

Heading South

Why Mexican Immigrants in California Seek Health Services in Mexico

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Objectives: To identify factors that explain why some Mexican immigrants in California use health services in Mexico.

Methods: California Health Interview Survey 2001 data were analyzed for medical care, dental care, and/or prescription drug purchases in Mexico in the previous year. Logistic regressions estimated the effect on use of need, availability, accessibility, and acceptability among immigrants from Mexico.

Results: An estimated 952,000 California adults used medical, dental, or prescription services in Mexico during the past year, of whom 488,000 were Mexican immigrants. Long-stay Mexican immigrants had the highest rate (15%), followed by short-stay Mexican immigrants (11.5%), US-born Mexican Americans (5.4%), and US-born nonLatino whites (2.1%). Predictors of use by immigrants included need, no insurance, delay seeking care, more recent immigration, limited English, and nonphysician provider use. Living closer to the border increased use, although half of immigrants seeking services lived more than 120 miles from the border. Mexican immigrants with long stays in the US have a somewhat different pattern of predictors from those with short stays.

Conclusions: Mexican immigrants are the most likely to seek medical, dental, and prescription services in Mexico. A large number, but small percentages, of US-born nonLatino whites purchase prescription drugs there. Although proximity facilitates use, access and acceptability barriers in the US medical care system encourage immigrants to seek care in Mexico who would be helped by expanded binational health insurance.

Key Words: cross-border health care, access to care, Mexican-origin population, prescription drugs, dental care, language access, uninsured, immigrants

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Mexicans are the largest group of immigrants in the US. They encounter problems with accessing health care services because of a lack of health insurance and accessible providers, language and cultural barriers, immigration status, and inadequate information.^{1–3} Immigrants who experience difficulty in accessing regular medical services use different strategies to obtain needed care, including self-medicating, using home remedies, and seeking care from traditional and alternative healers.^{4–6} They also seek care in Mexico.

No definitive research exists on US residents who travel to Mexico for health services although there are many anecdotal reports and local studies on the subject.⁷ A review of studies on migration for health care across the 3 NAFTA countries (Mexico, the United States, and Canada) found that US residents seek health care, dental care, and pharmaceuticals in Mexico primarily because those services cost less in Mexico than in the US. These studies were based primarily on key informant, small, or nonrepresentative samples.⁸ A probability sample of Latino households in the border city of Laredo, Texas, found 41.2% used physician services in Mexico.⁹ Other small studies have found that US residents seek services in Mexico because of convenience, more personalized and culturally synchronous care, and lower costs.^{10–15}

How often immigrants in the US seek health care services in Mexico, and why, are particularly relevant issues for California. California has the nation's largest Mexican immigrant population,¹⁶ and the California-Mexico border has the second highest traffic volume of all border states.¹⁷ Among Latinos at a health fair in Los Angeles County, 120 miles from the Mexican border, 28% had crossed the border for medications and 14% for medical care. Medication-seeking (90%) and medical care-seeking (80%) respondents, respectively, had no health insurance coverage.¹⁸ A survey of emergency room users in San Diego, California, found that 7% had purchased prescription medications outside the United States in the past year, primarily in Mexico. Most cited lower cost as the rationale and over one-third did not use a prescription to obtain the medications.¹⁹ And a study of border crossers in San Diego estimated that 250,000 crossings per month involved medical or pharmaceutical purchases.²⁰

Since 2000, several private insurance companies and 1 employer group have developed binational health insurance plans to cover California workers who use Mexican medical facilities,^{21,22} covering an estimated 150,000 California work-

ers.²³ Some of those covered live in Tijuana and commute to San Diego to work, whereas others live and work in California near the border.

This study identifies the scope and covariates of health-related service use in Mexico by Mexican immigrants living in California. Most transnational health care research invokes a simple model that includes the assumption that most people cross the border for health care because of cost.⁷ Although this may be accurate for US citizens seeking uninsured cosmetic surgery or prescription drugs, we suggest a more complex set of sociocultural factors are at work for Mexican immigrants. First, there must be a perceived need to motivate use.²⁴ The choice of provider is based on the availability (distance), accessibility (ability to use available provider), and acceptability (patient perception of technical and interpersonal quality) of the known set of providers.²⁵ We hypothesized that seeking care in Mexico (either in addition to, or instead of in the United States) would be associated with the availability of care in Mexico and the accessibility and acceptability of care in the United States.

METHODS

Data are from the 2001 California Health Interview Survey, a state-wide random digit dial survey of over 55,000 households. Interviews were conducted in several languages, including English and Spanish. The overall response rate, using the conservative AAPOR RR4 methodology, was 37.7%, comparable with other telephone health surveys such as the U.S. Centers for Disease Control's (CDC's) Behavioral Risk Factor Surveillance Survey. The sampling distributions by race, Latino ethnicity, and income closely match Census data.²⁶ The analysis used data weighted to account for nonresponse. Complete descriptions of the survey and methodology can be found at <http://www.chis.ucla.edu/methods.html>. The data were collected and analyzed with approval of the UCLA Institutional Review Board.

