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Patient-Physician Language Concordance and Use of Preventive Care Services Among Limited English Proficient Latinos and Asians

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ABSTRACT

Objectives. Patient-physician language concordance among limited English proficient (LEP) patients is associated with better outcomes for specific clinical conditions. Whether or not language concordance contributes to use of specific preventive care services is unclear.

Methods. We pooled data from the 2007 and 2009 California Health Interview Surveys to examine mammography, colorectal cancer (CRC) screening, and influenza vaccination use among self-identified LEP Latino and Asian (i.e., Chinese, Korean, and Vietnamese) immigrants. We defined language concordance by respondents reporting that their physician spoke their non-English language. Analyses were completed in 2013–2014.

Results. Language concordance did not appear to facilitate mammography use among Latinas (adjusted odds ratio [AOR] = 1.02, 95% confidence interval [CI] 0.72, 1.45). Among Asian women, we could not definitively exclude a negative association of language concordance with mammography (AOR=0.55, 95% CI 0.27, 1.09). Patient-physician language concordance was associated with lower odds of CRC screening among Asians but not Latinos (Asian AOR=0.50, 95% CI 0.29, 0.86; Latino AOR=0.85, 95% CI 0.56, 1.28). Influenza vaccination did not differ by physician language use among either Latinos or Asians.

Conclusions. Patient-physician language concordance was not associated with higher use of mammography, CRC screening, or influenza vaccination. Language concordance was negatively associated with CRC screening among Asians for reasons that require further research. Future research should isolate the impact of language concordance on the use of preventive care services from health system factors.

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Language barriers in health care may reduce the quality of care received by limited English proficient (LEP) patients, serve as a hurdle to the receipt of preventive care services, and contribute to health disparities.[1–3] Patient-physician communication is enhanced by language concordance (i.e., when the physician is fluent in the patient's non-English language). Language concordant care is associated with patient trust in physicians and greater satisfaction,[4,5] increased medication adherence,[6] and higher rates of glycemic control among diabetic patients.[7] In contrast, language barriers are not associated with other conditions, such as mortality or length of stay in patients with myocardial infarction.[8]

Latinos and Asians are the fastest-growing racial/ethnic minority groups in the United States.[9] Preventive care services use, such as mammography for breast cancer screening, colorectal cancer (CRC) screening, and influenza vaccination, are suboptimal in both populations.[10–16] Studies of the association between patient-physician language concordance and completion of preventive care practices report inconsistent findings. Prior work, while limited in scope, suggests that language concordance may be negatively associated with receipt of CRC screening and positively associated in some groups with mammography and influenza vaccination.[17–20] However, this work has been limited by sampling selection and by significant variation in key definitions such as LEP or language concordance itself.[18–20]

The California Health Interview Survey (CHIS) includes representative samples of major racial/ethnic minority groups and is conducted in multiple languages including English, Spanish, Mandarin, Cantonese, Korean, and Vietnamese. We used CHIS to examine the associations between patient report of patient-physician language concordance and patient report of use of mammography, CRC screening, and influenza vaccination among LEP Latino and Asian Americans in California.

METHODS

Data collection

We pooled cross-sectional data from the 2007 and 2009 CHIS, a population-based, random-digit-dial telephone survey of noninstitutionalized Californians administered since 2001. To provide stable estimates for relatively small Asian subgroups, the 2007 and 2009 surveys oversampled Koreans and Vietnamese. Weights provided with the CHIS data account for the differential sampling rates and nonresponse, making it possible to obtain representative estimates. The response rate

for the adult extended survey was 52.8% in 2007 and 49.0% in 2009.[21,22]

