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ABSTRACT

Immigrants arrive in the U.S. with better than average health which declines over time. Access to clinical preventive services can prevent or delay some of that decline. This analysis documents barriers in access to preventive services for recent Mexican immigrants, longer-term Mexican immigrants, and U.S. born adults of Mexican. Contrary to political debates about Mexican immigrants overusing health services, the analysis finds that immigrants in the U.S. for less than 10 years were the least likely to receive preventive care services, even after adjusting for other predictors. Longer-term immigrants were more similar to U.S.-born Mexican Americans in preventive service use rates, who in turn had lower rates than U.S.-born non-Latino whites. Demographics, socioeconomic status and other resources attenuated but did not eliminate all inequities. Among Mexican immigrants, monolingual Spanish speaking immigrants were least likely to have had appropriate preventive services. The persistent gap in preventive service use across all subgroups of adults of Mexican origin suggests potential structural barriers to receiving appropriate care.

Keywords: Emigration and Immigration, Hispanic Americans, Health Promotion, Health Services Accessibility, Preventive Services

INTRODUCTION

Research has documented that immigrants arrive in the U.S. with better health than persons born in the United States, despite their low levels of education, income, and health insurance.(1-3). This “health capital” declines over time and generation.(4) There are multiple determinants of health that could influence this decline, one of which is clinical preventive health services. Clinical preventive services can prevent or detect health problems early and are an important tool to slow or stop health declines.(5) Timely and appropriate access is necessary for preventive services to be effective in avoiding the early onset of chronic disease and disability. The determinants of access to preventive services thus becomes an important issue for immigrant health.

Over one-third of all immigrants to the U.S in the past 10 years were born in Mexico.(6) Not only do Mexicans comprise a substantial proportion of the total recent immigrant population, but Mexican immigrants also account for a significant proportion (40%) of the 27 million Mexican Americans in the United States.(7) While there is a relatively large literature on Latino health (3,4,8) and a modest literature on immigrant health (9,10), there is relatively little research on the health services use of Mexican immigrants. The U.S.-Mexico border health commission, in an article on border health, noted that “Data on Latino populations were considered a proxy for Mexican-Americans and people of Mexican origin in California, because more specific data are not available. (p.137)”(11)

The U.S. Preventive Services Task Force has established evidence-based guidelines for many preventive care screenings.(5) Six preventive services can be used as indicators of the appropriate receipt of basic preventive services: adults (age 18 and older) visiting a doctor every two years, adults receiving a dental exam annually, women (ages 18 to 64) getting a Pap smear

test in the past three years, women (age 40 and older) getting a mammogram in the past two years, men and women (age 50 and older) ever getting a colorectal cancer test, and older adults (age 65 and older) getting an annual flu shot.

Visiting a primary care doctor is the first step toward receiving recommended preventive screenings. Regular primary care visits are also a necessary first step for obtaining regular risk assessment and counseling about smoking, physical activity, nutrition, alcohol, and sexually transmitted diseases.(5) Research on ambulatory care use finds that Latinos are less likely than non-Latino whites to have any ambulatory care visit in the past year, with Mexican Americans having the lowest use even after accounting for sociodemographic differences.(12,13) Annual dental screenings are another preventive service that can have significant pay-offs in health and decreased costs where Latinos have lower rates than non-Latino whites(14) and Mexican-American adults fare the worst.(15)

Research on Latino use of clinical preventive services is heavily focused on cancer screenings and usually does not analyze nativity or length of residence.(16-20) Latinas are consistently found at the univariate level to be less likely than non-Latina whites to have had a mammogram, with sociodemographic variables accounting for much of the difference(17,20,21) Research in California found that after controlling for sociodemographic and access characteristics, foreign-born Latinos were as likely to receive mammography services as non-Latino whites.(22) Colorectal cancer screening (sigmoidoscopy, colonoscopy, or proctoscopy) is also lower among Latinos than non-Latino whites, even after controlling for sociodemographics.(23,24) A study that anlyzed English and Spanish speaking Latinos separately found lower rates only among Spanish speakers after controlling for covariates.(20)

