CALIFORNIA'S

LATINO PHYSICIAN CRISIS

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California's Language Concordance Mismatch:

An Analysis of Language Proficient Physicians and Limited English Proficient Individuals who speak Spanish, Tagalog, Thai, Lao or Vietnamese

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EXECUTIVE SUMMARY

In 2016, the U.S. Census Bureau reported that 44.6% of the California state population speaks a language other than English at home (U.S. Census Bureau, 2016 American Community Survey (ACS)). The Census Bureau classifies any person aged five years and older who reported speaking English less than very well as Limited English Proficient (LEP). English proficient individuals reported speaking English only or very well. LEP individuals may encounter language barriers with physicians and experience suboptimal patient-centered care, which can impact treatment, adherence, and overall health care service recommendations. Matching physician-to-patient language proficiency with cultural and social considerations is a crucial component in the provision of high-quality health care for LEP populations.

This policy brief articulates the language concordance mismatch between Language-Proficient Physicians (LPP) and Limited English Proficient (LEP) individuals that speak Spanish, Tagalog, Thai, Lao, or Vietnamese (the most under-represented language groups in California), and provides the geographical location of where these disparities exist in California by county.

METHODOLOGY

In 2015, the top nine languages spoken in the state of California were English (20,231,783), Spanish (10,637,225), Chinese (1,176,085), Filipino/Tagalog (866,129), Vietnamese (532,312), Hindi and related (519,760), Korean (381,885), Persian/Iranian/Farsi (199,592), and Thai/Siamese/Lao (87,683) (U.S. Census Bureau, 2015 ACS 5-year estimates). Recently, Hsu et al. showed that the best represented language groups in California's physician workforce were Farsi, Hindi, Korean, Chinese, and English (Hsu et al., 2018). The under-represented language groups in the physician workforce were Vietnamese, Thai/Lao, Filipino/Tagalog, and Spanish (Table 1). Spanish-speaking physicians were the most under-represented language group at 62.1 physicians per 100,000 Spanish-speaking individuals (Hsu et al., 2018).

Table 1 displays the rate of physicians (MD) per 100,000 individuals for each under-represented language group in California (Sources: U.S. Census Bureau, 2015 ACS 5-year estimates and Hsu et al., 2018).

Table 1. Rate of physicians per 100,000 individuals for each under-represented language group.

Language	California's physician rate per 100,000 population
English	344.2
Vietnamese	320.4
Thai / Lao	293.9
Filipino / Tagalog	229.8
Spanish	62.1

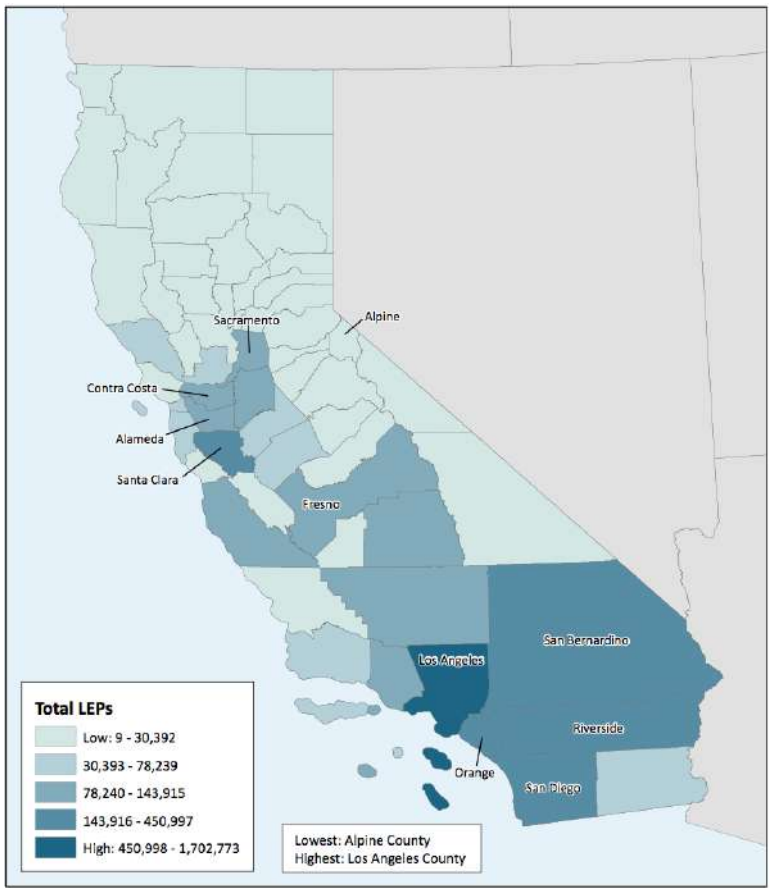
To determine the number of individuals that only speak English and individuals with Limited English Proficiency (LEP) that speak Spanish, Tagalog, or Vietnamese in each county, we used U.S. Census Bureau data from 2017 ACS 5-year estimates (2013 – 2017). This data set provides the total number of individuals aged five years and older who speak a language other than English at home and speak English less than very well for each county in California. It is important to note that the survey combines the less-represented Asian and Pacific Island languages as one. To determine the number of Thai or Lao-speaking LEP populations for each county, we used 2015 ACS 5-year estimates (2011 – 2015), which provided the most recent data for individuals aged five years and older who speak Thai or Lao and that speak English less than very well.