Participants

We restricted our analysis to nonpregnant adults aged ≥40 years who (1) self-reported their race/ethnicity as solely Latino or Chinese, Korean, or Vietnamese; (2) spoke the corresponding target non-English language at home; (3) had LEP, defined as self-report of speaking English "not well" or "not at all"; and (4) reported seeing a medical physician at least once within the last two years. Our definition of LEP was based on the U.S. Census question on English proficiency used in other studies of LEP populations and recommended for identification of individuals who may require language assistance.[23,24] The determination of the study populations is depicted in Figure 1. Other Asian subgroups such as Filipinos and South Asians were excluded because data on non-English language use at home were not available in the public use file. Our analysis was further restricted by age for each preventive care service based on clinical guidelines at the time of CHIS administration: mammography use was restricted to women aged 40–75 years,[25] CRC screening use was restricted to participants aged 50–75 years,[26] and influenza vaccination use was restricted to participants aged 50–85 years.[27]
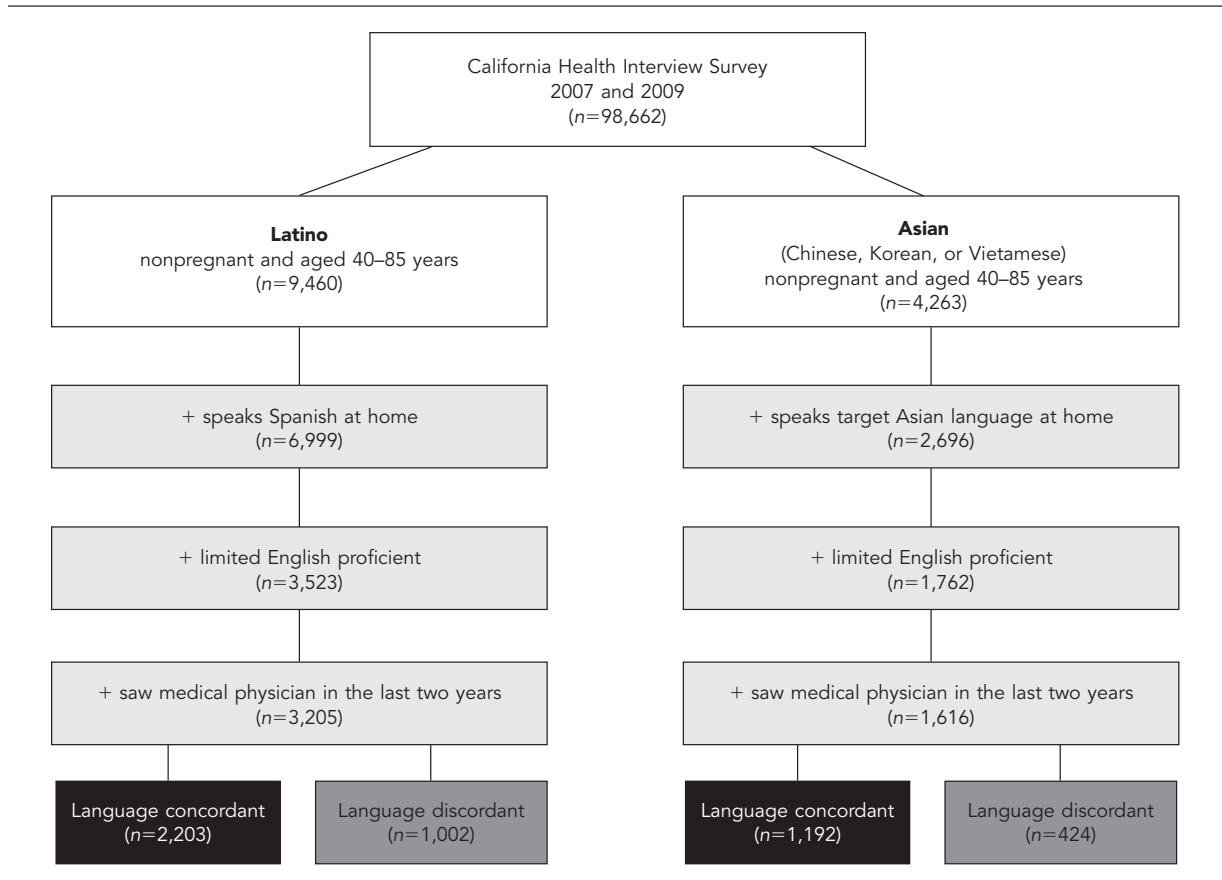
Measures

All measures were based on self-report. We identified three preventive care services available for the analysis: (1) mammography in the last two years; (2) CRC screening, defined as fecal heme-occult in the last two years, sigmoidoscopy in the last five years, or colonoscopy in the last 10 years; and (3) influenza vaccination in the last year. Cervical cancer screening was only available in the 2007 CHIS; therefore, it was not included in this analysis.

