

# HIV/AIDS Among Mexican Migrants and Recent Immigrants in California and Mexico

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This special issue contains original review articles by researchers from the University of California and the Secretariat of Health of Mexico. The articles on epidemiology, prevention, and health care services review available published data and selected unpublished data on Mexican migrants in California specifically and across the United States. These articles identify research and intervention needs and, where available, document effective methods of outreach and interventions with the Mexican migrant population. An article addressing the issue within Mexico outlines the emerging data on the vulnerability of Mexicans migrating to the United States with regard to HIV, sexually transmitted diseases, and associated behaviors. Lastly, a concluding article presents an analysis of policies that serve as barriers or facilitators of prevention and care for Mexican migrants in California. All the articles offer compelling evidence for integrating tailored outreach, prevention, and health care services for the Mexican migrant population into the overall health care infrastructure of communities in California and Mexico.

Patterns of transnational movement among Mexican citizens vary widely; therefore, the term *migrant* extends to all those groups of persons whose residence, work, and social patterns extend across the United States–Mexico border. This population includes individuals at different stages of migration, their families, and individuals who are part of their social and economic networks in California and Mexico. Effective prevention and care strategies for Mexican migrants must focus on these populations as distinct migrant group who contribute economically to the communities where they reside.

The California–Mexico AIDS Initiative was created by the University of California, Office of the President, in collaboration with the Secretariat of Health, Mexico, to address the epidemiology, prevention, health care services, and public policy issues with regard to HIV/AIDS, sexually transmitted diseases, and tuberculosis among Mexican migrant communities in California and within their originating communities in Mexico. This transnational collaboration is based on the premise that Mexican migrants in the United States are particularly vulnerable to infectious disease epidemics such as HIV, sexually transmitted diseases, and tuberculosis. The body of data presented in these articles supports this hypothesis and indicates that without intervention, these epidemics may expand more aggressively in the future, representing an emerging threat to Mexican migrants in California, along the California–Mexico border, and within Mexico.

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# The Epidemiology of HIV Among Mexican Migrants and Recent Immigrants in California and Mexico

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**Summary:** For Mexican migrants and recent immigrants, the impact of migration from Mexico to California has the potential to lead to an increased risk for HIV infection. Until recently, the prevalence of HIV in Mexico and among Mexican migrants in California appeared to be stable and relatively low. Recent studies have raised new concerns, however, that the HIV epidemic may expand more aggressively among this population in the coming years. Unfortunately, the insufficient amount of data available within recent years makes it difficult to fully assess the potential for rapid spread of the HIV epidemic among this population. Consequently, there is a critical need for an ongoing binational surveillance system to assess prevalence and trends in HIV/STD/TB disease and related risk behaviors among this population both in California and within this population's states of origin in Mexico. This enhanced epidemiologic surveillance system should provide improved data on the subpopulations at the highest risk for HIV/STD/TB, such as men who have sex with men, and should provide the opportunity to evaluate the impact of migration on the transmission dynamics, risk behaviors, and determinants of behavior on each side of the border. It is essential that this potential threat be assessed and that intervention programs are developed and implemented to combat this possible escalation in the HIV epidemic.

**Key Words:** Mexican migrant, HIV, AIDS, STD, prevalence, California, Mexico, surveillance system

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Although relatively little is known about the extent of the HIV/AIDS epidemic among the Mexican migrant and recent immigrant populations throughout California, there is concern that these populations are at increasing risk for HIV infection. A confluence of migration-related factors has the

potential to increase the likelihood of an AIDS epidemic within these populations. These factors include constant mobility; cultural, linguistic, and geographic barriers to health care services; a change in sexual practices; limited education; psychosocial factors; isolation; discrimination; poverty; chronic underemployment; and substandard housing.<sup>1</sup> For example, there is a hypothesis suggesting that migrants are more likely to engage in high-risk sexual practices when moving to the United States, which consequently increases their risk of HIV infection. Adoption of new sexual practices has often been attributed to a need to seek companionship to compensate for the alienating aspects of the migration experience, fewer constraints or social controls on behavior, exposure to previously unknown or unacceptable sexual behaviors and practices, or precarious economic circumstances that compel some migrants to exchange sexual services for food, lodging, or money. Furthermore, the mechanisms behind this increased risk of HIV infection include low levels of knowledge relating to the mechanisms of infection and prevention, multiple partners, low condom use, and increased alcohol and drug use, including illegal drugs and self-injection of vitamins and antibiotics.<sup>2</sup> Additionally, limited access to medical care and HIV testing while in California may delay diagnosis and treatment of HIV-infected Mexican migrants, which creates a higher probability of transmission.<sup>3</sup> Clearly, understanding the migratory patterns of Mexicans is a formidable challenge and essential for developing a better understanding of the infectious disease transmission dynamics and mixing within and between Mexico and California.

## MEXICAN MIGRANTS AND IMMIGRANTS

The U.S. Census estimates for 2000 indicate that more than 8.7 million people of Mexican origin currently reside in California.<sup>4</sup> This represents 26% of the state's total population. Approximately, 3.8 million (44%) within this Mexican-origin population were born in Mexico, 55% of whom are male and 45% of whom are female.<sup>4</sup>

Economic and social factors serve as the driving force for migration to California for this population.<sup>5</sup> Furthermore, more than 880,000 (23.6%) are naturalized, and more than 2.8 million (76.4%) are noncitizens.<sup>4</sup> In the United States, Califor-

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nia is the principal destination for Mexicans, with approximately 44% of Mexican immigrants residing in California.<sup>4</sup>

The US Census estimates clearly document the degree of representation of Mexican migrants and recent immigrants in California. There is a high degree of variability among these point estimates throughout the literature, however. Such variability is often a result of the incomplete nature of data on this population, particularly because of seasonal and random migration patterns. Therefore, HIV prevalence estimates are difficult to calculate, given the high uncertainty level associated with estimates of the total Mexican migrant and immigrant population.

Agricultural work is considered the “entry occupation” for a large proportion of Mexicans first arriving in California.<sup>5</sup> There are approximately 1.3 million agricultural workers in California.<sup>6</sup> Estimates indicate that approximately 91% of California’s hired agricultural workers were born in Mexico.<sup>7</sup> Although Mexican migrants and immigrants represent a significant proportion of the farm worker workforce, the majority of Mexican migrants and immigrants reside within the urban areas throughout California and work within the service industry.<sup>8</sup> A study on immigrant day laborers in Southern California indicated that 77.5% of those sampled were from Mexico.<sup>9</sup> In addition, this sampled population was predominantly male and undocumented, although 25% reported being in the United States for more than 11 years.<sup>9</sup>

### EPIDEMIOLOGY OF HIV/AIDS AMONG MEXICANS IN CALIFORNIA

In the past 20 years, there has been a steady increase in the percentage of newly diagnosed AIDS cases who are Latino.<sup>10</sup> Although Latinos accounted for 34.2% of the AIDS cases diagnosed in 2000, they represented only 30.8% of the California population.<sup>10</sup> The California Department of Health Services further reports that the percentage of Latino AIDS cases who are Mexican or Mexican–American has increased from 36.5% in 1995 to 47.7% in 2000.<sup>10</sup> The cumulative number of AIDS cases among Mexicans in California as of January 1999 was 9424, with men representing 92% of the total.<sup>10a</sup> Among these Mexican AIDS cases, 71.9% were born in Mexico.<sup>10a</sup> Men who have sex with men (MSM) were the leading high-risk group at 66%, with injection drug users (IDUs) following at 8.6%.<sup>10a</sup> Dual MSM and injection drug use behavior was associated with 5.9% of cases.<sup>10a</sup> Because of the long incubation period between HIV infection and AIDS diagnosis, it should be noted that these AIDS data alone do not fully reflect the extent of the epidemic among the Latino population throughout California. HIV incidence and prevalence data are essential for establishing a more accurate assessment of the extent of the epidemic among the Mexican migrant and recent immigrant populations as well as a better understanding of the transmission dynamics within these populations. Reported

HIV incidence data for Mexicans in California are currently incomplete and unavailable.

### EPIDEMIOLOGY OF HIV/AIDS IN MEXICO

Within the Americas, Mexico ranks third in terms of accumulated AIDS cases after the United States and Brazil, with 72,864 cases reported as of December 2003.<sup>12</sup> The Mexican government’s Centro Nacional para la Prevención y el Control del VIH/SIDA (CENSIDA) estimates that there are currently 150,000 people infected with HIV throughout Mexico, which includes 99,000 (66%) MSM, 38,600 (26%) adult heterosexuals, 3300 (2.2%) female sex workers (FSWs), 1700 (1.1%) male sex workers (MSWs), 2900 (1.9%) IDUs, and 4500 (3%) incarcerated persons.<sup>11</sup>

In Mexico, national HIV prevalence estimates for 2000 were generated by CENSIDA for the cohort of persons aged 15 to 49 years.<sup>12a</sup> HIV prevalence has been highest among the high-risk subpopulations of MSM and IDUs, with a relatively low HIV prevalence of 0.29% among the general population.<sup>12a</sup> The high-risk group with the highest HIV prevalence estimate for this age cohort was MSM, with an estimate of 15%, with MSWs as the second highest risk group, with an estimate of 12.2%.<sup>12a</sup> Mexican FSWs had an estimated HIV prevalence of 0.38% among this age cohort, IDUs had an estimated HIV prevalence of 6%, and incarcerated persons had an estimated HIV prevalence of 3.7%.<sup>12a</sup> The HIV prevalence estimate among the heterosexual population within this age cohort was 0.09%.<sup>12a</sup> Among those with tuberculosis (TB) throughout Mexico within this age cohort, an HIV prevalence of 1.5% was estimated.<sup>12a</sup> These HIV prevalence estimates are based on sentinel surveys and a review of the literature. The methodologic approach for the meta-analysis to determine these prevalence estimates has not been documented in the literature, thus making it imperative to consider confidence intervals when evaluating the accuracy of these estimates.

Beginning in 1983, the early stages of the HIV epidemic in Mexico were characterized by slow growth, with exponential growth developing in the mid-1980s and the return of slow growth rates again in 1994.<sup>11</sup> Currently, AIDS is the 16th leading cause of death in Mexico, with 4.3 deaths per 100,000 population.<sup>11</sup> The most affected cohort, those aged 24 to 35 years, accounts for 41.6% of all reported cases.<sup>11</sup> Within this age cohort, AIDS is the fourth leading cause of death among men and the seventh among women.<sup>11</sup> Given the concentrated nature of Mexico’s HIV epidemic, most cases are associated with the MSM, IDU, FSW, and youth risk groups.<sup>11</sup> A noteworthy trend is the emergence of the AIDS epidemic within rural communities throughout Mexico.<sup>12a</sup> In 1994, 3.7% of Mexico’s AIDS cases were based in rural communities; however, by 1997, this proportion increased to 6% with more than 2000 cases reported.<sup>12a</sup> Moreover, 33% of AIDS cases in Mexico have been from those states that export the highest number of migrants to the United States.<sup>13,14</sup> This

increase in AIDS cases in the rural communities, along with the association between AIDS cases and the leading “sending” states, provides potential evidence of migrants acquiring infection while in the United States and subsequently returning to their community in Mexico.<sup>1,15</sup>

In Mexico, sexual transmission remains the dominant route of transmission for HIV.<sup>11,16</sup> In the early stages of the epidemic, sexual transmission of HIV was more common among men who identified themselves as homosexual or bisexual.<sup>11</sup> By 1988, this subpopulation made up 81% of the total reported AIDS cases.<sup>11,17</sup> Heterosexual transmission has gradually increased in importance, however.<sup>11</sup> In 1995, of the 13,746 men infected in whom the mode of transmission was known, 47.6% of the infections were attributed to heterosexual transmission via HIV-positive women.<sup>11,17a</sup> Recent data from 2001 attribute 39.8% of reported cases to MSM transmission and 53.6% to heterosexual transmission.<sup>11,18</sup> Nevertheless, it is important to note that heterosexual transmission is an over-reported risk factor because it is more socially acceptable than reporting same-sex activity. The question remains about the relative contribution that disease transmission as a result of travel and return from the United States versus underreporting of MSM or IDU behavior plays in these high rates of cases attributed to heterosexual transmission. Recent studies clearly indicate that these behaviors are contributing factors.<sup>11,15</sup> New studies are needed to investigate the prevalence of HIV among women in Mexico and among their male partners in the United States. These studies would further identify the impact that migration has had on the heterosexual transmission of HIV.

### HIV PREVALENCE IN MEN WHO HAVE SEX WITH MEN

Table 1 lists results from a variety of California- or Mexico-based studies of Latino or Mexican migrant MSM. The studies in California found a prevalence of HIV ranging from 5% to 35%, and the Mexico-based studies reported an HIV prevalence ranging from 3.6% to 31%. Most of these studies were conducted several years in the past, however, and may not reflect the current epidemic among Mexican migrants. Results from a recent sample survey targeting young Latino MSM (aged 18–29 years) in San Diego, California and Tijuana, Mexico suggest that HIV is substantially affecting the MSM high-risk population on each side of the border.<sup>19</sup> In this recent study, high-risk venues from each jurisdiction were targeted from May 2000 to Spring 2002.<sup>19</sup> HIV prevalence was 35.2% for Latino MSM in San Diego and 18.9% for a similar population in Tijuana.<sup>19</sup> Results from this study also indicated that the Tijuana MSM were more likely than MSM in San Diego to report engaging in risky sexual behavior with female partners as well as risky drug-using behaviors.<sup>19</sup> For both jurisdictions, however, a significant proportion of MSM were found to engage in risky sexual behaviors with both men and women from the opposite side of the border.<sup>19</sup> Although these

results suggest that a significant HIV epidemic may be emerging among MSM along the border, issues of sampling and statistical power need to be considered when evaluating the results. Nonetheless, these high prevalence estimates warrant further study and intervention, given the high level of migration between California and Mexico.

### HIV PREVALENCE AND RISK BEHAVIORS AMONG MEXICAN MIGRANT FARM WORKERS

Relatively few studies have examined the prevalence of HIV among Mexican migrant farm workers in California (Table 2). Two small serologic studies of migrant farm workers in California failed to detect any HIV infection. The studies were conducted 10 or more years ago, however, and the sample sizes, ranging from 50 to 173 persons, did not provide sufficient statistical power to generate reliable estimates. The small survey in Orange County (see Table 2) found that the most frequent sexual activity for male migrant farm workers was with prostitutes, many of whom were HIV-infected as a result of intravenous heroin use.<sup>20</sup> Another study conducted in Northern California in 1994 (see Table 2) found that 38.5% of the male migrant farm worker respondents had paid for sex, although only 30.8% used a condom.<sup>20a</sup> Although HIV was not found within these small surveys, the studies are notable, given the presence of significant precursors to AIDS, including high-risk behaviors and a history of sexually transmitted infections (STIs). A 1996 to 1997 intervention study of male migrant and seasonal farm workers in farm campsites in North San Diego County (see Table 2) found that 70% of sexually active farm workers reported sex with a sex worker before the intervention. Only 23% of these men reported using condoms during sex with the sex worker.<sup>21</sup> After the intervention, 97% of migrants in intervention group 1 and 92% of migrants in intervention group 2 subsequently reported using condoms during sex with a sex worker.<sup>21</sup>

Other studies have found that the injection of illegal drugs is relatively rare among migrant farm workers but that the sharing of needles to inject vitamins and antibiotics is far more common.<sup>22</sup> In addition, there is a lack of HIV prevalence data on the undocumented population. The association between documentation status and prevalence of disease and risk behaviors is unknown.

### HIV PREVALENCE STUDIES AMONG SEX WORKERS

Little is known about the risk behaviors and HIV prevalence among Mexican migrant sex workers. Table 3 lists a variety of studies or analyses conducted between 1990 and 1997 in Mexico among MSWs and FSWs. Actual or estimated HIV prevalence ranged from 0.1% to 0.5% for FSWs and was 12% for MSWs. There are no similar studies of migrant sex workers residing in California. Questions remain as to whether Mexi-

**TABLE 1.** HIV Prevalence Studies of Latino MSM in California and Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>CALIFORNIA STUDIES</b>					
Young Latino MSM 18–29 years of age	To assess and compare the impact of HIV on this population on each side of the California–Mexico border	HIV antibody tests on blood specimens collected from target samples of this population (cruising areas, gay-identified venues), 1999–2002	N = 249 (Tijuana) (98.4% Mexican); N = 125 (San Diego) (86.2% Mexican)	18.9% HIV prevalence (Tijuana); 35.2% HIV prevalence (San Diego)	Ruiz J, et al. 5th Annual Conference on AIDS Research in California, 2002
Latino MSM testing for HIV in California	To examine demographic and behavioral variables associated with HIV in a large cohort of Latino MSM accessing publicly funded HIV sites in California	Data from the California Department of Health Services, Office of AIDS, for Latino MSM clients who tested for HIV with valid HIV test results from 1/1/1998–12/31/2000	N = 22,223	5% HIV prevalence	Webb D. 5th Annual Conference on AIDS Research in California, 2002
Mexican immigrant MSM in Los Angeles	To estimate the prevalence of HIV	Probability sample from venues and public social spaces identified as both gay and Latino from 10/1998–03/1999; self-report of HIV status	N = 310	17% HIV prevalence	Diaz RM, Ayala G. The Policy Institute of the National Gay and Lesbian Task Force, 2000, Washington DC
Young homosexual and bisexual men aged 17–22 years in San Francisco and Berkeley, CA	To estimate the prevalence of HIV infection and risk behaviors	Survey of MSM in targeted probability sample from 26 public venues from 1992–1993	N = 425 (total sample) N = 95 (Latino sample)	9.4% HIV prevalence for total sample; 9.5% HIV prevalence for Latino sample	Lemp G, et al. <i>JAMA</i> , 1994
<b>MEXICO STUDIES</b>					
MSM population of those aged 15–49 years in Mexico in 2000	To estimate the prevalence of HIV	Estimation based on sentinel surveys and RIIMSIDA literature	Estimated total population of 661,049	15% HIV prevalence; (15.6% [930/5946] HIV prevalence for 1991–1995)	CENSIDA, Secretaría de Salud, Mexico, 2000
Men with homosexual practices in Mexico	To analyze HIV homosexual transmission in Mexico, epidemic trends, and biologic and social risk factors	HIV serologic screening tests at the Information Center of the Mexican Council for Control and Prevention of AIDS (CONASIDA), 01/1988–06/1989	N = 2314	31% HIV prevalence	Izázola-Licea JA, et al. <i>Salud Publica Mex</i> , 1995
MSM in 3 states in Mexico	To determine the prevalence of various STDs and HIV	Structured questionnaires and laboratory tests	N = 325	18.8% HIV prevalence	Valdespino Gomez JL, et al. <i>Salud Publica Mex</i> , 1995
MSM in Michoacan, Mexico	To determine the prevalence of HIV	Name-linked sentinel surveillance (1990–1995)	N = 14,000	3.6% HIV prevalence (1991); 12.7% HIV prevalence (1995)	Santarriga-Sandoval M, et al. 11th International Conference on AIDS, Vancouver, 1996
CONASIDA, Mexican Council for Control and Prevention of AIDS; RIIMSIDA, Mexican AIDS Database of Research and Intervention Programs.					

**TABLE 2.** Studies of Mexican Migrant Farm Workers in California

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>CALIFORNIA STUDIES</b>					
Migrant and seasonal farm workers in 5 rural counties in Northern California (92.5% born in Mexico)	To assess the seroprevalence of HIV infection and syphilis	Interviewed and tested self-selected volunteers from 41 randomly selected sites from 8/1994–12/1994	N = 173	0.0% HIV prevalence	Ruiz JD, et al. California Department of Health Services, Office of AIDS, 1997
Sexually active male Mexican farm workers in Southern California	To determine HIV prevalence	AIDS Community Education Project of Orange County	N = 50	0.0% HIV prevalence	Carrier JM and Magana JR. <i>J Sex Res</i> , 1991
Male migrant and seasonal farm workers in 27 farm campsites in North San Diego County, California	To evaluate 2 prevention interventions; no serologic testing	Randomized controlled intervention study; questionnaires administered before and after intervention	N = 271	70% of sexually active farm workers reported sex with a sex worker before the intervention; 23% used condoms during sex with sex workers before the intervention	Bowser BP, et al, eds. <i>Preventing AIDS: Community-Science Collaborations</i> , 2004

**TABLE 3.** HIV Prevalence Studies on Sex Workers in Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>MEXICO STUDIES</b>					
FSW population of those aged 15–49 years in Mexico in 2000	To estimate the prevalence of HIV	Estimation based on sentinel surveys and RIIMSIDA literature	Estimated total population of 87,647	0.38% HIV prevalence; (0.3% [59/19,851] HIV prevalence for 1991–1995)	CENSIDA, Secretaria de Salud, Mexico, 2000
MSW population of those aged 15–49 years in Mexico in 2000	To estimate the prevalence of HIV	Estimation based on sentinel surveys and RIIMSIDA literature	Estimated total population of 14,120	12.2% HIV prevalence; (14.0% [84/602] HIV prevalence for 1991–1995)	CENSIDA, 2000
FSWs in Mexico City	To estimate the prevalence and associated risk factors of HBV serologic markers	Standardized questionnaire and blood sample for those FSWs attending an HIV detection center, 1992	N = 1498	0.1% HIV prevalence	Juarez-Figueroa L, et al. <i>Sex Transm Dis</i> , 1998
Female commercial sex workers in Mexico	To determine the prevalence of various STDs and HIV	Structured questionnaires and laboratory tests, beginning in 1990	N = 1386	0.5% prevalence for HIV	Valdespino Gomez JL, et al. <i>Salud Publica Mex</i> , 1995
FSWs in 18 states in Mexico	To estimate the prevalence of HIV	Estimation based on sentinel surveillance from CENSIDA, 1990–1997	N = 28,973	0.4% (95% CI: 0.33–0.47) HIV prevalence	Santarriga-Sandoval M, et al. 12th International Conference on AIDS, 1998

CI, confidence interval; RIIMSIDA, Mexican AIDS Database of Research and Intervention Programs.

can sex workers migrate to California and continue sex work with migrants and other populations while in California.

