

Self-reported Fluency in Non-English Languages Among Physicians Practicing in California

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Background and Objectives: *With increasing numbers of people with limited English proficiency in the United States, there is growing concern about the potential adverse effect of language barriers on patient care. We sought to compare the non-English language fluency of practicing physicians by physician race/ethnicity and location of medical school education. **Methods:** We used cross-sectional analyses of California Medical Board Survey (2007) data of 61,138 practicing physicians. Measures examined were self-reported physician language fluency in 34 languages, race/ethnicity, and medical school of graduation. **Results:** Forty-two percent of physicians reported having fluency in at least one language other than English. Fifty-six percent of international medical graduates (IMGs) reported fluency in a language other than English, compared to 37% of US medical graduates (USMG). Although the majority of physicians with fluency in Spanish are not Latino, fluency in Asian languages is primarily restricted to physicians who are of Asian race/ethnicity. Eighty-seven percent of physicians with fluency in Mandarin, Cantonese, or other Chinese languages are of Chinese ethnicity. A similar association between ethnicity and fluency was found for Southeast Asian languages, Pacific Island languages, and South Asian languages. IMGs constituted more than 80% of the physicians with fluency in Arabic, South Asian, and Pacific Islander languages. **Conclusions:** IMGs contribute to the diversity of languages spoken by California physicians.*

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A growing body of literature documents the adverse influence of language barriers on quality of medical care. An estimated 24 million people in the United States speak English “less than very well” and, therefore, are considered to have limited English proficiency (LEP); these individuals are at risk of facing language barriers or experiencing suboptimal doctor-patient communication.¹ Patients with LEP are often cared for by physicians who do not speak their primary language and thus receive less patient-centered care—even after accounting for the use of interpreters.^{2,3} They are also more likely to report adverse medication reactions,⁴ treatment non-adherence,⁵⁻⁷ longer emergency care visits,⁸ decreased satisfaction with care,⁹⁻¹¹ and receiving

fewer recommended health care services.¹²⁻¹⁴ Physicians who speak the same language as their patients provide an opportunity for improvements in these outcomes.

Little information is known about what types of physicians speak the non-English languages commonly spoken among the US population. A study by Yoon et al found that physicians of many racial-ethnic backgrounds spoke Spanish and that physicians fluent in Spanish were more likely than their counterparts to practice in areas with more LEP Spanish-speaking residents.¹⁵ However, this study was limited to Spanish language and did not address physician fluency in other non-English languages. Learning about physician fluency in Asian languages is of particular importance as there are now more than 8 million Asian and Pacific Island language speakers in the United States, of whom half have LEP.¹ Other than English and Spanish, Chinese is the most commonly spoken language, with an estimated 2 million speakers.¹⁶

In particular, there is limited published research on the relative linguistic contributions of US and international medical graduate (IMG) physicians in the United

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States and their potential roles in enhancing communications with patients who have LEP.¹⁵ US medical graduates (USMGs) and IMGs both contribute to the cultural and ethnic diversity of the physician workforce, but IMGs may be more likely than USMGs to be fluent in the language of their culture of origin. As such, they may play an important role in improving language access, particularly in underserved areas where many people have LEP. In fact, IMGs represent about one quarter of practicing physicians in the United States and are more likely than USMGs to practice in underserved¹⁷⁻¹⁹ and rural²⁰ areas. In 2007, IMGs accounted for 41% and 45% of residents in family medicine and internal medicine, respectively.²¹

The purpose of this study was to examine fluency in non-English languages among practicing physicians in California. This issue is particularly important for California because it is one of the more linguistically diverse states in the United States and is home to an estimated 6.7 million people with LEP.¹ We hypothesized that (1) few physicians have fluency in non-English languages other than Spanish and (2) physicians who are IMGs contribute disproportionately to the linguistic diversity among California physicians.

Methods

Sample

The California Medical Board licenses physicians with doctor of medicine (MD) degrees. All physicians must apply to be relicensed every 2 years and are instructed to complete a survey questionnaire with each biennial application for relicensure. As of July 2007, the Medical Board listed 109,763 physicians with an active California license who had completed one or more cycles of relicensure since 2001 and were therefore eligible for the Medical Board survey. Of these physicians, 83% had completed at least one survey. Physicians completed mandatory questionnaire items on weekly hours in patient care, research, teaching and administration; training status; self-designated specialties; and board certification. Detailed survey methods have been published elsewhere.^{18,22,23} For this study, we restricted our analysis to physicians with a practice address in California and no longer in training ($n=61,138$).

