

HIV Health Care Services For Mexican Migrants

M. Rosa Solorio, MD, MPH,* Judith Currier, MD,† and William Cunningham, MD, MPH‡

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

(*J Acquir Immune Defic Syndr* 2004;37:S240–S251)

International studies indicate that migrants all over the world are at risk for acquiring HIV.¹ 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).² 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.³ 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.⁴ Among these Mexican AIDS cases, 71.9% were born in Mexico.⁴ Data from Mexico indicate that 6% of all AIDS cases are reported in rural areas.⁵ Among all rural AIDS cases in Mexico, it is estimated that 25% acquired the infection while working in the United States.⁶ 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.⁷ 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.⁴ 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.⁸ 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.⁹ Studies in rural areas of Mexico indicate that rural women are at higher risk for HIV than urban women.⁶ 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,

Received for publication June 2004; accepted September 2004.

From the *Department of Family Medicine, University of California, Los Angeles (UCLA), Los Angeles, CA; †Center for AIDS Research and Education, UCLA, Los Angeles, CA; and ‡Division of General Internal Medicine and Health Services Research, UCLA, Los Angeles, CA.

Funded by the Universitywide AIDS Research Program, California–Mexico AIDS Initiative. The California–Mexico AIDS Initiative was established in April of 2001, with the objective of addressing the HIV/AIDS, sexually transmitted disease, and tuberculosis needs of the Mexican migrant population throughout California and Mexico. The Initiative grew out of recent discussions between officials of the University of California and President Vicente Fox of Mexico and is part of a broader effort by the State of California and Mexico to improve the quality of life of Mexican migrant communities. The California–Mexico AIDS Initiative is sponsored by the Universitywide AIDS Research Program (2002) within the Office of Health Affairs at the University of California, Office of the President.

Reprints: Rosa Solorio, UCLA Department of Family Medicine, 10880 Wilshire Blvd., Suite 1800, Los Angeles, CA 90024-4142 (e-mail: RSolorio@mednet.ucla.edu).

Copyright © 2004 by Lippincott Williams & Wilkins

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,⁴ increased mortality from AIDS,^{10,11} and increased comorbidity with tuberculosis (TB).¹² 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.^{13,14} 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%).³ 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.¹⁵ Among Latino agricultural workers, the percentage of no insurance is greatest (70%).¹⁶ 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.¹⁵

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.¹⁵ 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.¹⁷ A recent study shows that only 7% of migrant laborers report being enrolled in any government program that serves low-income people.¹⁶ 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.⁷

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).³ Fear of exclusion, risk of deportation, and separation from family are daily obstacles in obtaining health services for Mexican migrants.¹⁸ 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.³ 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.¹⁹ In a study of patients hospitalized in Los Angeles with complications of HIV infection, the authors¹⁰ 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".¹⁷ 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.²⁰

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.²¹ Drug resistance can develop if the regimen is not taken as prescribed, and this reduces the efficacy of treatment.^{22,23}

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.²⁴ Increasing prevalence of resistance is a threat to individual and public health.²⁵ 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.²⁶ 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.²⁷

AIDS Drug Assistance Program

There is an AIDS Drug Assistance Program (ADAP; available at: 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.²⁸ 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.²⁹ 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.³⁰ In the HIV Costs and Services Utilization Study (HCSUS), Latinos with CD4 counts less than 50 cells/mm³ were much less likely than whites to receive prophylaxis for *Mycobacterium avium* complex.³¹

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 adherence³² and also has implications for quality of life now that HIV has become a chronic illness.³³ Depression and anxiety are reported as being common in Latinos living with HIV, with rates approaching 48% and 20%, respectively.³⁴ 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.³⁵ 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.³⁶ Case management has been shown to decrease unmet need for mental health.³⁷

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.³⁸ 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.³⁹⁻⁴³ Alcohol abuse, in particular, is common and increasing among Latinos in the United States.⁴⁴