To determine the total number of physicians and specifically, the number of Language-Proficient Physicians (LPPs) who speak Spanish, Tagalog, Thai, Lao, or Vietnamese, and the counties they practice in, we used the 2016 Medical Board of California's Physician Survey, published by the Office of Statewide Health Planning and Development (OSHPD) - Healthcare Workforce Development Division/Healthcare Workforce Clearinghouse Program (Accessed online in December 2018). Language-Proficient Physician (LPP) rates per 100,000 LEP population were determined by dividing the total number of LPPs by the total number of LEPs per language group and for each county. The average physician rate was determined by taking the average LPP to LEP ratios calculated from all counties examined for each language group.

Using a geographic information system (GIS), we mapped total LEP populations for each county in California (n = 58 counties). The map was generated by the program ArcGIS through the use of different shapefiles of California counties and neighboring states.

Map 1 shows the number of LEP individuals that speak Spanish, Tagalog, Thai, Lao, or Vietnamese for each county in California (Sources: U.S. Census Bureau, 2015 and 2017 ACS 5-year estimates). The ten most populous counties and the county with the lowest LEP population (Alpine) are labeled.

Map 1. Concentration of LEP individuals for under-represented languages for each county.



Cartography by Camryn Ching

FINDINGS

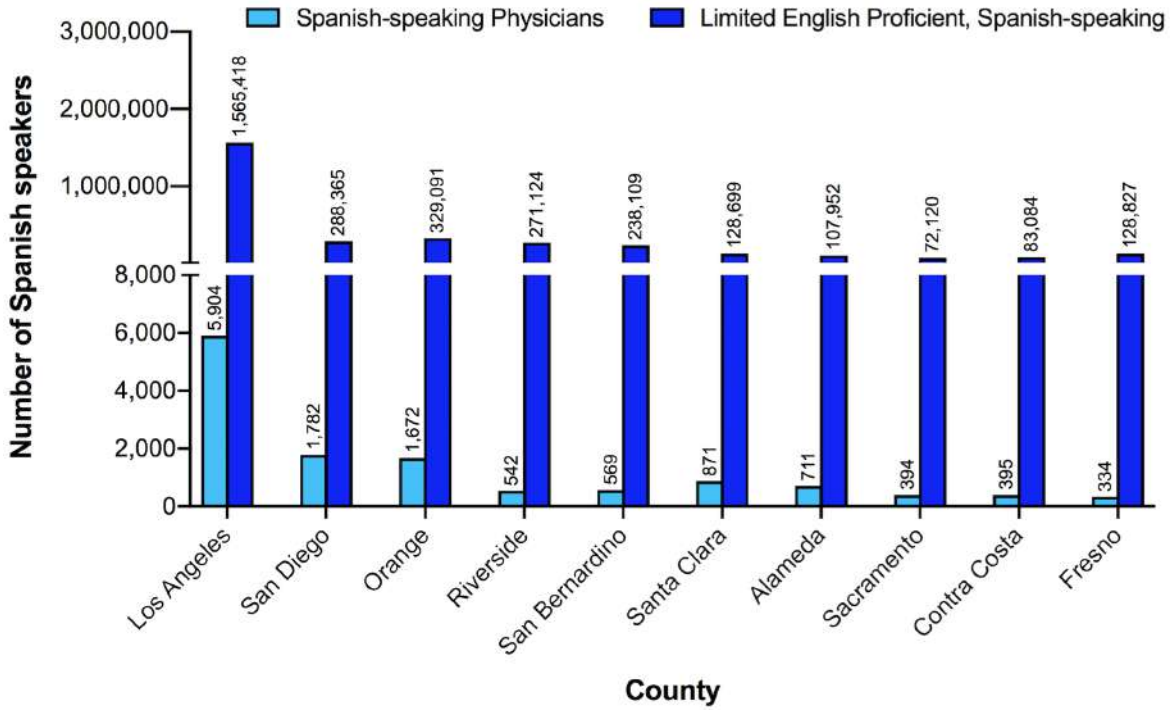
The ten most populous counties in California (> 1,000,000 in population), by descending order, are Los Angeles, San Diego, Orange, Riverside, San Bernardino, Santa Clara, Alameda, Sacramento, Contra Costa, and Fresno (Appendix Table 1). The counties with the largest combined Spanish, Tagalog, Thai, Lao, and Vietnamese-speaking LEP populations (> 100,000), by descending order, are Los Angeles, Orange, San Diego, Riverside, San Bernardino, Santa Clara, Alameda, Fresno, Kern, and Ventura.