Influenza immunizations reduce hospitalizations and deaths among persons age 65 and older.(25) Older Latinos are less likely to receive an annual influenza immunization even after controlling for health insurance status in most,(26,27) but not all studies.(20)

Health insurance coverage and having a usual source of care are well recognized as important predictors of use of preventive medical care.(28-30) Limited English proficiency (LEP) is also a barrier to preventive service utilization.(31,32) After controlling for socioeconomic factors, insurance status, and usual source of care, research on barriers to preventive care suggests that nativity (i.e. foreign birth) may explain some of the remaining disparities in receipt of preventive care services,(22,33) although this work does not separately analyze length of residence from acculturation or language measures(34). In addition, those living in rural locations have been found to be less likely to receive recommended preventive care services.(35)

METHODS

Data are from the public use file of the 2000 U.S. National Health Interview Survey (NHIS), which included an over sample of Latinos.(36) The 2000 NHIS was a face-to-face survey administered using computer-assisted personal interviewing (CAPI) that obtained a 72.1% response rate for adults. The protocol for using this data was approved by the UCLA Office for the Protection of Research Subjects.

Dependent variables include six dichotomous measures of preventive care that are coded to indicate an undesirable situation (no receipt of preventive service) so that the risk factors read in a logical direction for describing barriers. We examine: no physician visit in the past 2 years for adults age 18 and older, no dental exam in the past year for adults age 18 and older, no Pap smear in the past three years for women ages 18 to 64 excluding women who had a hysterectomy

or cervical cancer, no mammogram in the past 2 years for women are 40 and older, no colorectal exam for adults age 50 and older, and no flu shot in the past year for older adults age 65 and older.

Independent variables include nativity and length of residence in the United States. Nativity was constructed using questions regarding Latino or Hispanic origin, U.S. birthplace, and place of birth. Those reporting Mexican origin and U.S. birthplace were coded as Mexican American. Those reporting Mexican origin and Mexican birthplace were coded as Mexican immigrant. Those with Mexican origin and other than U.S. or Mexican birthplace were excluded. For immigrants, length of residence was divided into recent immigrants (residing in the U.S. 0-9 years) and longer-term immigrants (residing in the U.S. 10 or more years). In some analyses the sample size is too small and length of residence is collapsed into a single immigrant category. The reference group is those reporting U.S. birthplace, not Latino or Hispanic origin, and white race (non-Latino white). Access to care variables are any health insurance versus no health insurance and reporting a usual source of care (excluding the regular use of an emergency room) versus no usual source of care.

Spanish language dominance is a continuous variable created from seven questions about the language the person speaks most often, spoke as a child, reads, speaks to friends, watches television, listens to radio, and thinks. The responses were Spanish only, mostly Spanish, Spanish and English the same, mostly English and only English. This question was asked only of persons reporting Latino or Hispanic origin. Those reporting that they spoke a language other than Spanish or English were dropped from the analysis. There was almost no overlap in the language variable between recent immigrants and U.S. born Mexican Americans, so we examine

the effect of language acculturation only among immigrants and dichotomize the variable for those who were Spanish-only on all items (monolingual Spanish) versus others.

Logistic regressions are used to assess determinantes of receiving preventive services. In addition to the variables described above, control variables include age, age-squared (to account for nonlinear relationships), gender (male versus female), poverty level (below 0.99 poverty ratio versus 1.00 and above), education level (eighth grade or less versus ninth grade or more), marital status (not married versus married), and rural residence (metropolitan statistical area under 250,000 versus 250,000 or more). For doctor visit only, self-assessed health (excellent, very good, good, fair, or poor) is included as a control variable.

Descriptive and logistic regression confidence intervals are adjusted to take into account the complex sample design of the NHIS. All analyses were performed using SPSS 13.0 and the complex sample module.