Patient-physician language concordance was ascertained by a series of questions among LEP respondents as illustrated in Figure 2. Language concordance was defined among respondents who reported that they did not have difficulty understanding their physician and reported that their physician communicated in their target non-English language.

Theoretical framework

We used the Andersen's model of health services use as a conceptual framework to select potentially confounding sociodemographic factors.[28] Predisposing factors we included were age (50–64 vs. ≥65 years of age), sex, highest completed level of education (≤high school diploma vs. >high school diploma), and percent time

Figure 1. Diagram illustrating the derivation of study populations by inclusion criteria: 2007 and 2009 California Health Interview Survey

in the U.S. (0%–20%, 21%–40%, 41%–60%, 61%–80%, and >80%) provided and computed by CHIS as a proportion of the number of years lived in the U.S. and age at time of survey administration as a measure of acculturation of health beliefs. We included annual household income (≤$25,000 vs. >$25,000) and insurance status (not currently insured vs. currently insured by governmental programs including Medicare and Medicaid, employer-based plans, or privately purchased insurance) as enabling factors. Health status on a five-level ordinal scale (excellent, very good, good, fair, and poor) was included as a surrogate for perceived need to use health services.
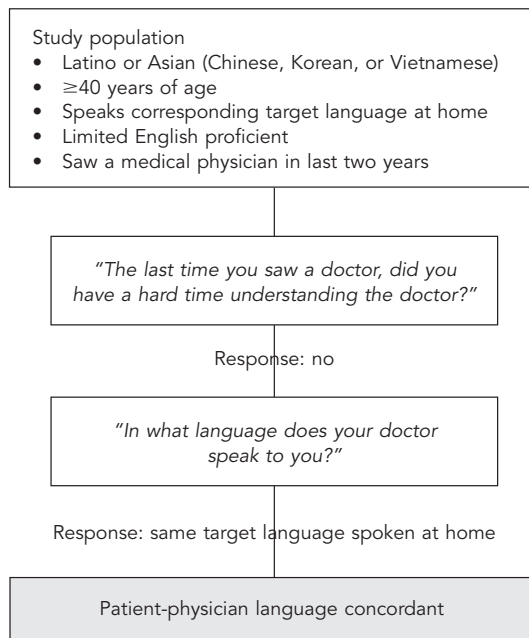
Analysis

We used methods for complex surveys as implemented in Stata® version 12.1.[29] Following CHIS guidelines, all analyses incorporate the sampling weights and use jack-knife replication to obtain standard errors, 95% confidence intervals (CIs), and p-values. We examined the association of language concordance with preventive practices among Latinos and Asians separately. We first used unadjusted logistic models to assess the association of language concordance with potential confounders specified by Andersen's model. We then used logistic regression to estimate the independent associations of language concordance with mammography, CRC screening, and influenza vaccination, adjusting for potential confounders including age, sex (in analyses of CRC screening and influenza vaccination), education, income, percent time in U.S., perceived health status, and insurance.

In model checking, we affirmed that the distribution of covariates overlapped in the language concordant and discordant groups. In sensitivity analyses, we checked for differences in the effect of language concordance and confounders by CHIS year, and included any interactions with $p \leq 0.15$ in the multivariate model.

