abstracting services in this list will also cover material in any "separate" that is co-published simultaneously with Haworth's special thematic journal issue or DocuSerial. Indexing/abstracting usually covers material at the article/chapter level.
- monographic co-editions are intended for either non-subscribers or libraries which intend to purchase a second copy for their circulating collections.
- monographic co-editions are reported to all jobbers/wholesalers/approval plans. The source journal is listed as the "series" to assist the prevention of duplicate purchasing in the same manner utilized for books-in-series.
- to facilitate user/access services all indexing/abstracting services are encouraged to utilize the co-indexing entry note indicated at the bottom of the first page of each article/chapter/contribution.
- this is intended to assist a library user of any reference tool (whether print, electronic, online, or CD-ROM) to locate the monographic version if the library has purchased this version but not a subscription to the source journal.
- individual articles/chapters in any Haworth publication are also available through the Haworth Document Delivery Service (HDDS).



# Socio-Demographic Characteristics of HIV/AIDS Individuals Living and Receiving Care Along the U.S.-Mexico Border Through Five SPNS Demonstration Projects

Marguerite S. Keesee, PhD  
Lynda M. Williams, MA  
Kimberly A. Shinault, MPH  
Nancy K. Sonleitner, PhD  
Hélène Carabin, DVM, PhD  
Adan Cajina, MS  
Ahmad Saleem G. Ahmad, MA  
Robyn Schulhof, MA  
Kermyt G. Anderson, PhD  
Herman Curriel, PhD  
Timothy R. Brittingham, MSW  
Morris W. Foster, PhD

Marguerite S. Keesee, PhD, is Program Specialist at the University of Oklahoma, Center for Applied Social Research.

Kimberly A. Shinault, MPH, is Graduate Research Assistant at University of Oklahoma Health Sciences Center.

Hélène Carabin, DVM, PhD, is Associate Professor of Biostatistics and Epidemiology at the University of Oklahoma Health Sciences Center.

Ahmad Saleem G. Ahmad, MA, is Program Specialist; Kermyt G. Anderson, PhD, is Assistant Professor of Anthropology; Timothy R. Brittingham, MSW, is Program Specialist; Lynda M. Williams, MA, is Program Specialist; Nancy K. Sonleitner, PhD, is Program Specialist; Herman Curriel, PhD, is Associate Professor of Social Work; Morris W. Foster, PhD, is Professor of Anthropology and Co-Director of the Center for Applied Social Research; all are at the University of Oklahoma, Center for Applied Social Research.

Adan Cajina, MS, and Robyn Schulhof, MA, are project officers at HRSA-HIV/AIDS Bureau.

[Haworth co-indexing entry note: "Socio-Demographic Characteristics of HIV/AIDS Individuals Living and Receiving Care Along the U.S.-Mexico Border Through Five SPNS Demonstration Projects." Keesee, Marguerite S. et al. Co-published simultaneously in *Journal of HIV/AIDS & Social Services* (The Haworth Press, Inc.) Vol. 5, No. 2, 2006, pp. 15-35; and: *Outreach and Care Approaches to HIV/AIDS Along the US-Mexico Border* (ed: Herman Curriel, and Helen Land) The Haworth Press, Inc., 2006, pp. 15-35. Single or multiple copies of this article are available for a fee from The Haworth Document Delivery Service [1-800-HAWORTH], 9:00 a.m. - 5:00 p.m. (EST). E-mail address: docdelivery@haworthpress.com.]

Available online at <http://jhaso.haworthpress.com>  
© 2006 by The Haworth Press, Inc. All rights reserved.  
doi:10.1300/J187v05n02\_04

Available online at <http://jhaso.haworthpress.com>

© 2006 by The Haworth Press, Inc. All rights reserved.

doi:10.1300/J187v05n02\_04

**SUMMARY.** The purpose of this study is to provide a description of personal lifestyles and demographic characteristics of 1,200 HIV seropositive individuals who volunteered to participate in a Health Resources and Services Administration (HRSA), Special Projects of National Significance (SPNS) Initiative conducted in five U.S. demonstration projects located along the U.S.-Mexico border between 2001 and 2004. The results show that HIV/AIDS patients receiving care along the U.S.-Mexico border are predominantly Hispanics (81%) and men who have sex with men (56%). In general, SPNS participants appear to be socio-demographically similar to the general HIV/AIDS population in the U.S. with a few noted exceptions such as age, labor force participation, and variations in mode of transmission by age and gender. doi:10.1300/J187v05n02\_04 *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2006 by The Haworth Press, Inc. All rights reserved.]*

**KEYWORDS.** Border health, HIV/AIDS, demographic characteristics, Hispanic, HRSA SPNS

## BACKGROUND

The United States (U.S.)-Mexico border region covers four U.S. states (California, Arizona, New Mexico, and Texas) and six Mexican states (Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas) and is approximately 2000 miles long (Bruhn, 1997). The population on the U.S. side of the border has increased by more than 300,000 between 2000 and 2003 (U.S. Census Bureau, 2004). In addition, it is estimated that 193,697,482 passengers in personal vehicles and 48,663,773 pedestrians crossed the border at 25 ports of entry across the U.S.-Mexico border in 2003 (Bureau of Transportation Statistics, 2004). The U.S.-Mexico border states include 48 U.S. counties (Migration Policy Institute, 2002), of which 24 share geographical borders with Mexico. It is estimated that slightly more than 65% of the residents in these 24 counties are of Hispanic origin with an average of 27% of those living below the poverty threshold (U.S. Census Bureau, 2000a; 2000b).

These 24 border counties do not have a well-established surveillance infrastructure, which limits epidemiological comparisons. Nonetheless, it has been estimated that 91,102 adults were living with AIDS in the

four U.S.-Mexico border states at the end of 2003, of which 5% were in Arizona, 61% in California, 1% in New Mexico, and 33% in Texas (Centers for Disease Control and Prevention [CDC], 2003). The CDC estimates that among Mexico-born Hispanics living in the U.S., 61% of AIDS diagnoses in 2003 were attributable to male-to-male sexual contact (MSM), 24% to heterosexual contact, 13% to Injection Drug Use (IDU) (which includes combined risk behaviors of IDU and MSM), and 2% through other modes of transmission (CDC, 2003). These figures differ from those of U.S.-born Hispanics who reported contracting HIV mostly through MSM (40%), IDU (31%), and heterosexual contact (27%; CDC, 2003).