RESULTS

Consistent with other research on Mexican immigrants to the U.S.,(37) the recent Mexican immigrant adult sample (in the U.S. for under 10 years) was comparatively young, male, primarily urban, and with limited education (Table 1). Almost three-quarters had no health insurance, half had no usual source of care, and one-quarter had incomes under the federal poverty line. Compared to long-stay immigrants, recent immigrants younger; have a similar gender, education, and rural distribution; and are more likely to be unmarried, Spanish speaking only, and living in poverty. Self-assessed health status is better for recent immigrants than the other Mexican-origin groups at the univariate level, but is similar for recent immigrants, long-stay immigrants, and U.S.-born Mexican Americans when age is controlled for (data not shown). U.S.-born Mexican Americans' characteristics are in-between long-term Mexican immigrants

and U.S.-born non-Latino whites in their poverty status, insurance coverage, and having a usual source of care. They are closer to U.S.-born non-Latino whites in their very low rate of speaking only Spanish, low rates of having less than high school education, and in having more females than males (Table 1).

(INSERT TABLE 1 HERE)

The bivariate pattern of not receiving preventive services follows the socioeconomic differences between the four groups. Medical visits, dental visits, and pap smears are least common among recent Mexican immigrants, with longer-term immigrants and U.S.-born Mexican Americans having intermediate rates, and U.S.-born non-Latino whites having the best rates (Table 2). The sample sizes for mammogram, colorectal screening, and influenza immunizations are too small to separate recent from long-term immigrants. The combined immigrant group has the highest rates of not receiving those services, followed by U.S.-born Mexican Americans, and U.S.-born non-Latino whites having the lowest. The largest absolute difference between groups is in receipt of dental services in the past year where 70.3% of recent Mexican immigrants received no services compared to 32.5% of non-Latino whites. The smallest difference is in pap smears where 33.5% of recent immigrants did not receive the test in the past three years compared to 12.7% of non-Latino whites.

(INSERT TABLE 2 HERE)

A series of logistic regressions identify the net effect of immigration and length of residence on preventive service use (Table 3). The base model, with only nativity (Model 0), shows that all Mexican-origin groups are more likely to not receive preventive services than U.S.-born non-Latino whites, except for mammography where the U.S.-born Mexican American difference is not statistically significant. When controlling for sociodemographic characteristics

(Table 3, Model 1) all of the odds ratios fall, but recent Mexican immigrants continue to be more likely to not receive preventive services, except for influenza immunization where the difference is no longer statistically significant. The sociodemographic controls reduce the difference between U.S.-born nonLatino whites and U.S.-born Mexican Americans below statistically significant levels for mammogram, colorectal exam, and influenza immunizations.

(INSERT TABLE 3 HERE)

When controlling for both socioeconomic factors and access to care variables (Table 3, Model 2), the odds ratios fall further, especially for recent immigrants, creating a more uniform pattern in the odds of not receiving preventive services for U.S.-born non-Latino whites and the three Mexican American groups. The access to care variables significantly predict all preventive services, with having no usual source of care particularly important in the odds of having a doctor visit in the past two years and in having a mammogram in the past two years.

An analysis of the Mexican immigrant subsample identifies the effect of language ability. The unadjusted model (Table 4, Model 0) shows that recent immigrants have a higher odds of not receiving four preventive services than longer-stay immigrants. Model 1 includes sociodemographic controls and a variable for using only Spanish for speaking, reading, thinking, and radio/TV. Net of sociodemographic variables, being monolingual Spanish increases the odds of not receiving the preventive services. Length of stay in the U.S. also remains significant for doctor visits and dental exams, but is no longer statistically significant for pap smears and mammograms. Similar to the model that included U.S.-born adults (Table 3), the Mexican immigrant subsample shows a strong effect for no usual source of care for the four preventive services and an insurance effect for doctor and dentist visits (Table 4, Model 2). Unlike the sample that included U.S.-born adults, insurance status has no effect on receipt of mammography

screenings for the immigrant group and does not reach significance for pap smears. In the full model that includes access to care variables, monolingual Spanish continues to significantly increase the odds of not receiving a mammogram or Pap smear, but falls below significance for doctor and dental exams. The focal relationship of interest, length of stay for Mexican immigrants, is no longer significant except for doctor visit.