Figure 2. Identification of patient-physician language concordance: 2007 and 2009 California Health Interview Survey[a]

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┌─────────────────────────────────────────────┐
│ Study population                            │
│  • Latino or Asian (Chinese, Korean, or     │
│    Vietnamese)                              │
│  • ≥40 years of age                         │
│  • Speaks corresponding target language at  │
│    home                                     │
│  • Limited English proficient               │
│  • Saw a medical physician in last two years│
└─────────────────────────────────────────────┘
                      │
┌─────────────────────────────────────────────┐
│  "The last time you saw a doctor, did you    │
│  have a hard time understanding the doctor?" │
└─────────────────────────────────────────────┘
            Response: no
                      │
┌─────────────────────────────────────────────┐
│     "In what language does your doctor       │
│          speak to you?"                      │
└─────────────────────────────────────────────┘
   Response: same target language spoken at home
                      │
┌─────────────────────────────────────────────┐
│     Patient-physician language concordant    │
└─────────────────────────────────────────────┘
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[a]California Health Interview Survey questions are in italics.

We also checked for differences in the effect of language concordance across Asian subgroups and by percent life in the U.S., education, and insurance status, with a threshold interaction of $p \leq 0.15$. In conducting these analyses among LEP Asians, due to sparse data, we combined the two uppermost categories of the percent time in U.S. variable.

RESULTS

The pooled 2007 and 2009 CHIS sample included 3,205 LEP Latinos and 1,616 LEP Asians eligible for analysis. Table 1 shows the sociodemographic characteristics of the LEP groups, aged 40–85 years, stratified by language concordance. Language concordance was high, with 69% of LEP Latino and 74% of LEP Asian respondents reporting language concordance with their physicians. Among LEP Latinos, female sex was associated with having reported a language-concordant physician, while longer time in the U.S. and having insurance were each associated with having reported a language-discordant physician. Among LEP Asians, longer time in the U.S. and having health insurance were associated with language discordance.

Table 2 presents the weighted percent prevalence of preventive care services use and adjusted odds ratio (AOR) for language concordance by LEP racial/ethnic group. Among women eligible for mammography, 71% of LEP Latinas and 74% of LEP Asians reported patient-physician language concordance. Reported mammography use was high and similar between language-concordant and language-discordant women, both among Latinas (79% vs. 80%, p=0.63) and Asians (78% vs. 86%, p=0.10). After adjustment, mammography use did not differ by language concordance among Latinas. Among Asian women, we could not definitively exclude a negative association of language concordance (AOR=0.55, 95% CI 0.27, 1.09, p=0.09) on reported mammography use.

Among respondents eligible for CRC screening, 68% of LEP Latinos and 73% of LEP Asians reported language concordance. Reports of CRC screening did not differ by language concordance in unadjusted analysis among LEP Latinos (51% vs. 58%, p=0.14). In contrast, CRC screening was lower among LEP Asians reporting a language-concordant physician (56% language concordant vs. 67% language discordant, p=0.048) before adjustment. After adjustment, there continued to be no evidence of an association between patient-physician language concordance and CRC screening among Latinos (AOR=0.85, 95% CI 0.56, 1.28, p=0.43). However, among Asians, those with language-concordant physicians had 50% lower odds of reporting CRC screening than their language-discordant counterparts (AOR=0.50, 95% CI 0.29, 0.86, p=0.01).

Similarly, among respondents aged 50–85 years targeted for influenza vaccination, 68% of LEP Latinos and 74% of LEP Asians reported patient-physician language concordance. Influenza vaccination among LEP Latinos and LEP Asians did not differ by language concordance in either unadjusted (Latinos: 42% vs. 49%, p=0.07; Asians: 63% vs. 64%, p=0.75) or adjusted analyses (Table 2).

In our sensitivity analysis assessing heterogeneity by CHIS year, we found no evidence for variation in the adjusted association of language concordance among either Latinos or Asians. However, the final adjusted models include selected interactions between year and covariates, as detailed in Table 2. Similarly, we found no evidence for differences in the association of language concordance with any preventive care service use across the three Asian subgroups (p>0.38).