The counties with the smallest populations (< 25,000 in population), by descending order, are Del Norte, Colusa, Plumas, Inyo, Mariposa, Mono, Trinity, Modoc, Sierra, and Alpine (Appendix Table 1). The counties with the lowest combined Spanish, Tagalog , Thai, Lao, and Vietnamese-speaking LEP populations (< 1,000), by descending order, are Siskiyou, Amador, Del Norte, Inyo, Tuolumne, Calaveras, Modoc, Mariposa, Trinity, and Plumas.

We first compared the total number of Spanish-speaking physicians to the total number of Spanish-speakers that are Limited English Proficient (LEP) residing in the ten most populous counties in California. Line axis breaks were made along the vertical y-axis to enhance the readability of the total number of Spanish-speaking physicians, which are significantly less than LEP numbers. Specific y-axis formatting was used for each figure and data set provided in this brief.

Figure 1. Comparison of Spanish-speaking physicians relative to the number of Spanish-speaking LEP populations in the ten most populous counties. To visualize the small number of Spanish-speaking Physicians, a y-axis break was set from 0 to 8,000 (bottom) and from 10,000 to 3,000,000 Spanish speakers (top).

Figure 1. Number of Spanish-speaking physicians relative to the Spanish-speaking LEP population.



All densely populated counties reveal a large disparity in physician linguistic competence relative to its respective LEP population. The highest Spanish-speaking physician rates per 100,000 Spanish-speaking LEP populations are in Alpine, Plumas, and Shasta counties, but most Spanish-speaking LEP populations reside in Los Angeles, Orange, and San Diego counties (see Appendix Table 1).

Table 2 displays the lowest (< 500) Spanish-speaking physician rates per 100,000 LEP population living in entirely rural* (Trinity), moderately rural (Madera), densely populated counties (Los Angeles), and less-densely populated counties with Latino populations greater than 50% (Imperial, Kern, Kings, Merced, and Tulare counties) (Source: U.S. Census Bureau, 2017 ACS data). Results are summarized from the data presented in Appendix Table 1. We found that these counties had the most severe shortage in Spanish-speaking physicians when compared to physician rates per 100,000 English-speaking only population.

*According to the U.S. Census Bureau, "rural" encompasses all populations, housing, and territories not included within an urban area or urban cluster (Source: U.S. Census Bureau, Urban and Rural Classification and Urban Area Criteria). Urbanized areas are determined by a population density of 50,000 or more people. Urban clusters consist of at least 2,500 and less than 50,000 people.

Table 2. Counties with lowest Spanish-language proficient physician rates per 100,000 Spanish-speaking LEP population relative to physician rates per 100,000 English-speaking only populations.