In response to social, economic and health needs arising from the rapid growth of the Hispanic population along the U.S.-Mexico border, the U.S. Health Resources and Services Administration (HRSA), HIV/AIDS Bureau (HAB), Special Projects of National Significance (SPNS), funded five demonstration sites under the U.S.-Mexico Border HIV/AIDS Health Initiative. The purpose of the initiative was to increase access to comprehensive HIV/AIDS care and reduce structural, socioeconomic and cultural barriers that may limit early detection of HIV disease among permanent and migrant residents along the border (HRSA, 2000). This paper provides a general description of People Living with HIV/AIDS (PLWHA) who reside along the U.S.-Mexico border and who agreed to participate in the SPNS program in one of the five sites between 2001 and 2004.

## METHOD

**Study Population.** The target population consists of PLWHAs who were receiving primary HIV/AIDS medical services between January 1, 2001 and November 30, 2004 from any one of five HRSA, HIV/AIDS Bureau, SPNS Border Health demonstration sites. The five SPNS sites were located in Harlingen and El Paso, Texas; Las Cruces, New Mexico; San Diego, California and Tucson, Arizona. Each site was randomly and arbitrarily assigned letters A through E to protect confidentiality.

**Measurement Tools.** Two uniform closed-ended data collection modules designed to measure information on demographic and lifestyle characteristics were used across all five SPNS sites. The instruments used in this study are available from the authors on request or at <http://www.ou.edu/border/>.

These modules were completed between January 1, 2001 and November 30, 2004 when participants were invited to participate in the study. The modules were administered through face-to-face interviews conducted by bilingual SPNS staff with participants occasionally completing some of the components on their own. Sites were responsible for interview training following the methodology and standards established by the collaborative. The consenting process and interviews were conducted in Spanish or English depending on the language preference of the participant. The questionnaires were originally developed in English. Professional staff at the University of Texas-El Paso, Department of Languages and Linguistics first translated the study instruments into Spanish and then back translated into English. At the end of the study period a second back translation was conducted by a Spanish speaker who closely resembled the socio-demographic characteristics of the study participants to ensure consistency in meaning and congruence in responses between Spanish and English items. Variables with inconsistent translations between the Spanish and English versions were removed from the database. This second back translation resulted in the loss of several measures of Socio-Economic Status (SES) including education and total amount of household income.

The socio-demographic variables included information on age, gender, housing, work activity and sources of income. Behavioral practices were measured using indicator variables such as self-reported sexual orientation, most likely form of exposure to HIV, number of U.S.-Mexico border crossings during the last 12 months, and use of traditional medications or herbs in Mexico during the last 12 months. HIV status was determined at entry into SPNS from self-reported stage of disease progression including HIV seropositive (HIV not AIDS or AIDS status unknown) and CDC-defined AIDS. A dichotomous "Yes or No" measurement format was used to determine use of traditional medications or herbs. The interpretation of the phrase "traditional medications or herbs" was left to the perceptions of individual participants. In order to reduce problems associated with participants receiving services at multiple SPNS sites, one data record was maintained for each participant with modules completed at differing locations; and the record that reflected the earliest entry date into the SPNS project was retained and all duplicate records with later intake dates were removed from the database.

*Statistical Analyses.* We report descriptive statistics on most socio-demographic variables measured in these modules by ethnicity and site. Several variables were recoded for statistical analyses or regrouped to

respect the confidentiality of participants (frequencies of less than five participants per cell are not reported). Differences between proportions and associated 95% Confidence Intervals (CI) were calculated assuming a normal distribution of the differences. Chi-square ( $\chi^2$ ) and pairwise tests of equality of column proportions (z-tests) with a Bonferroni adjustment made for multiple comparisons were examined to identify statistically significant differences between the five sites using the Custom Tables option in SPSS (version 12.0.0) statistical software (SPSS Inc, 2003).

Age was calculated as the difference in years between reported date of birth and date of the first face-to-face interview. Age was grouped into four categories: 19-29; 30-39; 40-49 and more than 50 years old. The number of years between self-reported HIV/AIDS diagnosis and intake into the SPNS program was calculated by subtracting the participant's reported age at diagnosis from his/her age at SPNS intake. The SPNS project allowed grantee sites to enroll both new and preexisting HIV/AIDS patients. However, a measure of prior HIV/AIDS health care was not included in the data collected. Assuming that the majority of participants diagnosed after or within one year of the implementation of the SPNS project had never received HIV/AIDS health care, a second analysis was conducted excluding all individuals who reported a diagnosis date on or before December 31, 1999. The second analysis was done to control for potential confounding effects or explore potential effect modification of veteran HIV/AIDS patients on determining time-liness of entry into care.

Marital status was coded as single, married/living with someone and separated/divorced/widowed/other. Hispanic group affiliation was coded as Hispanic or non-Hispanic. Gender was coded as male, female and transgender. For the purpose of this analysis, individuals who reported being transgender (10 male-to-female) were recoded to male. Employment status was collapsed into three general categories including employed (full or part-time), unemployed but seeking, and not currently in the labor force. The category of "not in the labor force" reflects responses indicating that participants are not currently seeking employment and includes retired and disabled participants. Source of income was collapsed into five categories corresponding to no reported income source, public sources (Temporary Assistance for Needy Families, General Assistance, Social Security, Supplemental Security Income, State disability, and Veteran Administration benefits), private sources (employer cash benefits, private insurance, wages/salary), family sup-

port, and mixed income (public, private, and family). Housing status was dichotomized into living in owned or rented house/apartment and other (someone else's house/apartment, transitional housing, on the streets, institutions, and others).

Sexual orientation was dichotomized into heterosexual and gay/lesbian/bisexual, due to low frequency responses in other categories. Responses to the sexual orientation questions of don't know, undecided or prefer not to answer were coded to missing for this analysis. Mode of HIV exposure was categorized as: MSM, IDU, heterosexual, and other forms (blood transfusions or tissue and perinatal). Individuals who identified both as IDU and other modes of exposure were included in the IDU category.

**Ethical Consideration.** The study was reviewed and approved by the institutional review boards of the five sites and of the University of Oklahoma. Informed consents were signed by each participant prior to enrollment into the study by local project personnel. Both English and Spanish versions of the informed consent were provided to study participants. If participants were unable to read, the consent form was read to them. Interviewers ensured that all participants understood the contents of the informed consent prior to signing.