In assessing modification of the association of language concordance by selected covariates, we found some evidence among Asian women for modification of the effects of language concordance on mammography

Table 1. Sociodemographic and other characteristics by LEP racial/ethnic group and patient-physician language concordance for adults aged 40–85 years: 2007 and 2009 California Health Interview Survey

Characteristic	LEP Latinos (n=3,205)			LEP Asians[a] (n=1,616)		
	Language concordant (n=2,203) Percent[b]	Language discordant (n=1,002) Percent[b]	P-value	Language concordant (n=1,192) Percent[b]	Language discordant (n=424) Percent[b]	P-value
Mean age (in years)[b]	52.9	53.9	0.17	61.1	62.1	0.56
Female	54	46	0.02	60	62	0.66
Percent of time spent in the U.S.[c]			0.002			0.02
0%–20% of life	12	8		31	27	
21%–40% of life	21	17		40	37	
41%–60% of life	47	50		24	27	
61%–80% of life	18	19		4	5	
>80% of life	2	5		<1	4	
>High school diploma	7	10	0.07	33	36	0.53
Annual household income >$25,000	37	42	0.16	43	49	0.20
Currently insured[d]	60	75	<0.001	83	90	0.04
Poor health status	9	10	0.16	13	18	0.30

[a]The Asian group comprises Chinese, Korean, and Vietnamese immigrants.

[b]Means and percentages are weighted to be representative of the target populations in California.

[c]Percent time in the U.S. provided and computed by the California Health Interview Survey as a proportion of the number of years lived in the United States and age at time of survey administration.

[d]Currently insured defined as self-report of coverage from governmental programs including Medicare and Medicaid, employer-based plans, or privately purchased insurance.

LEP = limited English proficient

use by percent time in U.S. and education. Specifically, the AOR for language concordance declined from 1.36 (95% CI 0.36, 5.18, p=0.65) among women reporting <20% time in the U.S. to 0.26 (95% CI 0.09, 0.80, p=0.02) in the >40% time in the U.S. group (interaction p=0.06). Similarly, AORs for language concordance were 0.78 (95% CI 0.32, 1.93, p=0.59) among women with ≤high school diploma as compared with 0.29 (95% CI 0.12, 0.70, p=0.006) among those with >high school diploma (interaction p=0.12) (data not shown).

We found analogous modification by education of the effects of language concordance on CRC screening among Latinos, with an AOR of 0.93 (95% CI 0.60, 1.44, p=0.75) among those with ≤high school diploma as compared with 0.23 (95% CI 0.09, 0.54, p=0.001) among those with >high school diploma (interaction p=0.004) (data not shown).

Finally, we found that the effect of language concordance on influenza vaccination was modified by insurance status among Asians (p=0.03). Specifically, the AOR for language concordance was 0.94 (95% CI 0.51, 1.74, p=0.85) among those with insurance as compared with 3.57 (95% CI 1.01, 12.6, p=0.048) among those with no insurance (data not shown).

DISCUSSION

In this analysis of mammography, CRC screening, and influenza vaccination rates in population-representative California survey data, we identified negative associations of language concordance with CRC screening and possibly mammography among LEP Asians. We found no evidence for association of language concordance on these preventive care services among LEP Latinos overall. Finally, we found no evidence for overall language concordance effects on influenza vaccination in either group.

Use of preventive care services can be a multistep process affected by many factors external to the physician visit, particularly for mammography and CRC screening. In addition to patient-level factors including insurance coverage, educational attainment, and acculturation, all of which we have adjusted for in our analysis, physician-level factors such as physician characteristics and language use (e.g., language concordance) and systems-based factors contribute to the use of preventive care services.[30–33] Systems-level factors may include the effects of segregated and structural variations in health-care systems accessed by vulnerable populations including minorities and immigrants,[30,31] which we were not able to capture in our analysis.