Measures

Physicians were asked to complete two voluntary items on ethnicity and language that were present on all surveys from 2001 onward: (1) to select their self-identified race/ethnicity from among a detailed list of 28 ethnicities and (2) to indicate if they were fluent in any of 34 languages listed on the survey. The specific question about fluency was: "In addition to English, indicate any additional languages in which you are fluent." Physicians were allowed to check more than one response to the race-ethnicity and language items.

We created language categories by collapsing languages corresponding to a geographic region. A Chinese language category consisted of physicians who reported fluency in Cantonese, Mandarin, and other Chinese dialects. Respondents who were fluent in Hmong, Cambodian, Vietnamese, Thai, Lao, and Mien were collapsed into a Southeast Asian language category. Finally, we composed a Pacific Islander language category by combining those who spoke Samoan, Tagalog, and Ilocano.

We used a similar approach to physician race/ethnicity categories. Physicians who selected their race/ethnicity as Cambodian, Indonesian, Laotian/Hmong, Thai, or Vietnamese were categorized as Southeast Asian. Those who selected their ethnicity as Fijian, Filipino, Guamanian, Hawaiian, Samoan, Tongan, or other Pacific Islander were categorized as Pacific Islander.

Physician responses about specialty were categorized as either primary care (family medicine, general internal medicine, and general pediatrics) or non-primary care specialties. We also examined administrative data on physician age (categorized as < 35, 35–44, 55–64, and ≥ 65 years), gender, and medical school of graduation categorized as USMG versus IMG. Physicians who attended medical school in Canada were included in the USMG category.

Analysis

Stata 10.1 statistical software (Stata Corporation LP 2008, College Station, TX) was used for all analyses. We first computed frequencies to compare physician characteristics between IMG and USMG physicians. We computed the percentage of physicians who reported fluency of selected languages within defined racial/ethnic groups, and performed a similar analysis of language fluency comparing IMGs and USMGs. To investigate interactions between these two key predictor variables, we stratified physicians by race/ethnicity and compared language fluency among IMGs and USMGs in the same racial-ethnic categories for selected languages. We used χ^2 tests to test for statistically significant differences between categorical variables within groups. We considered a P value of $<.05$ to indicate a significant difference between groups.

Results

Response Rates

Ten percent of the sample responded "declined to state" to the language fluency question. In addition, 6.2% of respondents did not respond to the question on race/ethnicity, and 7.8% responded "decline to state." Also, 0.1% of physicians had missing data on medical school of graduation. Nonrespondents were more likely than respondents to be USMGs (15% versus 10% IMGs, $P<.001$), older age ($P<.001$), males (15% versus 12% females, $P<.001$), non-primary care physicians (13%

versus 10% primary care, $P<.001$), and self-report fluency in < two non-English languages ($P<.001$).

Respondents

The mean age of the respondents was 52 (SD=11) years, and 72% were male. Seventy-six percent of physicians were USMGs, and 24% were IMGs. Forty-two percent of California physicians reported having fluency in at least one language other than English. Table 1 compares the characteristics of IMG and USMG physicians. IMG physicians were slightly older ($P<.001$) and more likely to report fluency in a language other than English ($P<.001$). Fifty-six percent of IMG physicians reported fluency in one language other than English, compared with 37% of USMGs.

Race/Ethnicity and Languages

Table 2 shows the distribution of race/ethnicity among physicians speaking selected languages. Fifty-two percent of all Spanish-speaking physicians were non-Latino white, and 23% were Latinos. Seventeen

percent of non-Latino white physicians reported fluency in Spanish compared to 92% of Latino physicians. In contrast to Spanish, 87% of physicians who reported fluency in Chinese languages were of Chinese ethnicity. A similar pattern was seen for Southeast Asian and Pacific Island languages.

Table 3 shows the distribution of USMG and IMG status among physicians fluent in selected languages. The majority of physicians who speak Samoan, Tagalog, or Ilocano are IMGs (82%). A similar pattern was observed for physicians fluent in Arabic, Farsi, Russian, and Hindi/Punjabi. In contrast, the majority of physicians who speak a Chinese or Southeast Asian language are USMGs.

Figure 1 illustrates the distribution of physician language fluency by IMG or USMG status within selected race/ethnicities. Among physicians of Pacific Islander, Chinese, and Korean ethnicities, IMGs were significantly more likely than USMGs to speak the concordant non-English language. The largest discrepancy was observed for physicians of Korean ethnicity, in that

93% of Korean IMGs reported language fluency in Korean compared to only 35% of Korean USMGs. In contrast, Latino USMGs had rates of Spanish language fluency similar to those of Latino IMG physicians. Southeast Asian physicians also showed only small differences in physician non-English language fluency between IMGs and USMGs. Spanish language fluency also varied for non-Latino white physicians depending on whether they graduated from domestic or international medical schools. Only 16% of non-Latino white USMGs reported Spanish fluency, compared to 24% of non-Latino white IMGs ($P<.001$) (data not shown).