We used the adult sample that included a randomly selected respondent aged 18 and over from each sampled household, resulting in 5310 Mexican immigrant, 3171 US-born Mexican American, and 31,818 US-born nonLatino white respondents. As a population-based survey, this sample both generalizes to the state and captures a representative set of characteristics of the population.

Our dependent variables were whether respondents sought medical care, dental care, or prescription drugs in Mexico. Respondents were asked "During the past 12 months, did you go to another country, such as Mexico or any other country," for each of these services. Those who answered yes were asked the country they went to—we included respondents who answered "Mexico." No other questions were asked about the care they received in Mexico.

Our independent variables included health care needs, availability, accessibility, and acceptability of services. We choose need indicators associated with doctor visits and prescription drug use,^{27–29} or dental care services,³⁰ including self-reported health (poor versus excellent, very good, good, fair), one or more chronic condition (arthritis, asthma, diabetes, hypertension, heart disease), psychological distress (feeling

downhearted and sad during the previous month), and one or more doctor visits in the past year (for doctor and prescriptions only). We accounted for unmeasured health needs in part by age and age-squared. Gender was included because both health care need and use varies by gender, especially for women of child-bearing ages. We examined bivariate analyses to assure sufficient variation among variables. For example, among Mexican immigrants reporting doctor visits, 7% reported medical care and 7% reported prescription purchases in Mexico. Among immigrants reporting no doctor visits, 3% reported medical care, and 4% reported prescription purchases in Mexico, indicating sufficient independence for analysis.

We determined the availability of medical care in Mexico by the respondent's distance to the border. We calculated straight line distances to the border from the center of the respondent's zip code. We coded distance as 0 to 15 miles, 15.1 to 100 miles, and 100.1 miles and up to facilitate our interpretation of the effects of distance on availability. The categories were based on the federal recommendation that primary care be 30 minutes or less away.³¹ The categories of approximately 2 hours, and further, were determined empirically from bivariate analyses.

For accessibility, we chose variables that indicated lack of access to services in the United States either because of financial or other barriers, including no insurance for medical care, dental care, or prescriptions drugs; family income below the federal poverty level; having no usual source of care; and reporting a delay or not obtaining needed medical care or prescription drugs (delayed dental care was not asked). We included education (0–8 vs. 9 or more years) as a proxy for understanding how to navigate the US medical care system, in addition to being correlated with material resources. Marital status (not being married vs. married) can be an access barrier due to limitations on transportation, lack of encouragement to seek care, and restricted social networks. Citizenship can be a proxy for immigration status.

Acceptability includes a match between patient and provider cultures. Because knowledge of the US medical care system and acculturation level rise with the length of stay in the country,³² we measured acceptability by length of residence in the US and English proficiency. Immigrants who spend 15 years or longer in the US are highly unlikely to return to Mexico to live and have the cultural and knowledge resources of settlers rather than sojourners,³³ so we dichotomized length of stay into short-stay (<15 years) and long-stay (≥15 years). These intervals also allowed for variation among short-stay immigrants in language and citizenship status, and have been used by other studies of immigration and health care.³⁴ English ability is the most commonly used indicator of acculturation and it also indicates the need for Spanish-language providers.³² Respondents were coded as limited-English proficient (LEP) if they reported speaking a language other than English at home and reported not speaking English well or at all. We also included a variable on respondents who reported talking to any kind of health person other than a medical doctor as another indicator of cultural orientation.

We expected that length of US residency would change the pattern of predictors because long-stay immigrants would

have higher levels of cultural acquisition and knowledge of US medical services. We therefore added interaction terms of years living in the US with other availability and accessibility variables. Distance to the border was also interacted with no usual source of care because we hypothesized that having a usual source would make immigrants more distance sensitive to alternatives in Mexico. Data were analyzed in STATA using SVY to account for the study design.

RESULTS

Mexican immigrants were 15% of California's adult population, but were 80% of adults who obtained medical care and 51% with any health-related service (medical, dental, prescription drug) in Mexico (Table 1). The proportion of long-stay immigrants (≥ 15 years in United States) who used any health service in Mexico was the highest of all groups, closely followed by short-stay immigrants. Service use by US-born Mexican Americans was less than half the rate of immigrants and that of US-born nonLatino whites was under half the rate of Mexican Americans. Dental care was the most common service obtained by immigrants, whereas US-born Mexican-Americans and nonLatino whites most commonly obtained prescription drugs. Because Mexican immigrants had higher health care use across the border and used a different mix of services, subsequent analysis focused only on this population.