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.³⁷ Having a case manager was associated with patients having these needs met and with receiving combination antiretroviral therapy at follow-up.⁴⁵ 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.⁴⁶⁻⁴⁸ 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.^{49,50} 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.⁵¹⁻⁵³ 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.⁵⁴ Current research also indicates that Latino/Spanish-speaking patients are more dissatisfied with physician communication than Latino/English speakers.⁵¹ These are among the issues addressed by the new emphasis on cultural competence in care.⁵⁵

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.^{56,57} 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.⁵⁸ 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.⁵⁹⁻⁶¹ In a national study, Latinos with HIV were more likely to be uninsured than whites.⁶¹ Not surprisingly then, Latinos are less likely than whites to receive regular outpatient care, more likely to visit the emergency department without needing hospitalization,⁶² and more likely to be hospitalized.⁶³ 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.⁶⁴

A study indicates that monolingual Spanish speakers are less likely than whites to be taking PIs⁵⁴ 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.⁶⁵ 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.⁶⁶

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.⁶⁷ 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),⁶⁸ HIV,⁶⁹ and TB⁷⁰ 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.⁷¹ 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.⁶⁸ Migrant men are known to have low rates of condom use,⁷² and this increases their chances of contracting STDs and HIV and transmitting these infections to others. STDs, such as *Chlamydia*, are common among Latinos.⁷³ *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.⁷⁴ 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.⁷⁴ 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.^{75,76} 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.¹⁰ A previous study of hospitalized patients with HIV and *Pneumocystis carinii* pneumonia (PCP) also found higher in-hospital mortality in Latinos than in whites.¹¹ 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.⁷⁷ Latinos living with HIV in California also have higher rates of comorbidity with TB compared with whites.¹² 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.¹⁹ 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.⁷⁸ 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.⁷⁹ Although national data indicate that TB cases are decreasing among the general US population, the opposite is true for cases among foreign-born Latinos.⁸⁰ 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).⁸¹ 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).⁸² This is primarily a result of the higher rates of infection with HPV.⁷¹ HPV and HIV are thought to interact in a significant way in increasing the risk for cervical cancer in women.⁸³ 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.⁸³ Women with HIV and cervical cancer have higher recurrences of cervical cancer after treatment and death rates than women who do not have HIV.⁸⁴ 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.⁸⁵

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.⁸⁶ International studies indicate that migrants all over the world are at risk for HIV.¹ 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.⁸⁷ 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.⁸⁸ 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.⁸⁹ 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.^{11,19,21} 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),⁵⁰ 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.⁸⁹

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".⁹⁰ 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.⁹¹ 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.⁸⁹ 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.²⁴ For HIV/AIDS patients, a treatment advocate could enhance communication between the physician and patient, improving HIV/AIDS-related information and adherence to medications.⁹² 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.⁹³ 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.⁹⁴ 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 population⁹⁵ 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.⁹⁶ 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 enrolled⁹⁷ 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.^{37,45} 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,⁹⁸ 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.⁹⁹ 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.¹⁰⁰ 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.¹⁰¹ This preeminent concern with equity is also reflected in the 2001 to 2006 Mexican National Health Program recently released by the Ministry of Health.¹⁰² 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”.¹⁰⁰

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.¹⁰³ 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.¹⁰⁴

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,¹⁰⁵ 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,⁹² 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),¹⁰⁶ 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.