When stratified by physician specialty, primary care physicians were more likely ($P<.05$) than physicians in non-primary care specialties to self-report speaking a foreign language, with the difference most pronounced for Spanish (Table 4). Among primary care physicians, the difference in rates of Spanish language fluency by USMG and IMG status was not statistically significant (23% for USMGs versus 24% for IMGs, $P=.48$). In contrast, non-primary care IMG physicians were significantly more likely to speak Spanish compared to non-primary care USMGs (18% versus 15%, $P<.001$). We did not find significant differences in selected non-English language fluency based on physician gender or age.

Table 1

Characteristics of International Medical Graduate (IMG) and US Medical Graduate (USMG) Patient Care Physicians in California

Physician Characteristic	IMG (n=14,637)	USMG (n=46,458)	P Value*
Study sample (%)	24	76	
Age (%)			
<46 years	23	33	<.001
46–55 years	30	29	
56–65 years	33	25	
>65 years	14	13	
Gender (%)			
Female	31	26	<.001
Race/Ethnicity (%)			
Non-Latino White	36	70	<.001
Latino	6	5	
Black	1	4	
Asian	31	16	
South Asian	19	2	
Other	7	3	
Self-reported language fluency (%)			
Speak English only	16	55	<.001
Speak one other language	56	37	
Speak two or more other languages	28	8	
Medical specialty (%)			
Primary care†	58	69	<.001
Non-primary care	42	31	

* Calculated with χ^2 tests for group comparison

† Family medicine, general internal medicine, and general pediatrics

Table 2

Distribution of Physician Self-reported Fluency in Selected Languages
According to Physician Race/Ethnicity

Language(s)	Race-Ethnicity									
	Non-Latino White	Black	Latino	Chinese	Southeast Asian*	Pacific Islander †	Indian/Pakistani	Other Asian	Native American/Other	Decline/Missing
Spanish (%) (n=11,001)	52	3	23	4	1	5	3	4	4	9
Chinese (%) ‡ (n=3,511) %	2	0	0	87	2	2	0	7	6	4
Southeast Asian (%) § (n=1,420) %	4	0	1	5	88	1	1	1	5	3
Pacific Islander (%) ¶ (n=1,742) %	5	0	1	8	0	82	1	12	7	3
Hindi/ Punjabi (%) (n=2,652)	3	0	0	0	0	0	91	2	9	5

Ethnic background: * = Cambodian, Indonesian, Laotian/Hmong, Thai, and Vietnamese; † = Fijian, Filipino, Guamanian, Hawaiian, Samoan, Tongan, and other Pacific Islander

Foreign language: ‡ = Mandarin, Cantonese, and other Chinese languages; § = Hmong, Lao, Mien, Thai, Vietnamese, and Cambodian; ¶ = Samoan, Tagalog, and Ilocano.

Percentages in each row do not add up to 100% due to some physicians selecting more than one ethnic background.

Table 3

Distribution of Medical School of Graduation (USMG
Versus IMG) Among Physicians With Self-reported
Fluency in Selected Languages

Language(s)	US Medical Graduate	International Medical Graduate
Spanish (%) (n=11,001)	73	27
Cantonese/Mandarin/Other Chinese (%) (n=3,511)	60	40
Hmong/Lao/Mien/Thai/Vietnamese/Cambodian (%) (n=1,420)	60	40
Korean (%) (n=1,043)	51	49
Farsi (%) (n=1,569)	40	60
Russian (%) (n=730)	32	68
Arabic (%) (n=954)	19	81
Samoan/Tagalog/Ilocano (%) (n=1,742)	18	82
Hindi/Punjabi (%) (n=2,652)	16	84

For all language categories the difference between USMGs and IMGs is statistically significant, P value < .001, calculated with χ^2 tests.

USMG—US medical graduate

IMG—international medical graduate

Discussion

We found substantial variation in fluency in non-English languages among physicians in California according to physicians' race/ethnicity and whether they graduated from a US or international medical school. Our results add to the scant literature that has examined self-reported language fluency among practicing physicians.

One key finding of our study is that physician fluency in Asian languages is primarily restricted to physicians in specific race/ethnicities. The majority of physicians who speak Cantonese, Mandarin, or other Chinese dialects are of Chinese ethnicity. A similar pattern was found for physicians who speak a Pacific Island language and Southeast Asian language.