Short- and long-stay Mexican immigrants differed in most variables. Compared with long-stay immigrants, short-stay immigrants had lower rates of need in all areas except the distress indicator (Table 2). Short-stay immigrants were more often women. The availability of services in Mexico was similar as indicated by the 2 groups living the same distance from the border. Accessibility of US care was worse for short-stay immigrants compared with long-stay immigrants because of their higher rates of uninsurance (for all 3 services), poverty, no usual source of care, noncitizenship, and

lower marriage rate. The 2 immigrant groups were similar in having relatively low levels of reported delays in seeking medical care and prescription drugs.

Separate multivariate logistic regressions modeled the independent effects of health care need, availability, accessibility, and acceptability on seeking medical care and dental care, and purchasing prescription drugs in Mexico. The distress indicator was the only need variable that was associated with all services (Table 3). Poor self-reported health reduced the odds of obtaining medical care or prescription medications in Mexico, whereas chronic conditions and physician visits independently increased the odds. Being male increased the odds of cross-border dental care. Increasing age was associated with dental care and prescription drug purchases in Mexico, but not medical care. The relationships were nonlinear; the inverse relationship with age-squared indicated that the older the immigrant, the less effect for each additional year of age.

Availability was independently associated with the use of all 3 services. Distance from the border had a strong effect, with a pronounced drop off in crossing the border among immigrants living over 15 miles from the border for medical care and prescription drugs and for those living more than 100 miles from the border for dental care.

Multiple accessibility indicators were associated with immigrants obtaining care in Mexico. Not having health insurance increased the odds of going to Mexico for all 3 services. Poverty was not associated with medical care or prescription drugs, but reduced the use of dental care in Mexico. Not having a usual source of (medical) care reduced the odds of crossing the border for medical care but increased the odds of obtaining prescriptions. Immigrants who reported a delay in obtaining needed medical care or prescription medicines had higher odds of seeking care in Mexico than those without delays. Those with low education were less likely to cross the border for all types of care. Immigrants

TABLE 1. Travel to Mexico for Medical Care, Dental Care, or Prescription Drug Purchase in Past Year by California Adults Age 18 and Older, 2001

	Mexican Immigrants in the US <15 yr (Sample n = 2511)	Mexican Immigrants in the US >15 yr (Sample n = 2799)	US-born Mexican Americans (Sample n = 3171)	US-born NonLatino Whites (Sample n = 31,818)	Total Population* (Sample n = 56,270)
Population size (in thousands)	1967	1748	1655	11,291	24,606
Percent with medical care in Mexico past yr (95% CI)	5.2 (4.3, 6.2)	6.2 (5.2, 7.4)	1.4 (0.9, 2.3)	0.1 (0.0, 0.1)	1.1 (0.9, 1.3)
Estimated population (1000s)	102	108	23	8	264
Percent with dental care in Mexico past yr (95% CI)	6.7 (5.5, 8.1)	9.0 (7.6, 10.6)	1.6 (1.0, 2.4)	0.2 (0.2, 0.3)	1.5 (1.3, 1.7)
Estimated population (1000s)	131	155	26	24	372
Percent with prescription drugs in Mexico past yr (95% CI)	5.6 (4.6, 6.9)	6.4 (5.3, 7.8)	3.6 (2.8, 4.6)	1.9 (1.7, 2.1)	2.4 (2.2, 2.7)
Estimated population (1000s)	110	112	59	213	600
Percent with any of the above in Mexico past yr (95% CI)	11.5 (10.0, 13.1)	15.0 (13.2, 17.1)	5.4 (4.4, 6.5)	2.1 (1.8, 2.3)	3.9 (3.7, 4.1)
Estimated population seeking any care in Mexico (1000s)	225	263	89	232	952

*Includes populations not otherwise shown in the table, including African Americans, Asians, and immigrants other than Mexicans.
CI indicates confidence interval.

TABLE 2. Characteristics of Recent (<15 Year) and Long-Stay (>15 Year) Mexican Immigrants Ages 18 and Over, California 2001