## RESULTS

A total of 1,200 HIV/AIDS patients receiving care in the five border sites agreed to participate in the study between 2001 and 2004. The participants were between 19 and 73 years of age at intake into services and predominantly male (1,003, 84%). Nine hundred and seventy (81%) self-identified as Hispanics followed by 194 (16%) as White non-Hispanic, 29 (2%) as African American non-Hispanic and less than one percent as American Indian/Alaska Native, Asian, Pacific Islander or Other. A total of 712 (60%) participants reported their sexual orientation as gay, lesbian or bisexual. Among participants of Hispanic origin, 812 (84%) were male, and 567 (59%) self-identified as gay, or bisexual as compared to PLWH/A estimates of 92% male and 66% MSM provided by the Mexican government's Centro Nacional para la Prevención y el Control del VIH/SIDA [CENSIDA]; Minichiello, Magis, Uribe, Anaya, & Bertozzi, 2002; Sanchez et al., 2004).

The differences in socio-demographic variables between Hispanics and non-Hispanics are summarized in Tables 1a and 1b. Table 1a shows age was the only noteworthy demographic difference between the two

TABLE 1a. Comparison of Hispanic and Non-Hispanic Participants from All Five Sites in Socio-Demographic Characteristics

Characteristics	Ethnicity		Diff (CI)*
	Non-Hispanic n (%)	Hispanic Descent n (%)	
<b>Gender</b>			
Male	191 (83.0)	812 (83.7)	-0.7 (-6.80-5.20)
Female	39 (17.0)	158 (16.3)	0.7 (-12.42-13.82)
<b>Age (in years)</b>			
19-29	25 (10.9)	191 (19.7)	-8.8 (-22.28-4.66)
30-39	92 (40.0)	413 (42.6)	-2.6 (-13.68-8.49)
40-49	82 (35.7)	253 (26.1)	9.6 (-2.1-21.30)
50 +	31 (13.5)	113 (11.7)	1.8 (-11.61-15.21)
<b>Marital Status</b>			
Single	120 (52.4)	542 (56.1)	-3.7 (-13.69-6.16)
Married/live with someone	69 (30.1)	282 (29.2)	0.9 (-11.15-12.95)
Separated/Divorced/Widowed/Other	40 (17.5)	142 (14.7)	2.8 (-10.34-15.94)
<b>Employment Status</b>			
Employed at some level	65 (28.3)	369 (38.0)	-9.7 (-21.72-2.32)
Unemployed but seeking	40 (17.4)	203 (20.9)	-3.5 (-16.51-9.51)
Not in Labor Force (including retired and disabled)	125 (54.4)	398 (41.0)	13.4 (3.42-23.38)

\*Indicates difference in proportion between Hispanic and Non-Hispanic participants with a 95% confidence interval.

TABLE 1b. Comparison of Hispanic and Non-Hispanic Participants from All Five Sites in Socio-Demographic Characteristics

Characteristics	Ethnicity		Diff (CI)*
	Non-Hispanic n (%)	Hispanic Descent n (%)	
<b>Sources of Income</b>			
Income source reported as none	50 (21.7)	258 (26.6)	-4.9 (-17.59-7.73)
Public source(s) only	91 (39.6)	201 (20.7)	18.9 (7.4-30.4)
Private source(s) only	61 (26.5)	382 (39.4)	-12.9 (-25.01--0.79)
Family	16 (7.0)	92 (9.5)	-2.5 (-16.36-11.36)
Mix	12 (5.2)	37 (3.8)	1.4 (-12.59-15.39)
<b>Miles Traveled to Program</b>			
0 to 4 miles	68 (29.6)	190 (19.6)	10.0 (-2.23-22.23)
5 to 11 miles	67 (29.1)	296 (30.5)	-1.4 (-13.48-10.68)
12 to 29 miles	33 (14.4)	261 (26.9)	-12.5 (-25.63-0.63)
30 or more miles	62 (27.0)	223 (23.0)	4.0 (-8.35-16.35)
<b>Housing</b>			
Buying or renting own house/apartment	112 (48.9)	453 (46.9)	2.0 (-8.34-12.34)
Other	117 (51.1)	513 (53.1)	-2.0 (-12.03-8.03)

\*Indicates difference in proportion between Hispanic and Non-Hispanic participants with a 95% confidence interval.

groups as a higher proportion of Hispanics were in the 19-29 year age group (Hispanic: 19, 20%, non-Hispanic: 25, 11%), even though this difference was not statistically significant. This tendency did, however, follow the general demographic trends for Hispanics in the U.S. A larger proportion of non-Hispanics reported not being in the labor force (Hispanic: 398, 41%, non-Hispanic: 125, 54%). Table 1b shows that receipt of private sources of income was higher for Hispanics than for non-Hispanics (Hispanic: 382, 39%, non-Hispanic: 61, 26%). There was also a tendency for Hispanics to travel a little further to get care than for non-Hispanics.

Tables 1c and 1d summarize the differences between Hispanics and non-Hispanics as related to lifestyle behaviors. The distribution of sexual orientation and mode of exposure was similar between Hispanics and non-Hispanics, both among males and females. Slightly less than

TABLE 1c. Comparison of Hispanic and Non-Hispanic Participants from All Five Sites in Socio-Behavioral Characteristics: Sexual Orientation, Border Crossings, and Receiving Traditional Medicine in Mexico Last Year

Characteristics	Non-Hispanic n (%)	Hispanic Descent n (%)	Ethnicity Diff (CI)*
<b>Sexual Orientation</b>			
Both Males and Females			
Gay/Lesbian/Bisexual	145 (64.4)	567 (59.3)	5.1 (-3.68-13.88)
Heterosexual	80 (35.6)	389 (40.7)	-5.1 (-16.67-6.47)
<b>Males Only</b>			
Gay/Bisexual	141 (75.0)	562 (70.3)	4.7 (-3.38-12.78)
Heterosexual	47 (25.0)	237 (29.7)	-4.7 (-18.36-8.98)
<b>Females Only</b>			
Lesbian/Bisexual	4 (10.8)	5 (3.2)	7.6 (-26.51-41.71)
Heterosexual	33 (89.2)	152 (96.8)	-7.6 (-18.55-3.35)
<b>Border Crossings in Last Year</b>			
None	107 (46.7)	200 (20.7)	26 (15.0-37.0)
1 to 36 crossings	108 (47.2)	477 (49.4)	-2.2 (-12.63-8.23)
37 or more crossings	14 (6.1)	289 (29.9)	-23.9 (-37.4--10.2)
<b>Received Traditional Medications or Herbs in Mexico within Last Year</b>			
No	221 (96.5)	810 (83.9)	12.6 (9.1-16.10)
Yes	8 (3.5)	156 (16.2)	-12.7 (-26.69-1.29)

\*Indicates difference in proportion between Hispanic and Non-Hispanic participants with a 95% confidence interval.