REFERENCES

- Hunt CW. Migrant labor and sexually transmitted disease: AIDS in Africa. *J Health Soc Behav.* 1989;30:353–373.
- US Census. 2000 summary file 1. Available at: www.census.gov.
- Brown ER, Ponce N, Rice T, et al. The State of Health Insurance in California: Findings from the 2001 California Health Interview Survey. Los Angeles: UCLA Center for Health Policy; 2002.
- California Department of Health Services, Office of AIDS. Statistics include cases reported to the AIDS Case Registry as of March 1, 2001.
- CENSIDA, Secretaria de Salud. Available at: <http://www.cenids.ssa.gob.mx/conasida>. Accessed July 1, 2004.
- Magis-Rodríguez C, del Rio-Zolezzi A, Valdespino-Gomez JL, et al. AIDS cases in rural areas in Mexico. *Salud Publica Mex.* 1995;37:615–623.
- Aranda-Naranjo B, Gaskins S, Bustamante L, et al. La desesperacion: migrant and seasonal farm workers living with HIV/AIDS. *J Assoc Nurses AIDS Care.* 2000;11:22–28.
- Mason HR, Marks G, Simoni JM, et al. Culturally sanctioned secrets: Latino men's nondisclosure of HIV infection to family, friends, and lovers. *Health Psychol.* 1995;14:6–12.
- Salgado de Snyder VN, Diaz Perez M, Maldonado M. AIDS: risk behaviors among rural Mexican women married to migrant workers in the United States. *AIDS Educ Prev.* 1996;8:134–142.
- Cunningham WE, Mosen DM, Morales LS, et al. Ethnic and racial dif-