5.9% HIV prevalence among male IDUs and a 1.9% HIV prevalence among female IDUs.<sup>25</sup> The Mexican government estimated in 2000 that 6% of IDUs in Mexico were infected with HIV.<sup>12a</sup>

### HIV PREVALENCE STUDIES AMONG INTRAVENOUS DRUG USERS

Little is known about the risk behaviors and HIV prevalence among Mexican migrant intravenous drug users. Table 4 lists a variety of studies or analyses conducted between 1986 and 1997 in California and Mexico. Two studies conducted in the San Francisco Bay Area in the late 1980s found that the HIV prevalence among Latino IDUs ranged from 10% to 18%.<sup>23,24</sup> These studies did not identify the country of origin among the Latino subpopulation. No data were available on HIV prevalence among Mexican migrant IDUs. Serologic surveys conducted in Mexico between 1990 and 1997 found a

### HIV PREVALENCE AMONG LOWER-RISK MEXICAN MIGRANT POPULATIONS, INCLUDING HETEROSEXUALS, BLOOD DONORS, AND PREGNANT WOMEN

There have been few, if any, studies that have estimated the prevalence of HIV infection among lower-risk Mexican migrant populations in California, including pregnant women and other heterosexual populations. Table 5 lists HIV prevalence studies conducted between 1990 and 2003 among lower-risk populations in Mexico. The estimated HIV prevalence among the heterosexual Mexican population ranged from

**TABLE 4.** HIV Prevalence Studies on Mexican Intravenous Drug Users in California and Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>CALIFORNIA STUDIES</b>					
Heterosexual IVDUs in public methadone treatment programs in San Francisco	To assess HIV seroprevalence and risk factors for HIV among this population	Recruited from community-based drug treatment programs from 5/1986–7/1987; serum samples collected and a questionnaire was administered	N = 633 (18% Hispanic or other)	12.2% HIV prevalence (10% HIV prevalence among Hispanics and others)	Chaisson RE, et al. <i>JAMA</i> , 1989
Heterosexual IDUs in the San Francisco Bay Area	To provide an overview of HIV seroprevalence and associated risk factors	Recruited from street populations in 6 locations in the Bay Area; standard questionnaire used and serum collected	N = 954 (San Francisco sample) (12.2% Hispanic)	12.6% HIV prevalence for entire San Francisco sample; 18% HIV prevalence among Hispanics	Watters JK, et al. 8th International Conference on AIDS, Amsterdam, 1992
<b>MEXICO STUDIES</b>					
Intravenous drug user (IVDU) population of those aged 15–49 years in Mexico in 2000	To estimate the prevalence of HIV	Estimation based sentinel surveys and RIIMSIDA literature	Estimated total population of 48,000	6.0% HIV prevalence; (4.8% [32/668] HIV prevalence for 1991–1995)	CENSIDA, Secretaría de Salud, Mexico, 2000
IVDUs in 16 large and medium cities throughout Mexico; 17,105 men and 31,783 women were recruited from HIV detection centers, streets, STD clinics, public baths, and bars on a voluntary and confidential basis	To analyze HIV seroprevalence, sociodemographic profile, sexual practices, and other risk factors	Sentinel surveillance and seroepidemiologic surveys from 1990–1997	N = 1070 male IVDUs (6.3% of the men recruited); N = 260 female IVDUs (0.8% of the women recruited)	5.9% HIV prevalence for the men; 1.9% HIV prevalence for the women	Magis-Rodríguez C, et al. 12th International Conference on AIDS, 1998

IVDU, intravenous drug user; RIIMSIDA, Mexican AIDS Database of Research and Intervention Programs.

**TABLE 5.** HIV Prevalence Studies on Lower-Risk Populations (Heterosexuals, Blood Donors, and Pregnant Women) in Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>MEXICO STUDIES</b>					
Heterosexual population of those aged 15–49 years in Mexico in 2000	To estimate the prevalence of HIV	Estimation based on sentinel surveys and RIIMSIDA literature	Estimated total population of 42,861,282	0.09% HIV prevalence; (0.04% [1/2747] HIV prevalence among pregnant women for 1991–1995; 0.04% [486/1,104,512] HIV prevalence for blood donors for 1991–1995)	CENSIDA, Secretaría de Salud, Mexico, 2000
Blood donors in a hospital in Morelia, Michoacan, Mexico	To establish the prevalence of viral antibodies and luetic reagins	Blood samples collected from healthy volunteer donors from 01/01/1990–12/31/1996	N = 10,077	0.18% HIV prevalence	Pita-Ramirez L and Torres-Ortiz GE. <i>Rev Invest Clin</i> , 1997
Heterosexuals in Michoacan, Mexico	To determine the prevalence of HIV	Name-linked sentinel surveillance from 1990–1995	N = 14,000	0.86% HIV prevalence (1991); 3.4% HIV prevalence (1995)	Santarriga-Sandoval M, et al. 11th International Conference on AIDS, Vancouver, 1996
Pregnant women in labor at Tijuana General Hospital, Tijuana, Mexico	To estimate the prevalence of HIV	Voluntary screening for HIV among women in labor during a 13-week period in the summer of 2003; 97% consented to testing	N = 947	1.26% HIV prevalence	Viani R, et al. National Retrovirus and Opportunistic Infections Conference, San Francisco, 2004
Pregnant women in 58 cities throughout Mexico	To estimate HIV prevalence from sentinel surveillance data	Estimation based on sentinel surveillance from 1990–1994; voluntary, confidential, and linked serologic screening for HIV	N = 3800	0.03% HIV prevalence	Loo-Méndez E, et al. 11th International Conference on AIDS, Vancouver 1996
Heterosexual men in 16 large and medium cities throughout Mexico recruited from HIV detection centers, streets, STD clinics, public baths, and bars on a voluntary and confidential basis	To analyze HIV seroprevalence, sociodemographic profile, sexual practices, and other risk factors	Sentinel surveillance and seroepidemiologic surveys from 1990–1997	N = 8815	3.0% HIV prevalence	Loo-Méndez E, et al. 12th International Conference on AIDS, Geneva 1998

RIIMSIDA, Mexican AIDS Database of Research and Intervention Programs.

0.09% for the general population to 3% for those persons recruited and surveyed from selected high-risk venues and clinics in urban areas.<sup>12a</sup> The estimated HIV prevalence among blood donors ranged from 0.04% to 0.18%.<sup>12a,27</sup> Sentinel surveillance among pregnant women in 58 cities between 1990 and 1994 yielded an estimated HIV prevalence of 0.03%, a rate

similar to that found in California.<sup>28</sup> A recent survey of pregnant women in labor at a hospital in Tijuana found a significantly higher HIV prevalence of 1.26%, however.<sup>29</sup> Given that the previous lower estimates were generated in the early to mid-1990s, this recent survey among pregnant women in Tijuana suggests there may be an emerging problem that might

**TABLE 6.** STD Prevalence Studies Among Mexicans in California and Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>CALIFORNIA STUDIES</b>					
Low-income pregnant Mexican-American women	To document the prevalence of STDs	Screening at a clinic for low-income populations during first perinatal visit	N = 347	10.1% prevalence for chlamydia, 1.2% for gonorrhea, 0.3% for syphilis, 0.0% for HBV	Campos-Outcalt D and Ryan K. <i>Sex Transm Dis</i> , 1995
Migrant and seasonal farm workers in 5 rural counties in Northern California (92.5% born in Mexico)	To assess the seroprevalence of HIV infection and syphilis	Interviewed and tested self-selected volunteers from 41 randomly selected sites from 8/1994–12/1994.	N = 173	1.2% syphilis prevalence	Ruiz JD, et al. California Department of Health Services, Office of AIDS, 1997
Undocumented Hispanic day laborers in Los Angeles County	To determine the prevalence of HIV and STDs	HIV/STD outreach project sponsored by the Los Angeles County STD Program in 1994	N = 4500	12% syphilis prevalence	Rulnick S, Todorof CH, Richwald G. 5th National Congress on AIDS, 1995
<b>MEXICO STUDIES</b>					
Residents of San Juanito, Mexico (rural community)	To determine the seroprevalence of HBV	Cross-sectional survey	N = 970	6.6% prevalence for antibody to HBV core antigen	Cisneros-Castolo M, et al. <i>Am J Trop Med Hyg</i> , 2001
FSWs in Mexico City	To estimate the prevalence and associated risk factors of HBV serologic markers	Standardized questionnaire and blood sample for those FSWs attending an HIV detection center from 1/1992–10/1992	N = 1498	0.2% prevalence for HBsAg, 6.3% for antibody to HBV core antigen, 7.6% prevalence for syphilis	Juarez-Figueroa L, et al. <i>Sex Transm Infect</i> , 1998
Blood donors in a hospital in Morelia, Michoacan, Mexico	To establish the prevalence of viral antibodies and luetic reagins	Blood samples collected from healthy volunteer donors from 01/01/1990–12/31/1996	N = 10,077 (N = 7256 for anti-HCV testing)	0.33% HBsAg, 0.11% RPR prevalence, 0.30% anti-HCV prevalence	Pita-Ramirez L, and Torres-Ortiz GE. <i>Rev Invest Clin</i> , 1997
Pregnant women attending a perinatal care hospital in Mexico	To determine the seroprevalence of HAV, HBV, HCV, and HDV virus infection	Prospective study	N = 1500	93.3% anti-HAV IgG prevalence, 0.26% HBsAg prevalence, 0.53% anti-HCV prevalence, 0.0% HBeAg or anti-HDV prevalence	Ortiz-Ibarra FJ, et al. <i>Salud Publica Mex</i> , 1996
Rural and suburban women attending the Rural Hospital of Tlacolula, Oaxaca	To estimate the prevalence of <i>C. trachomatis</i> infection	Cross-sectional survey, 1994	N = 559	7.3% positive for chlamydia	Acosta-Cazares B, Ruiz-Maya L, Escobedo de la Pena J. <i>Sex Transm Dis</i> , 1996
Female commercial sex workers in 4 states in Mexico	To determine the prevalence of various STDs	Structured questionnaires and laboratory tests, beginning in 1990	N = 1386	23.7% prevalence for syphilis, 12.9% for chlamydia, 11.5% for gonorrhea, 11% for anti-Hss, 9.3% for herpes, 5.7% for HBsAg	Valdespino-Gomez JL, et al. <i>Salud Publica Mex</i> , 1995
MSM in 3 states in Mexico	To determine the prevalence of various STDs	Structured questionnaires and laboratory tests	N = 325	28.6% prevalence for anti-HBsAg, 34.9% for syphilis, 10.9% for recent herpes, 5% for HBsAg, 4.3% for chlamydia, 4.7% for herpes simplex virus 1 or 2, 2.8% for gonorrhea	Valdespino-Gomez JL, et al. <i>Salud Publica Mex</i> , 1995

**TABLE 6.** (continued) STD Prevalence Studies Among Mexicans in California and Mexico

Study Population	Study Objective	Design	Sample Size	Results	Authors
MSM and FSWs in 3 federal entities in Mexico	To estimate the prevalence of STDs	Structured questionnaires and blood samples	N = 1544	6.9% (MSM) and 5.1% (FSWs) prevalence for genital ulcers, 8.3% (MSM) and 2.5% (FSWs) for genital/anal warts, 23.8% (MSM) and 23.7% (FSWs) for <i>Treponema pallidum</i> , 2.9% (MSM) and 11.6% (FSWs) for <i>Neisseria gonorrhoeae</i> , 4.1% (MSM) and 12.8% (FSWs) for <i>Chlamydia trachomatis</i> , 5.4% (MSM) and 11.1% (FSWs) for anti-HBsAg, 10.1% (MSM) and 9.7% (FSWs) for antiherpes IgM	Valdespino-Gomez JL, et al. 8th International Conference on AIDS, Amsterdam, 1992

HAV, hepatitis A virus; HBeAg, hepatitis B e antigen; HBsAg, hepatitis B virus surface antigen; HBV, hepatitis B virus; HCV, hepatitis C virus; HDV, hepatitis D virus; HSS, homospermidine synthase; RPR, rapid plasma reagent.

substantially increase in the future. In addition, given that a large number of persons from Tijuana regularly commute back and forth across the California–Mexico border, this study suggests the potential for further spread of the epidemic.

### SEXUALLY TRANSMITTED INFECTIONS

Sexually transmitted diseases (STDs) such as chlamydia, syphilis, gonorrhea, and hepatitis as well as the prevalence of the high-risk behaviors associated with HIV/STD infections, are also significant among the target population (Table 6). STDs are the most common reportable diseases in California. In the United States, STDs are the leading cause of preventable infertility, are associated with adverse birth outcomes, can lead to pelvic inflammatory disease (PID) in women, and are associated with increased sexual transmission of HIV.<sup>30</sup> Studies have demonstrated that being infected with an STD makes it 2 to 23 times easier to transmit HIV, depending on the specific STD.<sup>30a</sup> Many individuals infected with syphilis are also coinfecting with HIV; nationwide, more than 50% of MSM who have been diagnosed with syphilis are HIV-positive.<sup>31</sup>

### TUBERCULOSIS

The spread of the HIV epidemic has significantly affected the TB epidemic.<sup>32</sup> Given that HIV severely weakens

the immune system, individuals dually infected with HIV and *Mycobacterium tuberculosis* have a 100-fold increase in the risk of developing active TB disease and becoming infectious as compared with those not infected with HIV.<sup>32</sup> The Centers for Disease Control and Prevention (CDC) estimates that 10% to 15% of all TB cases and nearly 30% of cases among people aged 25 to 44 years are occurring in HIV-infected individuals.<sup>32</sup> In California, despite the fact that the number of TB cases has declined over the past decade, the percentage of cases in foreign-born individuals has increased significantly.<sup>33</sup> In 1992, 61% of California's TB cases were foreign-born.<sup>33</sup> In 2001, however, 75% of TB cases in California were foreign-born, of which the largest proportion (31.8%) were from Mexico (Table 7).<sup>33</sup>

### SUMMARY CRITIQUE OF CITED HIV PREVALENCE STUDIES

Many of the studies cited in this review are based on unpublished research. Thus, there were limited data and methodologic detail to evaluate the integrity of the data, sampling, power, biases, and study methodology properly. In addition, the lack of peer-reviewed papers makes it difficult to assess and weigh the quality and reliability of each study. This made it difficult to assign a reliability score or to weigh the contribution of the individual studies. Because of these problems, an approach was taken to assess the preponderance of data and

**TABLE 7. TB Prevalence Studies Among Mexican Migrant Farm Workers in California and Households in Mexico**

Study Population	Study Objective	Design	Sample Size	Results	Authors
<b>CALIFORNIA STUDIES</b>					
Current and former US farm workers from Zacatecas, Mexico	To investigate farm worker health	Binational Health Survey; quantitative survey and field observations over 18-month period	N = 467	1.1% TB prevalence	California Institute for Rural Studies. The Binational Farmworker Health Survey, 2001
Current farm workers	First-ever baseline health data collected for farm workers in the state	California Agricultural Worker Health Survey, 1999; statewide interview of farm workers and comprehensive physical examination; random sample of households in 7 communities	N = 968	3% TB prevalence	California Institute for Rural Studies. The Binational Farmworker Health Survey, 2001
<b>MEXICO STUDIES</b>					
Members of households in areas of high levels of poverty in Chiapas, Mexico >14 years of age	To estimate the prevalence of PTB	Convenience sample of households in 32 communities selected at random, 1998	N = 1894 households	PTB rate of 276.9 per 100,000 population	Sanchez-Perez H, et al. <i>Int J Epidemiol</i> , 2001
PTB, pulmonary tuberculosis.					

trends across all studies with regard to the potential for an expanding HIV epidemic. In addition, most of the data were generated 5 to 10 years in the past. Limited data are available on the key target populations in recent years. The paucity of data available within the past few years makes it difficult to assess the potential for rapid spread of the HIV epidemic in Mexican migrant and recent immigrant populations in California.

Another limitation of the studies cited in this review is that they often differed in target study population and specific methodology. Some of the key studies examined Latino populations as a group and did not differentiate the findings for Mexican migrants, recent immigrants, or the Mexican-origin population as a whole. Other studies targeted only one localized subpopulation or sampled persons from an undefined mixture of public venues. In addition, some studies used a random probabilistic sampling approach, whereas others relied on convenience sampling or self-selected volunteers.

**POLICY RECOMMENDATIONS**

There is an urgent need for an ongoing binational surveillance system to assess prevalence and trends in HIV/STD/TB disease and related risk behaviors in the Mexican migrant population in California and within the originating “sending” states within Mexico. This enhanced epidemiologic surveillance system should also provide improved data on the subpopulations at the highest risk for HIV/STD/TB and would

provide the opportunity to evaluate the impact of migration on the transmission dynamics, risk behaviors, and determinants of behavior on each side of the border. This surveillance system should use an integrated approach to capture the behavioral/social context, determinants of behavior, and prevalence of disease.

To help reduce fragmentation of data, the system should use methods of repeated cross-sectional sampling and should generate data that are comparable across time and place. Sentinel sending states in Mexico need to be included in the surveillance system.

Data generated by a binational surveillance system should be rapidly disseminated to local prevention and care providers in the United States and Mexico to help foster local efforts to prevent the spread of infection and to care for those already infected. Given the high prevalence of HIV/AIDS among Mexican MSM, this subpopulation should be a focus of surveillance surveys. There is also a need for further studies in rural communities in Mexico to look at women whose partners may be exhibiting MSM behaviors while in California but not identifying themselves as MSM.

Until recently, the prevalence of HIV in Mexico and among Mexican migrants in California appeared to be stable and relatively low, reflecting a mature HIV epidemic similar to that experienced in other developed nations. Recent studies have raised concerns that the HIV epidemic may

expand more aggressively among these populations in the future, however, representing an emerging threat to Mexican migrants in California, along the California–Mexico border, and within Mexico. It is imperative that this potential threat be assessed and that intervention programs are developed and put into place to thwart this possible surge in the HIV epidemic.

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# Migration and AIDS in Mexico

## *An Overview Based on Recent Evidence*

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**Objectives:** Provide an overview of the relation between migration to the United States and AIDS cases in Mexico. Characterize the sexual behaviors of Mexican migrants. Describe HIV/AIDS prevention and clinical attention actions developed.

**Methods:** The following were analyzed: AIDS cases databases, various prevalence studies, the migrants survey, and information of the Ministries of the Interior and of Health. A documental analysis was undertaken of works published between 1992 and 2000 on migration and AIDS.

**Results:** In terms of their sexual practices, migrants in the past year had more sexual partners, tended to use a condom in their most recent relation in greater proportion, and had greater use of injected medicines and drugs. Two bi-national programs undertake epidemiological surveillance activities, while several initiatives have used innovative formats to provide prevention information to migrants. Imminent universal coverage leaves the challenge to assure quality of attention for migrants.

**Conclusions:** Studies to evaluate the impact of international migration on distribution of infected persons will be indispensable to establish priorities in prevention and attention among migrants. More information is needed on bi-national health projects to understand the impact they may have in prevention, while continuity of the prevention initiatives must be guaranteed. Attention to migrants in bi-national contexts requires information exchange agreements on migrants living with the HIV/AIDS.

**Key Words:** migration, sexual behavior, Mexico, epidemiology, surveillance, AIDS

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In Mexico, as in other countries, the AIDS epidemic has transformed into a complex public health problem, with multiple psychologic, social, ethical, economic, and political repercussions. According to the typology proposed by the Joint United Nations Program on HIV/AIDS (UNAIDS), Mexico can be classified as a country with a concentrated AIDS epidemic characterized by the prevalence of HIV infection rapidly disseminated in certain population subgroups but which has not yet reached the general population. Although the epidemic is moderate at the national level, there are nevertheless various transmission patterns and differentiated subepidemics in each region of the country, depending on the culture, social conditions, sexual dynamics, and other habits of regional residents. Increases in the association of AIDS cases with injected drug use in cities along the border with the United States<sup>1</sup> and an emerging pattern of increased heterosexual transmission<sup>2</sup> illustrate that the scope of the epidemic may be expanding. Given the increasing magnitude of the epidemic, not enough quantitative information is yet available on individual risk of acquiring HIV in distinct subpopulations.

Since the origin of the AIDS epidemic in Mexico, various researchers have associated its development with the phenomenon of large-scale migration toward the United States, given evidence of greater prevalence of HIV/AIDS in migration destinations, which, in turn, could have repercussions in the places of origin.<sup>3</sup> Studies have attempted to identify migratory flows and sociodemographic characteristics of persons reported with AIDS compared with persons without AIDS through quantitative techniques<sup>4–6</sup> and qualitative studies of sexual behaviors of the migrants<sup>7</sup> as well as to characterize the risk factors of migrants during their stay in the United States to explain the increasing rural prevalence of the epidemic in Mexico.<sup>7a</sup> One consequence of these migration studies was concern regarding increased AIDS prevalence in women, given their vulnerability as a result of the fact that the traditional feminine role in Mexico implies a low degree of power to negotiate sexual practices with their migrant partners.<sup>8–11</sup> Studies have also focused on southern Mexican border points through which persons from Central American countries transit in route to the United States.<sup>12</sup>

Following the theoretical proposal of Lalou and Pichet<sup>12a</sup> to understand the forms in which the relation between migration and AIDS has been conceptualized, research results may be divided between those which see the migrant from the optic of vulnerability, or from the perspective of HIV/AIDS dissemination. Vulnerability factors which have stood out may be grouped in two classes: within a macro-social level figure the characteristics of the society of destination of the Mexican migrants compared with the places of origin, and within a micro-social level are presented the migrants' individual characteristics (Table 1).

Given concern regarding the possible relation between migration and increasing prevalence of AIDS in Mexico, prevention policies emerged early in the epidemic. Execution of these policies has been hindered by challenges related to the scope of the epidemic, however. It is difficult to ensure that prevention messages reach the entire Mexican population, considering the dispersion of migrants among localities with characteristic inaccessibility.<sup>13</sup> An even greater challenge is determining methods of reaching this Mexican migrant population while it is in the United States, particularly because many migrants are undocumented and fear discovery and deportation.

## METHODS

This article presents a current overview of the AIDS epidemic in Mexico based on the National Registry of AIDS Cases accumulated up to December 31, 2002, as well as preva-

lence studies of specific groups. The AIDS cases database was updated with information on population size obtained from the 1995 Population and Housing Census undertaken by the National Institute on Geography and Statistics. Also included is a characterization of sexual behaviors of Mexican migrants based on analysis of the Migrants Survey of HIV-Related Behaviors Surveillance System undertaken in the states of Morelos and Puebla in the year 2002.<sup>14</sup> In addition, a literature review was conducted of 106 works on migration and AIDS published between 1992 and 2002 and contained in the database known as Mexican AIDS Database of Research and Intervention Programs (RIIMSIDA), as classified by the Centro Nacional para la Prevención y Control del SIDA Mexican National Center for HIV/AIDS Prevention and Control (CENSIDA). The article then presents an overview of prevention activities that have been developed by the Mexican government as well as by private civic organizations.<sup>15</sup> Finally, the article describes the state of HIV/AIDS clinical care in Mexico and identifies obstacles to access to care for Mexican migrants.

## RESULTS

### Epidemiologic Characteristics and Behavior of Mexican Migrants

The first AIDS case in Mexico was diagnosed in 1983, and 68,145 accumulated AIDS cases have been registered up to December 31, 2002. Almost 90% of these accumulated cases were transmitted via sexual contact. Transmission by men who have sex with men accounts for little more than 50%

**TABLE 1.** Summary of the Literature on Vulnerability Factors for Migrants

Characteristics of the Society		Individual Characteristics	Risk Practices
Destination (United States)	Origin (Mexico)		
More permissive cultural models in regard to sexuality	Strict community norms on sexuality	Young ages and predominance of men	Involvement in risky sexual practices to survive (sale of sex)
High HIV/AIDS incidence rates	High and low HIV/AIDS incidence rates according to the entity	Single or traveling without their family	Sexual relations with sex workers
More extended use of intravenous drugs	Increased intravenous drug use in border cities	Predominance of agricultural occupations	Heterosexual men having sexual relations with other men because of isolation in work sites
Prevention campaigns in English, without impact on Mexican migrants		Low educational level and lack of knowledge of the English language Loneliness and affective isolation Sexual preferences that stimulate them to migrate to a more tolerant society	Intravenous drug use with infected needles

of the total accumulated cases. The male/female ratio of prevalence is 6:1.<sup>15a</sup>

According to estimates of CENSIDA, in Mexico, there are 150,000 HIV-infected adults, of whom 100,000 are men who have sex with other men, 40,000 are heterosexual, more than 4500 are prisoners, 3000 are intravenous drug users, and just more than 2500 are male and female commercial sex workers.<sup>16</sup>

It is important to point out that the HIV prevalence in adults in the United States (0.6%) is double the estimated prevalence in Mexico (0.3%),<sup>17</sup> meaning that Mexican migrants living in the United States are at much greater risk of acquiring HIV compared with populations remaining in Mexico. By the end of the year 2001, an accumulated 816,157 HIV/AIDS cases had been reported in the United States,<sup>18</sup> signifying an accumulated incidence rate of 285.4 per 100,000 inhabitants. In that same period, Mexico<sup>19</sup> had registered 51,914 accumulated cases for an accumulated rate of 51.7 per 100,000 inhabitants. Comparing these 2 rates, the risk in the United States is 5.5 times greater than in Mexico.