(INSERT TABLE 4 HERE)

DISCUSSION

The Mexican American population includes significant numbers of both recent and long-term immigrants in addition to those born in the U.S. with Mexican origin. The variation in nativity and length of residence has a substantial impact on the use of preventive services which is largely, but not entirely, explained by socioeconomic differences between the subgroups. Even after controlling for sociodemographic and access to care characteristics, recent immigrants have the worst rates of doctor and dentist visits, Pap smears, and colorectal exams. While having health insurance and a usual source of care did not eliminate most disparities in preventive service use, they did have a substantial impact on several services. Among Mexican immigrants, having a usual source of care was a significant predictor of all four of the subset of services examined, while health insurance was significant in only two. The U.S. Centers for Disease Control's National Breast and Cervical Cancer Early Detection Program (NBCCEDP) for low-income and uninsured women may be reaching enough Mexican immigrants to dilute the insurance but not the usual source of care effects.(38) Insurance continues to predict cervical and breast cancer screening in the broader population that includes U.S. born women in a broader income range, including those not poor enough for NBCCEDP but with incomes limited enough to be sensitive to insurance. A substantial amount of political effort has been put into expanding

health insurance to improve access to care, but this analysis also supports the importance of a usual source of care as an independent key target for improving access to preventive services,(39,40) especially for immigrants.

Longer-stay immigrants have better odds of receiving preventive services than recent immigrants, although this advantage attenuates when language usage is included in the model. While language use is often used as a proxy for acculturation,(41) not speaking English can also create communications barriers that independently reduce preventive health services.(42) More recent immigrants may also be more likely to be in linguistically isolated households, which can further isolate newcomers from services.(43)

The remaining differences in preventive service use between the Mexican American groups and U.S.-born Non-Latino whites could be the result of cultural differences in beliefs and values, and/or structural differences in the design and operation of the medical care system.(44,45)

Unmeasured cultural characteristics that could reduce all Mexican Americans' preventive service use could include issues such as fatalistic attitudes about disease(18,46), inaccurate or discouraging beliefs about causes of preventable conditions(47), and/or a low priority on preventive services.(18) In Mexico, where breast and cervical cancer are also leading cancer-related causes of death,(48) many women have limited knowledge about preventive cancer screenings and many are screened only after symptoms emerge.(49)

There are also probably unmeasured structural barriers for Mexican Americans, such as a shortage of health services that are available, accessible, and/or acceptable.(27,50-52) Long distances to services can discourage routine care, health insurance can have high co-payments that reduce the financial accessibility of services, and a shortage of culturally competent

providers can interfere with a quality provider-patient relationship that promotes acceptability. Even for those with a regular source of care, Latinos experience less continuity of care than non-Latino whites.(53)

The convergence (but not elimination) of differences in the odds of not receiving preventive services between the three Mexican American groups when all covariates are included suggests that acculturation alone is not the primary factor in preventive service use since U.S.-born Mexican Americans are much more acculturated than recent Mexican immigrants. Differences remain for several preventive health services between Mexican Americans and U.S.-born non-Latino whites, independently of nativity and years in the U.S. This disparity suggests more fundamental barriers to preventive services exist for all adults of Mexican origin, in addition to the barriers of not having insurance, not having a usual source of care, and, for immigrants, not speaking English.

There are several limitations to this study. The data relied on self-reported receipt of preventive screenings, creating a potential for recall bias although the services measured are unlikely to have differential recall bias by group since they are difficult to receive without the recipient's knowledge. As a cross sectional survey, it is impossible to know whether long stay immigrants differ because of their length of stay (causation) or because those who returned to Mexico were different than those who remained (selection). There is no information available on the documentation status of immigrants, which has been shown to impact access to health care as well as shape behavior regarding using health facilities for routine care.(54) The supply of medical care is also likely distributed differently to those living in ethnic enclaves versus other areas, but neighborhood-level data was not available. Finally, future studies should expand the

diseases of interest by examining blood pressure tests, cholesterol screenings, wellness exams (counseling) and HA1c examinations for diabetic patients.