In contrast, for Spanish language, we found that fluency is not restricted to Latinos, a finding similar to that of a previous study of California physicians.¹⁵ The majority of California physicians who report Spanish language fluency are non-Latino white. This finding reflects the large proportion of non-Latino white physicians (45%) in California relative to the small proportion of Latino physicians (4%).²² Many non-Latino US students learn Spanish during their K–12 years of education as part of their obligatory second

language in school. Traditionally, few schools at this level have offered language courses in non-romance languages.²⁴

Our study extends the work of Yoon et al¹⁵ in several important ways. First, our study included a much larger sample of physicians than that in any prior study of physician language fluency. Moreover, this study is one of the first to examine fluency in non-English languages other than Spanish and is also one of the first to distinguish between the fluency of IMGs and USMGs in these languages.

Our results also show that IMGs make different contributions to language fluency within an ethnic group, depending on the specific ethnic group. For example, Latino USMGs reported Spanish language fluency at comparable rates to Latino IMGs. However, for Asian and Pacific Island languages, IMGs are much more likely to report fluency compared to their US-trained peers.

Finally, we found variation in fluency among physicians depending on whether they were in primary care or non-primary care specialties. Effective communication is especially important in

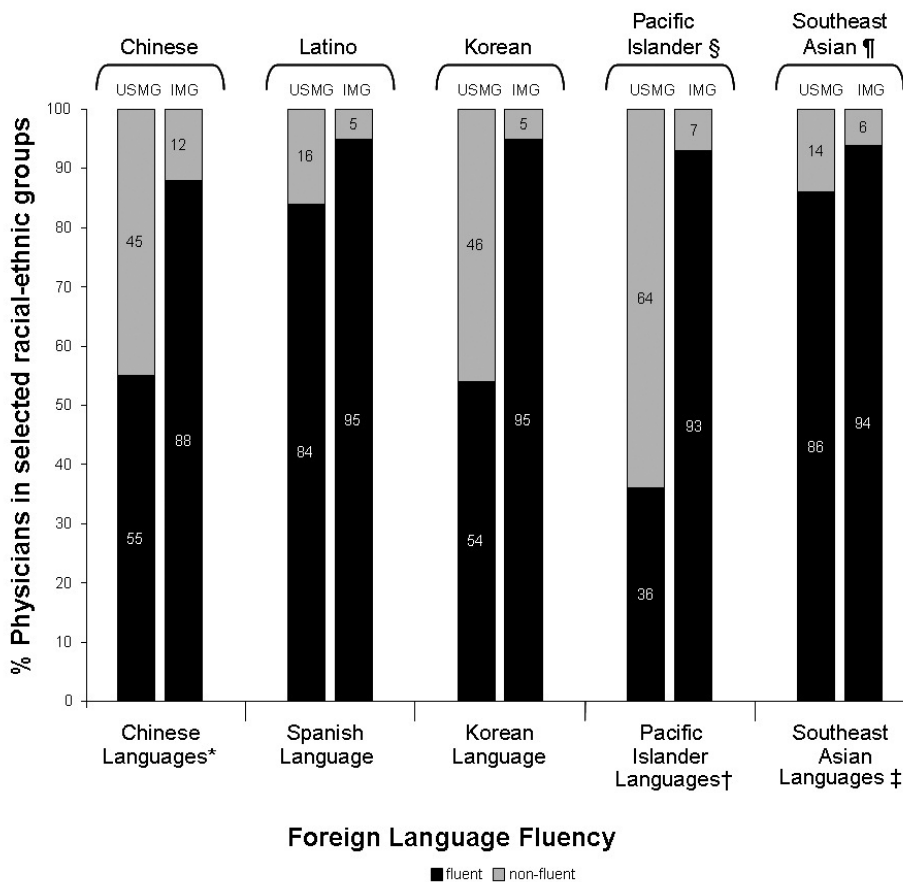
primary care because these physicians develop long-term relationships with patients and families, care for patients with multiple medical conditions, and regularly delve into psychosocial medical issues. As a result, language fluency may be especially critical for these physicians. Good doctor-patient communication, however, is fundamental to the practice of medicine and is therefore important for all physicians regardless of specialty.