TABLE 1d. Comparison of Hispanic and Non-Hispanic Participants from All Five Sites in Socio-Behavioral Characteristics: Mode of Exposure

Characteristics	Non-Hispanic n (%)	Hispanic Descent n (%)	Ethnicity Diff (CI)*
<b>Mode of Exposure</b>			
<b>Both Males and Females</b>			
MSM	115 (50.0)	559 (57.6)	-7.6 (-17.61-2.41)
Heterosexual	56 (24.4)	289 (29.8)	-5.4 (-17.92-7.02)
IDU including MSM and MSW	39 (17.0)	70 (7.2)	9.8 (-3.45-23.05)
Other (blood trans., comp., tissue, rape, mom to child, etc.)	20 (8.7)	52 (5.4)	3.3 (-10.5-17.10)
<b>Males Only</b>			
MSM	115 (60.2)	559 (68.8)	-8.6 (-18.34-1.14)
Heterosexual	24 (12.6)	156 (19.2)	-8.6 (-21.24-8.04)
IDU including MSM and MSW	33 (17.3)	59 (7.3)	10.0 (-4.51-24.51)
Other (blood trans., comp., tissue, rape, mom to child, etc.)	19 (9.9)	38 (4.7)	5.2 (-9.82-22.22)
<b>Females Only</b>			
Heterosexual	32 (82.1)	133 (84.2)	-2.1 (-16.76-12.56)
IDU including MSM and MSW	6 (15.4)	11 (7.0)	8.4 (-24.16-40.98)
Other (blood trans., comp., tissue, rape, mom to child, etc.)	1 (2.6)	14 (8.9)	-6.3 (-40.87-28.27)

\*Indicates difference in proportion between Hispanic and Non-Hispanic participants with a 95% confidence interval.

one-third (289, 30%) of Hispanic SPNS patients reported crossing the U.S.-Mexico border more than 37 times per year compared to 6% (14) of non-Hispanics. Only 16% (156) of Hispanics reported receiving some type of traditional medication or herbs in Mexico, a proportion that was significantly higher than that of non-Hispanics (8, 3%).

Table 1e shows proportionately fewer Hispanic participants reported having AIDS (265, 27%) than non-Hispanics (86, 37%). Hispanic participants also tended to enter SPNS care earlier than non-Hispanics. Forty-six non-Hispanic participants (20%) reported entering SPNS care within the same year of their diagnosis as compared to 40% of the Hispanic participants (41%). The same general patterns persist regarding AIDS status and timing of entry into SPNS care when excluding participants who were diagnosed on or prior to December 31, 1999 from the analysis (unreported data).

Tables 2a and 2b show some notable differences in socio-demographic factors when stratified by ethnicity and SPNS site. Site A had the highest proportion of Hispanics who were employed (48%), seeking

TABLE 1e. Comparison of Hispanic and Non-Hispanic Participants from all Five Sites in HIV/AIDS Status at Entry into SPNS

Characteristics	Ethnicity		Diff (CI)*
	Non-Hispanic n (%)	Hispanic Descent n (%)	
<b>HIV Status</b>			
HIV not AIDS or AIDS Status Unknown	144 (62.6)	705 (72.7)	-10.1 (-18.66--1.54)
CDC-defined AIDS	96 (37.4)	265 (27.3)	10.1 (-1.45-21.65)
<b>Years DX Prior to SPNS Intake</b>			
Intake within same year of DX	46 (20.0)	401 (41.3)	-15.9 (-28.93--2.87)
1 to 3 years	38 (16.5)	214 (22.1)	-9.9 (-22.67-2.87)
4 to 5 years	27 (11.7)	98 (10.1)	1.3 (-12.11-14.71)
6 or more years	119 (51.7)	257 (26.5)	24.3 (13.97-34.63)

\*Indicates difference in proportion between Hispanic and Non-Hispanic participants with a 95% confidence interval.

employment (35%), and receiving public (25%) or private (49%) sources of income. Site D had the highest proportion of Hispanic participants who were male (88%), 50 years of age or older (20%), married or living with someone else (36%), and who owned or rented their own house or apartment (67%). Site E had the highest proportion of younger Hispanic participants (ages 19 through 29: 26%), currently out of the labor force (54%), as well as provided care to the largest population of females (21%). Site C reported the highest proportion of single Hispanic participants (61%). Site B had the highest proportion of Hispanics who reported family as their source of income (14%), possibly explaining the lower proportion of Hispanic participants who reported owning or renting their house or apartment (35%). This finding may also be explained in part by differing economic climates associated with the geographic location of study sites, especially in relation to cost of living and housing.

Tables 2c and 2d indicate Site E served the highest proportion of Hispanics who self-identified as heterosexual (54%), while Site C served a higher proportion of Hispanics who self-identified as gay, or bisexual (69%) and who reported contracting HIV through MSM contact (68%). Site E also reported serving a higher proportion of patients who used traditional medications or herbs in Mexico within the year prior to intake (23%). Sites B and C served larger proportions of Hispanic participants who reported crossing the border 37 or more times per year (37% and 37.3% respectively) than sites E (14%), D (18%), and A (32%).

TABLE 2a. Socio-Demographic Information for Hispanic and Non-Hispanic Participants by Site

Characteristics	Site A		Site B		Site C		Site D		Site E	
	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %
<b>Gender</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
Male	88.9	79.4	75.4	84.1	79.4	87.5	88.6	88.0	81.3	78.8
Female	11.1	20.6	24.6	15.9	20.6	12.5	11.4	12.0	18.8	21.2
<b>Age (in years)</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
19-29	7.9	14.3	10.5	21.3	11.8	14.8	6.8	14.0	21.9	28.4
30-39	33.3	49.2	40.4	46.3	47.1	40.5	38.6	42.0	48.9	39.2
40-49	39.7	23.8	36.8	24.0	29.4	30.9	43.2	24.0	21.9	23.6
50 +	19.05	12.7	12.3	8.5	11.8	13.8	11.4	20.0	9.4	10.8
<b>Marital Status</b>	N = 63	N = 63	N = 57	N = 295	N = 34	N = 311	N = 44	N = 50	N = 31	N = 247
Single	58.7	55.6	45.6	57.0	41.2	61.1	52.3	50.0	64.5	50.2
Married/live with someone	33.3	30.2	35.1	32.9	29.4	22.2	31.8	36.0	12.9	32.0
Separated/Divorced/Widowed/Other	7.9	14.3	19.3	10.2	29.4	16.7	15.9	14.0	22.6	17.8
<b>Employment Status</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
Employed at some level	30.2	47.6	29.8	39.9	29.4	42.8	34.1	38.0	12.5	27.6
Unemployed but seeking	17.5	34.9	14.0	21.6	25.4	22.5	11.4	24.0	18.8	18.4
Not in Labor Force (including retired and disabled)	52.4	34.9	56.1	38.5	41.2	34.7	54.6	38.0	68.8	54.0

Non-Hisp. refers to Non-Hispanics while Hisp. refers to Hispanic participants.