This analysis provides an important new analysis of preventive service use by documenting that a range of preventive service use varies among the Mexican American population based independently on their nativity, years in the U.S, and language ability. By examining a range of preventive services, the analysis avoids confounding cultural issues such as modesty that might reduce some types of cancer screening with more generalized structural issues. Reducing system-level barriers is a viable approach to reducing the Mexican immigrant gradient in receipt of preventive care. Access to a usual source of care is a first step to reduce disparities, independently of the important goal of expanding health insurance. A usual source of care can be promoted by actively linking individuals to “medical homes,” such as community health centers, where persons receive all their usual care. This has been demonstrated to improve the use of preventive services by the uninsured.(55) Furthermore, linguistic barriers influence screening and point to the need for culturally and linguistically appropriate preventive care service delivery.

The current political climate facing immigrants is hostile. It is important to not ignore the reality that Mexican immigrants are a growing part of the social fabric of the United States and that Latinos have become the largest minority group in the county. Mexican immigrants, as well as other immigrants to the U.S., come with health capital that slowly declines with time spent in the United States. It is in the best interest of all U.S. residents if national policy works towards maintaining the health capital of Mexican immigrants and towards helping maintain that good health in the second generation and beyond by assuring equitable access to preventive services.

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Table 1: Sociodemographic characteristics of Persons age 18 and older by Nativity and Length of Residence, NHIS 2000

	Mexican Immigrants in the U.S. < 10 (n=572)		Mexican Immigrants in the U.S. ≥ 10 (n=608)		U.S. born Mexican Americans (n=903)		U.S. born Non-Latino whites (n=22,858)	
	Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)
Age, continuous	31.4	(30.18, 32.53)	42.05	(41.06, 43.04)	39.7	(38.26, 40.08)	46.4	(46.03, 46.71)
Self -reported health status, (1=Excellent … 5=Poor)	2.17	(2.07, 2.27)	2.41	(2.32, 2.49)	2.30	(2.24, 2.36)	2.15	(2.13, 2.17)
	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
Male (vs. Female)	53.2	(48.6, 57.7)	55.4	(51.3, 59.4)	46.8	(43.4, 50.2)	48.0	(47.2, 48.8)
Spanish only (vs. Other)	46.5	(41.1, 52.1)	27.4	(23.9, 31.2)	2.2	(1.5, 3.1)	-	-
Poor (≤ 0.99) (vs. 1 or more)	24.9	(20.7, 29.7)	18.6	(15.9, 21.7)	13.6	(11.5, 16.1)	5.5	(5.1, 5.9)
8th grade or less (vs. 9th grade or more)	50.9	(45.2, 56.7)	48.4	(44.9, 52)	9.7	(8.0, 11.6)	3.7	(3.3, 4.0)
Not Married (vs. Married)	37.6	(32.6, 42.9)	22.5	(20.1, 25.2)	38.5	(35.8, 41.2)	33.3	(32.5, 34.2)
MSA is Under 250, 000 (vs. 250, 000 or over)	13.4	(9.4, 18.7)	14.2	(9.7, 20.7)	19.4	(14, 26.1)	35.8	(33.8, 37.9)
Uninsured (vs. Insured)	73.0	(69.1, 76.5)	42.5	(38.7, 46.4)	26.8	(24, 29.8)	10.9	(10.4, 11.5)
No usual source of care (vs. Usual Source of Care)	55.2	(50.1, 60.2)	30.7	(27.2, 34.3)	21.5	(18.9, 24.5)	11.5	(10.9, 12.1)