### Background of Migration to the United States in Registered HIV/AIDS Cases

In early 2001, a study was undertaken that classified accumulated HIV/AIDS cases from the National Case Registry up to December 31, 2000, according to locality population size as reported by the 1995 Population and Housing Census. As a result of this research, it was established that of the total cases registered up to December 2000 (n = 47,617), 12.7% (6060) involved persons who had previously lived in the United States. This proportion is higher (approximately 14%) in reference to HIV/AIDS-infected persons living in localities with less than 5000 inhabitants and in those living in large cities with more than 500,000 inhabitants (Table 2).

At the beginning of the epidemic, all cases involved persons who had previously lived in the United States; that figure declined to 41.3% by 1991. Beginning in 1992, however, the Mexican epidemiologic surveillance system discontinued the systematic registry of variables related to migration history. Presumably, as a result, the percentage dropped abruptly to 20% that year, to 5.4% the following year, and successively until reaching 0.1% in the year 2000 (Table 3).

The 2 states that present the highest proportion of HIV/AIDS cases involving a history of residence in the United States are Michoacan and Jalisco, with figures greater than 20%. They are followed by Nayarit, Nuevo León, Coahuila de Zaragoza, and the Federal District (Mexico City), with proportions greater than 15% of the total cases (Table 4). In addition, in Michoacán, Durango, Zacatecas, Nayarit, and Jalisco, more than 20% of AIDS patients registered in rural areas (populations less than 2500 inhabitants according to the census definition) have backgrounds of previous residence in the United States (Table 5).

### Behaviors of Mexican Migrants Related to HIV

We know little about the impact of migration on the development of the HIV/AIDS epidemic in Mexico. Sufficient data are lacking to measure the role of migration in the spread of the epidemic accurately. The lack of serologic surveys of Mexican migrant populations, which would allow establishment of relations between sexual and cultural practices and infection, has led to use of indirect inferences of individual risk based on estimations of differences in sexual practices between migrants and nonmigrants.

Progress has been made in identifying certain sexual practices of the mobile populations to reveal paths of transmission. The qualitative study undertaken by Bronfman and Minello<sup>7</sup> illustrated that changes in sexual habits are produced

**TABLE 2.** Accumulated AIDS Cases by Locality Size and Background of Residence in the United States: Data Up to December 31, 2000

Locality Size	AIDS Cases	Persons With AIDS With Background of Residence in United States	Percentage
Less than 2500 inhabitants	2089	287	13.7
2500–4999 inhabitants	893	126	14.1
5000–14,999 inhabitants	2031	275	13.5
15,000–49,999 inhabitants	2965	322	10.9
50,000–499,999 inhabitants	10,918	1167	10.7
500,000 or more inhabitants	26,387	3722	14.1
Subtotal	45,283	5899	13.0
Locality size unknown	2334	161	6.9
Total	47,617	6060	12.7

Elaborated by CENSIDA (Research Department) with data from the National AIDS Case Registry.

**TABLE 3.** Accumulated AIDS Cases by Year of Notification and Background of Residence in the United States: Data Up to December 31, 2000

Year of Notification	AIDS Cases	Persons with AIDS With Background of Residence in United States	Percentage
1983	6	6	100.0
1984	6	3	50.0
1985	29	23	79.3
1986	246	127	51.6
1987	518	325	62.7
1988	905	507	56.0
1989	1605	941	58.6
1990	2587	1480	57.2
1991	3155	1304	41.3
1992	3210	641	20.0
1993	5058	273	5.4
1994	4111	161	3.9
1995	4310	120	2.8
1996	4216	79	1.9
1997	3670	33	0.9
1998	4758	24	0.5
1999	4372	6	0.1
2000	4855	7	0.1
Total*	47,617	6060	12.7

\*The total includes 286 cases of foreigners in transit through Mexico.

Elaborated by CENSIDA (Research Department) with data from the National AIDS Case Registry.

during the migratory process: numbers of sexual partners increase among men, and as a consequence of the loneliness, isolation, lack of women, and insertion in a “more open” society as well as the decline in social and family control, relations increase with male partners and/or with prostitutes who are often intravenous drug users. Learning of new practices was also noted among both men and women, especially different positions for vaginal coitus, oral sex, and anal sex.

Within the framework of the HIV-Related Behaviors Surveillance System,<sup>14</sup> between August and December 2001, a survey was carried out in 2 states with high migration rates toward the United States (Morelos and Puebla), with the objective of reaching a population with high spatial mobility for labor reasons toward other countries or other localities within Mexico. Men and boys (n = 789) and women and girls (n = 367) older than the age of 14 years were interviewed. The results partially confirm the findings of the previous qualitative research. Of total interviewees, 5% had no migratory experience, 15% had worked outside their locality at some time but not within the past year, and 80% had done so in the past year.

Among the last of these, 15% traveled to another country and the rest traveled to another national locality. The group, composed of 125 persons who had left their locality to work in another country during the year before the survey, was consid-

**TABLE 4.** Accumulated AIDS Cases by Residence Entity and Background of Residence in the United States: Data Up to December 31, 2000

Federal Entity or State	AIDS Cases	Persons with AIDS With Background of Residence in United States	Percentage
Michoacán	1549	319	20.6
Zacatecas	268	55	20.5
Nayarit	583	101	17.3
Nuevo León	1321	227	17.2
Coahuila de Zaragoza	763	129	16.9
Mexico City (Federal District)	11,639	1763	15.1
Durango	358	53	14.8
Jalisco	5356	790	14.7
México	5576	820	14.7
Chihuahua	730	107	14.7
Colima	197	27	13.7
San Luis Potosí	497	67	13.5
Tamaulipas	917	108	11.8
Sinaloa	669	77	11.5
Guerrero	1487	166	11.2
Guanajuato	976	107	11.0
Morelos	1172	125	10.7
Yucatán	1124	108	9.6
Aguascalientes	244	23	9.4
Baja California	1723	158	9.2
Puebla	2951	266	9.0
Quintana Roo	247	21	8.5
Tlaxcala	397	33	8.3
Oaxaca	923	76	8.2
Hidalgo	473	34	7.2
Sonora	664	47	7.1
Chiapas	603	34	5.6
Baja California Sur	275	5	5.5
Querétaro	390	19	4.9
Tabasco	393	16	4.1
Veracruz	2619	85	3.2
Campeche	247	5	2.0
Extranjeros			
Non-nationals	286	79	27.6
Total*	47,617	6060	12.7

\*The total includes 286 cases of foreigners in transit through Mexico.

Elaborated by CENSIDA (Research Department) with data from the National AIDS Case Registry.

**TABLE 5.** Accumulated AIDS Cases in Rural Areas and Background of Residence in the United States: Data Up to December 31, 2000

Entity	AIDS Cases in Rural Populations	Rural Persons With AIDS With Background of Residence in United States	Percentage
Michoacán	189	50	26.5
Durango	38	10	26.3
Zacatecas	61	16	26.2
Nayarit	80	18	22.5
Jalisco	148	31	20.9
Colima	11	2	18.2
Coahuila de Zaragoza	29	5	17.2
Nuevo León	24	4	16.7
San Luis Potosí	67	11	16.4
Tlaxcala	37	6	16.2
México	153	24	15.7
Puebla	242	35	14.5
Guerrero	114	16	14.0
Morelos	31	4	12.9
Guanajuato	58	7	12.1
Oaxaca	126	15	11.9
Quintana Roo	18	2	11.1
Chihuahua	21	2	9.5
Sonora	32	3	9.4
Hidalgo	124	9	7.3
Chiapas	29	2	6.9
Aguascalientes	15	1	6.7
Tamaulipas	34	2	5.9
Sinaloa	38	2	5.3
Querétaro	39	2	5.1
Baja California Sur	21	1	4.8
Yucatán	32	1	3.1
Veracruz	198	6	3.0
Baja California	13	0	0.0
Campeche	16	0	0.0
Mexico City (Federal District)	0	0	0.0
Tabasco	51	0	0.0
National total*	2089	287	13.7

\*The total includes 286 cases of foreigners in transit through Mexico. Elaborated by CENSIDA (Research Department) with data from the National AIDS Case Registry.

ered to represent international migrants for the purposes of this study. All were sexually active, and 75% were men or boys.

The results indicate that the international migrants had more sexual partners in the previous year than those who had not migrated to another country (for practical purposes, those who did not leave their locality and those who traveled to other locations within Mexico are referred to as nonmigrants). On average, the nonmigrant men and boys had 1.8 partners over the past year, whereas the international migrants had 3.3 sexual

partners ( $P < 0.00$ ). Among these partners, a greater proportion of male international migrants than nonmigrant men and boys reported having had sexual relations in the previous year with sex workers (commercial partners) and nonregular partners (Table 6). Among the women and girls who had sexual relations in the previous year, the study noted that the international migrants had a greater number of partners than nonmigrants. On average, the nonmigrant women and girls had 1.2 partners, whereas the female international migrants had 1.5 sexual part-

**TABLE 6.** Type of Partners of Men in the Previous Year by Migration Condition (Percentages)

Type of Sexual Partner in the Previous Year	Men	
	Nonmigrants (N = 288)	International Migrants (N = 71)
	Wife or habitual partner	77.8
Commercial partner	16.7	40.6†
Nonregular and noncommercial	19.6	35.3*
Outside of community or country	14.7	74.3†

\* $P < 0.01$ ; † $P < 0.00$ .

The percentages of the distinct types of partners total more than 100, because 1 man may have had sexual relations with more than 1 type of partner in the previous year.

ners ( $P < 0.05$ ). The reduced number of cases of migrant women and girls interviewed did not permit comparison of other behaviors such as condom use and types of partners.

As opposed to the qualitative results, no significant results were found between the proportion of migrant men and boys who had declared having ever had sexual relations with another man compared with nonmigrants (3% and 2.6%, respectively).

In reference to condom use in the most recent sexual relation, the migrant men and boys tended to use condoms in a higher proportion with all partner types than nonmigrants. Among both groups (migrant and nonmigrant men and boys), there was greater use with commercial partners and with partners they had outside their locality or country than with a wife or habitual partner (Table 7). The figures show that an important number of sexual relations went unprotected.

Another indicator of greater exposure to HIV/AIDS risk among the international migrants compared with the nonmigrants is greater use of injected drugs for nonmedical purposes.

Affirmative responses were received from 9.8% of the 122 migrants of both sexes, compared with 1.2% of nonmigrants ( $P < 0.00$ ), to the question of whether they had used injected drugs that were not medicines in the past year. Interviewees were also asked whether they had ever tried cocaine, and 13.4% of migrants versus 1.7% of nonmigrants ( $P < 0.00$ ) responded affirmatively. Even though no significant difference was found between international migrants and nonmigrants in the use of injected B complex, consumption was high (14.1% and 12.1%, respectively). Thus, it seems that injected use of vitamin B represents a risk for migrants if this practice is carried out in the United States, given that migrants may have greater difficulties in obtaining access to clean syringes, because of their migrant status and because clean syringes are more readily available without prescription in Mexico than in the United States. Lafferty<sup>20</sup> has highlighted the importance of the use of injected medicines in a convenience sample of Latino immigrants, in which he found a high frequency of injection of vitamins and antibiotics (20.3%) and 3.5% reporting sharing the syringe.

### Prevention Policies and Actions on Migration and AIDS

This section outlines binational agreements in health established in the past 2 decades and their possible use in the framework of HIV/AIDS prevention in Mexico and the United States. Given the escalating vulnerability of the mobile transborder populations, there is an urgent and emerging need to establish international collaboration mechanisms. The Binational Commission was formalized in 1981 with the participation of Mexico and the United States; its aim is to allow for exchange experiences between governmental institutions in both countries. In May 1996, the Nuclear Group on Migrant Health was established as part of the Health Group of the Mexico–United States Binational Commission to investigate the needs and common problems related to health of migrant workers and their families. The Nuclear Group on Migrant

**TABLE 7.** Condom Use in the Most Recent Sexual Relation With Each Type of Partner, by International Migration Condition, Among Men

Type of Partner	Condom Use by Men in Most Recent Sexual Relation			
	Nonmigrants		International Migrants	
	Percentage Yes, Did Use	N (Total)	Percentage Yes, Did Use	N (Total)
Wife or habitual partner	13.0	254	37.3	59†
Commercial partner	57.6	59	76.9	39*
Nonregular and noncommercial	41.1	56	68.0	25*
Outside of community or country	53.2	47	77.6	49*

\* $P < 0.05$ ; † $P < 0.00$ .

Health aims to advance research in the following areas: women's health, AIDS/HIV, sexually transmitted diseases (STDs), environmental health, and tuberculosis. Among its priority actions, it promotes development of a portable binational health registry, increased electronic communication, and exchange of information and bilingual material. In addition, it evaluates public health regulations that affect Mexican migrants.

In 1999, the Mexican and United States Health Ministries signed a Bilateral Agreement on Collaboration for Border Health. The Mexico–United States Binational Commission on Border Health was established in July 2000 to address health problems along the common border between the United States and Mexico. The Commission constituted 2 sections with 13 members each. The 2 countries' Health Ministers serve as Presidents of their respective sections.<sup>21</sup> On September 22 of that year, the Health Ministers of both nations initialed the Joint Declaration on Migrant Health, which constituted a historic recognition of the social and economic importance of Mexican workers in the United States.

In this context of binational agreements on migrant health care, there emerged a Mexican governmental program focused on the migrant population in the United States and on internal migrants in Mexico. The program, developed in 2001, is called "Go Healthy, Return Healthy" (*Vete Sano, Regresa Sano* [VSRS]). This program recognizes the situation of inequality of the undocumented workers living in the United States and of the national agricultural workers laboring far from their families and communities of origin. The VSRS program's mission is to guarantee a favorable state of health during the 3 moments of the migratory phenomena: origin, travel, and destination.<sup>21a</sup>

The VSRS program was developed within the Model of Integrated Attention to Migrant Health (*Modelo de Atención Integrada a la Salud del Migrante* [MAIS]), which determines international coordination strategies to avoid duplicated efforts.<sup>21a</sup> The MAIS highlights the responsibility of the governments, federal and state, in migrant health and works to make health services accessible for all migrants in national territory, regardless of their migratory condition. Within the Mexican Ministry of Health structure, the VSRS program is coordinated by the National Center for Infant and Adolescent Health.

The VSRS has 2 stages of action. The first implements the component to address the internally migrating population. Actions to respond to the international migratory population are developed in the second stage.

One of the proposals is to establish a personal identification scheme, such as a migrant health card, to allow the migrant to use National Health System services throughout his or her travel and temporary stays. Another proposal is to call for intensive health promotion campaigns to foster self-care.

The program directs its execution based on 4 areas: information to the population (eg, identifying social networks, developing information guides on disease prevention, first aid,

personal hygiene, community training); preventative care in the place of origin, travel, and destination (eg, prevention and control of illnesses preventable by vaccination, nutritional surveillance, sexual and reproductive health counseling); medical attention in origin, travel, and destination (eg, migrant health card, sensitizing health service providers, incorporation of migrants within care modules regardless of nonresidence in the area); and simplified epidemiologic surveillance (eg, outbreak studies, opportune notification of mobile populations of more than 100 persons). Given their great importance, the strategies focus on the most vulnerable population, such as children and reproductive age and pregnant women, offering them simple and clear information in a sensitive manner, even translated into their own language (Náhuatl, Zapoteco, and Mixteco).

The VSRS goals for 2001 to 2006 in high-mobility states and municipalities in the area of migrant health information are to develop a migrant health guide; promote self-care in health, especially in prevention and damage protection; identify migrant networks, especially in the 10 states with the highest migration rates; and disseminate and promote the self-care health guide through community leaders or municipal health committees.

The program contemplates guaranteeing prevention and control of diseases preventable by vaccination, tuberculosis treatment supply, nutrition orientation and intervention, family planning and sexual and reproductive health counseling (attending to all pregnancies and births), opportune detection of chronic-degenerative diseases, and intervention in areas such as mental and dental health.

Increasingly, mobility seems to be an element that may favor HIV/AIDS vulnerability in socially disadvantaged groups, which, in this case, correspond to undocumented migrants along the Mexico–US border. The VSRS program incorporates surveillance and attention to 100% of STD and HIV/AIDS cases detected.

It is important to note that in the first phase of the VSRS program, actions in the places of origin were initially begun in the 10 states with highest mobility: Baja California, Colima, Guanajuato, Guerrero, Jalisco, Michoacán, Oaxaca, Puebla, San Luis Potosí, and Zacatecas. Actions during migratory travel focus on active surveillance of bus stations, airports, and highways points so that health service providers, identifying mobilizations, may promote foreseen strategies. Actions in the destinations are proposed systematically in close coordination with the states of origin for the sanitary control of the population. The United States intends to strengthen coordination with migrant attention centers by promoting already existing health services and promoting their use.

Other efforts to consider the migrant health situation from a regional perspective are the Mexico–California Health Initiative (*Iniciativa de Salud México–California* [ISMECAL]) and the Mexico–Texas Health Initiative (*Iniciativa de Salud México–Texas*). On October 12, 2001, the ISMECAL

was presented with the participation of the Mexican Ministry of Health, the Ministry of Health Services of the State of California, and the University of California, working in coordination with the VSRS and outlining a series of objectives such as coordination of efforts, improvement of the quality of life of the migrant and his family, promotion of binational health, education on health and disease prevention, facilitation of binational training of health professionals, broadening access to health services in California and in the 7 most important states of origin of the Mexican workers, exchange of information among sanitary authorities, and an annual binational public health week. In the most recent Binational Health Week in 2002, a focus was STDs and HIV/AIDS, with 1 day of the week dedicated to the issue.

Given that the epidemiologic registry and the surveillance system are unable to keep pace with population mobility between the 2 countries, the ISMECAL developed an agreement with the Universitywide AIDS Research Program (UARP), the California Department of Health Services (DHS), the Mexican Epidemiological General Office, and CENSIDA to develop a pilot project for epidemiologic surveillance in California and Mexico. The plan is for said population to have a specific system that offers reliable information on diseases such as HIV/AIDS or tuberculosis and development of STDs.<sup>21b</sup>

On November 11, 2002, the Mexican Ministry of Health and the Texas A&M University System<sup>22</sup> signed the Mexico-Texas Health Initiative as part of the binational cooperation effort toward migrant welfare. This coordinated collaboration has the objectives of improving the health and quality of life of the Mexican population in Texas, promoting education in health, and developing research in applied health among several other objectives. Unfortunately, this initiative did not include any section on HIV/AIDS or sexuality, nor does it have any article that bars future incorporation of said theme.

Despite the effort proposed by diverse authorities and governments, national and international, the high risk and vulnerability in which migratory flows are immersed have not been reduced in real terms. The media report almost daily on migrant deaths as a result of diverse circumstances, including abuse by local authorities, scarce respect for human rights, exploitation, denial of medical services,<sup>12,23</sup> and an infinite number of tragedies in relation to migrants' search to improve their quality of life. The daily human rights violations increase this group's vulnerability in relation to various diseases, including HIV transmission.

Future research is required to evaluate the impact of these policies on HIV transmission prevention among internal and international mobile populations. Incorporation of not only the health sector but the migration authorities, Ministries of Education, and Human Rights Commissions from both sides of the border seems necessary, given that HIV prevention in mobile populations requires holistic interventions and poli-

cies that take into account all the aspects that make migrants vulnerable to STDs and HIV.

### HIV/AIDS Prevention Actions in Migrants

In addition to national policies, specific actions have been implemented to address the HIV infection problem in distinct mobile populations in Mexico.

Based on results of qualitative research on sexual habits of Mexican migrants carried out between May 1, 1991 and January 1, 1992,<sup>7</sup> a made-for-television movie was filmed within a format that facilitates presentation of the information in a colloquial and socially accepted manner. A script for 5 actors was developed, combining frequent situations, humor, and testimonies. The movie was televised in Mexico on December 1, 1992 and in the United States on December 6, 11, and 13, 1992 through different cable channels, with a potential audience of 22 million viewers.<sup>24</sup>

Another project with the specific objective of HIV prevention among Mexican migrants to the United States was the videotape "*La vida sigue*" (Life goes on)<sup>25</sup> and the adult comic book "*Más vale prevenir . . .*" (A little prevention is worth more. . .). To disseminate information on migration and AIDS, the videotape was originally designed in 1995, transmitted on March 8, 1996 on national television in Mexico, and later redesigned as an adult comic book by Mexican National Council for HIV/AIDS Prevention and Control (CONASIDA) in 1997. The comic book is based on the return of migrants from the United States to their places of origin. In 32 pages, it narrates the changes in interactions between the migrants and residents, provides information on HIV/AIDS transmission and prevention, and, above all, promotes the use of condoms. On the back cover, it synthesizes how AIDS is transmitted and prevented as well as providing elements to reduce myths and misconceptions on transmission and to discourage rejection of persons who live with AIDS. The TELSIDA hotline and a Web page (<http://www.ssa.gob.mx>) are highlighted for more information. An evaluation of these 2 materials was undertaken with focus groups, which concluded that the videotape was remembered better than the comic book, although the latter could be sent by mail from Mexico to the United States.<sup>26</sup> The comic book also reported positive acceptance, although to a lesser degree than the videotape. Forty thousand copies of the comic book were printed and have been distributed by state AIDS programs, Mexican consulates in the United States, and State of California health services since 2001.

Another noteworthy project is *Prevención del VIH/SIDA en la frontera Sur de México: Los trailereros en Cd. Hidalgo, Chiapas* (HIV/AIDS prevention in the southern Mexican border: truckers in Ciudad Hidalgo, Chiapas). This work was undertaken between 1998 and 1999 by the National Institute of Public Health (INSP) and CONASIDA, with the purpose of evaluating the impact of STDs and HIV/AIDS information on intervention and condom use promotion. An eth-

nographic study that included truck drivers and key community informants (physicians, nurses, health registrars, sex workers, and informal small-load pedal-powered transporters known as “tricyclers”) was carried out. A questionnaire was applied to 307 truckers encountered in cafeterias and boarding houses in Ciudad Hidalgo between June and July 1998, with the purpose of identifying what information they had on STDs and HIV/AIDS and on condom use. This group was considered a reference group to evaluate intervention impact. The intervention was evaluated 6 months later on 311 truckers. Of these, only 23% had participated in the intervention and the remaining 77% had not. The intervention consisted of developing and using materials that contained information on prevention and promotion of condom use. The truckers were also given pamphlets, key chains, and bumper stickers for their trailers, and informative posters were distributed in bars. The project evaluation identified that the forms used were effective and that it was appropriate to disseminate the information to specific groups. Border points are considered strategic locations in which to design and develop prevention actions with high potential for multiplication to increase information coverage within this specific group.

The educational television project “*Los caminos de la vida*” (The ways of life), for HIV/AIDS prevention among rural adolescents in Mexico, was undertaken between 1998 and 2000 by the civil society organization AFLUENTES. The objective was to train educators and health service providers from rural areas on sexuality and HIV/AIDS prevention. The project hoped to generate experience with which to launch a campaign directed to *tele-secundarias* (secondary schools in poor regions, which rely on televised instruction) throughout the country and to develop an educational manual on sexuality and STDs directed to rural educators. For that purpose, ethnographic studies were undertaken with youth in rural communities, educators, and community promoters. The studies considered elements such as migration and transformations in local world visions on sexuality as a result of contact with other cities in the country and abroad and included focus groups with local community members. Elements and concepts related to solidarity, responsibility, tolerance, love, acceptance, equity, and justice were also explored. The elaboration and production of the educational videotape “*Los caminos de la vida*” was undertaken in 2002 and 2003 following the previously mentioned focus groups, but its impact evaluation is not yet available. The goal is that the educational videotape be disseminated in rural communities in 17 states in collaboration with the Mexican Institute of Social Security (IMSS) OPORTUNIDADES program.