Hispanic participants receiving care through Site D were less likely to report crossing the U.S.-Mexico border in the past year (32%).

Table 2e shows that Site E had the lowest proportion of Hispanics with self-reported AIDS (16%) and the highest proportion of Hispanics entering SPNS care within one year of diagnosis (64%). This contrasts with Hispanics in Site D who had the highest proportion of self-reported AIDS cases (40%) and diagnoses six or more years prior to SPNS intake (40%). Yet, for both Sites D and E, almost half of the participants had to travel 30 miles or more for their care (Table 2b). After reanalyzing the data by excluding participants who were diagnosed prior to or on December 31, 1999, this same general pattern of differences between sites remained with the exception that Site B now had a similar proportion of

TABLE 2b. Socio-Demographic Information for Hispanic and Non-Hispanic Participants by Site

Characteristics	Site A		Site B		Site C		Site D		Site E	
	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %
<b>Source(s) of Income</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
Income source reported as none	20.6	14.3	26.3	27.4	8.8	16.1	11.4	32.0	43.8	40.8
Public source(s) only	36.1	25.4	31.6	17.9	41.2	21.5	50.0	22.0	41.6	21.6
Private source(s) only	31.7	49.2	24.6	38.5	29.4	44.1	29.5	34.0	12.5	33.2
Family	6.3	7.9	10.5	14.5	14.7	11.3	2.3	4.0	0.0	2.8
Mix	3.2	8.2	7.0	1.7	5.9	7.1	6.8	8.0	3.1	1.6
<b>Miles Traveled to Program</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
0 to 4 miles	28.6	14.3	33.3	32.1	20.6	18.0	38.6	16.0	21.9	8.8
5 to 11 miles	15.9	11.1	40.4	33.1	44.1	47.0	25.0	18.0	25.0	14.4
12 to 29 miles	7.9	19.1	19.3	28.0	25.5	29.9	4.6	2.0	18.8	28.8
30 or more miles	47.6	55.6	7.0	6.8	8.8	5.1	31.3	64.0	34.4	48.0
<b>Housing</b>	N = 63	N = 62	N = 57	N = 295	N = 34	N = 311	N = 44	N = 50	N = 31	N = 247
Buying or renting own house/apartment	55.6	61.3	15.8	34.9	58.8	46.6	70.5	66.0	54.8	54.3
Other	44.4	38.7	4.2	65.1	41.2	53.4	29.5	34.0	45.2	45.7

Non-Hisp. refers to Non-Hispanics while Hisp. refers to Hispanic participants.

participants entering SPNS care within the same year of diagnosis as Site E (unreported data).

## DISCUSSION

This study is the first report on a population of HIV/AIDS patients receiving care at five SPNS sites located along the U.S.-Mexico border. The demographic characteristics of our study population are ethnically and socioeconomically similar to the population living along the border except for sexual orientation which is comparable to estimates generated from Mexico's HIV/AIDS Surveillance system (Minichiello et al., 2002; Sanchez et al., 2004). The population under care was 81% Hispanic which is slightly higher than the estimated proportion of Hispanics (66%) residing in the 24 U.S. counties sharing a border with Mexico (U.S. Census Bureau, 2000a). Among residents in the 24 counties lo-

TABLE 2c. Socio-Behavioral Information for Hispanic and Non-Hispanic Participants by Site

Characteristics	Site A		Site B		Site C		Site D		Site E	
	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %
<b>Sexual Orientation</b>	N = 62	N = 62	N = 54	N = 292	N = 34	N = 305	N = 43	N = 47	N = 32	N = 250
Gay/Lesbian/Bisexual	80.7	58.1	50.0	61.0	50.0	68.9	65.1	57.5	71.9	46.4
Heterosexual	19.4	41.9	50.0	39.0	50.0	31.2	34.9	42.6	28.1	53.6
<b>Mode of Exposure</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
MSM	58.7	55.6	42.1	56.8	35.3	68.2	59.1	60.0	50.0	45.6
Heterosexual	15.9	34.9	38.6	29.4	32.4	19.6	18.2	26.0	15.6	42.4
IDU including MSM and MSW	15.9	9.5	14.0	7.8	17.7	6.1	15.9	8.0	25.0	7.2
Other (blood transf., comp., tissue, rape, mom to child, etc.)	9.5	0.0	5.3	6.1	14.7	6.1	6.8	6.0	9.4	4.8

Non-Hisp. refers to Non-Hispanics while Hisp. refers to Hispanic participants.

TABLE 2d. Socio-Behavioral Information for Hispanic and Non-Hispanic Participants by Site

Characteristics	Site A		Site B		Site C		Site D		Site E	
	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %
<b>Border Crossings in Last Year</b>	N = 63	N = 63	N = 57	N = 295	N = 34	N = 311	N = 44	N = 50	N = 31	N = 247
None	42.9	11.1	50.9	15.9	44.1	18.7	47.7	32.0	48.4	29.2
1 to 36 crossings	52.4	57.1	40.4	47.1	47.1	44.1	52.3	50.0	41.9	56.7
37 or more crossings	4.8	31.8	8.8	37.0	8.8	37.3	0.0	18.0	9.7	14.2
<b>Received Trad. Medications or Herbs in Mexico within Last Year</b>	N = 63	N = 63	N = 57	N = 295	N = 34	N = 311	N = 44	N = 50	N = 31	N = 247
No	96.8	90.5	94.7	83.7	100.0	75.2	95.5	92.0	96.8	76.5
Yes	3.2	9.5	5.3	16.3	0.0	12.9	4.6	8.0	3.2	23.5

Non-Hisp. refers to Non-Hispanics while Hisp. refers to Hispanic participants.

cated along the border, the proportion of Hispanics living below the federal poverty threshold (27%) is greater than that of the U.S. population in general (12%; U.S. Census Bureau, 2000b). Similarly 41% of our Hispanic participants reported not actively participating in the labor force and 27% reported having no source of income. However, it should

TABLE 2e. Demographic Information for Hispanic and Non-Hispanic Participants by Site