In our sample of LEP Asian women, we could not definitively exclude a negative effect of language concordance to mammography use. A 2003 study found that among Seattle Chinese immigrants, mammography use was more common if the physician spoke Chinese and was female.[17] Our finding of a possible negative association of physician language use and mammography could be driven in part by nonlanguage physician characteristics, such as physician gender. Additionally, physician attitudes and beliefs about recommending screening may contribute to this possible negative association, as prior studies of immigrant populations have suggested that receipt of care from an ethnic-concordant physician may be associated with lower breast and cervical cancer screening rates.[32,33] Transportation issues[34] and scheduling logistics,[35] which

may be magnified in LEP populations who receive care in settings without onsite mammography (e.g., community clinics that congregate bilingual physicians), may also result in nonuse of mammography. These health services factors may confound our findings. Our analyses were also complicated as they revealed a significant interaction between language concordance and two patient-level factors, suggesting that among Asian immigrants with less education and more recent immigration history, language concordance was either a facilitator or neutral for mammography. Among LEP Latina women, on the other hand, language concordance was not associated with mammography use, a finding consistent with a study of Latinos in the Boston area.[19]

LEP Asians with language-concordant physicians

Table 2. Weighted percent prevalence of preventive care service use and AOR for language concordance by LEP racial/ethnic groups: 2007 and 2009 CHIS

	Preventive care service[a]								
	Mammography			Colorectal cancer screening			Influenza vaccination		
Racial/ethnic group	N	Percent prevalence	AOR[b,c] (95% CI)	N	Percent prevalence	AOR[b,c] (95% CI)	N	Percent prevalence	AOR[b,c] (95% CI)
LEP Latinos									
Language concordant	1,331	79 (75, 82)	1.02[d] (0.72, 1.45)	1,188	51 (46, 56)	0.85[e] (0.56, 1.28)	1,346	42 (38, 46)	0.91[f] (0.68, 1.22)
Language discordant	553	80 (75, 84)	Ref.	557	58 (51, 65)	Ref.	647	49 (43, 55)	Ref.
LEP Asians[g]									
Language concordant	604	78 (72, 84)	0.55[h] (0.27, 1.09)	766	56 (49, 62)	0.50[i] (0.29, 0.86)	973	63 (57, 68)	1.09[j] (0.62, 1.92)
Language discordant	216	86 (90, 93)	Ref.	281	67 (59, 75)	Ref.	344	64 (54, 75)	Ref.

[a]Outcomes are (1) mammography in last two years (restricted to women aged 40–75 years); (2) colorectal cancer screening, defined as fecal heme-occult in last two years, sigmoidoscopy in last five years, or colonoscopy in last 10 years (restricted to adults aged 50–75 years); and (3) influenza vaccination in last year (restricted to adults aged 50–85 years).

[b]Odds ratios were adjusted for age, education, income, percent time in the U.S., health status, and insurance. Odds ratios for colorectal cancer screening and influenza vaccination were also adjusted for sex.

[c]For each AOR by LEP racial/ethnic group, any significant interaction ($p \leq 0.15$) between CHIS year and covariate was included in the model.

[d]Additionally adjusted for interaction between CHIS year and percent time in U.S. ($p=0.07$) and CHIS year and insurance ($p=0.03$)

[e]Additionally adjusted for interaction between CHIS year and percent time in U.S. ($p=0.15$) and CHIS year and health status ($p=0.03$)

[f]Additionally adjusted for interaction between CHIS year and age ($p=0.15$)

[g]The Asian group comprises Chinese, Korean, and Vietnamese immigrants.

[h]Additionally adjusted for interaction between CHIS year and age ($p=0.15$) and CHIS year and insurance ($p=0.06$)

[i]Additionally adjusted for interaction between CHIS year and education ($p=0.02$), CHIS year and insurance ($p=0.13$), and CHIS year and health status ($p=0.06$)

[j]Additionally adjusted for interaction between CHIS year and sex ($p=0.05$), CHIS year and percent time in U.S. ($p=0.02$), and CHIS year and health status ($p=0.07$)