## Clinical Care

In speaking about clinical care settings in Mexico, it is important to point out that the country has a segmented health

system that includes social security institutions (IMSS), Mexican Institute of Social Security for bureaucrat (ISSSTE), Mexican Government Oil Company (PEMEX), Ministry of Army (SEDENA), and Ministry of Navy (SEMAR), private institutions, and public institutions of the Ministry of Health. The social security institutions provide free access to integral care for all illnesses and maternity for governmental and private sector employees, including antiviral medications and all care requirements for HIV/AIDS. An important percentage of the population does not have this social benefit, however, including the informal sector, which includes field hands or day workers and independent and non-wage-earning workers. This situation leads to unfair financial distribution and great inequities in the system.

At the beginning of the epidemic, it was estimated that 52% of the infected population had access to social security. The latest National Health Survey undertaken in 2000 found that 31.8% of the population had access to the IMSS, 5.7% to the ISSSTE, 2.1% to other social security institutions, and 1% to private services, and that 60% had no social security and relied on Ministry of Health public services.

Because of this finding and the high costs of antiviral medications, which represent 86% of the total cost of HIV/AIDS care,<sup>27</sup> the Mexican Ministry of Health established a program in 1998 to support the HIV/AIDS-infected population without social security with free medication, initiating with coverage of all those younger than the age of 18 years and pregnant women.<sup>28</sup> Starting in 1999, coverage was gradually increased to adults, and the goal was established within the 2001 to 2006 action program to reach free coverage for 100% of the total registered living population with AIDS.<sup>29</sup> In 2002, 93% coverage of living registered AIDS sufferers had already been reached, and in a joint effort with civil society organizations, an additional budget allocation was obtained from the Legislative Congress, allowing free antiviral medication coverage of 100% of the population needing it in 2003, encompassing 28,068 AIDS patients. As part of the health system reform, 9 funds were created for catastrophic\* expense protection, and in 2004, the fund related to HIV/AIDS will have been integrated, based on the already assigned funds for antiviral medications.

Parallel to this effort, and as a consequence of decentralization of the Ministry of Health, beginning in 1997, specialized services known as *Servicios Especializados para la Atención de las personas que viven con VIH/SIDA* (SEAS) have been established for attention to persons living with HIV/AIDS in all federal entities throughout the country, in accordance with a model established by national experts. A total of 77 SEAs currently exist in the country, most of them located

\*Catastrophic expense is understood as that which represents more than 30% of family income.

within specialized hospitals and integrated by health teams selected in accordance with their positive attitude toward persons with HIV/AIDS and their technical abilities. To support the medical care, periodically updated guides are available on medical, psychologic, nursing, and ambulatory care.

As a result of constant advances in attention to persons with HIV/AIDS, permanent training of the health teams is indispensable as well as supervision mechanisms that ensure compliance with guidelines and criteria established for attention to persons with HIV/AIDS. Tutorial courses have been developed for the physicians as well as courses and symposiums to update and ensure the technical quality of the SEA health teams. To ensure the quality of treatment, the General Office on Quality of the Ministry of Health has collaborated in the construction of indicators to measure the quality of services offered and joint commissions have been established with participation of civil organization representatives and persons who live with HIV/AIDS.

Despite all these efforts, the quality of services provided is still mixed. For that reason, according to changes in the General Health Law made in May 2003,<sup>30</sup> services offered to persons with HIV/AIDS have to be accredited and criteria are to be established to ensure the quality of services offered.

Most specialized services are located in the main cities, given that most patients are concentrated in urban areas. This represents difficulties in access for persons living in rural areas, especially in those areas in which infrastructure and communication services are limited, implying hours of transport to the city in which the specialized service is located in some cases.

In addition to this, there is the problem of the lack of flexibility of medical services to attend to mobile populations, given that the norm limits persons to access to the service module in their place of residence. To date, there are no administrative policies for service payment between different institutions and federative entities. This situation may be resolved, however, with recent modifications to the General Health Law (Article 77 bis 5, Section B, fraction VII and Article 77 bis 18), which entered into effect on January 1, 2004. These changes establish mechanisms for service payments between institutions and federative entities. This is an important advance that should facilitate access to services for mobile populations, regardless of their place of residence or rights-holder institution.

One problem that requires careful evaluation relates to exchange of clinical files among institutions, given that, to date, the official Mexican norm on handling of medical files establishes that this information is confidential and does not allow its exchange between medical institutions. Only a summary of the file is disclosed at the patient's direct request, delivered to the respective institution. In addition, it is important to consider that it is necessary to establish mechanisms to promote adherence to therapeutic regimens and to provide integral

attention linked to diverse services, including nutritional, social, psychological, and legal support, as well as care at home.

## DISCUSSION AND CONCLUSIONS

There was early concern in Mexico about the relation between international migration and the course of the AIDS epidemic. Existing data have not allowed decisive conclusions to be reached on the impact that migration has had on development of the epidemic. Territorial distribution of cases in Mexico seems to indicate a relation between rural cases and migration to the United States. Conversely, previous research and new evidence seem to indicate a link between migration of Mexicans to the United States and behavioral changes that place them at risk for HIV infection. In reference to sexual practices, we have determined that the Mexican migrants have had a greater number of partners, especially nonstable partners, than nonmigrants. Information is not conclusive enough to evaluate risk of infection, however. Greater condom use has also been found in migrants. In reference to illegal intravenous drug use, migrants have been found to demonstrate greater use than nonmigrants. A limiting factor in the establishment of conclusions in regard to infection risk is the lack of data on shared needles. To estimate the future direction of the AIDS epidemic in Mexico, it is necessary to undertake studies that allow evaluation of the impact of international migration on the distribution of infected persons. Establishment of a territorial pattern of infection, without waiting for infected persons to develop AIDS, will be indispensable to establish prevention and attention priorities.

Given the characteristics and social vulnerability conditions of migrant groups, the Mexican government has relocated political responses for migrants within its priority policy projects. In the area of health, there is increasing recognition of population mobility as an element that may favor HIV/AIDS vulnerability in socially disadvantaged groups, which, in this case, correspond to undocumented migrants along the Mexico-US and Mexico-Guatemala borders.

The VSRS program is a Mexican government program focused on the migrant population in the United States. This program recognizes the situation of inequality in which undocumented workers live in the United States, where they are generally marginalized from actions of organizations with the potential to defend their rights. According to the Mexican Ministry of Health, the guarantee of efficient and dignified medical attention for Mexicans in the United States is a responsibility borne primarily by the government and society of that country, although it also points out the potential importance of actions by the 45 consulates, the presence of national radio and television channels in Spanish, and relations with corporations doing business in that country.<sup>31</sup> Knowing the reach of said projects in terms of their population coverage, attention capacity, available resources, and supply of services are central aspects in understanding their potential impact on a socially sensitive

problem like HIV/AIDS infection. The formulation of the VSRS program may possibly be based on the premise that migrants leave their communities of origin healthy and that the greatest risk is found in the destinations. There is no scientific evidence available to support this statement, however. Strategically, it allows focus of resources in the destinations, where the undocumented migrants are socially disadvantaged because of their unauthorized status compared with the citizens of the location. The development of binational health policies may contribute to address the HIV/AIDS problem as part of an integrated social response to the needs of these vulnerable groups.

The HIV/AIDS prevention actions analyzed are based on attempts to sensitize and alter behaviors by providing more and better information on HIV/AIDS. The search for innovative messages aiming to respond to the different insertion forms and experiences of migrants in the United States constitutes the central focus of the development of information strategies. The reach of these projects is evaluated in terms of coverage, in other words, number of readers, dissemination and demand for videotapes, and television audience ratings. In general, we may consider that the different information projects have been well received by the migrant community in their places of origin and destinations. It can thus be concluded that the projects analyzed and others have contributed to the fact that migrants and their families now have appropriate information on forms of HIV/AIDS prevention and transmission. Nevertheless, it must be recalled that information availability does not automatically lead to change in sexual behavior. In addition, lack of continuity and complementary coordination of the information projects constitutes the main limitation to their development and adaptation to changing contexts of the migratory phenomenon. In this sense, it is important to consider the development and strengthening of different forms of binational collaboration with the participation of civil society organizations to provide sustainability to these projects.

With the broadening of coverage in attention to HIV patients, which is estimated to reach 100% in 2003, the gap in coverage that exists between Mexico and the United States will be reduced, although the quality gap will remain. Quality of attention will be put to the test for patients living in rural communities, for whom the SEAs are far away. In addition, Mexican and US legislation should be harmonized to allow adequate exchange of medical files. Population mobility should also be taken into account in the design of services currently received by the population and in future services. New forms of organization and service delivery must be found that offer services to the migrant population, regardless of its place of origin or rights-holder institution. The recent reform of the General Health Law and ongoing reorganization of health services may contribute to improve this situation.

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# HIV Prevention With Mexican Migrants

## *Review, Critique, and Recommendations*

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**Summary:** Charged with the task of reviewing the research outcome literature on HIV prevention with Mexican migrants in the United States, the following broad observations and conclusion were made: (1) there is little research on this specialized topic of concern; (2) the research that exists reflects an overly individualistic behavioral science approach designed to reduce individual risk factors, with little regard for structural and environmental factors that influence HIV risk; and (3) there is a compelling need to develop better theoretic frameworks for understanding the complex and dynamic social and cultural processes influencing sexual behavior among Mexican migrants so as to better inform HIV prevention efforts with this unique and diverse Latino(a) population.

**Key Words:** Mexican, Latino, migrants, HIV/AIDS prevention

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The purpose of this article is to review the HIV prevention outcome literature on Mexican migrants, to identify gaps, and to recommend research directions that build on individual level approaches by considering the social, cultural, and sexual contexts of HIV risk as well as ways in which structural and environmental factors influence patterns of risk in this unique Latino(a) population. Given the cross-cultural and international nature of this problem area, mechanisms such as the Binational Migrant Health Initiative between the United States and Mexico hold particular promise in disease prevention and health promotion. The review of scarce HIV prevention outcome literature is framed by a brief critique of current prevention approaches. We begin with a definition of Mexican migrants that may be used to inform prevention research, fol-

lowed by discussion of major risk factors and scenarios, prevention approaches, and ideas.

### DEFINING MEXICAN MIGRANTS IN HIV PREVENTION RESEARCH

Mexican migrants are defined here as individuals from Mexico who come to live and/or work in the United States for varied but generally time-limited stays. In contrast, the term *Mexican immigrant* refers to those who move to the United States with the intention of permanent settlement. It should be noted, however, that the line between these terms is blurred by the fact that migrants frequently settle permanently in the United States and immigrants sometimes return to live in Mexico, despite their initial intentions. Indeed, the intention of migrants to stay temporarily in the United States or to settle more permanently may not be fully defined at the time of their departure from Mexico. Furthermore, small but increasing numbers of Mexicans are fashioning transnational lives characterized by homes, work, and lifestyles in both countries simultaneously.

These forms of human movement occur in the context of different rules of sexual and social interaction and pronounced processes of social and cultural change in Mexico and the United States. The complexity of factors that may influence sexual and drug-related behaviors under these circumstances underscores the need for HIV prevention researchers to transcend a sole focus on individual factors, such as HIV knowledge, attitudes, beliefs, motivations, and intentions, so as to consider broader social and cultural phenomena influencing HIV risk in Mexican migrants.

### NEED FOR A CONTEXTUAL APPROACH TO HIV PREVENTION RESEARCH

As we enter a third decade of HIV prevention research, we can trace the evolution of 3 overlapping and increasingly complex approaches that guide the current review, which have resulted in increasing levels of knowledge production and progress (Table 1). The first and predominant paradigm has been a behavioral science approach, based on theories of individual psychology, that links HIV transmission to primarily behavioral and cognitive factors (eg, knowledge, attitudes, be-

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**TABLE 1.** Evolving Complexity of HIV Prevention Research Approaches Needed to Enhance Understanding of HIV Risk and Prevention in Mexican Migrants and Other Groups

HIV Prevention Research Approaches	Prevention Knowledge and Outcome	Emphasis in Current Literature
Behavioral science approach	Reproduction	High
Integration of social and cultural contexts into behavioral science and other research approaches	Reformation	Medium
Identify structural and environmental factors linked to HIV risk and their interactions with the personal agency and resiliency of oppressed groups	Transformation	Low

liefs, skills) and cofactors (eg, alcohol use). This approach has been helpful in establishing baseline risk data for different groups as well as in identifying some reasonably predictive risk factors.<sup>1</sup> This approach has also exposed our limited knowledge of the cultural, social-relational, and sexual nature of HIV risk, however.<sup>2-4</sup> For this reason, we may be witnessing diminishing returns on the behavioral science approach, with respect to infection rates and levels of safer sex as well as its limitations in conducting cross-cultural research.<sup>5</sup> Thus, a continued sole reliance on an overly individualistic cognitive approach is likely to result in a reproduction of limited past findings.

The second approach builds on the first by including dimensions of social and cultural contexts that influence individual, dyadic, and group sexual and drug-related decision making and/or the enactment of HIV risk-related behaviors. With regard to contextual inquiry, Aggleton<sup>1</sup> notes, "For many people, motivations towards sex and drug use may be complex, unclear, and possibly not thought out. They are heavily influenced by factors as diverse as economic need, the desire for social status, religious beliefs, and legal constraints. These environmental and structural factors give meaning to our desires, and constrain and enable individuals differentially in their actions." Community-based research collaboration represents a viable way of addressing contextual factors that influence HIV risk in Mexican migrants and other risk groups. Such collaboration involves changing shared norms through opinion leaders, role models, and communication messages directed at groups that share social and cultural experiences.<sup>1</sup> The success of community-based collaborations depends on the coordinated efforts of coalitions of key players such as nonprofit and governmental health agencies and administrators, researchers, and community members, including those belonging to populations under study.

The broadening in scope that results from contextual inquiry is beginning to result in a reformation of an individualistic behavioral science approach because it facilitates tailoring interventions to the lived experiences of distinct groups

within their local realities. The full potential of this second approach has yet to be fully realized, however. Huge gaps remain in the literature with regard to identifying and analyzing how contextual factors shape risk and how the cultural and social-relational contexts of sexual behavior can be used to link short-term behavioral goals with longer term social and cultural change goals.

The second approach complements a third and even broader approach that focuses on structural, environmental, and social change issues. At present, few prevention efforts attend to the structural/environmental factors, rooted in macrosocial, macroeconomic, and macropolitical arrangements and frequently codified by laws and social policies, that powerfully constrain the ability of oppressed groups to protect themselves adequately from HIV and other problems.<sup>6</sup> This third approach draws attention to how marginalized and oppressed groups, conceptualized as actors with agency, frequently respond to and often modify environmental obstacles. Change at this level typically involves changes to legislation and social policy. By paying greater attention to macroenvironmental influences, this approach has the potential to result in a much needed transformation of the HIV prevention research enterprise.

HIV prevention with Mexican migrants would be expedited if future research, service, and policy could be advanced to integrate the 3 approaches described previously. Although a challenging prospect, the probability of succeeding in such a direction could be facilitated by genuine interdisciplinary efforts, binational collaborations between the United States and Mexico, the blending of governmental top-down and community bottom-up approaches to prevention intervention, and incorporating the border thinking of marginalized groups. By border thinking, we are referring to the potential insights of social and cultural interlopers (eg, bicultural and transnational Latinos, residents of the United States–Mexico border region) who blend and integrate disparate perspectives with considerable success, albeit with substantial risk for social and cultural marginality and related problems such as HIV/AIDS.

## UNDERSTANDING HIV RISK IN MEXICAN MIGRANTS

In her discussion of social contextualism, Castañeda<sup>7</sup> reminds us that research participants are influenced by multiple social contexts at differing levels of organization, ranging from cultural norms and larger social structures to those existing in immediate situations. With respect to Mexican migrants, such an analysis requires paying attention to how migratory processes, such as acculturation to US–Latino and mainstream cultures, and transnationalism affect gender- and sexuality-related values and practices, including those that place migrants at risk for HIV.

### Migration and HIV/AIDS

Global migratory labor systems play key roles in the geographic spread of HIV as a result of many migration-related factors. In the case of male migrants, for example, such factors include their being away from home for extended periods, family breakdown, and increased number of sex partners (including sex with commercial sex workers and sex between men) and the consequent risks posed to wives and other sex partners of migrant men.<sup>8</sup> In Mexico, for example, Bronfman et al<sup>9</sup> studied the spread of AIDS cases and found that one third were from Mexican states with the highest migration to the United States and that 1 in 10 patients reported having lived in the United States.

### Structural/Environmental Factors

Simply put, focusing on structural factors allows researchers to consider the role of risky environments in shaping the HIV/AIDS epidemic versus focusing solely on risky individuals. For example, in the United States, these migration-related risk factors exist within social and political contexts in which migratory labor has been historically constructed to exploit and disempower foreign Mexican labor. For instance, migrant farm workers have been generally excluded from major federal and state laws designed to protect the health, safety, and economic well-being of workers, despite the fact that agricultural labor is one of the nation's most hazardous occupations.<sup>10</sup> Such laws range from the National Relations Act of 1935, which guarantees the right to collective bargaining, to the Occupational Safety and Health Act of 1970, which regulates safety work standards. Such unappealing work-related factors shape a unique and vulnerable work force of 2 to 3 million migrant farm workers that is predominantly foreign born, Mexican, male, poor, and low in education, half of whom are undocumented.<sup>11</sup>

Although collective bargaining rights were won by California farm workers in 1975 through passage of the Agricultural Labor Relations Act (ALRA), auspicious initial gains in labor contracts (complete with health plan provisions) dissipated after only approximately 5 years because of a combination of political change and internal organizational problems.

According to Majika and Majika,<sup>12</sup> a dramatic reversal in ALRA enforcement accompanied the change in governorship from liberal Democrat Jerry Brown, who signed the ALRA into law, to conservative Republican George Deukmejian in 1983, who opposed farm worker unions and campaigned with heavy contributions from agricultural corporations. As a result, the ALRA budget was slashed, progrower personnel were appointed to the ALRA enforcement board, and the state ceased to enforce the bill's provisions.

### Migration-Related Risk Factors

Documented risk factors in urban and rural Mexican migrants include high numbers of sex partners, including sex between men and between men and female sex workers, high rates of sexually transmitted diseases (STDs), sex with intravenous drug-using partners on the part of female migrants, needle sharing after injection of illegal drugs as well as “therapeutic” injections of vitamins and antibiotics,<sup>13</sup> a high prevalence of alcohol and substance dependency, and depression.<sup>14</sup> Such “risk factors” converge in the lived experiences of migrant laborers. For example, a screening of 151 drug-using farm workers in the DelMarVa Peninsula of Delaware revealed 6 men who were HIV-positive.<sup>15</sup> Of these, 4 were Mexican, who each had a history of trading sex for money or drugs. To make matters worse, Mexican farm workers report lower perceived risk than black and white farm workers, a perception related to less risk management.<sup>16</sup>

Self-reported rates of sex between men in most of the survey literature are unexpectedly low, between 2% and 4%, most likely reflecting the difficulty in detecting actual prevalence with administered survey questionnaires. Qualitative research methods such as private anonymous interviews with key informants can help to render more visible this sensitive and important HIV exposure category.<sup>4,10</sup>

These risk factors are exacerbated by migrant labor that is generally difficult, dangerous, inconsistent, low paying, exploitative, lonely, and disruptive of social, familial, romantic, and sexual relations in the country of origin. Background migrant characteristics that influence risk include a low level of formal education and literacy rates, limited English proficiency, significant rates of undocumented status, traditional gender roles, and low access to health and social services. Our focus, however, must not be limited to the considerable negative factors affecting migrants but should also include resiliency factors associated with migration, overcoming social obstacles, and a collective and familial cultural orientation.

### Acculturation

There is widespread agreement in the literature that HIV risk differs between immigrant Latinos(as) and those born in the United States. Less consensus exists regarding the direction of such differences and the causes behind them. Some researchers believe that in comparison to highly acculturated

Latinos(as), those who are less acculturated to mainstream US culture, including migrants and immigrants, are protected by traditional Latino(a) sexual values.<sup>17-20</sup> Others argue that the acquisition of US mainstream values via acculturation is protective because it increases a sense of individualism and self-determination.<sup>21-24</sup> In either case, researchers seem to agree that the sexual cultures prevalent in different Latino(a) subpopulations influence risk.

In the case of migrants, the health literature has suggested that they may be more vulnerable than Latinos(as) born in the United States because of their newcomer status (ie, adaptational demands, lack of preparation for poverty-related problems) and the poor health conditions prevalent in their places of origin, and that they simultaneously may also be more resilient to disease and health risks because of self-selection processes associated with migration as well as culture-based practices (eg, social controls within conservative culture, lower alcohol and drug use, healthier diet). With regard to HIV risk, the latter view implies that HIV risk factors may be mitigated by strengths and protective factors that migrants bring with them such as their drive to *progresar* [progress] economically and socially and their responsibility to their families.<sup>25</sup> (These resiliency factors are often noted in the literature about migration but rarely, if ever, considered in the HIV literature about this population). Conversely, such protective factors may be hindered by changes in the migrants' sexual values and practices after arrival, especially because many of them find themselves in a country that they perceive as being more sexually liberated than Mexico.

Table 2 lists different factors that have been identified in the literature on HIV among Latinos(as) as protecting against or favoring HIV risk. To date, it is unclear how these factors facilitate or hinder drug-related and sexual risk behaviors among Mexican migrants in the United States.

### Diversity Within Migrants: High-Risk Groups and Contexts

Conceptualizations of HIV risk need to pay more attention to diversity within the Mexican migrant population, in-

cluding variations based on gender, sexual orientation, social class, and ethnicity. The few existing studies of female and gay Mexican migrants strongly suggest that their motivations to migrate and their work and life experiences in the United States differ considerably from those of heterosexual male migrants.<sup>26,27</sup> Because gender and sexual orientation are so critically related to HIV risk, investigating the specific social and structural factors influencing the migratory experiences of gay men as well as women is urgent.

### Men Who Have Sex With Men

Because sex between men is the highest HIV risk category in the United States and Mexico, priority should be given to this factor in Mexican migrants and to research linking it to social, cultural, and environmental variables. For example, Diaz and Ayala<sup>28</sup> have conducted research connecting HIV risk in urban gay Latino men to their personal experiences of homophobia (operationalized as verbal and physical harassment during childhood for being homosexual), racism (ie, rude treatment, police harassment linked to race/ethnicity), and poverty (ie, running out of money for basic necessities, having to borrow money, having to look for work). More specifically, these researchers found that men with high levels of HIV risk (ie, reporting unprotected sex with a recent nonmonogamous partner) reported more of these oppressive experiences as compared with their counterparts with lower risk.

Although not a migrant sample per se, Diaz and Ayala<sup>28</sup> collected data in several sites, including Los Angeles, where the gay men were predominantly Mexican immigrants. With regard to risk, 17% of the Los Angeles sample self-identified as HIV-positive, 22% reported unprotected anal sex with at least 2 partners during the past year, and 45% reported use of at least 1 nonprescribed drug during the last 6 months, including methamphetamine, which was used by 20% of sample. It is also important to note that 15% of the Los Angeles sample reported coming to the United States to live their homosexual life more openly, with the 2 top reasons being to improve financial status (24%) and accompanying family (22%). These latter data reflect the motivation and personal agency of Mexi-

**TABLE 2.** HIV Risk and Protective Factor by Level of Acculturation in Mexican/Latino Groups

Mexicans and Latinos	Protective Cultural Factors Reported in the Literature	Cultural Factors Perceived in the Literature as Promoting HIV Risk
Lower acculturation	Sexual modesty Fewer sexual partners Fewer sexual encounters Low alcohol and drug use	Machismo and power differentials between sexual partners Little education about sex Sexual silence
Higher acculturation	Values of individuality Self-determination Empowerment Ability to insist on the use of protection Lower prevalence of machismo	Sexual liberalization Increased number of sexual partners Increased incidence of sexual behaviors Exposure to social contexts that condone substance use and sex

can and other Latino gay immigrants to improve their lives economically and socially as well as sexually. Such self-affirming factors need to be understood better so as to tap their protective potential in prevention interventions.