County	Spanish-language proficient physician rate per 100,000 Spanish-speaking LEP population	Physician rate per 100,000 English-speaking only population
Los Angeles	377	475
Napa	364	387
Monterey	195	327
Sutter	162	250
Kern	145	173
Madera	142	175
Imperial	117	262
Tulare	115	182
Merced	113	140
Kings	99	103
Trinity	0	63

While California has 62.1 Spanish-speaking physicians per 100,000 LEP individuals (Table 1), Table 2 shows counties with some of the lowest physician to population ratios (< 500), with Los Angeles at a rate of 377 physicians per 100,000 LEP individuals being better than the English-language physician rate of 344.2 displayed in Table 1. These differences may lie in the acquisition of survey methods from different data sources examined, which may over or underestimate the number of language-proficient physicians (LPPs) relative to existing data on LEP populations.

Overall, the findings summarized in Table 2 suggest that there is an overwhelming need for Spanish-language proficient physicians in rural California and in counties with Latino populations that comprise half or more of the general population.

We then compared the total number of Tagalog, Thai, Lao, or Vietnamese-speaking physicians to the number of individuals with Limited English Proficiency. We found that a language discordance exists between Tagalog-speaking physicians and LEP individuals that speak Tagalog in the most populous counties. Tehama, Tuolumne, and Imperial counties have the highest rates in Tagalog-speaking physicians per 100,000 Tagalog-speaking LEP populations (Appendix Table 2). However, Los Angeles, San Diego, and Santa Clara counties host the highest number of Tagalog-speaking LEP populations (> 20,000).

Figure 2. Comparison of Tagalog-speaking physicians to the number of Tagalog-speaking LEP populations in the ten most populous counties. To show the small number of Tagalog-speaking physicians, a y-axis break was set from 0 to 800 (bottom) and from 1,000 to 120,000 (top).

Figure 2. Number of Tagalog-speaking physicians relative to the Tagalog-speaking LEP population.