- ferences in long-term survival from hospitalization from HIV infection. *J Health Care Poor Underserved*. 2000;11:163–178.
11. Bennett CL, Horner RD, Weinstein RA, et al. Racial differences in care among hospitalized patients with *Pneumocystis carinii* pneumonia in Chicago, New York, Los Angeles, Miami, and Raleigh-Durham. *Arch Intern Med*. 1995;155:1586–1592.
 12. Department of Health Services, Division of Communicable Diseases. Report on Tuberculosis in California. 2000.
 13. Moore JW, Pachon H. Hispanics in the United States. Englewood Cliffs, NJ: Prentice Hall; 1995.
 14. Freeman P, Gomez-Dante O. Health Systems in an Era of Globalization: Challenges and Opportunities for North America. Washington, DC: Institute of Medicine; 1995.
 15. UCLA Center for Health Policy Research, The Henry J. Kaiser Family Foundation. Policy Research Report: Racial and Ethnic Disparities in Access to Health Insurance and Health Care. Los Angeles: UCLA Center for Health Policy Research, The Henry J. Kaiser Family Foundation; 2000:1–105.
 16. California Institute for Rural Studies. Suffering in Silence: A Report on the Health of California's Agricultural Workers. November 2000. Accessed at: www.calendow.org.
 17. Sun-Hee Park L, Yoo GJ. Impact of public charge on immigrant's women's access to Medi-Cal. (unpublished).
 18. Ruiz-Beltran M, Kamau JK. The socio-economic and cultural impediments to well-being along the US-Mexico border. *J Community Health*. 2001;26:123–132.
 19. Asch S, Leake B, Gelberg L. Does fear of immigration authorities deter tuberculosis patients from seeking care? *West J Med*. 1994;161:373–376.
 20. Mosen DM, Globe DR, Cunningham WE. AIDS in the twenty-first century: challenges for health services and public health. In: Changing the U.S. Health Care System: Key Issues in Health Services Policy and Management. 2nd ed. San Francisco: Jossey-Bass; 2001:224–260.
 21. US Department of Health and Human Services, Centers for Disease Control and Prevention, The Henry J. Kaiser Family Foundation Panel on Clinical Practices for Treatment of HIV Infection. Guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. *MMWR*. 1998;47(RR-5):43–82.
 22. Collier AC, Coombs RW, Schoenfeld DA, et al. Treatment of human immunodeficiency virus infection with saquinavir, zidovudine, and zalcitabine: AIDS Clinical Trials Group. *N Engl J Med*. 1996;332:1011–1017.
 23. Perelson AS, Newman AU, Markowitz M, et al. HIV-1 dynamics in vivo: virion clearance rate, infected cell life-span, and viral generation time. *Science*. 1996;271:1582–1586.
 24. Wenger NS, Gifford A, Liu HH, et al. Patient characteristics and attitudes associated with antiretroviral adherence [abstract 98]. Presented at the Sixth Conference on Retroviruses and Opportunistic Infections, Chicago, 1999.
 25. Wainberg MA, Friedland GH. Public health implications of antiretroviral therapy and HIV drug resistance. *JAMA*. 1998;279:1977–1983.
 26. Noring S, Dubler NN, Birkhead G, et al. A new paradigm for HIV care: ethical and clinical considerations. *Am J Public Health*. 2001;91:690–694.
 27. Roberts KJ. Physician beliefs about antiretroviral adherence communication. *AIDS Patient Care STDS*. 2000;14:477–484.
 28. Burger DM, Aarnoutse RE, Hugen PW. Pros and cons of therapeutic drug monitoring of antiretroviral agents. *Curr Opin Infect Dis*. 2002;15:17–22.
 29. US Public Health Service/Infectious Disease Society of America. Guidelines for the Prevention of Opportunistic Infections in Persons Infected with Human Immunodeficiency Virus, 2001. Accessed at: www.aidsinfo.nih.gov/guidelines/op-infection/01-112801.pdf.
 30. Cohn SE, Kamman E, Williams P, et al. Association of adherence to *Mycobacterium avium* complex prophylaxis and antiretroviral therapy with clinical outcomes in AIDS. *Clin Infect Dis*. 2002;34:1129–1136.
 31. Asch SM, Gifford AL, Bozzette SA, et al. Underuse of *Mycobacterium avium* complex and *Pneumocystis carinii* prophylaxis in the United States. *J Acquir Immune Defic Syndr*. 2001;28:340–344.