### Female Sex Partners at Risk

If Mexican male migrants are engaged in an array of risky behaviors and situations, the HIV risk to wives and other sex partners back in Mexico must be significant, especially considering that approximately half of migrant men are married.<sup>11,29</sup> Indeed, Organista et al<sup>29</sup> found that married migrant men were just as likely as single migrants to have sex with female prostitutes while in the United States; yet, they were less likely to use condoms. Married Mexican migrant men unaccompanied by their wives while working in the United States also report more lifetime sexual partners, more partners in the previous 2 years, more extramarital affairs, and more sex with prostitutes as compared with men accompanied by their wives.<sup>30</sup> The fact that guest worker contracts typically contain provisions preventing wives from joining their migrant husbands during seasonal work<sup>31</sup> is another example of how structural factors, in the form of labor policies, can exacerbate HIV risk beyond individual control.

Factors and situations that place the female sex partners of migrant men at risk for HIV are still not well understood but are likely to include traditional gender roles in which sex with husbands is not frequently discussed, let alone negotiated, resulting in low levels of safer sex strategies. For example, in a study of 100 rural women in Mexico who were the wives of Mexican migrants working in the United States, Salgado de Snyder et al<sup>32</sup> found that two thirds did not practice safer sex when having sex with their husbands during the men's visits to Mexico, despite being knowledgeable about HIV transmission and feeling at risk because of known or suspected infidelity on the part of their husbands. This latter point is not surprising in view of research showing that such women consider it promiscuous to carry and suggest condoms and that they rely primarily on nonbarrier contraceptive methods such as the pill and intrauterine device (IUD) for family planning but not for disease prevention.<sup>29,32,33</sup>

A follow-up study by Salgado de Snyder et al<sup>34</sup> compared this sample of 100 rural wives of migrant laborers left behind in Mexico with 100 wives currently living with their husbands in rural Mexico and 100 wives of migrant men currently living with their husbands in Los Angeles. The results of this study indicate a clear acculturation trend in that the Los Angeles-based wives reported more lifetime sex partners, engagement in a wider variety of sexual behaviors, greater condom use during last sexual episode with their husbands, and a higher frequency of asking husbands to use condoms. Such findings suggest that sexual negotiation and safer sex may indeed increase with exposure to the United States for female

migrants and can be incorporated into prevention strategies for Mexican women.

More research is needed focusing on female partners of migrant men, including *amantes* [lovers, often more than casual relationships] in the United States, as well as the social-relational context of risk management. For example, Bajos and Marquet<sup>2</sup> studied the social-relational context of risk factors using HIV/AIDS survey data from 11 European countries, noting that a quarter of the survey items assessed relationship characteristics. These data allowed the researchers to study risk management within the context of macrosocial gender roles (via cross-national comparisons) as well as within the context of different types of relationships. For example, differences between men and women in number of sex partners and frequency of condom use were smaller in more egalitarian northern countries (eg, The Netherlands, Switzerland), as characterized by greater female labor force participation and higher divorce rates. The opposite pattern was found in more traditional southern countries (eg, Portugal, Greece). With regard to types of relationships, Bajos and Marquet<sup>2</sup> divided long-term relationship survey participants into those who knew or suspected that their partner was having an affair (2.8%), those who did not know or had not thought about this issue (4.5%), and those who were certain that their partners were not having an affair (92.7%). Higher rates of condom use were found in the first 2 types of relationships. Further, those who believed that their partners were having affairs were those with the least power in relationships (ie, forced to have sex, taking sexual initiative less than partner, less likely to have more money than partner), yet they were more likely than their partners to bring up the issue of affairs.

With regard to Mexican couples, Castañeda<sup>7</sup> examined predictors of HIV risk management in Mexican–American couples involved in long-term relationships, half of whom were immigrants. She found that contrary to notions of sexual silence, HIV-related communication was predicted by the perception of intimacy on the part of women and by the perception of commitment on the part of men. In turn, HIV communication predicted condom use for men as well as women. These studies represent much needed basic explorations of the ways in which social-relational contexts pattern HIV risk and risk management.

### US–Mexico Border Inhabitants

Any discussion of HIV and Mexican migrants bears mentioning that along the US–Mexico border, regional dynamics such as the drug and sex trade industries, tourism, transnationalism, and blurred sexual boundaries among men and women can result in a significant rate of HIV infection. For example, Ruiz<sup>35</sup> reported extremely high rates of HIV infection in Latino men who have sex with men (MSM): 19% of 240 MSM tested in a Tijuana public park area well known for prostitution and 35% of 125 men tested in San Diego from gay

bars and dance clubs. Men at both sites reported engaging in high rates of risky sexual behaviors (eg, unprotected anal and vaginal sex, risky drug use behaviors) with multiple male and female sex partners from across the border: Nearly half of the Tijuana sample and three quarters of the San Diego sample reported sex with partners from across the border. The uniqueness of the border's international, social, and cultural matrix warrants its own binational research focus and prevention strategies.

### Social Class

A proportion of migrants, including some with the highest levels of HIV risk, are people who were middle class and professional before leaving Mexico and who typically seek work opportunities in service-oriented and professional sectors while living in the United States. This subpopulation is important from an HIV prevention perspective, because some of the Mexican migrants with the highest HIV risk in the state are men who participate in middle-class gay communities in places like San Diego, Los Angeles, and San Francisco during their stays in California. At the other end of the economic continuum, small but increasing numbers of indigenous Mexican Indians are entering the migrant labor stream, often speaking native dialects instead of Spanish.

## NEED TO RECENTER SEX IN HIV PREVENTION RESEARCH

The previous sections reveal the urgent need for more basic exploratory research on migrants to increase our understanding of HIV risk, with an emphasis on sexuality and the ways that sexual cultures vary across subgroups of migrants and across different social, cultural, and relational contexts. Aggleton<sup>1</sup> takes this recommendation further by advocating alternative nonexperimental evaluations that are theory driven or at least objectives based. Such a recommendation is in response to our lack of basic HIV risk knowledge as well as to the recognition that randomized controlled trials are exceedingly difficult to implement with certain populations such those discussed previously.

### Sexual Cultures

Parker et al<sup>4</sup> describe sex as a culturally informed experience shaped by biopsychologic and biosocial factors and define sexual culture as the relation between sexuality and other sociocultural systems such as religion, politics, and economics. Culture is viewed as shaping individual sexuality and expression through norms, roles, and values in each of these institutions. These authors note that the relation between individual and collective patterns requires study at both levels (eg, private versus public distinctions, behaviors versus prescriptions).

Recent research by Carrillo<sup>3</sup> strongly suggests that while in Mexico, migrants are exposed to sexual cultures that differ

significantly from those prevalent in the mainstream society in the United States. Mexican sexual cultures are characterized by a certain hybridity that allows for the coexistence of "traditional" and "modern" (or "global") values related to gender relations, sexual identification, sexual socialization, and the adoption of sexual ideologies. Within such a system, Mexicans have considerable flexibility in defining categories of sexual identity that mix traditional gender classifications with contemporary classifications of hetero-, bi- and homosexuality. Against the backdrop of a strong cultural emphasis on collectivity and what has been termed *sexual silence*<sup>3,36</sup> as a productive strategy to create forms of social tolerance for sexual diversity, Mexicans often strongly emphasize a certain spontaneity and surrender during sex as well as a silent abandonment to the flow of sex and sexual passion. Such an emphasis is at odds with the recommendations of open negotiation, disclosure, and rational decision making that are typical of HIV prevention messages in the United States. Indeed, some of the most successful users of protection against HIV in Mexico have managed to integrate preventative measures without disturbing the culturally influenced ways in which they prefer to have sex.<sup>3</sup> For instance, some men and women in Guadalajara consistently used condoms without engaging in verbal negotiation with sex partners before sexual encounters, as prescribed by local HIV prevention messages, and instead seemed to enact condom use within culturally favored forms of seduction, spontaneity, and sexual passion that were overall wordless and dominated by bodily communication. Much more basic research is needed in this area.

In relation to Mexican migrants, it is crucial for us to understand what happens to them when they encounter different cultural expectations and rules of sexual interaction in the United States. To date, we know little about how their sexual ideologies are transformed by the migratory experience and how they adapt to contrasting sets of norms and values about sexuality and sexual interaction. We know little as well about what happens to the original sexual cultures in Mexico as a result of the sexual ideologies, norms, and values that the migrants bring back and how those contribute to broader changes in Mexico triggered by local processes of cultural and social change and by the cultural influence from the United States exerted through mass media. Attending to these issues is crucial to understand further the role of sexual cultures in shaping migrants' sexual behaviors and HIV risk in the United States and Mexico.

Recent research about sexuality in places like Mexico has shown that there are rapid and widespread processes of cultural change involving a number of different social players, including the mass media, HIV prevention educators and other professionals, activists, and younger Mexicans who have a strong desire for sexual modernization.<sup>3,37,38</sup> Social science research with Mexican immigrants in the United States suggests that similar processes of cultural change are occur-

ring.<sup>26,27</sup> There is a need in the research on HIV risk among Mexican migrants to adopt designs that allow for consideration of the dynamics of personal and cultural change in the context of transnational movement between Mexico and the United States.

### HIV PREVENTION INTERVENTION WITH MEXICAN MIGRANTS AND RELATED GROUPS

Today, HIV prevention for Mexican migrants consists primarily of minimal and inconsistent HIV/AIDS education (eg, outreach, word of mouth, brochure), condom promotion and distribution, HIV testing and counseling, and support groups for HIV-positive and AIDS-affected individuals. For example, in a review of 181 California agencies providing HIV/AIDS services to Latino communities, Castañeda and Collins<sup>39</sup> report the most common types of service as follows: HIV/AIDS education (93%), counseling/therapy to HIV-positive clients (52%), HIV testing (49%), and support groups for HIV-positive clients (49%). Such services are typically provided by dedicated, predominantly Latino, front-line staff, including volunteers, who work within a loose network of non-profit community-based organizations (CBOs) that provide health and social services as well as in migrant health centers funded by federal and state government.<sup>10</sup>

Castañeda and Collins<sup>39</sup> also found that CBOs were more effective in reaching Latinos than federal and state agencies because of their greater number of bilingual staff, volunteers, and culturally sensitive approaches to service delivery. Further, although the Latino-focused CBOs in the study were fewer and smaller than non-Latino-focused agencies, they had more bilingual/bicultural staff and less staff turnover, made greater use of education videotapes and Spanish media, provided more one-on-one services, stressed outreach more often, and provided more services to sex workers. Surprisingly, non-Latino-focused agencies provided more services to farm workers because of the scarcity of Latino-focused agencies in rural small town communities. The few outcome research studies on and related to Mexican migrant laborers are reviewed below and summarized in Table 3.

### BEHAVIORAL SCIENCE HIV PREVENTION APPROACHES

#### Improving HIV/AIDS Knowledge in Migrant Farm Workers

Ruiz and Molitor<sup>40</sup> reported on a community-based intervention designed to improve knowledge of HIV transmission in 142 predominantly Mexican, Spanish-speaking, migrant farm workers. The intervention relied primarily on outreach workers conducting one-to-one contacts to educate participants about HIV/AIDS and distributing and promoting condoms. Educational activities at community festivals and use of local Spanish language radio and television programs to

disseminate HIV/AIDS information were also used. The results of pre- and postintervention assessments showed significantly improved knowledge of HIV transmission. Although this evaluation supports the effectiveness of "HIV 101" education as well as culturally competent research methods (eg, outreach by bilingual staff, use of Spanish media), it is rooted in an individual cognitive model that does not address contextual and relational aspects of HIV risk.

### Social and Cultural Contextual Approaches

#### Increasing Condom Use With Female Sex Workers on the Part of Mexican Male Farm Workers

Mishra and Connor<sup>41</sup> evaluated the effectiveness of an intervention designed to increase condom use with female sex workers as well as to improve HIV/AIDS-related knowledge and attitudes among 193 Mexican male farm workers in Southern California. Participants were provided with HIV prevention information in the culture-based form of Mexican style *fotonovelas* [comic book-like novellas that use actual photographs]. *Radionovelas* [radio-broadcast novellas] were also broadcast daily on a local Spanish-language station, and participants were given radios and program times and encouraged to tune in. The *novelas* depicted 3 scenarios in which a male farm worker, respectively: (1) uses a condom with a prostitute, (2) abstains from sex with the prostitute, and (3) infects his wife and child with HIV as a result of unprotected sex with the prostitute.

All participants were tested before and after the intervention, and results showed significant gains in HIV/AIDS knowledge and related attitudes as well as in reported condom use with prostitutes. Of those men who had sex with prostitutes during the course of the study, 20 of 37 reported condom use after participation in the study versus 1 of 32 before participation. This study demonstrates the promise of using methods sensitive to Mexican culture and to the experience of farm workers to target a particular farm worker subgroup (adult men) by risk factor (unprotected sex) by situation (sex with prostitute) interaction.

With regard to theoretic underpinnings, the above program taps at least 2 areas in a culturally sensitive manner: increasing perceived susceptibility (but to family in addition to self) and promoting procondom social norms with prostitutes among male farm workers via role modeling of similar other models as depicted in the *novelas*. Also noteworthy is the extensive preparation for this study, which included focus groups with farm workers, low-literacy wording of materials and measures, and extensive field testing of measures and intervention approaches with farm workers from local nonstudy sites.

A more rigorous replication of this was realized by Sanudo<sup>42</sup> with the same pattern of promising results: 20 of 85 male farm workers reported sex with prostitutes at baseline, and only 4 of the 20 reported having used condoms. After the intervention, 24 reported sex with prostitutes, with 16 of the 24

**TABLE 3.** Summary of HIV Prevention Outcome Evaluations With Mexican Migrant Laborers and Related Groups

Authors of Study	Intervention Description	Sample Description	Major Findings
Ruiz and Molitor (1998)	Community-based HIV education; mostly one-on-one contacts by outreach workers plus educational talks and activities at community venues	142 Mexican migrant farm workers	Improved pre- to postintervention HIV knowledge
Mishra and Connor (1996)	Condom promotion via <i>foto-</i> and <i>radio-novelas</i> depicting scenarios with female prostitutes	193 Mexican male migrant farm workers	Increased condom use with prostitutes
Sanudo (1999)	More rigorous replication of program reported by Mishra and Connor	175 Mexican male farm workers (85 experimental and 90 control conditions)	Same pattern of results as reported by Mishra and Connor
Organista et al (2004)	Community-based HIV prevention groups for predominantly Mexican migrant day laborers	23 predominantly Mexican male migrant day laborers	Preliminary results indicate pre- to postintervention increases in condom use with female sex partners, carrying condoms, and knowledge of correct condom use
Diaz (1998)	Groups for gay and bisexual men in which to discuss sex seriously; have opportunity for critical self-observation; and build sense of community, pride and activism	78 gay and bisexual Latino men	Men report greater capacity to practice safer sex and to avoid risky situations as well as greater understanding of sexuality and greater connection to Latino gay community
Haour-Knipe et al (1999)	Swiss Migrant Project: part of National AIDS Plan in which top-down and bottom-up collaborations developed on behalf of migrant laborers	Seasonal Turkish, Portuguese, and Spanish migrant laborers working in construction and hotel industry	Migrant HIV knowledge, attitudes, and condom use with casual partners comparable to that of general Swiss public

reporting condom use. Further, in the nonintervention control group, 22 of 90 male farm workers reported sex with prostitutes at baseline and 26 of 90 men reported using prostitutes at postintervention assessment. None of the control men reported condom use. Further replications of this intervention are highly warranted and can be expanded to address more situational factors common to migrant factors such as the role of excessive drinking in unprotected sex, sex between men, and sex with transgendered individuals.

More research is also needed to increase our understanding of the many contextual factors involved in migration-related prostitution. For example, Ayala et al<sup>43</sup> conducted a qualitative study of 20 migrant female commercial sex workers who sell sex to migrant men in the bars or *cantinas* that they frequent. These women were from Mexico and Central America and turned to prostitution for economic survival in the United States. Some had been delivered directly to the *cantinas* by *coyotes* [coyotes; slang term for those who smuggle undocumented Mexicans into the United States] paid by bar owners. The women interviewed noted the migration-related need for sex, companionship, and forms of sex harder to obtain from wives and girlfriends (eg, oral sex) on the part of their migrant male clients.

With regard to HIV/AIDS, these women were well aware of the major modes of transmission but downplayed their risk by reporting mostly vaginal versus anal sex, having sex with men that appear clean, and avoiding men they perceived to be using intravenous drugs. The women attributed their low condom use to the priority of earning money (ie, would have sex if condoms not available or if clients did not want to use them). In fact, condoms were viewed by the women primarily as a method for avoiding pregnancy and STDs, problems they could remedy by taking the pill and penicillin, respectively. Implications for HIV prevention with these women include teaching them about sex between men, unapparent HIV infection, and meeting their economic needs in less risky ways.

#### HIV Risk Management With Migrant Day Laborers

In the city of Berkeley, a collaboration between the first author and the city's HIV/AIDS Program, which conducts outreach to migrant day laborers (MDLs), resulted in a convenience sample survey of risk in 102 predominantly Mexican MDLs,<sup>44</sup> followed by the development and implementation of a pilot HIV prevention group.<sup>45</sup> Survey results indicated many of the usual risk factors in Mexican migrant men (eg, unpro-

tected sex with prostitutes, excessive drinking), and a follow-up focus group explored the context of risk for these MDLs, which included sexual risk taking while intoxicated as well as when feeling *desesperacion* [desperation] because of lack of work and money, boredom, and missing family, for example. Sex between men was discussed by an openly gay MDL in the focus group as well as by heterosexual identified men who reported being propositioned while performing work for informal employers.

The pilot intervention group was conducted twice with a total of 23 MDLs, all of whom were tested before the intervention and 12 of whom were located for a 1-month postintervention evaluation. The contents of the intervention focused primarily on (1) asking participants to share their personal goals in seeking work in the United States, including obstacles that interfere with such goals; (2) asking participants to discuss HIV risk for MDLs in general, and for each participant personally, following a review of HIV/STD transmission and a hands-on condom use demonstration and exercise with phallic replicas; and (3) asking participants to come up with personal risk reduction strategies, with multiple options, while receiving feedback from the group.

Group process was meant to facilitate participatory learning health circles as described by Magaña et al.<sup>46</sup> These researchers advocate the use of *circulos de salud* [health circles] for HIV prevention with Latinos, based on the empowering and progressive work of the Brazilian educator Paulo Friere. Such health circles provide participants with basic information about HIV transmission and prevention but aim at involving participants in active problem-solving discussion after posing risky situations and questions directly relevant to their lives.

HIV-related discussion with the MDLs was also facilitated by the use of poster-sized Mexican lottery cards depicting relevant aspects of the MDL experience. For example, the *El Borracho* [the drunk] card depicts a hunched over intoxicated Mexican man, the *La Muerte* [death] card depicts the Grim Reaper, and the *La Escalera* [the ladder] card depicts a ladder symbolizing progress. The research team copied these tarot card-like images from actual cards but also created their own to depict HIV/AIDS issues commonly raised by Mexican migrants such as *La Prostituta* [the prostitute], *La Amante* [the lover], and *Sexo entre Hombres* [sex between men]. Although preliminary results must be interpreted with caution given the small sample of convenience and the loss of approximately half of the sample to follow-up evaluation, results indicated increased condom use with female sex partners as well as carrying condoms and higher knowledge of correct condom use (see Table 3).

As with the use of *fotonovelas*, the use of Mexican lottery cards is meant to facilitate HIV/AIDS-related discussion and self-reflection in ways that are consistent with expectations of the nature of Mexican social life and the spontaneity

and humor that characterize many social interactions.<sup>3</sup> Another such method increasingly used in HIV prevention but in need of evaluation is *Teatro Chicano* [Chicano theater], a culturally based medium of politically charged, humorous, educational acting with roots in the *Teatro Campesino* [farmworker theater], which began in the 1960s to educate and activate farm worker involvement in labor issues (eg, Cesar Chavez' United Farmworker Union). In addition to delivering humorous and dramatic plays where farm workers live and work, members of the farm worker audience have been frequently invited to participate in the *actos* [acts] to act out their lived experiences.

### Transgender Peer Education For Men Who Have Sex With Men

In San Jose, the Health Education and Training Center (HETC) and the Mexican-American Community Services Agency (MACSA) collaborated on an extraordinary peer education program in which Latino male-to-female transvestite and transgendered peers are trained to deliver HIV prevention messages to migrant MSM in gay Latino bars, where these peers perform night time entertainment shows (ie, dancing, singing, impersonations). After gaining access to the bars and earning the trust of the peers, they received training and developed ways of integrating HIV prevention information into their bar shows. This Spanish-language, indigenous, and subculture-based style of program delivery is humorous and entertaining (eg, impersonations of well-known actresses from Spanish language television and *novelas*).

### Risk Management in Latino Gay Men

Although not Mexican migrant-specific, the *Hermanos de Luna y del Sol* (HLS) [Brothers of the Moon and Sun] program targets Latino gay men, with an emphasis on poor immigrant men, and typically enrolls high numbers of participants of Mexican descent in San Francisco. Based on Bandura's<sup>47</sup> theory of self-regulation and Freire's<sup>48</sup> principles of empowerment education, the HLS was developed by Rafael Diaz<sup>36</sup> and Latino gay health educators in San Francisco's Mission District during the 1990s. The intervention program is guided by qualitative research suggesting that sexual self-regulation among Latino gay men is frequently undermined by a host of oppressive sociocultural factors, including homophobia, racism, poverty, and sexual silence, which are viewed as contributing to decreased self-esteem, a sense of social isolation, perceptions of low sexual control, and fatalism regarding the inevitability of HIV infection, or *el premio gordo* [the grand prize] as many of the participants refer to it.

HLS developers believe that prevention programs for gay Latino men can be effective if they can (1) break the sexual silence by providing safe venues for serious communication about sex; (2) provide an experience of commonality and pride in which men can feel part of a larger supportive gay Latino

community; (3) provide opportunities for critical self-reflection and self-observation about factors that regulate sexual behavior; (4) collaborate in the construction of group, dyadic, and individual strategies to address perceived barriers to safer sex; and (5) create opportunities for social activism.

A preliminary evaluation of 78 HLS participants revealed promising findings in that most of the men felt better about themselves and more connected to the Latino gay community, better able to understand their sexuality and risk for HIV, and more capable of practicing safer sex and avoiding situations that make it difficult to practice safer sex.<sup>36</sup> The Centers for Disease Control and Prevention (CDC) recognize the value of the HLS and are providing technical assistance and financial support for implementing this intervention for gay Latinos across the country.

## Structural/Environmental Level Interventions

### Top-Down Government and Bottom-Up Community HIV Prevention Efforts

At the national level, the CDC's Division of HIV, STD, and TB Prevention, Capacity Building Branch (Priority Area 2), provides financial, programmatic, and training assistance to national, regional, and local nongovernment organizations to develop and implement regionally structured and integrated capacity-building systems. A network of CDC-funded organizations forms a national network that can be contacted by local CBOs interested in implementing or improving HIV prevention programs. The extent to which requests are made, how feasible the technical assistance is, and how effective past efforts have been remain unclear, given an emphasis on enhancing service delivery versus evaluation. One lingering problem is the lack of research on Mexican migrants coupled with the recommendation to replicate past behavioral science research approaches used in other populations. Although there is some promise in supporting efforts to adapt and test such interventions with Mexican migrants, the CDC could also support the research directions recommended previously, including bottom-up community initiatives.