Characteristics	Site A		Site B		Site C		Site D		Site E	
	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %	Non-Hisp. %	Hisp. %
<b>HIV Status</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
HIV not AIDS or AIDS Status Unknown	58.7	60.3	71.9	65.5	64.7	75.2	43.2	60.0	78.1	83.6
CDC-defined AIDS	41.3	39.7	28.1	34.5	35.3	24.8	56.8	40.0	21.9	16.4
<b>Years DX prior to SPNS intake</b>	N = 63	N = 63	N = 57	N = 296	N = 34	N = 311	N = 44	N = 50	N = 32	N = 250
Intake within same year of DX	9.5	28.6	19.3	46.3	20.6	24.4	13.6	18.0	50.0	64.4
1 to 3 years	14.3	20.6	15.8	23.6	17.6	24.1	18.2	28.0	18.8	16.8
4 to 5 years	6.3	15.9	15.8	8.4	14.7	13.8	13.6	14.0	9.4	5.2
6 or more years	69.8	34.9	49.1	21.6	47.1	37.6	54.5	40.0	21.9	13.6

Non-Hisp. refers to Non-Hispanics while Hisp. refers to Hispanic participants.

be noted that information was not collected on income sources in or from Mexico.

The CDC reported in 2003 that two-thirds of adults living with AIDS in the states comprising the U.S.-Mexico border were residents of California (CDC, 2003). Our data indicate that 67% of our study participants with AIDS were receiving care from service providers in states other than California. However, our data is limited to service providers participating in the SPNS project and is not directly comparable to statewide data. Grantee site selection was not based on the distribution of known HIV/AIDS cases in the U.S. or a random selection process; therefore the information presented should not be considered representative of the border region as a whole.

Our population is similar to the Mexican-born PLWHA population described in the HIV/AIDS Surveillance Report regarding transmission patterns for Hispanics (CDC, 2003). Findings from our study indicate that 58% (69% among males) of the Hispanic participants most likely contracted the infection through MSM contact, 30% heterosexual contact, 7% IDU, and 5% by another source, as compared to 61%, 24%, 13%, and 2% for Hispanics born in Mexico, and 40%, 27%, 31% and 1% for Hispanics born in the United States as reported by the CDC, respectively.

HRSA funded this initiative to develop innovative models of care to overcome structural, socioeconomic, and cultural barriers that limit early detection of HIV disease among residents along the U.S.-Mexico border. We are limited in the extrapolations we can make from these data, especially on the effects that socioeconomic and geographic barriers may have in limiting PLWH/As from seeking care along the border. Limitations in our ability to extrapolate from study findings are due in part to the absence of comparative data from non-participants. The results from this study reflect the characteristics of individuals who were able to overcome barriers and obstacles to accessing care and willing to participate in the study. This study is not reflective of those who, for whatever reason, are not in care.

Comparisons among sites suggest that study Site E was statistically and epidemiologically different from other sites in the length of time that elapsed between original HIV diagnosis and intake into the SPNS project and level of disease progression for Hispanics regardless of the distance traveled to receive care. These findings persisted even after excluding possible long-term, treatment-savvy HIV/AIDS patients from the analysis, and suggest that Site E, a targeted AIDS Service Organization (ASO), may have been more effective at reaching the targeted population early in the disease stage than comprehensive service sites based in Community Health Centers (CHC) or AIDS Prevention Resource Centers (APRC). It is also possible that these findings are the result of confounding factors such as demographic and geographic characteristics unique to Site E's service area that have a sizeable influence on these measures. However, we believe the likelihood that the HIV/AIDS population varies substantially between these five sites in regard to HIV epidemiology is small. A more scientifically rigorous design is needed to verify these findings and the major contributing factors to the differences.

At the start of this initiative, HRSA staff and grantees hypothesized that delayed entry into care for Hispanics residing along the U.S.-Mexico border was a result in part to difficulties associated with crossing the border and the extensive distances a patient must travel to care. Our results contradict this belief. In effect, there was an important variation between sites in the distance that participants had to travel to receive care even though they may have entered SPNS care within a similar time span following diagnosis. For example, Hispanic participants from Sites C and D were both more likely to enter SPNS care six or more years after diagnosis than Hispanic participants being served at the other project sites. Yet, most participants from Site C traveled between

five and 11 miles whereas most participants from Site D traveled 30 or more miles to the care site. Hence, for a similar lag time between diagnosis and entry into SPNS care, the distance traveled was very different. In addition, these care facilities were enrolling patients into SPNS care much later than Site E where a large proportion of participants traveled more than 30 miles to receive care. These same general patterns of timing of entry into SPNS care and miles traveled to the treatment facility persisted even after excluding individuals who reported a diagnosis prior to or on December 31, 1999. Furthermore, border crossings do not appear to be a significant barrier to accessing care for participants enrolled in the SPNS program. For example, an equal proportion of Hispanic participants receiving care at Sites A and E were likely to cross the border between one and 36 times per year, while participants receiving care at Site A were diagnosed much later than at Site E. At Site D, Hispanic participants were less likely to cross the border than other sites although they were likely to come into SPNS care six or more years after diagnosis. These findings do not provide support for the assertions that the distance traveled to service sites and the number of border crossings have an important impact on when PLWH/As residing along the U.S.-Mexico border enter HIV/AIDS medical care. Studies of migration patterns between Mexico and the U.S. have found that a large proportion of Mexican migrants who travel to the U.S. utilize well-developed migrant networks that provide social, informational and material support (Aguilera & Massey, 2003; Fussell, 2004; Kanaiaupuni, 2000; Kandel & Massey, 2002; Phillips & Massey, 2000; Singer & Massey, 1998). These networks may act to reduce the likelihood that issues associated with crossing the U.S.-Mexico border and the distance traveled to obtain needed services operate as barriers to receiving care. Additionally, some participants may consciously choose to utilize service providers located outside of their communities of residence in order to ensure their anonymity.

Another belief contradicted by our results is that patients with better financial resources are likely to seek care more readily. Patients at Site E were more likely to report no source of income than any of the other sites and yet, a larger proportion was seeking care early after diagnosis. Also, the tendency of Hispanic participants to report being employed and having private income sources more frequently than non-Hispanics suggests that non-Hispanics under care in the border region may have greater access to public sources of income (Ruiz-Beltran & Kamau, 2001). Moreover, higher proportions of employment and private in-

come sources may also be reflective of the younger age distribution of the Hispanic population.