 32. Cheever LW, Wu AW. Medication adherence among HIV-infected patients: understanding the complex behavior of patients taking this complex therapy. *Curr Infect Dis Rep*. 1999;1:401–407.
 33. Cook JA, Cohen MH, Burke J, et al. Effects of depressive symptoms and mental health quality of life on use of highly active antiretroviral therapy among HIV-seropositive women. *J Acquir Immune Defic Syndr*. 2002;30:401–409.
 34. Soto T, Igaravidez M, Shman M, et al. Psychological profiles of inner city HIV infected African-American and Hispanic males [abstract ThD5165]. *Proceedings of the Int Conf AIDS*. 1996;11:429.
 35. Rotheram-Borus MJ. Variations in perceived pain associated with emotional distress and social identity in AIDS. *AIDS Patient Care STDS*. 2000;14:659–665.
 36. Burnam MA, Bing EG, Morton SC, et al. Use of mental health and substance abuse treatment services among adults with HIV in the United States. *Arch Gen Psychiatry*. 2001;58:729–736.
 37. Katz MH, Cunningham WE, Mor V, et al. Prevalence and predictors of unmet need for supportive services among HIV-infected persons: impact of case management. *Med Care*. 2000;38:58–69.
 38. Cunningham WE, Andersen RM, Katz MH, et al. The impact of competing needs for basic subsistence on access to medical care for persons with HIV receiving care in the United States. *Med Care*. 1999;37:1270–1281.
 39. Bing EG, Burnam MA, Longshore D, et al. Psychiatric disorders and drug use among human immunodeficiency virus-infected adults in the United States. *Arch Gen Psychiatry*. 2001;58:721–728.
 40. Galvan FH, Bing EG, Bluthenthal RN. Accessing HIV testing and care. *J Acquir Immune Defic Syndr*. 2000;25(Suppl 2):S151–S156.
 41. Katz MH, Douglas JM, Bolan GA, et al. Depression and use of mental health services among HIV-infected men. *AIDS Care*. 1996;8:433–442.
 42. Knowlton AR, Hoover DR, Chung SE, et al. Access to medical care and service utilization among injection drug users with HIV/AIDS. *Drug Alcohol Depend*. 2001;64:55–62.
 43. Millstein RA. The national impact of alcohol and drug problems and HIV infection and AIDS among the poor and underserved. *J Health Care Poor Underserved*. 1992;3:21–29; discussion 30–32.
 44. Caetano R, Clark CL. Trends in alcohol-related problems among whites, blacks, and Hispanics: 1984–1995. *Alcohol Clin Exp Res*. 1998;22:534–538.
 45. Katz MH, Cunningham WE, Fleishman JA, et al. Effect of case management on unmet needs and utilization of medical care and medications among HIV-infected persons. *Ann Intern Med*. 2001;135:557–565.
 46. Woloshin S, Bickell NA, Schwartz LM, et al. Language barriers in medicine in the United States. *JAMA*. 1995;273:724–728.
 47. Schur CL, Alberg LA. Language, sociodemographics, and health care use of Hispanic adults. *J Health Care Poor Underserved*. 1996;7:140–158.
 48. Estrada AL, Trevino FM, Ray LA, IV. Health care utilization barriers among Mexican Americans: evidence from HHANES 1982–84. *Am J Public Health*. 1990;80(Suppl):27–31.
 49. Katz MH, Bindman AB, Komaromy MS. Coping with HIV infection: why people delay care. *Ann Intern Med*. 1992;117:797.
 50. Mosen DM, Wenger NS, Shapiro MF, et al. Is access to medical care associated with receipt of HIV testing and counseling. *AIDS Care*. 1998;10:617–628.
 51. Morales LS, Cunningham WE, Brown JA, et al. Are Latinos less satisfied with communication by health care providers? *J Gen Intern Med*. 1999;14:409–417.
 52. Baker DW, Parker RM, Williams MV, et al. Use and effectiveness of interpreters in an emergency department. *JAMA*. 1996;275:783–788.
 53. Thomson GE. Discrimination in health care. *Ann Intern Med*. 1997;126:910–912.
 54. Bing EG, Kilbourne AM, Brooks RA, et al. Protease inhibitor use among a community sample of people with HIV disease. *J Acquir Immune Defic Syndr*. 1999;20:474–480.
 55. Lavizzo-Mourey R, Mackenzie ER. Cultural competence: essential mea-