	Mexican Immigrants in the US <15 yr (n = 2511)	Mexican Immigrants in the US >15 yr (n = 2799)
Need	%	%
Self-assessed poor health	2.1 (1.4, 3.0)	6.8 (5.5, 8.3)
One or more of 5 chronic conditions	19.6 (17.5, 21.8)	38.7 (36.3, 41.2)
Felt sad or down any last mo	60.7 (58.0, 63.2)	55.1 (52.6, 57.5)
Mean age (95% CI)	31.6 (31.1, 32.1)	44.2 (43.6, 44.9)
Male	49.2 (46.5, 51.9)	54.2 (51.7, 56.7)
Any physician visit past yr	67.0 (65.6, 68.3)	74.5 (73.2, 75.9)
Availability	%	%
<15 miles from Mexican border	4.8 (3.8, 6.2)	5.8 (4.8, 7.1)
15.1–100 miles from Mexican border	20.2 (15.7, 20.2)	15.6 (13.6, 17.8)
Lives 100.1 or more miles from Mexican border	78.0 (76.2, 76.9)	78.6 (76.3, 80.8)
Median miles to Mexican border	121 miles	119 miles
Accessibility	%	%
Uninsured for medical care	51.5 (48.8, 54.1)	29.3 (27.0, 31.6)
Uninsured for dental care	77.6 (75.3, 79.8)	51.6 (49.1, 54.1)
Uninsured for prescription drugs	68.8 (66.3, 71.2)	39.2 (36.8, 41.7)
Poverty income or less	41.9 (40.1, 43.8)	33.5 (31.1, 35.9)
No usual source of care	35.8 (33.2, 38.5)	19.2 (17.3, 21.3)
Delay in medical care	8.4 (7.1, 10.0)	8.5 (7.2, 9.9)
Delay in prescription drugs	2.9 (2.1, 3.9)	5.6 (4.7, 6.8)
Eighth grade or less	45.1 (42.4, 47.8)	51.5 (49.0, 54.0)
Not married	54.1 (51.4, 56.8)	67.7 (65.3, 70.1)
Noncitizen	90.6 (88.9, 92.1)	49.9 (47.4, 52.4)
Acceptability	%	%
Limited English proficiency not well/not at all (vs. very well, well)	81.7 (79.4, 83.7)	62.3 (60.2, 64.7)
Used any nonphysician provider	8.2 (6.9, 9.7)	13.9 (12.3, 15.6)

who were married had higher odds than single, divorced, and widowed immigrants to use Mexican medical and dental care. Finally, noncitizens were less likely than citizens to obtain medical care and prescriptions in Mexico. Noncitizens had a higher odds ratio than citizens for dental care, but when the interaction term was included (see later) the net effect was that short-stay noncitizens had a lower odds than short-stay

citizens and that citizenship had no effect for long-stay immigrants.

Acceptability also influenced the odds of using services in Mexico. Short-stay immigrants had much higher odds than long-stay immigrants of traveling to Mexico for all services. LEP was independently associated with seeking Mexican medical and dental care, but not prescriptions. Nonmedical provider service use predicted seeking care in Mexico for all 3 services.

Interaction effects showed that short-stay Mexican immigrants were influenced differently from long-stay immigrants by several predictors. Being uninsured increased the odds of using Mexican medical care for both short- and long-stay immigrants, with the odds significantly smaller for short-stay immigrants. LEP increased the odds of seeking dental care in Mexico for long-stay immigrants while non-citizenship decreased the odds for short-stay immigrants. Finally, LEP reduced the odds of obtaining medications in Mexico for short-stay immigrants while experiencing a delay in obtaining medications increased the odds for long-stay immigrants. The interaction of distance to the border with no usual source of care for medical care indicated that although farther distance decreased the overall odds of seeking cross-border care, the effect of usual source of care on the odds of heading south for medical care was larger with greater distance from the border (over 15 miles). Fewer years in the US decreased the likelihood of traveling to Mexico for dental care for those living 15 to 100 miles from the border compared with those living closest to the border.

DISCUSSION

Almost one-half million Mexican immigrant adults living in California were estimated to have traveled to Mexico for medical care, dental care, or prescription drugs, half of whom traveled over 120 miles to do so. Consistent predictors of seeking cross-border care included living near the border (ie, availability of care in Mexico), having no health insurance (accessibility barriers in the US), and acceptability issues. These findings suggest health-related services in Mexico serve as an important safety valve for significant numbers of Mexican immigrants in California who face accessibility and acceptability barriers.

Health status needs, including self-reported health, is strongly associated with physician and other medical care use in the US among Mexican immigrants.³⁵ But in this analysis, self-reported poor health modestly reduced the likelihood of seeking medical care and prescription medications in Mexico, whereas chronic conditions increased it. One explanation is that immigrants with the worst self-reported health may have been too sick to travel to Mexico. Immigrants with common chronic conditions often need ongoing medical attention where the interpersonal quality of care in Mexico may have been more important and they may have been healthy enough to travel for care.³⁶ Gender was not associated with medical or prescription drugs in Mexico, despite higher needs by women of reproductive ages. California's Medicaid coverage for all low-income pregnant women, regardless of immigration status lowers accessibility barriers, and immigrant women's

TABLE 3. Logistic Regression, Predictors of Cross Border Medical Use, Dental Use, and Prescription Drug Purchase in Past Year, Mexican Immigrants Ages 18 and Over, California 2001