Table 2: Report of No Receiving Preventive Screening Testing, NHIS 2000

	% (#) Who Reported Not Having Preventive Test			
	Mexican Immigrants in the U.S. <10 N=572 (95%CI)	**Mexican Immigrants in the U.S. ≥ 10 N=608 (95%CI)**	**U.S. born Mexican Americans N=903 (95%CI)**	**U.S. born non-Latino Whites N=22,858 (95%CI)**
No MD visit past 2 years, age 18+	37.4 (33.1, 41.9) (n=206)	22.0 (19.0, 25.3) (n=132)	16.0 (13.4, 18.9) (n=143)	7.3 (6.9, 7.7) (n=1652)
No dental exam past year, age 18+	70.3 (66.0, 74.2) (n=388)	56.4 (52.6, 60.1) (n=339)	50.0 (46.4, 53.6) (n=448)	32.5 (31.6, 33.5) (n=7,336)
No pap smear past 3 years, women ages 18-64	33.5 (26.2, 41.6) (n=73)	20.0 (16.3, 24.3) (n=43)	21.1 (17.3, 25.5) (n=77)	12.7 (11.8, 13.7) (n=951)
	Mexican Immigrants, All N= 11,080 (95%CI)		**U.S. born Mexican Americans N= 903 (95%CI)**	**U.S. born non-Latino Whites N= 22,858 (95%CI)**
No mammogram past 2 years, women ages 40 & older	50.6 (44.6, 56.2) (n=90)		33.8 (28.0, 40.1) (n=66)	28.1 (26.8, 29.5) (n=1,876)
No pap smear past 3 years, women ages 18-64	26.8 (22.3, 31.8) (n=115)		21.1 (17.3, 25.5) (n=77)	12.7 (11.8, 13.7) (n=951)
Never had a colorectal exam, men & women ages 50 & over	84.8 (78.8, 89.4) (n=152)		67.6 (61.6, 73.1) (n=146)	59.8 (58.4, 61.1) (n=5,065)
No flu shot past, age 65+	55.0 (44.3, 65.3) (n=31)		42.4 (33.9, 51.4) (n=41)	33.3 (31.6, 34.9) (n=1,365)

Table 3: Logistic Regressions of Preventive Services, Recent Mexican Immigrant (<10 years), Long Stay Mexican Immigrant (≥ 10 years), U.S. Born Mexican American, and U.S. Born Non-Latino Whites, with Insurance and No Usual Source of Care

	Length of Residence and Nativity			Nativity			
Model 0	**No MD visit past 2 years, age 18+ OR, (95%CI)**	**No dental exam past year, age 18+ OR, (95%CI)**	**No pap smear past 3 years, women ages 18-64 OR, (95%CI)**	**Model 0**	**No mamm past 2 years, women ages 40+ OR , (95% CI)**	**No colorectal exam, age 50+ OR,(95% CI)**	**No flu shot past year, age 65+, OR (95%CI)**
U.S. born MexAm vs. US born NLW	2.41 (1.95, 2.98)	2.07 (1.77,2.42)	1.83 (1.42,2.37)	U.S. born MexiAm vs. U.S. born NLW	1.30 (0.98,1.72)	1.40 (1.07,1.83)	1.53 (1.22,1.91)
MexImm ≥ 10 yrs vs. US born NLW	3.58 (2.96, 4.33)	2.68 (2.30,3.13)	1.71 (1.31,2.24)	Mexican Immigrant vs. U.S. born NLW	2.59 (2.02,3.32)	3.75 (2.50,5.64)	2.92 (2.24,3.81)
MexImm < 10 yrs vs. US born NLW	7.57 (6.18,9.27)	4.90 (4.00,6.01)	3.45 (2.43,4.89)				
Model 1 (sociodemographic controls#)				**Model 1 (sociodemographic controls#)**			
U.S. born MexAm vs. US born NLW	2.34 (1.88, 2.89)	2.05 (1.74, 2.41)	1.61 (1.24, 2.10)	U.S. born MexAm vs. U.S. born NLW	1.27 (0.95, 1.70)	1.15 (0.87, 1.53)	1.18 (0.81, 1.71)
MexImm ≥ 10 yrs vs. US born NLW	2.69 (2.13, 3.39)	1.83 (1.52, 2.21)	1.63 (1.15, 2.30)	Mexican Immigrant vs. U.S. born NLW	2.03 (1.52, 2.72)	2.21 (1.43,3.42)	1.50 (0.91,2.46)
MexImm < 10 yrs vs. US born NLW	5.51 (4.33, 7.03)	3.21 (2.57, 4.01)	2.74 (1.88, 3.98)				
Model 2 (sociodemographic controls# and access)				**Model 2 (sociodemographic controls# and access**			
U.S. born MexAm vs. US born NLW	1.88 (1.49, 2.37)	1.80 (1.53, 2.11)	1.40 (1.06, 1.81)	U.S. born MexAm vs. U.S. born NLW	1.12 (0.83, 1.51)	1.10 (0.82,1.45)	1.14 (0.79,1.64)
MexImm ≥ 10 yrs vs. US born NLW	1.54 (1.19, 2.00)	1.30 (1.07, 1.57)	1.14 (0.80, 1.63)	Mexican Immigrant vs. U.S. born NLW	1.30 (0.91, 1.85)	1.72 (1.11,2.65)	1.37 (0.85,2.22)
MexImm < 10 yrs vs. US born NLW	2.23 (1.68, 2.95)	1.70 (1.32, 2.13)	1.53 (1.04, 2.26)				
Uninsured vs. Insured	2.07 (1.76, 2.44)	2.60 (2.35, 2.87)	2.23 (1.80, 2.80)	Uninsured vs. Insured	2.90 (2.32, 3.64)	1.82 (1.38,2.40)	##
No Usual Source of Care vs. Usual Source of Care	6.75 (5.86, 7.77)	2.10 (1.88, 2.33)	2.21 (1.76, 2.77)	No Usual Source of Care vs. Usual Source of Care	3.98 (3.14, 5.05)	2.34 (1.82,3.01)	3.53 (2.44,5.11)