- surements of quality for managed care organizations. *Ann Intern Med.* 1996;124:919–921.
56. Herek GM, Capitanio JP, Widaman KF. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991–1999. *Am J Public Health.* 2002;92:371–377.
 57. Valdiserri RO. HIV/AIDS stigma: an impediment to public health. *Am J Public Health.* 2002;92:341–342.
 58. Turner BJ, Cunningham WE, Duan N, et al. Delayed medical care after diagnosis in a US national probability sample of persons infected with human immunodeficiency virus. *Arch Intern Med.* 2000;160:2614–2622.
 59. Wortley PM, Chu SY, Diaz T, et al. HIV testing patterns: where, why, and when were persons with AIDS tested for HIV? *AIDS.* 1995;9:487–492.
 60. Poznansky MC, Coker R, Skinner C, et al. HIV positive patients first presenting with an AIDS defining illness: characteristics and survival. *BMJ.* 1995;311:156–158.
 61. Bozzette SA, Berry SH, Duan N, et al. The care of HIV-infected adults in the United States: results from the HIV Cost and Services Utilization Study. *N Engl J Med.* 1998;339:1897–1904.
 62. Shapiro MF, Morton SC, McCaffrey DF, et al. Variations in the care of HIV-infected adults in the United States. Results from the HIV Cost and Services Utilization Study. *JAMA.* 1999;281:2305–2315.
 63. Menke TJ, Rabeneck L, Wray NP. Ethnic differences in care for HIV-infected patients [abstract]. Association for Health Services Research. 1998;15:41.
 64. Cunningham WE, Markson LE, Andersen RM, et al. Prevalence and predictors of highly active antiretroviral therapy use in persons with HIV infection in the US. *J Acquir Immune Defic Syndr.* 2000;25:115–123.
 65. Gifford AL, Cunningham WE, Heslin KC, et al. Participation in research and access to experimental treatments by HIV-infected patients. *N Engl J Med.* 2002;346:1373–1382.
 66. Morales LS, Cunningham WE, Galvan FH, et al. Sociodemographic differences in access to care among Hispanic patients who are HIV infected in the United States. *Am J Public Health.* 2004;94:1119–1121.
 67. Betchel GA, Shepard MA, Rogers PW. Family, culture, and health practice among migrant health workers. *J Community Health Nurs.* 1995;2:15–22.
 68. Lopez R, Ruiz JD. Seroprevalence of human immunodeficiency virus type 1 and syphilis and assessment of risk behaviors among migrant and seasonal farmworkers in Northern California. Manuscript prepared for Office of AIDS, California Department of Health Services, 1995.
 69. HIV risk 10 times higher for migrant farmworkers. *Public Health Rep.* 1994;109:459.
 70. Schulte JM, Valway SE, McCray E, et al. Tuberculosis cases reported among migrants farmworkers in the United States, 1993–1997. *J Health Care Poor Underserved.* 2001;12:311–322.
 71. Giuliano AR, Papenfuss M, Schneider A, Nour M, et al. Risk factors for high-risk type human papillomavirus infection among Mexican-American women. *Cancer Epidemiol Biomarkers Prev.* 1999;8:615–620.
 72. Organista KC, Balls Organista P, Garcia de Alba G, et al. AIDS and condom-related knowledge, beliefs, and behaviors in Mexican migrant laborers. *Hispanic J Behav Sci.* 1996;18:392–406.
 73. Neu NM, Grumet S, Saiman L, et al. Genital chlamydial disease in an urban, primarily Hispanic, family planning clinic. *Sex Transm Dis.* 1998;25:317–321.
 74. Aitkins MC, Carlin EM, Emery VC, et al. Fluctuations of HIV load in semen of HIV-positive patients with newly acquired sexually transmitted diseases. *BMJ.* 1996;313:341–342.
 75. Cohen MS, Hoffman IF, Royce RA, et al. Reduction of concentration of HIV-1 in semen after treatment of urethritis: implications for prevention of sexual transmission of HIV-1. *Lancet.* 1997;349:1868–1873.
 76. Grosskurth H, Mosha F, Todd J, et al. Impact of improved treatment of sexually transmitted disease of HIV infection in rural Tanzania: randomized controlled trial. *Lancet.* 1995;346:530–536.
 77. Schneider E, Laserson KF, Wells CD, et al. Tuberculosis along the United States–Mexico border, 1993–2001 [La tuberculosis en la frontera mexicanoestadounidense]. *Rev Panam Salud Publica.* 2004;16:23–34.
 78. Porco TC, Small PM, Blower SM. Amplification dynamics: predicting the effect of HIV on tuberculosis outbreaks. *J Acquir Immune Defic Syndr.* 2000;28:437–444.
 79. Jones JL, Hanson DL, Dworkin MS, et al. HIV associated TB in the era of HAART [abstract 164]. Presented at the National HIV Prevention Conference, 1999.