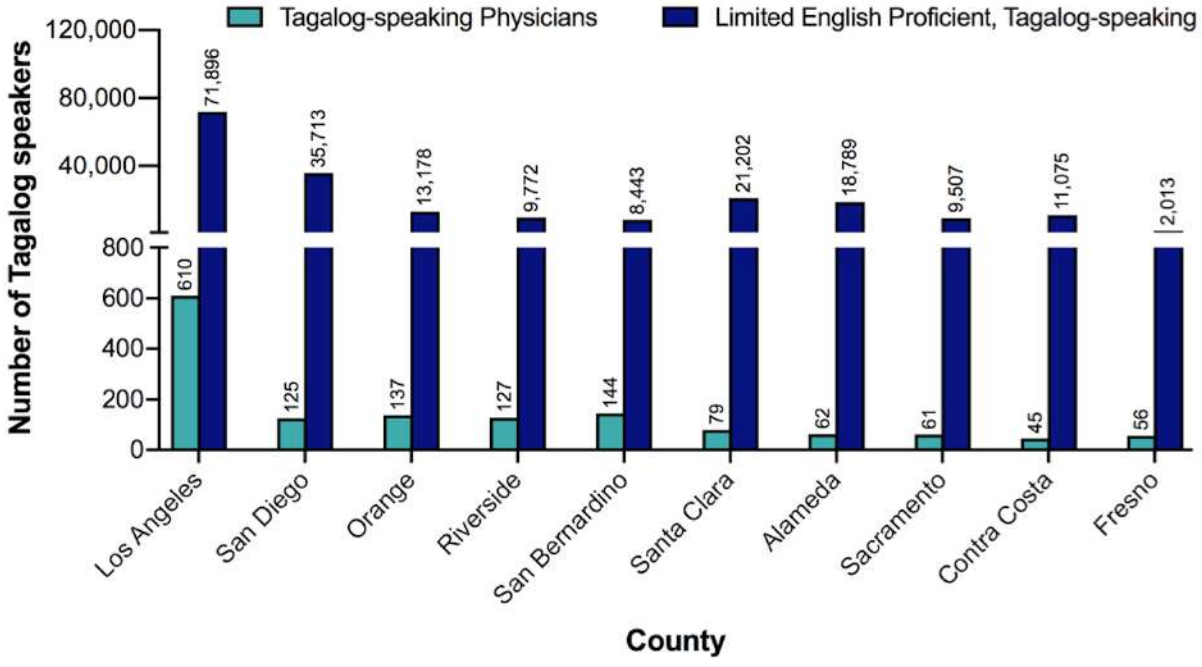


Figure 3 shows the total number of Thai and Lao-speaking physicians relative to the total number of Thai and Lao-speaking LEP populations for the ten most populous counties. To visualize the small number of Thai or Lao-speaking physicians, a y-axis break was set from 0 to 30 (bottom) and from 50 to 30,000 (top).

Figure 3. Number of Thai and Lao-speaking physicians relative to the Thai and Lao-speaking LEP population.

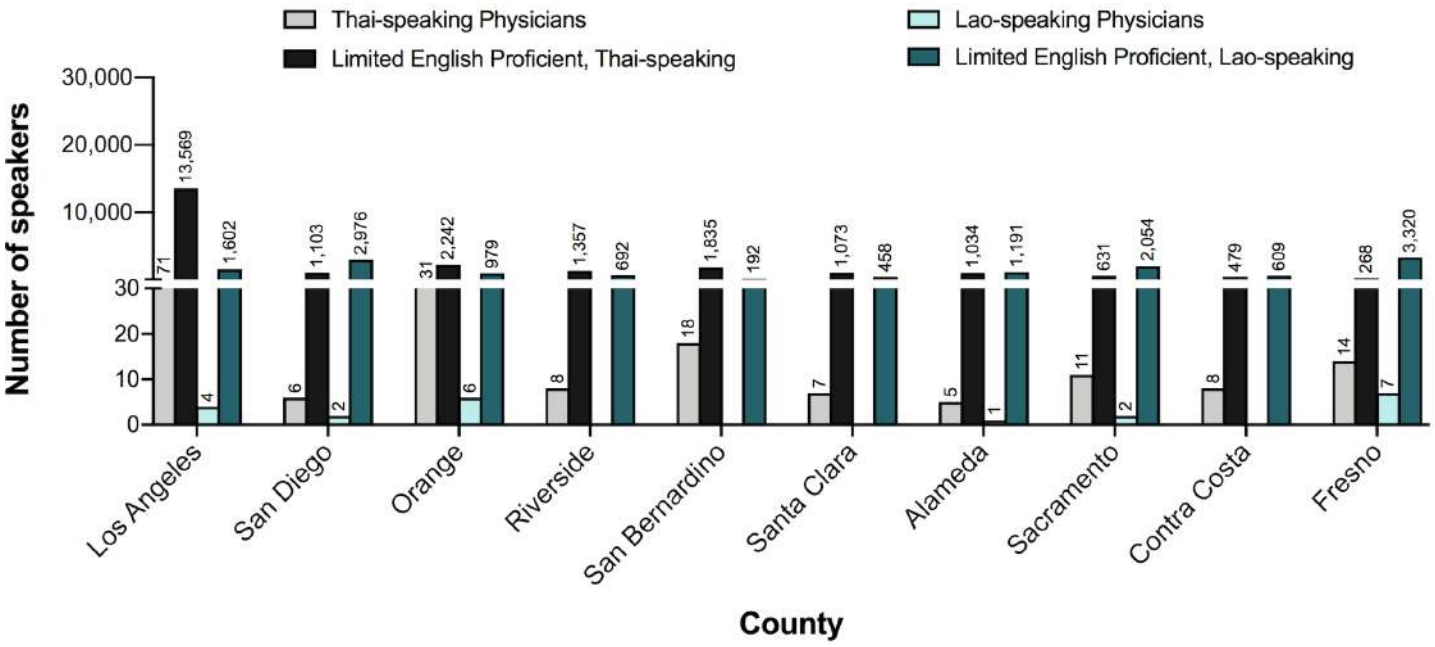
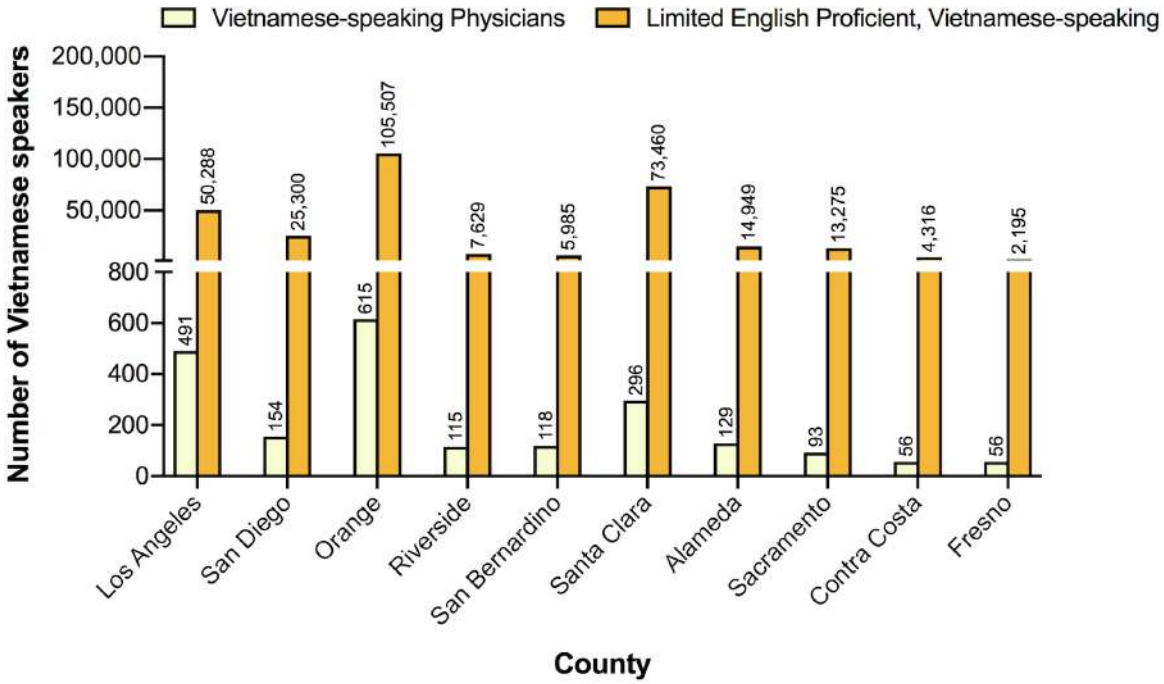