Model includes controls for age, age-squared, gender, married/not married, poverty status, 8th grade or less education, and rural. Model for doctor visit also controls for self-assessed health status. ## Insurance status is not included in the flu shot regression since practically all U.S.-born older persons reported having insurance coverage.

Table 4: Logistic Regressions of Preventive Services among Recent (<10 years) and Long Stay (≥ 10 years) Mexican Immigrants

	No MD visit past 2 years, age 18+, Adjusted OR (95% CI)	No dental exam past year, age 18+, Adjusted OR (95% CI)	No pap smear past 3 years, women ages 18-64, Adjusted OR (95% CI)	No mamm past 2 years, women ages 40+, Adjusted OR (95% CI)
Model 0				
MexImmig < 10 yrs. vs.	2.12	1.83	2.01	1.62
MexImmig ≥ 10 yrs	(1.63,2.75)	(1.41, 2.36)	(1.33, 3.05)	(1.09, 2.40)
Model 1 (sociodemographic controls#)				
Spanish language only	1.58	1.36	2.24	2.16
vs. Other	(1.17, 2.12)	(1.01, 1.82)	(1.40, 3.60)	(1.15, 4.07)
MexImmig < 10 yrs. vs.	2.05	1.53	1.38	1.45
MexImmig ≥ 10 yrs	(1.52, 2.76)	(1.17, 2.01)	(0. 92,2.05)	(0.86, 2.44)
Model 2 (sociodemographic controls# and access)				
Spanish language only	1.32	1.12	1.89	2.07
vs. Other	(0.99, 1.76)	(0.83, 1.51)	(1.18, 3.06)	(1.05, 4.08)
MexImmig < 10 yrs. vs.	1.60	1.22	1.24	1.36
MexImmig ≥ 10 yrs	(1.15, 2.22)	(0.92, 1.62)	(0.83, 1.85)	(0.76, 2.45)
Uninsured	1.90	2.25	1.64	1.01
vs. Insured	(1.30, 2.77)	(1.68, 3.02)	(0.98, 2.73)	(0.48, 2.12)
No usual source of care	5.30	2.68	1.71	3.09
vs. has usual source of care	(3.70, 7.57)	(1.92, 3.73)	(1.04, 2.80)	(1.53, 6.25)

Model includes controls for age, age-squared, gender, married/not married, poverty status, 8th grade or less education, and rural. Model for doctor visit also controls for self-assessed health status.