Limitations

Our study has several limitations. First, using survey data from California may limit generalizability of the results to physicians in other states. Second, physician race/ethnicity and language fluency are based on self-report and may be subject to reporting bias. Self-report, however, is the standard for collecting information on race-ethnicity. Third, the California Medical Board Survey does not formally test for language fluency using standardized assessments and, therefore, we have no objective measure of physician language fluency. However, other research indicates that physicians are cognizant of the degree to which they are fluent.^{25,26} Nonetheless, in this study, physician fluency may range from medical terminol-

Figure 1

Self-reported Language Fluency Among California Physicians According to Race/Ethnicity and Medical School of Graduation (USMG Versus IMG)



Foreign Language: * = Mandarin, Cantonese, and other Chinese languages; † = Samoan, Tagalog, and Ilocano; ‡ = Hmong, Lao, Mien, Thai, Vietnamese, and Cambodian. Ethnic Background: § = Fijian, Filipino, Guamanian, Hawaiian, Samoan, Tongan, and other Pacific Islander ethnicity. ¶ = Cambodian, Indonesian, Laotian/Hmong, Thai, and Vietnamese. The differences in language fluency within each ethnic group by USMG versus IMG status are statistically significant, $P < .001$, using χ^2 tests.

USMG—US medical graduate
IMG—international medical graduate.

Table 4

Percent of California Physicians That Self-reported Fluency in Selected Languages by Specialty (Primary Care Versus Non-primary Care) and Medical School of Graduation (USMG Versus IMG)

Physician Specialty	Fluency in Language									
	Spanish (%)		Chinese Language† (%)		Southeast Asian Language‡ (%)		Pacific Islander Language§ (%)		Korean Language (%)	
Non-Primary Care (n=36,591)	15.5		5.3		1.8		2.0		1.7	
USMG	14.9	<i>P</i> <.001	4.1	<i>P</i> <.001	1.5	<i>P</i> <.001	0.5	<i>P</i> <.001	1.1	<i>P</i> <.001
IMG	17.8		10.1		2.8		7.6		4.1	
Primary Care (n=18,483)	23.5		7.2		3.6		4.7		1.8	
USMG	23.4	<i>P</i> =.48	6.0	<i>P</i> <.001	2.6	<i>P</i> <.001	1.0	<i>P</i> <.001	1.3	<i>P</i> <.001
IMG	23.9		10.1		5.7		13.2		2.9	

Foreign Language: †=Mandarin, Cantonese, and other Chinese languages; ‡=Hmong, Lao, Mien, Thai, Vietnamese, and Cambodian; §=Samoan, Tagalog, and Ilocano. Primary Care Specialties = family medicine, general internal medicine, and general pediatrics.

Note: All *P* values calculated using χ^2 tests. For all language categories, primary care physicians were more likely (*P*<.05) than physicians in non-primary care specialties to self-report fluency in the corresponding language.

USMG—US medical graduate

IMG—international medical graduate.

Medical school graduated was used to classify physicians as USMG or IMG.

ogy commonly taught during medical school or graduate medical education programs to proficient native speakers. We also do not have data on regional dialects and other aspects of doctor-patient communication.

Policy Implications

Our findings have several policy implications. First, in California, there are an estimated 4.6 million people who speak Spanish at home and speak English with LEP. This coupled with an additional 1.5 million Californians who speak an Asian/Pacific Islander language at home and are LEP underscores the continued need for physicians who speak languages other than English.¹

Second, if the nation moves toward a policy of self sufficiency in the physician workforce during the next several decades with fewer IMGs entering the US workforce, it will be important to understand the implications of such a policy on language access. Because IMGs currently make a significant contribution to language access, shifts in workforce policy may inadvertently exacerbate language barriers for patients with LEP.

Finally, although our study focuses on California physicians, other states in the United States are now experiencing increases in their population's linguistic diversity, which is creating a new demand for bilingual

or multilingual health care providers.^{27,28} The California Medical Board Survey demonstrates the value of systematically collecting data on physician language fluency. This type of data collection of physician language fluency should be incorporated into other physician workforce databases, particularly in states with changing linguistic diversity.

Conclusions

While the finding that physicians of different ethnicities self-report Spanish fluency is positive, having Latino physicians is important for patient care because Latino physicians are more likely than non-Latino whites to practice in underserved communities and care for uninsured patients.²⁹⁻³¹ Similarly significant, Latino physicians are in a unique position to provide culturally appropriate health care to Spanish-speaking patients. Future research should address how physician language fluency is related to practice location.

In conclusion, our study of California physicians found that physician fluency in non-English languages other than Spanish is limited to physicians in specific racial/ethnic groups and that IMGs contribute significantly to the overall linguistic diversity among physicians. Because physician language fluency is associated

with improved patient-centered outcomes and patients may prefer to receive care in their primary language, physician workforce and medical education policies should ensure that there is linguistic diversity among practicing physicians and physician trainees.

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