A recent Morbidity and Mortality Weekly Report (MMWR) (CDC, 2004a) estimated that in 29 States between 1999 and 2002, 64% of reported heterosexual HIV transmissions occurred in females. The proportion of females among heterosexual PLWH/As in our study population was smaller (48%). The CDC's definition of heterosexual transmission is more specific than that of SPNS. Specifically, the CDC definition includes heterosexual contact with an HIV-infected person or one at high risk for HIV infection through IDU, while the SPdNS definition includes heterosexual contact with an HIV-infected person (which may or may not be at high risk through IDU). However, we feel that this comparison is reasonable, in that both studies aim to measure the same parameter.

Thirty-six percent of heterosexual study participants diagnosed within one year of intake were in the 30-39 year age group, which mirrors the national estimate of 35% in men and women (CDC, 2004a). The report also states that, in women with HIV infection, the proportion that contracts the disease by heterosexual contact is highest in those between 13 and 19 years of age and steadily declines in older age groups. Conversely, our data show the proportion of self-reported heterosexual exposure is constant and lower than reported in the MMWR until 40 years of age, and subsequently decreases by half (unreported data; CDC, 2004a). Notably, a lower proportion of young women who receive care from SPNS providers located along the U.S.-Mexico border report having contracted the infection heterosexually as compared to national estimates. When compared to recent estimates provided by the CDC, females in the SPNS sample appear to be underrepresented with 16% of the SPNS sample comprised of women compared to an estimated 22% of the adult and adolescent PLWH/A population in the U.S. (CDC, 2003). One possible explanation for the low level of female participation is that outreach models were less effective in reaching at-risk female populations, such as those who do not perceive or acknowledge risk because of being in a monogamous committed relationship and a personal lack of involvement in behaviors believed to be associated with increased risk, than at reaching at-risk males (Hirsch, Higgins, Bentley, & Nathanson, 2002; Keesee, Ahmad, Nelson, Barney, & Duran, 2004; Newcomb et al., 1998). It is also possible that migrating females from Mexico who are following domestic partners or spouses are less likely to engage in stage migration, thereby bypassing border communi-

ties and moving directly to a predetermined final destination (Fussell, 2004; Cerruti & Massey, 2001). Further research is needed in this area.

Between 2000 and 2003, it was estimated that 61% of men contracted HIV by MSM transmission in 32 States (CDC, 2004b), which is lower than the 67% (95% CI 64.2-70.1) found in our study. This suggests that among male PLWH/As receiving care along the border, more men are infected through MSM transmission than the national average (see also Hall, Li, & McKenna, 2005). The greater proportion of MSM transmission may be the result of a convergence between Mexican MSM migrating to the U.S. in search of less restrictive social attitudes and more permissive norms regarding sexuality in the U.S. (Díaz, 1998; Marks, Cantero, & Simoni, 1998) and the use of border communities by potential migrants as staging areas or a home base to collect migration-related information and resources for future documented and undocumented trips to the U.S. (Fussell, 2004).

Our study had several limitations. The first major limitation is the lack of a comparison group which restricts our description of socio-demographic and behavioral aspects to participants in our study and variations between the five sites. In addition, we were unable to assess the possibility of selection bias since data on refusals to participate in the SPNS project were not collected. Another limitation is that we were unable to report education and income levels for the study population due to incongruence between the Spanish and English versions of the questionnaire and methods of instrument administration. Finally, we cannot guarantee that questions were asked exactly the same way by different interviewers across sites. For example, it is possible that observed differences between sites were due in part to the use of different criteria for coding the variable "use of traditional medication and herbs from Mexico." Quality control information was not collected nor were interviewers monitored at all sites, therefore it is not possible to adjust for variations associated with potential measurement error and selection bias. One potential source of measurement error was interviewer turnover throughout the study period.

Nonetheless, our study population of PLWH/As receiving care in one of five sites along the U.S.-Mexico border provides insights and ideas for generating hypotheses to test differences between this and the general U.S. PLWH/A populations. The exposure risk factors of our study population are quite similar to that found in the national Mexico-born Hispanic population (CDC, 2003). This suggests that culturally sensitive prevention and outreach activities should be offered to all Mexico-born Hispanic men and women at various ages in the U.S., and

that these should take into consideration the differing transmission factors in that population as compared to the U.S. born population (Díaz, 1998; Foreman, 1999; Keesee et al., 2004; Ramirez-Valles, Zimmerman, Suarez, & De la Rosa, 1998; Russell, Alexander, & Corbo, 2000). Further, our findings indicate that significant diversity exists between the Hispanic populations receiving HIV/AIDS health services along the border in the four states, which may suggest a need for adapted approaches to social service and outreach. Future research needs to include an assessment of the impact of structural, environmental, economic and social factors of border communities and/or regions compared to non-border communities on the risk for HIV transmission and on an increasing access to health care on both sides of the border (Organista, Carrillo, & Ayala, 2004). This population diversity also requires that future evaluative studies include a significantly larger number of service sites and a standardized set of prevention and outreach protocols.

#### AUTHOR NOTE

Address correspondence to: Marguerite Keesee, PhD, University of Oklahoma, Center for Applied Social Research, Parkway South, 3200 Marshall Avenue, Suite 230, Norman, OK 73072-8032 (E-mail: mkeesee@ou.edu).

U.S.-Mexico Border HIV/AIDS Collaborative consists of the program staff, project evaluators and HRSA project staff involved in implementing and operating the U.S.-Mexico Border Health HIV/AIDS Special Programs of National Significance initiative at all five project sites and the University of Oklahoma.

The special initiative for the development of Demonstration and Evaluation Models that Advance HIV Service Innovation Along the U.S.-Mexico Border is funded by the U.S. Department of Health and Human Services (DHHS), Health Resources and Services Administration (HRSA), HIV/AIDS Bureau (HAB), Office of Science and Epidemiology, Special Projects of National Significance (SPNS), Grant #5 H97 HA 00180 03.

The U.S.-Mexico Border grantee sites which contributed to the data base used in this study include: *El Rio* Health Center/Arizona Border HIV/AIDS Care Project (ABHAC)(Tucson, AZ), *Camino de Vida* Center for HIV Services (Las Cruces, NM), *Centro de Salud Familiar La Fe* (El Paso, TX), *San Ysidro* Health Center (San Ysidro, CA), Valley AIDS Council (Harlingen, TX) and the *Centro de Evaluación: U.S.-Mexico Border Health Evaluation Center* (Norman, OK).

#### REFERENCES

- Aguilera, M. B., & Massey, D. S. (2003). Social capital and the wages of Mexican migrants: New hypotheses and tests. *Social Forces*, 82(2), 671-701.
- Bruhn, J. G. (1997). Introduction. In J. G. Bruhn & J. E. Branton (Eds.), *Border health: Challenges for the United States and Mexico* (pp. 3-12). NY: Garland Publishing.