 80. Jereb JA, Kelly GD, Dooley SW Jr, et al. Tuberculosis morbidity in the United States: final data, 1990. *MMWR CDC Surveill Summ.* 1991;40:23–27.
 81. Perlman DC, El-Helou P, Salomon N. Tuberculosis in patients with human immunodeficiency virus infection. *Semin Respir Infect.* 1999;14:344–352.
 82. Department of Health Services. *Cancer in California: 1998–1999.* Sacramento; Department of Health Services; 2001.
 83. Boccalon M, Tirelli U, Sopracordevole F, et al. Intra-epithelial and invasive cervical neoplasia during HIV infection. *Eur J Cancer.* 1996;32A:2212–2217.
 84. Maiman M. Management of cervical neoplasia in human immunodeficiency virus-infected women. *J Natl Cancer Inst Monogr.* 1998;23:43–49.
 85. Coughlin SS, Uhler RJ. Breast and cervical cancer screening practices among Hispanic women in the United States and Puerto Rico, 1998–1999. *Prev Med.* 2002;34:242–251.
 86. Siem H. Migration and health—the international perspective. *Schweiz Rundsch Med Prax.* 1997;86:788–793.
 87. Gomez CA, Marin BV. Gender, culture, and power: barriers to HIV-prevention strategies for women. *J Sex Res.* 1996;33:355–362.
 88. Francis DP, Anderson RE, Gorman ME, et al. Targeting AIDS prevention and treatment toward HIV-1-infected persons. The concept of early intervention. *JAMA.* 1989;262:2572–2576.
 89. Sendi P, Palmer AJ, Gafni A, et al. Highly active antiretroviral therapy: pharmacoeconomic issues in the management of HIV infection. *Pharmacoeconomics.* 2001;19:709–713.
 90. Joint United Nations Program on HIV/AIDS, World Health Organization. Prevention: applying the lessons learned, 2002. Available at: <http://www.unaids.org>.
 91. Berkman A. Confronting global AIDS: prevention and treatment [editorial]. *Am J Public Health.* 2001;91:1348–1349.
 92. Vallejo O, Donohoe T, Lewis CE. First national treatment advocates training for Mexican persons living with HIV/AIDS [abstract]. Presented at the International AIDS Conference, Barcelona 2002.
 93. Kelly JA, Somlai AM, DiFrancisco WJ, et al. Bridging the gap between the science and service of HIV prevention: transferring effective research-based HIV prevention interventions to community AIDS services providers. *Am J Public Health.* 2000;90:1082–1088.
 94. Davis C. Mobile health outreach project (MoHOP): reaching hard to reach at risk street youth [abstract WePeE4951]. *Proceedings of the Int Conf AIDS.* 2000;13.
 95. National Advisory Council on Migrant Health. *Losing Ground: The Condition of Farmworkers in America.* Bethesda: Department of Health and Human Services/Health Resources and Services Administration, Bureau of Primary Health Care, Migrant Health Branch; 1995.
 96. Komaromy M, Grumbach K, Drake M, et al. The role of black and Hispanic physicians in providing health care for underserved populations. *N Engl J Med.* 1996;334:1305–1310.
 97. Carlisle DM, Gardner JE, Liu H. The entry of underrepresented minority students into US medical schools: an evaluation of recent trends. *Am J Public Health.* 1998;88:1299–1300.
 98. Respass RA, Rayfield MA, Dondero TJ. Laboratory testing and rapid HIV assays: applications for HIV surveillance in hard-to-reach populations. *AIDS.* 2001;15(Suppl 3):S49–S59.
 99. Martinez JL, Licea Serrato J, Jimenez R, et al. HIV/AIDS practice patterns, knowledge, and educational needs among Hispanic clinicians in Texas, USA, and Nuevo Leon, Mexico. *Rev Panam Salud Publica.* 1998;4:14–19.
 100. Barranza-Llorens M, Bertozzi S, Gonzalez-Pier E, et al. Addressing in-

- equity in health and health care in Mexico. *Health Affairs*. 2002;21:47–53.
101. World Health Organization. World Health Report 2000, Health Systems: Improving Performance. Geneva: World Health Organization; 2000.
 102. Ministry of Health. National Health Program 2001–2006. The Democratization of Health in Mexico: Towards a Universal Health System. Mexico City: Ministry of Health; 2000.
 103. CURE-TB. A binational tuberculosis referral program. Available at: www.curetb.org. Accessed September 30, 2002.
 104. Centers for Disease Control and Prevention. Preventing and controlling tuberculosis along the US–Mexico border. *MMWR Recomm Rep*. 2001;50(RR-1):1–27.
 105. Pan American Health Organization/World Health Organization. International Training on HIV/AIDS and STD. University of Washington, Center for Health Education and Research. Seattle, WA.
 106. Universitywide AIDS Research Program. Research initiatives and awards. California–Mexico AIDS Initiative. Available at: <http://www.ucop.edu/srphome/uarp>.