AOR = adjusted odds ratio

LEP = limited English proficient

CHIS = California Health Interview Survey

CI = confidence interval

Ref. = referent group

had 50% lower odds of reporting CRC screening. Our result among LEP Asians contrasts with findings from a study of California Vietnamese immigrants in which patient-physician language concordance was not associated with CRC screening.[36] However, our finding is consistent with an analysis of grouped language data from the Medical Expenditures Panel Survey in which non-English language-concordant patients had lower CRC screening rates than non-English language-discordant patients.[20]

One possible explanation for the negative association between language concordance and CRC screening among Asian patients may originate from Asian physician reluctance to recommend certain preventive screenings, including CRC screening, to ethnic-concordant patients.[32,33,37] Prior research has suggested that Asian ethnic-concordant physicians may not recommend specific preventive screenings due to sensitivity to modesty issues of male physicians caring for female patients,[32,33] lack of knowledge to recommend preventive screenings,[33,37] and physician perceptions of patient noncompliance and understanding of the purpose of preventive care services.[37] However, system and environmental factors such as scheduling challenges,[38] availability of services,[38,39] and geographic context and accessibility[39] may be the most likely explanation for low rates of CRC screening. Language-concordant clinical staff and patient navigators may increase CRC screening rates[40] by helping immigrant and LEP patients overcome structural and systems-based issues; these barriers may prove largely insurmountable for LEP patients who receive care in private primary care offices or in health-care systems without patient navigators, despite the higher comprehension and satisfaction rate that is a hallmark of language-concordant care.[3,23,41]

We did not observe an association between language concordance and reported use of CRC screening among LEP Latinos. This finding is in contrast with a study of Latinos in a Boston primary care practice that found a negative association, although that analysis was not restricted to solely LEP patients.[19] The interaction effects that we observed with education level suggest that system factors in addition to communication factors may play an important role.

We also found no overall difference by patient-physician language concordance for influenza vaccination in both LEP groups. To a certain extent, this finding is less surprising. Influenza vaccination is done in multiple settings, including outside of physician offices, and may not require the involvement of a physician.[42–44] Physician recommendation of influenza vaccination can influence patient behavior; we found that unin-

sured Asian immigrants having a language-concordant physician had significantly higher odds of reporting an annual influenza vaccination. Finally, vaccination may be susceptible to temporal trends such as vaccination availability and community-based outreach. In 2009, the overall estimate of national influenza vaccination coverage was higher than in prior years, which may have attributed to increased demand due to public concern and delayed availability of the H1N1 vaccine.[45]

Limitations
The study was subject to several limitations. First, the study was cross-sectional and the response rates of CHIS were relatively low. Second, our analysis relied on respondent self-report, which may be subject to differential bias.[46] Respondents included in the study reported seeing a physician in the last two years, but data were not available to confirm that respondents identified this physician as their primary care provider. Similarly, we were not able to confirm the temporal relationship of the respondent-reported physician language concordance and use of preventive care services. Third, while we elected to present Chinese, Korean, and Vietnamese respondents together, as the sensitivity analyses did not show differences among these Asian subgroups, our study did not include or generalize to other Asian subgroups with substantial LEP populations, such as Filipinos. Finally, and perhaps most importantly, while we were able to control for various patient-level factors, we were unable to control for physician-level factors or for health system factors that are known to be effective in promoting the use of preventive services, such as navigators or prompt appointments.

CONCLUSIONS

Our analysis of a population-representative sample from a state with high numbers of immigrants adds to the evidence base on the care of Latino and Asian patients with LEP by suggesting that patient-physician language concordance alone may not lead to higher rates of reported use of mammography, CRC screening, and influenza vaccination. Among LEP Asians, patient-physician language concordance was associated with lower CRC screening rates and possibly reduced mammography use. In LEP Latinos, neither mammography nor CRC screening was associated with language concordance. Patient-physician language concordance was not associated with influenza vaccination in either group. Our study suggests that receipt of preventive care services may be more strongly mediated by factors outside the patient-physician relationship than

by communication barriers within it. Improving CRC screening rates in immigrant populations may include understanding and addressing the practice patterns of language-concordant physicians as well as ensuring effective interventions that overcome structural barriers within health-care systems.

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