	Medical Care in Mexico Odds Ratio (95% CI)	Dental Care in Mexico Odds Ratio (95% CI)	Prescription Drug Purchase in Mexico Odds Ratio (95% CI)
Need			
Poor self-reported health	0.72* (0.58, 0.90)	0.74 (0.39, 1.37)	0.62 [†] (0.42, 0.93)
Any of 5 chronic conditions sad or down any last mo	1.83 [‡] (1.52, 2.21)	1.12 (0.90, 1.39)	1.88 [‡] (1.51, 2.34)
Age	1.38 [‡] (1.19, 1.60)	1.27* (1.16, 1.39)	1.48 [‡] (1.31, 1.68)
Age-squared (×100)	1.04 (.99, 1.09)	1.08* (1.05, 1.11)	1.07 [‡] (1.04, 1.10)
Male	0.96 (0.92, 1.01)	0.93* (0.90, 0.96)	0.94* (0.90, 0.97)
Any physician visits past year	1.09 (0.96, 1.23)	1.32 [‡] (1.24, 1.41)	1.02 (0.86, 1.20)
	2.99 [‡] (2.34, 3.84)	—	1.65 [‡] (1.29, 2.10)
Availability			
Lives 15.1–100 miles from Mexican border (vs. 0–15 miles)	0.20 [‡] (0.17, 0.23)	0.84 (0.69, 1.01)	0.31 [‡] (0.23, 0.43)
Lives 100+ miles from Mexican border (vs. 0–15 miles)	0.14 [‡] (0.12, 0.16)	0.26 [‡] (0.22, 0.32)	0.16 [‡] (0.12, 0.20)
Accessibility			
Uninsured for medical care	4.61 [‡] (3.88, 5.47)		
Uninsured for dental care		3.01 [‡] (2.56, 3.42)	
Uninsured for prescription drugs			2.30 [‡] (1.91, 2.77)
Poverty income or less	0.97 (0.85, 1.12)	0.71* (0.612, 0.82)	0.81 (0.646, 1.01)
No usual source of care	0.44* (0.26, 0.72)	1.01 (0.90, 1.13)	1.24 [†] (1.02, 1.51)
Delay in care (medical or prescription)	1.66* (1.28, 2.16)		4.60 [‡] (3.73, 6.29)
Eighth grade or less education	0.64 [‡] (0.54, 0.76)	0.56 [‡] (0.51, 0.61)	0.65 [‡] (0.56, 0.74)
Not married	1.54 [‡] (1.32, 1.81)	1.21 [†] (1.08, 1.36)	0.95 (0.81, 1.12)
Noncitizen	0.72* (0.57, 0.90)	1.26 [†] (1.07, 1.49)	0.79 [†] (0.64, 0.96)
Acceptability			
Less than 15 yr in the United States	2.58 [‡] (1.81, 3.67)	4.50 [‡] (3.39, 5.97)	2.00 [‡] (1.48, 2.70)
Limited English proficiency: not well/ at all (vs. very well, well, only English)	2.13 [‡] (1.65, 2.74)	2.96 [‡] (2.52, 3.49)	1.17 (0.90, 1.52)
Used any nonphysician provider	1.54 [‡] (1.38, 1.72)	1.79 [‡] (1.54, 2.07)	1.54* (1.18, 2.00)
Interactions			
Uninsured (x) <15 yr in United States	0.41 [‡] (0.30, 0.56)		
Limited English proficiency (x) <15 yr in US	0.53 [‡] (0.42, 0.68)	0.41* (0.29, 0.58)	0.55 [‡] (0.40, .76)
Noncitizen (x) <15 yr in US		0.38 [‡] (0.31, 0.47)	
Delay in prescription (x) <15 yr in US			0.17 [‡] (0.118, 0.250)
15.1–100 miles to border (x)	(No USC) 5.66 [‡] (2.36, 13.60)	(<15 yr US) 0.36* (0.23, 0.56)	
100+ miles to border (x)	(No USC) 3.39 [‡] (1.99, 5.78)	(<15 yr US) 0.73 (0.50, 1.05)	

(x) Indicates an interaction effect between the variable before and after the (x).

* $P < 0.01$; $^{\dagger}P < 0.05$; $^{\ddagger}P < 0.001$.

desires to deliver their babies in the US for citizenship purposes adds an incentive to remain in California.³⁷

Although distance to the border, indicating availability of care in Mexico, was associated with use of services in Mexico, many Mexican immigrants hundreds of miles from the border reported seeking cross-border care. They may have made opportunistic or emergency use of health services during vacations and other trips back to Mexico. In other words, some Mexican immigrants may have crossed the border for reasons other than seeking services such that service use was incidental to the initial purpose of their visit. An early study of health care among Mexican immigrants in San Diego found that about half of care received in Mexico

was in the nearby border town of Tijuana and half in the immigrants' other hometowns and elsewhere.³⁸ The interaction effects with distance indicated that Mexican immigrants who lived farther from the border had a greater odds of seeking medical care in Mexico if they had no usual source of care, suggesting that some long-distance travel to Mexico that included medical care was motivated in part by health care needs.