Although bottom-up community HIV prevention efforts are the most effective in reaching Latinos,<sup>39</sup> they typically lack the capacity and resources that characterize top-down efforts. Thus, these approaches need to be integrated at the structural level, despite occasionally competing agendas. Such efforts could benefit from promising models elsewhere, such as the one described below.

### Swiss Migrant Project

Haour-Knipe et al<sup>49</sup> have documented an impressive government-sponsored HIV/AIDS prevention program for migrant laborers in Switzerland. The Swiss Migrant Project is part of the country's National AIDS Plan and is designed to target urban-based Turkish, Portuguese, and Spanish migrants

who work in the hotel and construction industries for 9 of 12 months during the year. Through a comprehensive top-down collaboration between public health officials and nongovernment organizations, project structure and staffing were developed at the migrant community level by involving program coordinators and peer educators charged with designing culturally specific HIV/AIDS prevention strategies.

In terms of planning, the first phase of the Swiss Migrant Project consisted of exploratory studies to gauge the needs of migrant communities as well as to recruit program staff. The second phase involved establishing various flexible community level programs complete with process evaluation. The final phase involved the formal implementation of refined programs along with modest program evaluation. Results showed successful utilization of local community programs by migrants as well as HIV/AIDS-related knowledge, attitudes, and risk behaviors (ie, condom use with casual sex partners) comparable to that of the general Swiss public.

Although evaluation was slim in the Swiss Migrant Project, it does demonstrate the feasibility of placing migrant HIV prevention within national, state, county, and city HIV prevention plans. Acceptance of government involvement was won at the local level by involving members of the migrant community in local program development and delivery aimed at hard-to-reach and hidden high-risk groups, such as undocumented workers, outside official government jurisdiction. We were unable to identify similar examples for Mexican migrants in the United States.

With regard to Mexican migrants, structural/environmental HIV prevention efforts need to be pursued in the United States and Mexico, ideally through collaborations spawned by the recent Binational Migrant Health Initiative. Sweat and Denison<sup>6</sup> discuss several structural/environmental levels of causation for HIV incidence and change mechanisms that are relevant to Mexican migrants. At the structural level, laws, policies, and standard operating procedures that result in a lack of migrant worker rights, lack of family housing at migrant labor work sites, unregulated commercial sex, and lack of financial support for social services can be changed through boycotts, constitutional and legal reform, civil and human rights activism, and legislative lobbying, for example. In the Napa Valley of California, a Catholic church was instrumental in initiating community efforts successful in getting a ballot initiative passed to create more family housing for grape pickers. At the environmental level, health-compromising work and living conditions, including lack of resources, can be remedied through community organizing, unionizing, legal reform with enforcement, and access to needed social and health services.

## HIV PREVENTION TRAINING

In Castañeda and Collin's<sup>39</sup> review of 181 agencies providing HIV prevention services to Latino communities, they

found that the single most important training need identified by Latino-focused agencies was in the area of understanding sexual behavior and change in Latinos. As this article has stressed, meeting this need could be pursued by studying the sexual cultures and behaviors of Mexican migrants, including areas such as sex between men, sex involving commercial sex workers and transgendered partners, and sex with regular and occasional partners and within loving, stable, or casual sexual relationships.

There are many national and state level HIV training programs, some of which reach Latino-focused agency staff and, consequently, various groups of migrant laborers. For example, the National Latina/o Lesbian, Gay, Bisexual, and Transgendered Organization (LLEGO) consults CDC staff on the HLS program in the effort to encourage delivery of this program to Latino gay men nationally.

Beyond existing training programs, there is a pressing need for HIV prevention service providers to have a deeper understanding of the migrants' sexual cultures in Mexico and the United States. Providers also need to consider sexual diversity with regard to gender, sexual orientation, social class, and rural or urban settlement, for example. Furthermore, there is a need to understand the different social contexts of migrants and how migrants contribute to shaping such contexts, with a special emphasis on HIV risk and prevention. Finally, HIV prevention workers would greatly benefit from learning how to turn newly acquired knowledge into HIV prevention strategies that help migrants to develop goals and behaviors that fit well within their social and cultural experiences and that assist migrants with questioning norms, values, and practices that put them at risk for HIV.

### RECOMMENDATIONS FOR HIV PREVENTION WITH MEXICAN MIGRANTS

Our review of the HIV prevention literature on Mexican migrants reveals an underresearched area with serious gaps in our basic understanding of the structural factors that create risky environments for Mexican migrants. Such contextual inquiry is needed to improve understanding of how HIV risk and risk management are linked to Mexican culture and migration, heterogeneity among migrants, and sexual cultures, for example. Thus, the following recommendations are offered:

1. Reform and transform HIV prevention research approaches by focusing on structural, environmental, cultural, social-relational, and sexual contexts that create risky environments for Mexican migrants, in addition to the tradition behavioral science focus on risky individual factors. Such approaches need to involve basic research that can identify and link contextual factors to HIV risk in Mexican migrants and build on the personal agency and resiliency of this unique Latino population.
2. Decrease risky environments for Mexican migrants by developing structural and environmental HIV prevention interventions through the promotion of binational governmental and community collaborations. For example, the recent Binational Migrant Health Initiative can help to promote needed HIV prevention collaborations between US- and Mexico-based researchers, health service providers and administrators, policy makers, and politicians.
3. Increase access to health and social services for Mexican migrants by amending federal and state laws. For example, the Migrant Health Centers Act of 1962 could be amended to prioritize disease prevention and health promotion, thereby increasing funds for HIV prevention. Another example is Medical/Medicare eligibility requirements, which should be changed so that state residency does not preclude eligibility for migrant farm workers traveling from state to state. These recommendations are based on a survey of policy recommendations by farm workers and their HIV prevention service providers.<sup>50</sup>
4. Expand the capacity-building efforts of Latino-focused HIV prevention agencies, especially in rural regions, where services are scarce but migrant groups are numerous (eg, Castañeda and Collins<sup>39</sup> found that only 4% of Latino agencies and 6% of non-Latino agencies in their survey of 181 agencies were providing HIV prevention services to rural Latinos, including farm workers, in California).
5. Conduct HIV prevention research specific to the US-Mexico border region to inform our understanding of issues unique to this region as well as to directly address known risk situations there. Collaborations through the Binational Migrant Health Initiative can optimize such efforts.
6. Build greater flexibility into funding sources for researcher-community collaborations that include 6 months to a year of startup funding (relationship and trust building, codevelopment of research methods) as well as postintervention funding (eg, 1 year minimum) to support technology transfer or translation and integration of useful research findings into direct service products, services, and administrative procedures for agency personnel.
7. Direct greater attention in HIV prevention research to the considerable diversity among Mexican migrants, especially those at highest risk such as gay and bisexual men. Other groups that we need to consider include women, indigenous Mexican Indians, and migrants of varying social class backgrounds and transnational experiences.
8. Conduct research to increase our understanding of the dynamic nature of sexual cultures, including the goal of explaining how Mexican migrants become integrated into US communities as well as the role of transnational movement between the 2 countries.
9. Promote the use of quasiexperimental research designs and mixed methods in HIV prevention research. Quantitative and qualitative methods can be creatively combined to inform each other in an ongoing iterative fashion (eg, focus groups and interviews with key informants to in-

form empiric surveys and interventions, followed by focus groups and interviews to make sense of survey and intervention findings). A mixed-methods approach can provide generalizable numbers as well as give voice to members of migrant subgroups.

10. Develop, implement, and evaluate specific HIV prevention interventions by considering the framework used in this article to characterize approaches used in the outcome literature (ie, structural/environmental, social and cultural contextual, behavioral science) and by building on the specific outcome studies reviewed (see Table 3) by conducting broader and more rigorous replications and/or modifications to better fit local research settings and subgroups of Mexican migrants.

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## HIV Health Care Services For Mexican Migrants

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**Summary:** This article reviews the literature on HIV/AIDS health care services for Mexican migrants in the United States. Because so little research has been conducted on Mexican migrants per se, we include literature on Latinos/Hispanics in the United States, because some characteristics may be shared. Furthermore, we focus special attention on data from California because it is on the front line of issues regarding health care for Mexican migrants. The types of health care services needed to improve on the quality of care provided to Mexican migrants living with HIV are highlighted, and recommendations are made for future interventions, research, and binational collaborations.

**Key Words:** HIV, healthcare services, Mexican migrants

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International studies indicate that migrants all over the world are at risk for acquiring HIV.<sup>1</sup> California is the most frequent destination of Mexican immigrants coming to the United States (3.8 million or 44% of the total number of immigrants).<sup>2</sup> Most of these are legal residents, but approximately one fourth are undocumented migrants—persons who may go back and forth between the United States and Mexico.<sup>3</sup> Most of the undocumented migrants are young men coming from rural areas of Mexico. California AIDS data indicate that the percentage of Latino AIDS that are of Mexican or Mexican–American de-

cent has increased from 36.5% in 1995 to 47.7% in 2000. The cumulative number of AIDS cases among Mexicans in California as of January 1999 was 9,424 with men representing 92% of the total.<sup>4</sup> Among these Mexican AIDS cases, 71.9% were born in Mexico.<sup>4</sup> Data from Mexico indicate that 6% of all AIDS cases are reported in rural areas.<sup>5</sup> Among all rural AIDS cases in Mexico, it is estimated that 25% acquired the infection while working in the United States.<sup>6</sup> Because it is likely that similar migration trends will continue and that the HIV epidemic will continue to expand, it is imperative to evaluate migrants' access to HIV detection and treatment in California. There is currently a need to design a health care approach for migrant populations at risk for HIV that is culturally appropriate.

Studies point to Mexican migrants living with HIV infection in secrecy in the United States.<sup>7</sup> California AIDS data (statistics include cases reported to the AIDS Case Registry as of March 1, 2001) indicate that Mexican-born men are at greater risk for AIDS than Mexican–American men born in the United States and that male-to-male transmission is the most frequent route of infection.<sup>4</sup> The sexual stigma associated with HIV (men who have sex with men) is prominent in Mexican communities. One study indicates that Latino men are less likely to disclose their HIV status to their families compared with blacks and whites.<sup>8</sup> It is suspected that subgroups of migrant men engage in bisexual practices, similar to other migrant men in other parts of the world. When these men return to Mexico, they are unlikely to disclose these bisexual behaviors to their female partners, and this lack of disclosure has an impact on the HIV epidemic among Mexican women in Mexico. A study on Mexican women married to migrant workers in the United States found that most of these women (83%) report having only 1 sex partner in their lifetime, their husband.<sup>9</sup> Studies in rural areas of Mexico indicate that rural women are at higher risk for HIV than urban women.<sup>6</sup> Mexican women in rural areas of Mexico are unlikely to receive routine HIV testing while pregnant and are at risk for transmitting HIV unknowingly to their offspring. Thus, there is a need for outreach programs toward the subgroups of Latinos at high risk for HIV in the United States, such as Mexican migrant men, to provide counseling on HIV prevention and to encourage early HIV detection and treatment. This strategy would offer substantial benefits to individuals (decreased morbidity and mortality) as well as to families and societies on both sides of the border (ie,

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knowledge of positive HIV serostatus would lead to decreased transmission to others and thus offer secondary prevention).

Latinos with HIV/AIDS are at risk for poor health outcomes compared with whites in California, including higher rates of late disease presentation, as indicated by the disproportionate percentage of AIDS cases,<sup>4</sup> increased mortality from AIDS,<sup>10,11</sup> and increased comorbidity with tuberculosis (TB).<sup>12</sup> Because migrants are known to face significant barriers in accessing health care (because of low socioeconomic status, lack of health insurance, and undocumented status), there is a natural concern about the outcomes of Mexican migrants living with HIV/AIDS.

This article reviews the existing literature on HIV/AIDS health care services for Mexican migrants. Because so little research has been conducted on Mexican migrants per se, we include literature on Latinos/Hispanics in the United States, because some characteristics may be shared. Furthermore, we focus special attention on data from California because it has a long border with Mexico and thus is on the front line of issues regarding the health care of Mexican migrants. The specific focus of this article is to describe the access to care barriers faced by migrants and the type of HIV-related health care services that are needed to improve quality of care and health outcomes for this population. We conclude by making recommendations for future interventions, research, and binational collaborations. Because Mexican migrants are a mobile population, an organized, systemic, and binational agenda for HIV access to care, treatment, and prevention is needed to influence this epidemic.

### ACCESS TO HEALTH CARE

In this article, we conceptualize the need for HIV care for Mexican migrants in California within the need for overall general health care for the following 3 reasons: (1) access to general health care is likely to increase early HIV detection, facilitating the targeting of HIV prevention; (2) HIV predisposes those infected to develop TB and cervical cancer more easily; these conditions can easily be screened for by primary care providers in a cost-effective manner; and (3) such an approach is likely to achieve greater acceptance from the Mexican migrant population (eg, migrants need access to general health care for a variety of conditions, including HIV, and a focus on total health care is more likely to engage migrants who perceive themselves to be at low risk for HIV). A number of studies report that Mexican migrants face a number of challenges in getting their health care needs met.<sup>13,14</sup> The factors impeding access to care in the Mexican migrant population in California include having a low income, lacking employer-based health insurance, and having an undocumented status.

### Employer-Based Insurance Coverage

The health care system in the United States is largely financed by the private sector, and employment is the primary

source of health care coverage. Rural Mexican migrants typically work in agricultural jobs, and urban migrants work in service jobs of the garment, restaurant, and hotel industries. Such jobs typically offer low wages and do not offer the opportunity of purchasing health insurance. Even if such an opportunity were provided, their limited cash compensation prevents employees from purchasing health insurance or health services directly.

In California, whites have the highest rate of job-based insurance (75.4%) and the lowest rate of no insurance (8.6%). In comparison, Latinos have the lowest rate of job-based insurance (42.3%) and the highest uninsured rate (28.3%).<sup>3</sup> Indeed, Latinos are less likely than all other race/ethnic groups to be offered job-based insurance regardless of the type of work or full-time or seasonal status of the work they do.<sup>15</sup> Among Latino agricultural workers, the percentage of no insurance is greatest (70%).<sup>16</sup> Poverty and low educational attainment contribute to this finding, although even among Latinos who are college educated, 17% are unemployed compared with 7% among whites in the same group.<sup>15</sup>

### Federal Health Programs

Two federal government programs for health insurance exist in the United States, Medicare and Medicaid, but these cover only approximately 25% of the population and cover mainly children and the elderly. Medicaid provides important safety net coverage, particularly for Latino children born in the United States, but it is especially unlikely to help young adult migrants. Consistent with this supposition, Latino subgroups with the highest proportion of migrants in the United States, namely, those who are ethnically Mexican, are most likely to be uninsured and least likely to have Medicaid coverage.<sup>15</sup> Migrants have typically not been eligible for Medicaid programs because of their undocumented status. Unfortunately, there is evidence that migrants and their health care providers remain fearful and confused regarding the potential ramifications of using health care services in the United States.<sup>17</sup> A recent study shows that only 7% of migrant laborers report being enrolled in any government program that serves low-income people.<sup>16</sup> As with other vulnerable populations, lack of insurance and low income are formidable barriers to care for Mexican migrants with HIV infection. A study on migrants living with HIV/AIDS indicates that a primary concern is finding and receiving health care.<sup>7</sup>

### Undocumented Status in the United States

Approximately one fourth of Latinos in California are undocumented (not permanent residents and not in the process of receiving their green card).<sup>3</sup> Fear of exclusion, risk of deportation, and separation from family are daily obstacles in obtaining health services for Mexican migrants.<sup>18</sup> Compared

with other ethnic groups in California, Latinos are more likely to cite citizenship or immigration issues for lacking health insurance and thus to cite citizenship issues as a primary barrier to care.<sup>3</sup> Other studies point to this as well. One study of persons infected with TB in Los Angeles (predominantly Latino) found that fear of immigration deterred them from seeking medical care.<sup>19</sup> In a study of patients hospitalized in Los Angeles with complications of HIV infection, the authors<sup>10</sup> suggested that fear, whether founded or unfounded, of the legal consequences of care seeking for migrants may have prevented Latinos from seeking care earlier. The authors also suggested that this effect may have been related to the passage of anti-immigrant legislation such as Proposition 187 in California. Although never fully implemented, this California proposition was passed with the intent of denying care to undocumented migrants, most of whom are Mexican. Some migrants may fear they may lose the ability to ever gain legal status in the United States if they use public health care services and are seen as a "public charge".<sup>17</sup> Undocumented migratory status is a primary barrier to migrants seeking health care services; as such, it is a powerful disincentive to access health care.

## NEEDED HEALTH CARE FOR MIGRANTS LIVING WITH HIV

As new treatments extend survival, making HIV infection a long-term chronic illness, regular evaluation by health care providers becomes increasingly important. The entire spectrum of care is relevant to the care of Mexican migrants with HIV infection. Ideally, the health care system would provide the entire spectrum of care to Mexican migrants, including regular outpatient care without delay after testing HIV-positive; ensure appropriate testing (eg, CD4 T-lymphocyte count, viral load, resistance testing); minimize emergency department and hospital care; deliver appropriate highly active antiretroviral therapy (HAART) medications and prophylaxis for opportunistic infections; promote adherence to medications once initiated; and offer mental health services, substance abuse treatment, and case management.<sup>20</sup>

### Highly Active Antiretroviral Therapy

HAART is used to describe potent combination antiretroviral agents. In most cases, HAART regimens include 2 nucleoside analogue reverse transcriptase inhibitor (NRTI) agents combined with a protease inhibitor (PI), a nonnucleoside reverse transcriptase inhibitor (NNRTI), or both. Some triple NRTI regimens are also considered HAART. HAART combination therapy has become standard of care for persons living with HIV/AIDS.<sup>21</sup> Drug resistance can develop if the regimen is not taken as prescribed, and this reduces the efficacy of treatment.<sup>22,23</sup>

High levels of adherence therapy are required for long-term efficacy of HAART. Latinos have been found to have

lower adherence to HAART than whites in 1 study.<sup>24</sup> Increasing prevalence of resistance is a threat to individual and public health.<sup>25</sup> Thus, promoting adherence to HIV medications is important to maximize viral suppression and prevent development of resistance.

No studies have yet been conducted on the adherence patterns of Mexican migrants. A concern is that because migrants tend to have low educational backgrounds, they may lack health literacy (inability to comprehend how to take their treatments and the consequences of not following guidelines). Nevertheless, experts contend that with sufficient support and education, most patients, even those with difficult social and medical problems, can be helped to initiate and maintain HIV treatment in accordance with clinical standards.<sup>26</sup> Most physicians believe that communicating with patients about the importance of AIDS antiretroviral treatment adherence is important. They also cite time constraints as a barrier to performing adherence communication, however.<sup>27</sup>

### AIDS Drug Assistance Program

There is an AIDS Drug Assistance Program (ADAP; available at: [www.ramsellcorp.com](http://www.ramsellcorp.com)) in California, funded by the Ryan White Act and state funds, that provides assistance to low-income persons who lack health insurance or are underinsured. Eligibility criteria for California ADAP services include being a current resident, age of 18 years or older, having an HIV diagnosis (only process prescriptions licensed by a California physician), federal adjusted gross income less than \$35,440 (to receive medications at no cost), and having limited or no prescription drug benefit from another source. Undocumented workers are eligible for the ADAP in California (eligibility criteria for the ADAP varies from state to state, and undocumented workers may not be eligible in other states) as long as they are current residents and meet income criteria. It is unknown how many migrants actually use the ADAP in California (such data are not kept by the ADAP), however. In calendar year 2001, the ADAP served 23,668 persons in California; of these 8044 (34%) were Latinos. Most Latinos served resided in Los Angeles (60%).

### Therapeutic Drug Monitoring

The concept of therapeutic drug monitoring (TDM) has been proposed as potentially being useful in improving the activity of regimens when low drug concentrations are the reason for virologic failure and in improving the management of toxicity if elevated drug concentrations are detected; it has also been used as an objective measure of nonadherence.<sup>28</sup> TDM has only recently been discovered as an area of research in the treatment of HIV infection, and many questions remain to be resolved before TDM is firmly placed in the diagnostic setup of HIV-infected patients.

## Treatment of Opportunistic Infections

Guidelines exist for the prevention of opportunistic infections for persons living with HIV/AIDS.<sup>29</sup> Such treatments are not as complex as with HAART and are less costly. A recent study suggested that decreased levels of adherence to opportunistic infection prophylaxis were associated with a poor outcome.<sup>30</sup> In the HIV Costs and Services Utilization Study (HCSUS), Latinos with CD4 counts less than 50 cells/mm<sup>3</sup> were much less likely than whites to receive prophylaxis for *Mycobacterium avium* complex.<sup>31</sup>

## Mental Health

Mental health care also represents an important need among persons with HIV/AIDS. Psychologic well-being has implications for HIV/AIDS treatment adherence, because depression is considered a barrier to adherence<sup>32</sup> and also has implications for quality of life now that HIV has become a chronic illness.<sup>33</sup> Depression and anxiety are reported as being common in Latinos living with HIV, with rates approaching 48% and 20%, respectively.<sup>34</sup> Latinos with advanced HIV or AIDS are reported to express more pain symptoms and pain distress than other ethnic groups, and such symptoms have been associated with psychiatric comorbidities, including anxiety, depression, and general emotional distress.<sup>35</sup> As discussed below, these conditions are often worsened by alcohol and drug use. In general, unmet need for HIV patients with mental health problems is reported to be high.<sup>36</sup> Case management has been shown to decrease unmet need for mental health.<sup>37</sup>

## KNOWN BARRIERS IN ACCESSING HIV CARE

In addition to the barriers discussed previously, such as low income, lack of insurance, and undocumented status, other important barriers disproportionately affecting Latinos' access to HIV care in the United States have been revealed in recent studies: competing needs (eg, housing, food, transportation), alcohol and other drug use, mental health problems, health care system factors (eg, case management), language and cultural factors (including patient beliefs and behaviors as well as providers' lack of cultural competence), and the stigma of HIV.

## Competing Needs, Substance Use, and Mental Health

In the HCSUS, Latinos and blacks were more likely than whites to report 1 or more of the following barriers: needing money for food, clothing, or housing; lack of transportation; inability to get off work; and feeling too sick.<sup>38</sup> Furthermore, use of alcohol and drugs, possibly combined with underlying depression or other mental health problems, may interfere with Mexican migrants receiving the medical care they need.<sup>39-43</sup> Alcohol abuse, in particular, is common and increasing among Latinos in the United States.<sup>44</sup>

## Unmet Needs and Case Management

Unmet needs for supportive services (eg, substance use treatment, mental health counseling, insurance benefits counseling, housing assistance, home health care) were found to be more common among Latinos than whites living with HIV.<sup>37</sup> Having a case manager was associated with patients having these needs met and with receiving combination antiretroviral therapy at follow-up.<sup>45</sup> These findings suggest that health care system factors, such as coordination of services, are equally important as individual patient factors in understanding and improving health care services for Mexican migrants living with HIV.