- Bureau of Transportation Statistics (2004). Border crossing: US-Mexico border crossing data. Retrieved on November 14, 2004, from [http://www.bts.gov/programs/international/border\\_crossing\\_entry\\_data/us\\_mexico/pdf/entire.pdf](http://www.bts.gov/programs/international/border_crossing_entry_data/us_mexico/pdf/entire.pdf)
- The Centers for Disease Control and Prevention (2003). *HIV/AIDS Surveillance Report: Cases of HIV Infection and AIDS in the United States, 2003* (Vol. 15). Atlanta, GA: US Department of Health and Human Services.
- The Centers for Disease Control and Prevention (2004a, February 20). Heterosexual transmission of HIV-29 states, 1999-2002. *Morbidity and Mortality Weekly Report*, 53(6): 125-129.
- The Centers for Disease Control and Prevention (2004b, December 3). Diagnoses of HIV/AIDS—32 states, 2000-2003. *Morbidity and Mortality Weekly Report*, 53(47): 1106-1110.
- Cerrutti, M., & Massey, D. S. (2001). On the auspices of female migration from Mexico to the United States. *Demography*, 38(2), 187-200.
- Díaz, R. M. (1998). *Latino gay men and HIV*. London: Routledge.
- Foreman, M. (1999). Changing men's behavior. In M. Foreman (Ed.), *AIDS and men: Taking risks or taking responsibility?* (pp. 36-49). London, United Kingdom: Zed Books Ltd.
- Fussell, E. (2004). Sources of Mexico's migration stream: Rural, urban, and border migrants to the United States. *Social Forces*, 82(3), 937-967.
- Hall, H. I., Li, J., & McKenna, M. T. (2005). HIV in predominantly rural areas of the United States. *The Journal of Rural Health*, 21(3), 245-253.
- Health Resources and Services Administration [HRSA]* (2000). Special Programs of National Significance: Report on new 1999-2000 initiatives. Retrieved January 27, 2005, from [ftp://ftp.hrsa.gov/hab/SynopsRpt5.pdf](http://ftp.hrsa.gov/hab/SynopsRpt5.pdf).
- Hirsch, J. S., Higgins, J., Bentley, M. E., & Natanson, C. A. (2002). The social constructions of sexuality: Marital infidelity and sexually transmitted disease—HIV risk in a Mexican migrant community. *American Journal of Public Health*, 92(8), 1227-1237.
- Kananaupum, S. M. (2000). Reframing the migration question: An analysis of men, women, and gender in Mexico. *Social Forces*, 78(4), 1311-1348.
- Kandel, W., & Massey, D. S. (2002). The culture of Mexican migration: A theoretical and empirical analysis. *Social Forces*, 80(3), 981-1004.
- Keesee, M. S., Ahinad, A. S. G., Nelson, W., Barney, D. D., & Duran, B. (2004). An application of Borrayo's Cultural Health Belief Model to HIV/AIDS seropositive Hispanics living along the US/Mexico border. *Journal of HIV/AIDS & Social Services*, 3, 9-34.
- Marks, G., Cantero, P. J., & Simoni, J. M. (1998). Is acculturation associated with sexual risk behaviours? An investigation of HIV-positive Latino men and women. *AIDS Care*, 10(3), 283-297.
- Migration Policy Institute. (July 2002). Migration information source: The US-Mexico border. Retrieved June 01, 2005, from <http://www.migrationinformation.org/feature/display.cfm?ID=32>.
- Minichiello, S. N., Magis, C., Uribe, P., Anaya, L., & Bertozzi, S. (2002). The Mexican HIV/AIDS surveillance system: 1986-2001. *AIDS*, 16 (suppl 3), S13-S17.
- Newcomb, M. D., Wyatt, G. E., Romero, G. J., Tucker, M. B., Wayment, H. A., Carmona, J. V. et al. (1998). Acculturation, sexual risk taking, and HIV health promotion among Latinas. *Journal of Counseling Psychology*, 45(4), 454-466.
- Organista, K. C., Carrillo, H., & Ayala, G. (2004). HIV prevention with Mexican migrants: Review, critique and recommendations. *Journal of Acquired Immune Deficiency Syndromes*, 37 (suppl 4), S227-239.
- Phillips, J. A., & Massey, D. S. (2000). Engines of immigration: Stocks of human and social capital in Mexico. *Social Science Quarterly* 81(1), 33-48.
- Ramirez-Valles, J., Zimmerman, M. A., Suarez, E., & De la Rosa, G. (1998). A patch for the quilt: HIV/AIDS, homosexual men, and community mobilization on the US/Mexico border. In J.G. Power & T. Byrd (Eds.), *US-Mexico border health: Issues for regional and migrant populations* (pp. 103-118). Thousand Oaks, CA: Sage.
- Ruiz-Beitran, M., & Kamau, J. K. (2001). The socio-economic and cultural impediments to well-being along the US-Mexico border. *Journal of Community Health*, 26(2), 123-132.
- Russell, L. D., Alexander, M. K., & Corbo, K. F. (2000). Developing culture-specific interventions for Latinas to reduce HIV high-risk behaviors. *Journal of the Association of Nurses in AIDS Care*, 11(3), 70-76.
- Sanchez, M. A., Lemp, G. F., Magis-Rodriguez, C., Bravo-Garcia, E., Carter, S., & Ruiz, J. D. (2004). The epidemiology of HIV among Mexican migrants and recent immigrants in California and Mexico. *Journal of Acquired Immune Deficiency Syndromes*, 37 (suppl 4), S204-214.
- Singer, A., & Massey, D. S. (1998). The social process of undocumented border crossing among Mexican migrants. *International Migration Review*, 32(3), 561-592.
- SPSS Inc. (2003). *SPSS Base 12.0.0 for Windows user's guide*. SPSS Inc., Chicago, IL.
- U.S. Census Bureau. (2000a). Census 2000 Summary File 3 (SF 3)—Sample data. Retrieved on November 14, 2004, from [http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=DEC&\\_lang=en](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_lang=en)
- U.S. Census Bureau (2000b). State and county quick facts. Retrieved on June 1, 2005 from <http://quickfacts.census.gov/qfd/>
- U.S. Census Bureau (2004). 2003 Population estimates. Retrieved on November 14, 2004, from [http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=PEP&\\_lang=en&ts=131556701203](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=PEP&_lang=en&ts=131556701203)

doi:10.1300/J187v05n02\_04