Accessibility barriers to US health care decreases Mexican immigrants' US health care use.^{1,39} Our findings suggest that the uninsured displaced some care to Mexico where it was cheaper, although the effect was weaker for medical care among short-stay immigrants. Poverty's lack of effect on medical or prescriptions may have been due to the costs of

travel to Mexico offsetting the financial savings of that travel. Delay in seeking care, marital status, and noncitizen had the predicted effects. When including the interaction effects, no usual source of care also increases the use of medical care in Mexico, but the effect may be larger away from the border if some who are close to the border consider care in Mexico as their usual source.

The acceptability of available US care also influenced seeking cross-border care. LEP significantly predicted use of services that involved extensive interpersonal contact (medical and dental), but not more retail-style purchases (prescriptions). This can be due to simple communications barriers with US providers or by a deeper cultural congruence with providers in Mexico. Use of nonphysician providers may be a function of respondents seeking out alternatives to allopathic medical care due to culture, or it could be another indicator of need.

We found that short-stay Mexican immigrants were less likely than long-stay immigrants to seek services south of the border in the descriptive data. After controlling for covariates, however, short-stay immigrants had 2 to 4 times greater odds of using services in Mexico, which may be driven by a greater familiarity with services in Mexico and a lack of awareness of options for low cost care in California. In fact, short- and long-stay immigrants differed in several predictors of seeking care in Mexico which suggests that short-stay is also another proxy for undocumented status. LEP probably increased the odds of going to Mexico services only for long-stay immigrants because those immigrants were more likely to have immigration papers which made it easier to obtain linguistically matched care. Non-LEP increased the odds for prescription drugs only for short-stayers; recent immigrants with good English abilities may be more likely to have immigration documents. Similarly, the lower odds of travel to Mexico for short-stay immigrants who are uninsured for medical care, live further from the border for dental care, and delay seeking prescriptions are all consistent with an immigration barrier explanation. The cost and/or risk of detection is high for undocumented immigrants attempting to return to California after visiting Mexico; a disproportionate number of recent immigrants do not have immigration documents that would allow them easier passage across the border.⁴⁰ Thus, immigration status for short-stay immigrants may be a greater barrier for obtaining medical services in Mexico than in the United States where the perceived risk of detection is less given the availability of storefront and other private providers in Mexican immigrant communities.⁴¹

At the time of this survey, it is likely that few respondents had insurance coverage for the care they received in Mexico because cross-border health insurance in California had just begun. The significant numbers of immigrants crossing the border for services and the barriers they faced in accessing services in the United States, suggest that cross border health insurance might improve the ability of some Mexican immigrants to access care in Mexico. The accessibility and acceptability features of existing cross-border

plans—lower cost, access to Spanish language, and Mexican culturally consistent care²¹—are consistent with the factors associated with seeking care in this study. Cross-border plans have had only a modest success when marketed to employers at the border.²³ However, a recent study found that Mexican immigrants had a high willingness to pay out-of-pocket for lower-cost family insurance that used public sector (vs. private) facilities in Mexico.⁴² For binational insurance to expand it will likely need: (a) to change from the more expensive private sector to less expensive public sector providers in Mexico, (b) be subsidized to make it more affordable, or (c) be offered through an employer mandate. The last 2 approaches are consistent with efforts to expand coverage in California.⁴³

There are several factors that have likely affected the dynamics of border crossing for health care since the 2001 data reported here was collected. The introduction of binational private health insurance, noted above, will have promoted border crossing. In addition, Mexico initiated a new health insurance program that is fully-subsidized for low-income Mexicans, Seguro Popular.⁴⁴ Immigrants from Baja Mexico who retain that coverage after migrating to California would have an increased incentive to return for care in Mexico. The significant tightening of the US-Mexico border after 2001, however, would have made it significantly more difficult and expensive for undocumented immigrants to seek care in Mexico.⁴⁵ The net effect has probably increased the ability of documented Mexican immigrants to seek care in Mexico and decreased the ability of undocumented immigrants to seek care south of the border.

The limitations of this study include its cross-sectional design, telephone administration, and limited variables on the health care services sought in Mexico. The cross-sectional design makes it impossible to identify causation. The telephone design, while weighted to account for homes without telephones, is likely to under represent migrant farm workers who might seek services in Mexico.⁴⁶ However, farm labor is a relatively small part of the total Mexican immigrant labor force in California,⁴⁷ creating a slightly conservative bias in our analysis. Some of our variables are proxies. For example, we did not have data on immigration status and used citizenship status as a proxy. Because a substantial number of Mexican noncitizens are undocumented, we expect the effect of citizenship was driven largely by the undocumented.¹ Nevertheless, our results likely underestimated the effect of undocumented status.