## Language and Culture

Latinos are also vulnerable to barriers to care based on language and culture, which, combined with a low perception of HIV risk, hampers patient education in this population. Culturally based barriers to care may be more subtle and complex than the more traditional measures of barriers to care, such as lack of insurance. Several studies suggest that cultural barriers may have resulted in delays in receiving medical care.<sup>46-48</sup> Delays in care may result from denial about the risk of having HIV or fear of disclosing known HIV infection. This may result in getting HIV testing and treatment late in the course of the disease, only after symptoms develop.<sup>49,50</sup> Other barriers to care based on cultural differences may occur because providers fail to test or provide appropriate care early enough to Latinos who have already entered the health care system. Lack of Spanish-speaking providers, lack of effective language interpretation, cultural differences in the style of communications, and even possible outright discrimination from providers are among the possible provider barriers that should be explored further.<sup>51-53</sup> These findings are of particular significance for migrants, who are usually monolingual Spanish speakers and at risk for miscommunication with English-speaking physicians about treatments. One study found that monolingual Spanish speakers were less likely than whites to be taking PIs.<sup>54</sup> Current research also indicates that Latino/Spanish-speaking patients are more dissatisfied with physician communication than Latino/English speakers.<sup>51</sup> These are among the issues addressed by the new emphasis on cultural competence in care.<sup>55</sup>

## HIV Stigma

Stigma has been examined as a factor likely to inhibit prevention efforts by discouraging those at risk or infected from being tested or disclosing their risk behavior.<sup>56,57</sup> Stigma may be a factor less often examined as an impediment to health care seeking and health care delivery, however. In particular, perceived or enacted discrimination against persons with HIV from marginalized segments of society (eg, Mexican migrants) may interfere with their access to high-quality care.

## DELAY IN CARE AFTER HIV DIAGNOSIS

In recent research, Latinos have been found to encounter several problems with access to or quality of needed HIV care. For example, the HCUS found that Latinos, compared with whites, have a higher adjusted odds ratio for delay of more than 3 months in seeking medical care after an HIV diagnosis.<sup>58</sup> Having a regular source of care, getting tested at the site of primary care, and being insured were all associated with less delay. Other studies reveal that Latinos are more likely than whites to present for HIV testing at more advanced stages of disease.<sup>59–61</sup> In a national study, Latinos with HIV were more likely to be uninsured than whites.<sup>61</sup> Not surprisingly then, Latinos are less likely than whites to receive regular outpatient care, more likely to visit the emergency department without needing hospitalization,<sup>62</sup> and more likely to be hospitalized.<sup>63</sup> Similarly, Latinos were treated with HAART at lower rates than whites, a finding that was largely explained by insurance, income, education, and other patient characteristics.<sup>64</sup>

A study indicates that monolingual Spanish speakers are less likely than whites to be taking PIs<sup>54</sup> and are thus missing out on the benefits of therapy (decreased morbidity and mortality). Early access to appropriate treatment with the most effective antiretroviral treatment might be enhanced by participation in clinical trials of such agents. Recent research demonstrates that Latinos are less likely than whites to participate in clinical trials, however.<sup>65</sup> Although there are few data directly addressing these aspects of care specifically for Mexican migrants to the United States, a national study found that Latinos living with HIV who were not US citizens reported worse overall access to care.<sup>66</sup>

## HEALTH OUTCOMES AND COMORBIDITIES

Typical environmental factors for Latino migrant laborers, especially farm workers, in the United States include poor housing, limited sanitation facilities, inadequate diet, and limited access to health care.<sup>67</sup> The poor sanitation and housing conditions make them vulnerable to health conditions no longer considered to be threats to the general American public. Infectious diseases such as sexually transmitted diseases (STDs),<sup>68</sup> HIV,<sup>69</sup> and TB<sup>70</sup> are more common among migrants than among the general US population. In addition, cervical cancer, for which the human papilloma virus (HPV) is a risk factor (considered an STD), is known to be high among Latina women.<sup>71</sup> Current research indicates that HIV, because of its effect on the immune system, exacerbates the risk for developing TB and cervical cancer, conditions already known to be prevalent among migrants. Given problems with the delivery and quality of services and treatment and the range of barriers to care, there is a natural concern about whether health outcomes may be adversely affected for Mexican migrants.

## Sexually Transmitted Diseases

STDs are of concern because migrant labor camps for farm workers are composed primarily of single males. This factor, combined with limited recreational facilities, social isolation, and cultural sanction of prostitution, has resulted in a high incidence of STDs in these camps.<sup>68</sup> Migrant men are known to have low rates of condom use,<sup>72</sup> and this increases their chances of contracting STDs and HIV and transmitting these infections to others. STDs, such as *Chlamydia*, are common among Latinos.<sup>73</sup> *Chlamydia* predisposes those infected (because of inflammation and tissue destruction) to acquire HIV infection more easily and, if already infected with HIV, to transmit it to others more easily.<sup>74</sup> Studies indicate that persons with urethritis (STDs like *Chlamydia* are a common cause) are more likely to have higher levels of HIV in semen secretions and thus more infectious.<sup>74</sup> When symptomatic, men with *Chlamydia* may develop penile discharge and painful urination and women may develop vaginal discharge, pelvic pain, and fever. A problem with *Chlamydia* infection is that patients may not develop clinical symptoms yet remain infectious. Therefore, *Chlamydia* screening needs to be offered to all groups at risk, regardless of symptoms, so that timely diagnosis and treatment may take place and transmission of this infection to others is prevented. Studies indicate that treatment of STDs decreases HIV infection rates.<sup>75,76</sup> Because of migrants' problems with access to health care, it is unlikely that those at risk for STDs receive routine screenings.

## HIV Mortality

One study of patients hospitalized in Los Angeles with HIV showed that Latinos had more than twice the relative risk of death over 6-year follow-up period. This elevated risk was not explained by sociodemographic characteristics, insurance, CD4 cell count, or treatment, leading the authors to speculate that some unmeasured cultural barriers may have contributed to the observed differences.<sup>10</sup> A previous study of hospitalized patients with HIV and *Pneumocystis carinii* pneumonia (PCP) also found higher in-hospital mortality in Latinos than in whites.<sup>11</sup> It is unknown how many migrants living with HIV in California return to Mexico and how many die in Mexico. Such migrants would not be counted in the California AIDS mortality figures.

## Tuberculosis

Latinos, especially those who are Mexican born, are known to be at higher risk for TB than the general US population. From 1993–2001, the 4 US border states with Mexico accounted for 77% of reported cases of TB in the entire country.<sup>77</sup> Latinos living with HIV in California also have higher rates of comorbidity with TB compared with whites.<sup>12</sup> Although TB control programs exist within the United States, Mexican migrants may only be benefiting partially from such

programs, despite their being at high risk for TB. TB in migrant laborers presents special problems because of the unmet need for long-term treatment, regular clinical follow-up, and population mobility. In addition, fear of immigration authorities may deter some migrants from getting needed TB care.<sup>19</sup> The emerging HIV epidemic among the migrant population poses a special problem because of the interaction between AIDS (the advanced form of HIV infection) and TB. Unlike other opportunistic diseases associated with AIDS, TB is especially serious because it can be spread by airborne transmission to anyone in close proximity and thus has public health implications. A recent study shows that AIDS significantly amplifies TB outbreaks and that strong TB public health treatment programs can curb HIV's effect.<sup>78</sup> In addition, as shown by the decrease of TB-AIDS comorbidity in groups that do have access to the health care system and access to antiretrovirals, HAART can curb HIV's effect.<sup>79</sup> Although national data indicate that TB cases are decreasing among the general US population, the opposite is true for cases among foreign-born Latinos.<sup>80</sup> For those who do receive TB treatment, physicians need to consider that treatment of HIV-TB has become more complex because of antiretrovirals (interaction of PIs and rifampin).<sup>81</sup> Because of Latinos' lack of access to health care, if they acquire HIV infection, it is likely to progress to AIDS, increasing their risk of serious morbidity and mortality from TB coinfection.

### **Cervical Cancer**

Latinas in California have a 17% rate of invasive cervical cancer, the highest annual incidence rate (the rate is 7.4% for non-Latina white women).<sup>82</sup> This is primarily a result of the higher rates of infection with HPV.<sup>71</sup> HPV and HIV are thought to interact in a significant way in increasing the risk for cervical cancer in women.<sup>83</sup> As HIV spreads to Latina women, it threatens to accelerate the rates of cervical cancer. Such findings have serious implications for Latinas. Once cervical cancer develops in women with HIV, the disease may become more aggressive and less responsive to treatment.<sup>83</sup> Women with HIV and cervical cancer have higher recurrences of cervical cancer after treatment and death rates than women who do not have HIV.<sup>84</sup> Because of low socioeconomic status and lack of health insurance, many Latina women lack access to the health care system and access to Papanicolaou test screening for early detection of cervical cancer.<sup>85</sup>

### **DISCUSSION**

The HIV epidemic is bringing to the forefront the global reality that when it comes to epidemics such as HIV and TB, there are no borders. The migrant issue and HIV/AIDS health care access is not unique to California or Mexico. It is estimated that there are 125 million migrants in the world.<sup>86</sup> International studies indicate that migrants all over the world are at risk for HIV.<sup>1</sup> Mexican migrant men return home to Mexico,

and those infected with HIV are at high risk of transmitting HIV to their families. Economic disadvantage and strong cultural gender norms regarding sex exacerbate the risk for HIV infection among Mexican women.<sup>87</sup> The emerging HIV epidemic in the Mexican migrant population of California is affecting not only individuals but their families as well as communities on both sides of the border. HIV is a public health problem for the United States and Mexico, and as such, the access to health care issue needs to be addressed by both countries now, before further spread of the HIV epidemic. Without access to care and treatment, there will not be an effective impact on the HIV epidemic. If Mexican migrants in the United States or Mexico lack incentives for early detection (such an incentive would be treatment, with the benefit of decreasing morbidity and decreasing mortality), there is no motivation for them to come forward for early HIV detection. Untested persons are unwittingly passing the virus along to their sexual partners. The concept of early intervention and the targeting of AIDS prevention and treatment toward HIV-infected persons were proposed early on in the AIDS epidemic.<sup>88</sup> Access to care, early HIV detection, and prevention are thus intertwined.

Mexican migrants are already at high risk for TB, STDs, and cervical cancer. The emerging HIV epidemic will only worsen these already prevalent conditions, threatening to increase health care costs and to affect the well-being of families further. Studies indicate that HIV treatment, which decreases the prevalence and severity of these conditions, may be cost-effective by reducing morbidity, emergency room visits, hospitalizations, and mortality.<sup>89</sup> Thus, there are individual as well as societal benefits from early HIV detection and treatment.

The economic and social impact of HIV on families is likely to be enormous, and it would be prudent for the United States and Mexico to place efforts on HIV prevention. An organized, systemic, and binational agenda for HIV access to care, treatment, and prevention is needed to influence this epidemic in the Mexican migrant population. Overall, what is most needed is access to primary care for early detection of HIV and TB, which have public health implications for people on both sides of the border.

### **RECOMMENDATIONS FOR INTERVENTIONS, RESEARCH, AND BINATIONAL COLLABORATIONS**

The following describes recommendations for health policy, health care system interventions, and binational collaborations. Although the focus of this article has been on Mexican migrants in California, the same factors of access to care, treatment, early HIV detection, and barriers to care are likely to be relevant for migrants when they return to Mexico. The literature from Mexico is currently limited on health care

services related to HIV care for rural populations, where migrants tend to come from, and research in this area is needed.

## US HEALTH CARE SYSTEM

### Health Policy

According to existing data, low socioeconomic status, lack of employer-based health insurance, and undocumented status all contribute as significant barriers in accessing care for Mexican migrants in the United States. In addition, laws passed, such as Proposition 187 in California (anti-immigration legislation passed with the intent of denying care to undocumented migrants), although never fully implemented, seem to have hindered undocumented Latinos from seeking needed health care.<sup>11,19,21</sup> It will only be through health policy changes that barriers to health care access may be overcome by Mexican migrants. As such, access to care for the Mexican migrant population in the United States is a health care policy issue that needs to be addressed by the United States and Mexico. There are public health consequences for people on both sides of the border if Mexican migrant health access is not addressed—the spread of HIV and TB.

The benefit of having health care access is that it would facilitate having a regular source of care within a primary care clinic, which may offer general health maintenance, early TB detection and treatment to prevent transmission to others, STD screenings (thereby decreasing the risk of HIV, because STDs predispose those infected to acquire or transmit HIV), HIV screening and counseling for prevention (access to a regular source of care has been shown to increase the likelihood of HIV detection and treatment),<sup>50</sup> and cervical cancer screening for women. In addition, access to a regular source of care has been shown to decrease emergency room use and expensive hospitalizations in those living with HIV.<sup>89</sup>

Improvements in access to care may be made by facilitating migrants' purchasing of health insurance through a government subsidy, by passing laws that require they be paid at least minimum wage, and by clarifying "public charge" laws in the United States that may have an impact on migrants' future possibility of gaining citizenship if using public health services. To avert an HIV epidemic in the Mexican migrant population and their families in Mexico, it is essential that the United States and Mexico commit themselves to HIV detection, treatment, and prevention. Government commitment to HIV treatment has proven efficacious, as in the example from Brazil. The United Nations AIDS World Health Organization states that "political leadership and action are clearly needed to set the direction for a national response and initiate the development of policies that determine the strategy for managing the [HIV] epidemic".<sup>90</sup> The economic consequences for both countries may be devastating if this does not occur.

### Improve Delivery of Antiretroviral Treatment

The prospect of early detection and treatment with HAART, which can alleviate suffering and postpone death, has instilled hope in millions of individuals and mobilized the broader society in some of the most severely affected countries.<sup>91</sup> This new hope in treatment has the potential of breaking the silence toward HIV in the Mexican community and for mobilizing those at risk to seek early HIV testing and treatment. Treatment would allow those infected with HIV to continue working, would decrease emergency department use, would prevent opportunistic infections, and thus would decrease costly hospitalizations.<sup>89</sup> In addition, it would prevent comorbidities with TB and therefore prevent the potential of HIV-TB-coinfected persons infecting others with TB.

### Development of HAART Adherence Teams

Findings of problems with adherence to medications for Latinos highlight the need for the development of multidisciplinary adherence teams to ensure that each patient receives the optimal amount of information about and support for adherence.<sup>24</sup> For HIV/AIDS patients, a treatment advocate could enhance communication between the physician and patient, improving HIV/AIDS-related information and adherence to medications.<sup>92</sup> Such an advocate for migrants is especially needed, because migrants tend to have low educational levels and have language and cultural differences with health care providers in California, who tend to be white and English speakers. There is a need for further research on barriers to medication adherence among migrants with HIV.

### Increase Health Outreach For Hard-To-Reach Populations

Community-based organizations (CBOs), such as Bienestar Human Services, have expanded throughout southern California; they have successfully provided services to Latinos who want HIV testing and have been able to link those testing positive with health care services. Using an accepting approach toward the sexual orientation of their clients and through the provision of culturally relevant information, they have successfully placed themselves as community resources. CBOs such as Bienestar, which serve clients who are more than 90% Latino, report that 5% of their clients have positive HIV tests. Such community centers could be used as HIV prevention centers if strategies can be developed to transfer research-based outreach HIV prevention methods to them.<sup>93</sup> There is a need for more CBOs that focus on serving Latinos to facilitate early HIV detection.

Other methods that have been used in hard-to-reach populations at risk for HIV include mobile units.<sup>94</sup> Mobile units may be especially helpful for migrants in medically underserved urban or rural areas. Lastly, the provision of HIV detection services in nontraditional health settings, such as

churches, shopping centers, and malls, may be necessary to facilitate HIV testing and dissemination of information with the migrant population.

### **Health System and Provider Factors**

Given the various problems with care that Latino migrants face and their potential effect on health outcomes, there are many issues that providers and the health care system can address to improve care. The health care system is equally as important as individual patient factors in understanding and improving health care services for Mexican migrants with HIV infection. To improve access to and quality of care, there need to be more provider sites and more Latino providers and other providers who are trained to provide culturally competent care. At present, federally funded migrant health clinics exist throughout the United States, but such centers serve less than 20% of the migrant population<sup>95</sup> and tend to exist mainly in rural areas. Few of these centers provide HIV specialty care. Typically, if a migrant is found to have HIV, he or she is referred to the nearest county clinic for care. No studies are found in the literature that examine whether migrant centers offer migrants HIV testing, and such studies need to be conducted. Migrant centers may be a good place in which to begin health care provider training on HIV detection.

The lack of Latino providers poses additional problems, because such providers are more likely to practice in low-income areas and to serve Latino patients.<sup>96</sup> The anti-affirmative action laws passed in states like California, which prohibit the use of race in admissions, have led to a decrease in the number Latino students enrolled<sup>97</sup> and thereby have decreased the number of physicians who are willing to work in predominantly Latino and low-income areas.

### **Improving Quality of Care For Migrants Living With HIV**

Latinos, especially migrants, are in need of services from outpatient medical care ranging from mental health care, substance use, and case management to coordination of service delivery and follow-up. Studies have shown that having a case manager is associated with patients having these needs met and receiving combination antiretroviral therapy at follow-up.<sup>37,45</sup> In the United States, there is a lack of mental health providers who speak Spanish and understand the Mexican culture, and this has implications for the recognition and treatment of mental health problems in this population. More research that examines the psychologic impact of HIV on racial minorities, such as Latinos, is needed.

Various components of the health care delivery system that may facilitate HIV detection in migrants in the United States and Mexico have been discussed in this article. The offering of HIV testing at time of contact with traditional health care systems (emergency rooms, county clinics, and public health care clinics) and rapid testing in nontraditional testing

sites, such as CBOs,<sup>98</sup> mobile units, churches, shopping centers, and malls, need to be considered by the United States and Mexico. Such avenues may be cost-effective.

### **Improve Physician Training**

One likely source of health care for Latino migrants to the United States is from physicians in areas bordering Mexico. Latino physicians in Texas and in the neighboring Mexican state of Nuevo Leon have been surveyed to determine their educational needs on HIV/AIDS.<sup>99</sup> Most physicians on both sides of the border rated their HIV/AIDS knowledge as average but rated their knowledge of treatments for the disease below average. Limited knowledge of HIV diagnosis and treatment could result in delays in care or suboptimal treatment of those in care. There is need to assess the HIV-related knowledge of health providers who treat migrants and to provide them with training on HIV/AIDS disease detection (assessment of risk behaviors) and management.

## **MEXICAN HEALTH CARE SYSTEM**

### **Access to Care**

It is unknown how many migrants with HIV actually return to Mexico and at what stage of HIV (eg, AIDS) they return. Their use of and access to HIV-related services in Mexico is an unknown area, because no studies are found in the literature on this topic. They are likely to face significant barriers in accessing health care. Migrants typically come from rural areas of Mexico, and these areas are the ones with the least health care resources. In Mexico, one half of the 100 million population is uninsured, and more than half of the country's annual spending is out of pocket.<sup>100</sup> This large out-of-pocket expenditure can easily lead to or exacerbate poverty.

The World Health Report 2000 proposes that national health care system performance be assessed not only by the average health attained by the population but by how health status and the burden of paying for health care are distributed within the population.<sup>101</sup> This preeminent concern with equity is also reflected in the 2001 to 2006 Mexican National Health Program recently released by the Ministry of Health.<sup>102</sup> Equity—in health status, access to health services, and health care financing—has become the top challenge faced by the Mexican health system, and it has been proposed that “comprehensive federal funding of a core package of services across all social groups must be the basis of universal health insurance”.<sup>100</sup>

### **Health System Provider Factors and Patient Factors**

No studies were found in the Mexican literature that describe populations with HIV and health system or provider fac-

tors that facilitate or act as barriers to care for those living with HIV. In addition, no studies that assess health providers' knowledge about HIV treatments, especially those in rural areas, have been conducted. No information from Mexico was found on rural Mexican patient adherence patterns to HIV treatment. Mexico, as a developing nation, needs to address the issues of health care infrastructure and technology in the management of HIV/AIDS disease.

### HIV Epidemiology Data

Currently, there is a wide discrepancy between the HIV rates that the Mexican government reports and the estimates from the Joint United Nations Program on HIV/AIDS (UNAIDS). Therefore, among the first of the studies that need to be conducted in Mexico are HIV epidemiologic studies that examine the prevalence rates among the subgroups that are at high risk for HIV, including migrant men, women married to migrant men, and their offspring.

### BINATIONAL UNITED STATES–MEXICO HEALTH COLLABORATIONS

It is presently unknown what percentage of migrants go back and forth between the United States and Mexico and how frequently this happens. Because it is likely that a significant number of migrants do go back and forth, we need to develop effective binational collaborations between the United States and Mexico that would integrate the care of HIV and TB. Such a program would include detection, treatment, and prevention.

### Binational Collaborations For HIV/AIDS and Tuberculosis Continuity of Care

There currently exists a program that is attempting to coordinate the continuity of care for Mexicans living with HIV/AIDS who are returning to Mexico, CURE+, based in the TB Control Program of San Diego County Health and Human Services Agency. This program has encountered many challenges because of the lack of infrastructure for HIV/AIDS care in Mexico and because of legal and confidential limitations in working with HIV/AIDS patients. In addition, there is a similar program housed in the same location as the HIV/AIDS binational program that offers continuity of care for migrants with TB returning to Mexico, Cure-TB.<sup>103</sup> The TB program has been more successful and has benefited from the existing national TB program in place in Mexico. In addition, the Centers for Disease Control and Prevention (CDC) in the United States have become involved in preventing and controlling TB along the US–Mexico border.<sup>104</sup>

### Models For Binational HIV/AIDS Training of Physician Scientists

Models for binational training on HIV/AIDS and STD research for physicians exist in the United States,<sup>105</sup> and such models may be used to develop binational physician (postresi-

dency training) exchange programs between the United States and Mexico to enhance the research skills of the Mexican physicians and for American physicians. The limited number of studies in Mexico that address the emerging HIV/AIDS epidemic highlights the need for such programs.

### Training For HIV/AIDS Treatment Advocates

There has been a binational collaboration between the University of California, Los Angeles (UCLA) School of Medicine/Center for Health Promotion and Disease Prevention and the Mexican National Coalition of People Living With AIDS and national health authorities in providing training for HIV/AIDS treatment advocates in Mexico,<sup>92</sup> and 80 individuals have been trained to date. There is a need for expansion of such programs and more funding.

### Medical Student Exchange Programs

The California–Mexico Health Initiative (CMHI; available at: [cmhi@ucop.edu](mailto:cmhi@ucop.edu)),<sup>106</sup> sponsored by the University of California, Office of the President, has developed a pilot medical student exchange program between various University of California Schools of Medicine, the Mexican Secretariat of Health, and the Mexican Social Security Institute. The objective of this program is to expand students' knowledge of chronic and emergent diseases related to migration and to foster medical students' interest in the specific health care needs of the growing migrant population in California. Mexican students and researchers who come to California will, in turn, be able to enrich their professional training and benefit from the vast resources of the University of California system. It is expected that this pilot program will become a permanent educational opportunity for US and Mexican students and will foster clinical as well as research collaborations.

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# Policy Perspectives on Public Health For Mexican Migrants in California

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**Summary:** This analysis focuses on public policies that affect primary HIV prevention and access to HIV care for Mexican migrants residing in California. Policy or structural level interventions, as opposed to behavioral or psychologic interventions, help to shape the environment in which people live. We use a conceptual model for policy analysis in public health to understand better the challenges faced by Mexican migrants. We assess potential policy level interventions that may serve as barriers to or facilitators of primary HIV prevention and care for Mexican migrants. Among potential barriers, we discuss restrictions on public health services based on legal immigration status, limits placed on affirmative action in education, and laws limiting travel and immigration. Under potential facilitators, we discuss community and migrant health centers, language access laws, and the use of community-based groups to provide prevention and treatment outreach. We also report on the limited research evaluating the implications of these public policies and ways to organize for more responsive public policies.