Similarly, language is a commonly used yet widely critiqued proxy for acculturation,⁴⁸ in addition to being an indicator of communication barriers. With better measures, we would expect to find stronger effects, making our current findings conservative. The most significant limitation is that we only have data on whether the respondent received any care in Mexico. It would be useful to know the purpose of the health care visit(s) and the frequency, location, and payment method of the visit(s). Additional data would allow us to understand care-seeking behaviors for chronic versus acute conditions and the broader set of issues important for the Mexican immigrant population in accessing US health care services.

CONCLUSIONS

Mexican immigrants comprised the largest group of California adults that traveled to Mexico for health-related care. Services in Mexico provided a more financially accessible and culturally acceptable alternative source of care for many. Although financial barriers were clearly an important factor in seeking care south of the border, cultural acceptability, and immigration factors also appear to be independent factors. Although our study focused on California's Mexican immigrant population, the results have implications for Mexican immigrants in other border states as well since the circumstances of availability, accessibility, and acceptability are likely to be similar in all border states.²¹ To the extent that there are cultural advantages to immigrants receiving care in Mexico, health care expansion proposals currently being debated in the state and nation should consider including coverage of cross-border care. Fostering additional cross-border relationships may take significant investments of time and effort given the professional, administrative, and cultural barriers to these kinds of health care collaborations,⁴⁹ but would help meet an existing need.

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REFERENCES

- Ortega AN, Fang H, Perez VH, et al. Health care access and utilization among undocumented Mexican and other Latino adults. *Arch Intern Med*. 2007;167:2354–2360.
- 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.
- Wallace SP, Gutiérrez VF, Castañeda X. Access to preventive services for Adults of Mexican Origin. *J Immigr Minor Health*. In press.
- Belliard JC, Ramirez-Johnson J. Medical pluralism in the life of a Mexican immigrant woman. *Hisp J Behav Sci*. 2005;27:267–285.
- Chávez LR. Doctors, curanderos, and brujas: health care delivery and Mexican immigrants in San Diego. *Med Anthropol Q*. 1984;15:31–37.
- Reichman JS. *Immigration, Acculturation, and Health*. New York, NY: LFB Scholarly Publishing LLC; 2006.
- Horowitz MD, Rosensweig JA. Medical tourism—health care in the global economy. *Physician Exec*. 2007;33:24.
- Rosenau PV. Migration for medical care and pharmaceuticals: a research note on the NAFTA countries. *Soc Sci Q*. 1997;78:578–592.
- Landeck M, Garza C. Utilization of physician health care services in Mexico by US Hispanic border residents. *Health Mark Q*. 2002;20:3–16.
- Guendelman S. Health care users residing on the Mexican border. What factors determine choice of the US or Mexican health system? *Med Care*. 1991;29:419–421.
- Homedes N, Chacon Sosa F, Nichols A, et al. Utilization of health services along the Arizona-Sonora border: the providers' perspective. *Salud Publica de Mexico*. 1994;36:633–645.
- Tabet SR, Wiese WH. Medications obtained in Mexico by patients in Southern New Mexico. *South Med J*. 1990;83:271–273.
- Escobedo L, Cardenas V. Utilization and purchase of medical care services in Mexico by residents of the United States of America, 1998–1999. *Rev Panam Salud Publica*. 2006;19:300–305.
- Casner PR, Guerra LG. Purchasing prescription medications in Mexico without a prescription—the experience at the border. *West J Med*. 1992;156:512–516.
- Pylypa J. Latino immigrants: self-medication practices in two California Mexican communities. *J Immigr Minor Health*. 2001;3:59–75.
- US Census Bureau. *State and Metropolitan Area Data Book: 2006*. Washington, DC: US Department of Commerce, US Census Bureau; 2007.
- US Department of Transportation. Table 1 to 45 US-Mexican Border Land-Passenger Gateways: Entering the United States (Updated December 2006). 2006. Available at: http://www.bts.gov/publications/national_transportation_statistics/html/table_01_45.html.
- Macias EP, Morales LS. Crossing the border for health care. *J Health Care Poor Underserved*. 2001;12:77–87.
- de Guzman GC, Khaleghi M, Riffenberg RH, et al. A survey of the use of foreign-purchased medications in a border community emergency department patient population. *J Emerg Med*. 2007;33:213–221.
- Warner DC. *Health and Medical Care in San Diego and Tijuana: Prospects for Collaboration*. La Jolla, CA: University of California, San Diego Extension; 1999. Briefing Paper.
- Warner DC, Schneider PG. *Cross-Border Health Insurance: Options for Texas*. Austin, TX: University of Texas; 2004.
- Shanahan K. Western Growers Association. In: Warner DC, Schneider PG, eds. *Cross-Border Health Insurance: Options for Texas*. Austin, TX: University of Texas; 2004:67–77.
- Darce K. *Binational Insurance a new Frontier in Health Coverage*. La Jolla, CA: Copley News Service; 2007.
- Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav*. 1995;36:1–10.
- Wallace SP, Villa VM. Equitable health systems: cultural and structural issues for Latino elders. *Am J Law Med*. 2003;29:247–268.
- UCLA Center for Health Policy Research. The CHIS 2001 Sample: Response Rate and Representativeness. Los Angeles, CA: UCLA Center for Health Policy Research; 2003. Technical Paper No 1.
- Verbrugge LM, Patrick DL. Seven chronic conditions: their impact on US adults' activity levels and use of medical services. *Am J Public Health*. 1995;85:173–182.
- National Center for Health Statistics. *Health, United States, 2007*. Hyattsville, MD: National Center for Health Statistics; 2007.
- Rohrer JE. Medical care usage and self-rated mental health. *BMC Public Health*. 2004;4:3.
- Jansson H, Lindholm E, Lindh C, et al. Type 2 diabetes and risk for periodontal disease: a role for dental health awareness. *J Clin Periodontol*. 2006;33:408–414.
- Designation of Health Professional(s) Shortage Areas. Washington, DC: US GPO; 2007:34–52.
- Lara M, Gamboa C, Kahramanian MI, et al. Acculturation and Latino Health in the United States: a review of the literature and its sociopolitical context. *Annu Rev Public Health*. 2005;26:367–397.
- Reyes BI. *Dynamics Of Immigration: Return Migration To Western Mexico*. San Francisco, CA: Public Policy Institute of California; 1997.
- Thamer M, Richard C, Casebeer AW, et al. Health insurance coverage among foreign-born US residents: the impact of race, ethnicity, and length of residence. *Am J Public Health*. 1997;87:96–102.
- Berdahl TA, Kirby JB, Stone RAT. Access to health care for nonmetro and metro Latinos of Mexican Origin in the United States. *Med Care*. 2007;45:647–654.
- Blanchard J, Nayar S, Lurie N. Patient-provider and patient-staff racial concordance and perceptions of mistreatment in the health care setting. *J Gen Intern Med*. 2004;22:1184–1189.
- Fuentes-Afflick E, Hessol NA, Bauer T, et al. Use of prenatal care by hispanic women after welfare reform. *Obstet Gynecol*. 2006;107:151–160.
- Chavez LR, Cornelius WA, Jones OW. Mexican immigrants and the utilization of US health services: the case of San Diego. *Soc Sci Med*. 1985;21:93–102.
- Zuniga E, Wallace SP, Berumen S, et al. *Mexico-United States Migration: Health Issues*. Los Angeles, CA: UCLA Center for Health Policy Research; 2005.
- Passel JS. Size and characteristics of the unauthorized migrant population in the US. 2006. Available at: <http://pewhispanic.org/files/reports/61.pdf>. Accessed July 21, 2008.
- Perkes C. *Cash-Only Medical Clinics A Popular Alternative for Those Without Insurance*. Santa Ana, CA; The Orange County Register; 2006.
- Bustamante AV, Ojeda G, Castaneda X. Willingness to pay for cross-border health insurance between the United States and Mexico. *Health*

- Affairs*. 2008;27:169–178.
43. Sack K. *California Takes Big Step Toward Universal Health Care*. New York City, NY; New York Times; 2007:25.
 44. Gakidou E, Lozano R, Gonzalez-Pier E, et al. Assessing the effect of the 2001 to 2006 Mexican health reform: an interim report card. *Lancet*. 2006;368:1920–1935.
 45. Fuentes J, L'Esperance H, Pérez R, et al. Impacts of US immigration policies on migration behavior. In: Cornelius WA, Lewis JM, eds. *Impacts of Border Enforcement on Mexican Migration: The View from Sending Communities*. Boulder, CO: Lynne Rienner Publishers; 2006.
 46. Villarejo D. The health of US hired farm workers. *Annu Rev Public Health*. 2003;24:175–193.
 47. Wallace SP, Castaneda X, Guendelman S, et al. *Immigration, Health and Work: The Facts Behind the Myths*. Los Angeles, CA: UCLA Center for Health Policy Research; 2007.
 48. Abraido-Lanza AF, Armbrister Adria N, Florez Karen R, et al. Toward a theory-driven model of acculturation in Public Health Research. *Am J Public Health*. 2006;96:1342–1346.
 49. Homedes N, Ugalde A. Globalization and health at the United States-Mexico border. *Am J Public Health*. 2003;93:2016–2022.