**Key Words:** Mexican migrants, policy, HIV prevention

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California and Mexico are more than just geographic neighbors. In fact, before being annexed to the United States, California was a part of Mexico. Thus, the state and country share a history and a culture and continue to have strong ties in the arenas of the economy, trade, development, population, public health, and welfare. California is now the fifth largest economy in the world, and Mexico is its primary trading partner.<sup>1</sup>

California's population was estimated to be 34.5 million in 2001.<sup>2</sup> Since 1970, it has been the most populous of the United States, with the number of residents tripling to 30 million between 1950 and 1990.<sup>2</sup> A significant portion of the explosive growth has been the flow of Mexican immigrants, now totaling 3.8 million, into the state.<sup>3</sup> California is home to the nation's largest population of Spanish speakers. Overall, Latinos make up 32% of Californians, and their share of the state's populace is growing by approximately 1% every 2 to 3 years.<sup>2</sup>

During the 1990s, 11 million people immigrated to the United States, with 9 million of them coming from Mexico.<sup>4</sup> Two thirds of all Mexican-Americans and Mexican nationals in the United States live in California, and the state continues to absorb more temporary workers (28%) than any other.<sup>4</sup> Mexican immigrants in California are conspicuously mobile and often travel back and forth across the international border for reasons of work and family. Indeed, the border crossing at San Ysidro, CA, is the busiest in the world.<sup>5</sup>

For complicated historical, structural, economic, and political reasons, the largest number of undocumented immigrants to the United States comes from Mexico—54% or approximately 2.7 million people.<sup>6</sup> Moreover, a high percentage of Mexicans (78%) living in the United States are not US citizens, which is a much higher figure than the average for all other immigrant groups (45%).<sup>4</sup> California absorbs into its workforce and economy the highest concentration of undocumented Mexicans of any state. It is understandable then that not only are issues surrounding immigration unusually forceful in California but that illegal immigration from Mexico plays a particularly prominent role in discussions of public policy.

As part of the efforts of the California–Mexico Health Initiative, we have attempted to assess structural factors or public policies at the national and state levels that serve as barriers to or facilitators of primary HIV prevention and access to HIV care for Mexican migrants. We define migrants as individuals born in Mexico and residing in the United States permanently or temporarily. We have not attempted to analyze policies in Mexico. We also identify gaps in public policy research that, if filled, would help us to under-

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stand better how migration- and health-related public policy may reduce the impact of AIDS and HIV in California and Mexico.

### HIV AND AIDS AMONG MEXICAN MIGRANTS

California accounts for 15% of the cumulative AIDS cases reported in the United States,<sup>7</sup> with Latinos comprising 20% of those statewide cases.<sup>8</sup> Although Mexico's population is 3 times as large as California's, it has only one third as many reported AIDS cases.<sup>9</sup> The higher prevalence of HIV in California means that Mexican migrants are more likely to be exposed to HIV in California than in Mexico.

Statistics separating Mexicans from the larger Latino population in California are generally not available. However, those born in Mexico make up such a large proportion of California Latinos that figures for the larger group are illustrative of the conditions faced specifically by Mexican migrants. Recent epidemiologic data suggest that people of Mexican origin have considerable risk of becoming infected with HIV, especially men who engage in sex with other men<sup>9,10</sup> and migrant workers who have sex with commercial sex workers. HIV infection among migrant workers poses risks for Mexican women, especially those who remain in Mexico and are sexual partners of men who migrate between California and Mexico. Migration is now affecting the spread of HIV to rural areas.<sup>11</sup>

We cannot address the HIV epidemic without also addressing the difficulties that Mexican migrants face in accessing health care services in California, a difficult issue in California. In 1999 to 2000, 19% of all nonelderly Californians were estimated to be without health insurance. The problem is especially acute among Latinos. Approximately 34% of California's Latino residents have no health insurance, making them the group most likely to be uninsured and the least likely to have job-based medical benefits. A lack of health care access is not limited to the unemployed, however. Even in California, of families with at least 1 full-time worker, 18% have no insurance.<sup>12</sup>

### STRUCTURAL INTERVENTIONS AND PUBLIC HEALTH

Governments at all levels adopt policies designed to promote public health. Examples are common in alcohol and smoking prevention (eg, prohibiting drunk driving, prohibiting cigarette and liquor sales to minors) and in injury control (eg, speed limits, seat belt laws). Although HIV prevention and access to care traditionally have been dominated by individual level approaches, increasing attention is being paid to structural factors—barriers that create vulnerable populations and facilitators that support safe behaviors and access to care.<sup>13</sup>

To understand better the public health challenges faced by Mexican migrants in California, we use a conceptual model (Table 1) adapted from a framework for policy analysis in public health.<sup>14</sup> Our purpose is not to place every intervention into a single category but rather to provide a heuristic model by which we can evaluate systematically the impact of a given policy. This model recognizes that interventions can be targeted at 3 different levels: individual, organizational, and environmental.

#### Individual

Individual level interventions focus on changing behavior 1 person at a time. A common example involves social marketing campaigns. Public service announcements promote the benefits of desired behaviors (or the costs of the undesired behaviors), with the hope that each individual will choose to adopt health-promoting activities.

#### Organizational

In contrast, organizational level interventions promote behavior change by altering the practices of businesses, community groups, governmental agencies, or other institutions. For example, a strategy used to increase seat belt use was to have automobile makers install reminder alarms.

#### Environmental

Finally, environmental level interventions attempt to alter the physical or social environment in a way that is condu-

**TABLE 1.** HIV-Related Public Health Policies

	Individual	Organizational	Environmental
Availability	Criminal penalties for intentional HIV transmission Needle exchange	Anonymous HIV testing sites Bathhouse regulations	Screening the blood supply
Acceptability	Antiprostitution stigmatization campaigns "HIV Stops With Me" campaign	Antistigma public service announcements	Condom social marketing
Accessibility	Condom distribution program for migrant farm workers Culturally appropriate case management	Expansion of HIV voluntary counseling and testing and care in community and migrant health centers	Legal immigration documentation requirements

cive to better public health. These approaches require no action by individuals themselves. A well-known example is the decision to fluoridate the water system as a means of reducing dental cavities.

The model also divides interventions according to 3 major sources of problems to be addressed: availability, acceptability, and accessibility.<sup>14</sup>

#### **Availability**

Availability interventions attempt to influence public health by increasing the likelihood of adopting health-promoting behaviors (eg, providing free condoms, increasing the number of anonymous HIV test sites) and decreasing the likelihood of health-damaging practices (eg, banning cigarette vending machines). HIV/AIDS-related examples include California's adoption of criminal laws for intentionally transmitting HIV and decisions by local governments to regulate bathhouses as a means to discourage unprotected sex. Another example is a recent change in state regulations to allow HIV counselors to perform rapid HIV antibody tests.

#### **Acceptability**

Acceptability interventions are designed to alter social norms and typically have been based on 2 different approaches. The first makes use of shame. Interventions are designed so that those who engage in undesired public behaviors are exposed to community censure. An example would be publishing the names or photographs of individuals who employ sex workers.<sup>15</sup> A second and more positive approach emphasizes social responsibility and the benefits of adopting a particular individual behavior, such as the recent campaign "HIV Stops With Me" sponsored by the San Francisco Department of Public Health.<sup>16</sup> Through media and Internet-based messages, the goal of the program is to foster a social norm of personal responsibility that encourages HIV-infected individuals to prevent transmission to those not infected.

#### **Accessibility**

Accessibility interventions respond to concerns about disparities in health care outcomes, particularly among racial and ethnic minority groups—disparities that are created by unequal access to health services. Thus, accessibility interventions targeting Latinos in general, and Mexican migrants in particular, are of particular concern as part of the California-Mexico Health Initiative. An example of an accessibility intervention is the introduction of culturally appropriate case management for individuals with HIV disease. Other interventions currently before the state legislature would establish a university-based center to eliminate health disparities and provide continuing medical education credit for cultural and linguistic competency.

### **STRUCTURAL BARRIERS**

One approach to policy analysis is to examine specific policies in light of established goals—in this case, the public

health goals of primary HIV prevention and access to HIV-related health care.<sup>17</sup> The determination of whether any given policy or structural intervention is a "barrier" or "facilitator" is a judgment that should be based on evidence. Unfortunately, appropriate research studies are often lacking.

We next identify a number of policies that impede effective HIV prevention and access to health care among Mexican migrants in California. To the extent that research is available, we have tried to summarize what is known.

#### **Proposition 187**

In 1994, 59% of California voters approved Proposition 187. Although ultimately struck down by the federal courts, it prohibited state and local governments from providing a broad range of services, including nonemergency health care services such as HIV primary care to anyone who could not affirmatively verify legal residence in the United States. Furthermore, agencies that determined a person was in the country illegally were obligated to report their finding to state and federal agencies, including the Immigration and Naturalization Service.

Proponents argued that the initiative would "end the illegal alien invasion" and "save our state".<sup>18</sup> They further argued that welfare, education, and medical benefits are the "magnets" that draw illegal immigrants to California and that the federal government had failed in its duty to control the nation's borders. Opponents countered that enforcing existing laws against illegal immigration was a more appropriate and effective response to the problem and argued that the denial of education, welfare, and health benefits would have serious consequences for the state in the future, with the costs of the initiative's verification requirements far exceeding any savings.

As a structural barrier, Proposition 187 operated at several levels. Its most direct effect, restricting the people to whom government offices could offer service, was meant for an organization level but was never enforced because of the successful legal challenges. The debate surrounding Proposition 187 may have created indirect environmental access barriers, however. Mexican immigrants were made to feel unwelcome and to fear possible reprisals if they sought health services. As such, Proposition 187 might have had deterrent effects even though the courts invalidated it.

Studies on this matter have produced mixed results. Researchers in San Francisco reported a 26% decrease in Latino clients' initiation of treatment at sites operated by the Division of Mental Health and Substance Abuse Services,<sup>19</sup> and a study at the largest county hospital in Los Angeles found a decrease in the use of ophthalmology services.<sup>20</sup> A statewide analysis of primary care clinics serving low-income populations found no significant decline in monthly visits, however, even though clinic directors perceived a deterrent effect.<sup>21</sup> It is not clear why the results of the studies diverged. Some have speculated

that the declines observed in selected services in San Francisco and Los Angeles may have been localized occurrences.<sup>21</sup>

Although Proposition 187 may or may not have had a deterrent effect on the use of health care services, it did have definitive political repercussions. The initiative served to mobilize the Latino community throughout California to become more politically active and assert its interests more aggressively. Thus, the longer term consequences of the initiative may have been more positive than negative for Mexican nationals in California.

### **Proposition 209**

In 1996, 54% of California voters approved another initiative, Proposition 209.<sup>22</sup> This measure, which has been upheld by the courts, prohibits government institutions, including schools and colleges, from giving preferential treatment to any individual or group in hiring, education, and contracting. It effectively terminated existing “affirmative action” programs that had benefited Latinos and other groups.

Proponents argued that discrimination on the basis of race is wrong and that the government should end such practices.<sup>23</sup> Their position was based on the premise that programs designed to ameliorate the effects of past bias ultimately prove to be discriminatory in practice and, consequently, generate resentment when the “less qualified are preferred.” Opponents countered that the initiative would eliminate many programs necessary to promote equal opportunity to disadvantaged groups and would bar outreach and recruitment efforts necessary to bring important services, such as health care, to targeted groups.

The health care barriers manifested in this act again operate at multiple levels. Most directly, at an organizational level, the initiative prohibits universities from considering race and ethnicity in admissions decisions. A negative impact on the training of Latino health care providers has already been observed. A report by the Center for California Health Workforce Studies found deleterious effects at all stages of the medical school application process.<sup>24</sup> From 1995 to 1998, there was a 25% reduction in the number of underrepresented minorities applying to medical schools in California, with Mexican-Americans accounting for most of the decline. Similarly, the number of minorities admitted to medical school in 1998 had declined by 30% from the all-time high in 1993 to 1994. Finally, the number of minorities enrolling in 1998 had dropped by 32% from a peak in 1993. Although decreases were not observed in admissions to California residency programs, the authors of the report noted that the long duration of medical education could result in a significant lag between the implementation of Proposition 209 and its impact on advanced training. The observed declines in the number of Latinos seeking and obtaining medical education are important because they eventually may lead to a reduction in Latino physicians in the

state, an environmental level change that can affect the availability and quality of health care to Mexican-Americans.

Yet another initiative, Proposition 227, was approved by 61% of California voters in 1998.<sup>25</sup> It ended bilingual education in favor of English-only public school instruction.<sup>26</sup> Although having less direct impact on public health, critics point out that in the context of the other ballot initiatives, this measure contributed to a perception that the Latino community was being blamed for a variety of the state’s problems in education, health care, the cost of government, and social cohesion.

### **Welfare Reform**

As part of the Personal Responsibility and Work Opportunity Reconciliation Act signed into law in 1996, noncitizens were divided in 2 categories: qualified and nonqualified aliens.<sup>27</sup> The latter category includes undocumented immigrants and individuals admitted legally for temporary purposes. These individuals are barred from most direct federal assistance. In contrast, qualified aliens (legal permanent residents, refugees, and individuals granted asylum) are potentially eligible for federal government assistance. A variety of restrictions limit the number of qualified aliens actually able to obtain assistance, however. For example, many legal permanent residents have to demonstrate that they have worked for 10 years or that they have a connection with the military (eg, active-duty service) to receive food stamps, Supplemental Security Income (SSI), Temporary Assistance to Needy Families (TANF), and Medicaid.

Welfare reform poses clear barriers at an organizational level by making important federal assistance legally unavailable to immigrants failing to meet eligibility requirements. Although some states, including California, have softened the impact by providing aid through their own funds, the symbolic importance of the reforms remains. The restrictions are an overt endorsement of a long-standing ideology that opposes admitting immigrants likely to become a “public charge”.<sup>27</sup> Welfare reform sends a clear message intended to discourage poor people from immigrating to the country.

### **HIV Immigration Ban**

In 1995, Congress enacted a statute placing HIV infection on the list of communicable diseases that bar entry into the country by immigrants or foreign nationals traveling to the United States. HIV had been on the list by administrative order, and President Clinton had proposed removing it. The arguments in favor of the law were the protection of US citizens’ health and a reduction in the burden of HIV care on federal and state budgets. Opponents argued that HIV was not a casually contagious disease and thus did not require exclusion in terms of travel. The exclusionary precedent was discriminatory, they said, and was decried internationally by scientists and advocates as harmful stigmatization and a hindrance to prevention. The travel ban has resulted in the International AIDS Society

disqualifying the United States as a host to the biannual International Conference on AIDS. There is no evidence that this policy has achieved its cost-saving objectives. The policy, however, serves as an organizational barrier, because the Immigration and Naturalization Service is required to screen all applicants for their HIV status as part of the legalization process.

The ban on immigration has had an effect on Mexican nationals living with HIV in California. In most cases, these effects operate on the environmental and organizational levels. For example, when Mexican nationals apply for legalization, they are required to undergo HIV testing. If they test positive, they are permanently excluded from entry into the United States, are ineligible for services in this country, and are subject to deportation. Thus, for those who have reason to believe they could be infected with HIV, the immigration policy can be a major deterrent to testing and a barrier to prevention and early intervention.

### STRUCTURAL FACILITATORS

Public policy makers also have undertaken interventions that enhance HIV prevention among Mexican migrants in California. Below, we identify a number of policies that facilitate effective HIV prevention and access to health care among this population.

#### Community Health Centers

The establishment of community and migrant health centers, recently reauthorized under Section 330 of the Health Centers Consolidation Act of 1996, is an example of a policy facilitator. These entities are intended to provide underserved rural and urban populations with access to family-oriented primary and preventive health care services. They emphasize community outreach and culturally appropriate care. As part of the War on Poverty, migrant health centers were created in 1962 and community health centers in 1965. Currently, there are 121 migrant health centers at more than 400 clinics nationwide (in California specifically, there are 17 migrant health centers and 107 clinics). Half of all patients served nationally are Latino. The community health center program has administered grants to more than 700 organizations that support more than 3000 clinics.

In California, this network of providers has been especially important to the Mexican migrant population. It is estimated that more than 90% of farm workers in rural California are Mexican-born and that roughly 70% of this population has no access to any kind of health insurance whatsoever. Migrant and seasonal farm workers have some of the most severe health problems of any population in the United States as a result of the confluence of poverty; poor diet; bad housing; and exposure to pesticides, infectious diseases, and weather extremes.<sup>28</sup> Moreover, health care services for all residents are scarce (and becoming more so) throughout rural California, even for those

with insurance. In urban areas, lack of insurance, low incomes, and other factors combine to make Mexican migrants particularly dependent on neighborhood health centers. As of 2002, Latinos comprised 34.8% of the patients at such clinics.<sup>29</sup> In addition, Mexican migrants frequently travel back and forth across the border, which can mean disruption in access to HIV medications, interrupted care, and choosing between being with family or being in care. Community health centers emphasize educating and counseling their clients about these difficult personal and practical issues.

#### Training Latino Health Professionals

Latino patients are more likely than white patients to report problems in communicating with their physician and to think that they have been treated with disrespect during a health care visit.<sup>30</sup> Diversity in the health care professions can help to rectify these problems. Some HIV clinics with predominantly Latino populations have built rapport and improved care by matching patients with providers from similar cultures.<sup>31</sup> Research has shown that Latino physicians are more likely to serve in areas with high percentages of Latino residents.<sup>32</sup> In addition, Latino patients report receiving more and better quality care if their physician is someone of the same ethnic group.<sup>33</sup> Thus, programs that seek to improve minority participation in health professions are interventions that serve to increase the acceptability and accessibility of important health services.<sup>34</sup> For example, the Health Resources and Services Administration (HRSA) is authorized to provide a number of programs to promote minority training opportunities. The future of these programs is threatened by potential cuts to nondefense domestic programs, however, and will ultimately be determined in annual federal budget deliberations.

#### AIDS Drug Assistance Program

The AIDS Drug Assistance Program (ADAP) is another example of a structural facilitator. Established in 1987, the program provides HIV-related drugs at no cost to uninsured and underinsured individuals with limited incomes. The program disproportionately assists Latinos in California. In 1998, Latinos constituted 23% of people living with AIDS but 32% of participants enrolled in the ADAP.<sup>35</sup> The program effectively changes the health care environment for HIV-infected low-income people around the country by removing the financial barriers to treatment. California has adopted a number of policies in terms of income eligibility, number of drugs covered, and number of participating pharmacies so as to increase access and reduce racial/ethnic disparities in the California ADAP compared with other states.<sup>36</sup>

#### Education and Outreach

Treatment, education, and outreach programs are excellent examples of accessibility interventions designed to increase Latino participation in health care. Many undocu-

mented individuals are not aware that they may qualify for services, including the ADAP. Language, cultural beliefs, and lack of family support may all be barriers to seeking or getting access to care in the migrant and recent immigrant communities. A strategy for overcoming these barriers is to fund directly community-based organizations working with migrant and Latino populations to correct misinformation and to link clients to culturally appropriate care. This approach has been used extensively in New York and to a lesser extent in California.<sup>36</sup> Unfortunately, evaluation data on these programs have not been collected.

### Language Access

Language access policies in California stand in sharp contrast to English-only initiatives. In 1973, the California legislature enacted the Dymally-Alatorre Bilingual Services Act, which requires all state agencies to provide language translation services if at least 5% of their clients speak a language other than English. In 1999, the State Bureau of Audits determined that departments were largely not in compliance with the act; legislation has been introduced calling for greater enforcement. Recently, the Mexican-American Legal Defense and Educational Fund (MALDEF) made passage of this enforcement legislation a top legislative priority, along with increased funding for agencies to assist with language access and to enforce the act. Advocacy has focused on requiring state agencies to develop long-term implementation plans to bring agencies into compliance with this law. These policies facilitate accessibility to health care and social services for Latino migrants.

## DISCUSSION

The structural barriers and facilitators outlined in this article demonstrate a growing tension in the politics of California and the nation as a whole. There is increasing debate about the role of race and ethnicity in official government policy. One ideologic position argues that the government must never consider a person's race or ethnicity in its allocation of services, because to do so is to encourage unequal treatment. It is through this perspective that initiatives banning affirmative action and requiring English-only instruction are passed. A related core belief argues that public policies are needed to discourage illegal immigration and to prevent non-citizens from becoming public charges.

An opposing core belief is that the government must continue to consider race and ethnicity in the distribution of its services. Only through targeted programming is society able to rectify fundamental inequalities brought on by the historical mistreatment of racial and ethnic minority groups as well as by extant prejudices. In addition, government consideration of race and ethnicity is considered essential to respond effectively

to racial and ethnic disparities in health outcomes. A related core belief is that protecting public health requires a strategy of expanding access and acceptability through engagement of racial and ethnic minority communities. It is through this philosophical lens that legislators enact programs to increase the number of underrepresented minorities in the health professions or to fund such programs as community health centers in minority neighborhoods.

Our analysis suggests that in California, policies identified as "barriers" have often been established by voter initiative, whereas those identified as "facilitators" have generally been acts of the legislature. The two avenues are distinctively different and suggest important lessons for future action. The initiative process is dominated by well-funded individuals and interest groups able to identify "hot button" public concerns and design proposals with widespread political and emotional appeal. Initiatives succeed because expensive media campaigns are able to appeal to large blocks of voters in the most populous and media-driven state. Acts of the legislature, however, are more likely to succeed if coalitions of interest groups are able to convince 1 or more legislators that a policy offers a worthwhile solution to an ongoing problem. Fact-based problem solving has a better chance of succeeding in a legislative setting than in a statewide political campaign; over the years, the California legislature has demonstrated a willingness to tackle public policy issues that affect the state's migrant population.

Principles of the advocacy coalition framework of policy analysis<sup>37</sup> are applicable and instructive here. The advocacy coalition that has come together to work for increased access for Mexican migrants, including increased language access and increased access to Latino providers and community outreach, includes direct advocacy organizations, legislators and relevant executive branch agencies, journalists or other media covering these issues for targeted communities, and mostly university-based researchers who provide much of the evidence documenting need. It is important to recognize that there also is an advocacy coalition representing the interests of those who wish to restrict immigration and share a core belief about limiting the size and scope of government. This coalition includes advocacy groups favoring lower taxes and restricted immigration, like-minded legislators and media targeting those receptive to these messages, and "think tanks" that generate facts and figures in support of the coalition policy objectives.

One principle of the advocacy coalition framework states that widely held core beliefs on major controversies such as illegal immigration tend to be stable over periods of at least a decade or so as reflected in California ballot initiatives.<sup>37</sup> Thus, the initiative process is likely to remain a playing field in which advocates for the interests of migrants are most likely to be on the defensive.

A second principle states that even when it is not possible to change widely held core beliefs of the general public, it is still possible to move key policy brokers, such as legislators, with evidence suggesting solutions to practical problems.<sup>37</sup> With fewer actors to convince and a greater likelihood that evidence can sway policy makers already familiar with issues such as lack of language access, the state legislature is an environment in which improvements in policies related to migration are more likely to be adopted. In California, moreover, the growing strength of the Latino vote has resulted in more representatives who are receptive to public policies that facilitate benefits for migrant groups.

A third principle states that a skilled exploitation of opportunities by advocacy coalitions is required<sup>37</sup> to accomplish the goals of the coalition. California has a substantial network of individuals and interest groups—employers, unions, legal aid service providers, and human rights groups, for example—capable of creating such advocacy coalitions. This principle stresses the importance of external mobilization for any legislative policy success.

Beyond the advocacy coalition framework, it also is important to consider “window of opportunity” issues.<sup>38,39</sup> From time to time, political, social, and economic circumstances come together to allow consideration of particular issues for a limited period. Often, budget imperatives are an important element of such windows of opportunity.

Advancement of the California–Mexico Initiative must take a long-term perspective. It may take 10 or more years to implement various policy options for accomplishing these public health goals. Almost all these options require resources, which means that advocacy must be considered in the context of larger budget debates. The success of this initiative requires taking advantage of strategic opportunities and the effective use of an advocacy coalition. Hopefully, a better understanding of this policy framework and the environment in which policies are developed can be useful in moving the agenda forward.

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