Figure 4 shows the total number of Vietnamese-speaking physicians relative to the total number of Vietnamese-speaking LEP populations for the ten most populous counties. Y-axis breaks were set from 0 to 8,000 (bottom) and 1,100 to 200,000 Vietnamese speakers (top).

Figure 4. Number of Vietnamese-speaking physicians relative to the Vietnamese-speaking LEP population.



A language discordance exists between Thai-speaking physicians and Thai-speaking LEP populations, whereas the highest rates are found in Tulare, Stanislaus, and Kings county, yet most Thai-speaking LEPs (> 2,000) reside in Los Angeles and Orange counties. Lao is the most under-represented Southeast Asian language. It is best represented in Placer and Santa Barbara counties (Appendix Table 2). However, the largest Lao-speaking LEP populations (> 2,000) reside in Fresno, San Diego, and Sacramento counties. The highest rates in Vietnamese-speaking physicians per 100,000 Vietnamese-speaking LEP populations are found in Madera, Nevada, Mendocino, and Imperial counties (Appendix Table 2). However, Orange, Los Angeles, Santa Clara, and San Diego counties contain the largest number of Vietnamese-speaking LEP populations (> 25,000).

Overall, we found that Spanish and Lao are the most under-represented language groups in California's physician workforce. With respect to Southeast Asian LEP Californians, the average Vietnamese-speaking physician rate per 100,000 LEP population is 5,563 and the average Thai-speaking physician rate is 1,897. For Tagalog-speaking physicians, the average rate is 1,610 (Table 3). Spanish and Lao lagged behind with average physician rates of 959 and 500, respectively, per 100,000 LEP population.

Table 3 summarizes the average physician rates calculated per 100,000 LEP population (average of all counties) for each under-represented language group in California.

Table 3. Average physician rates per 100,000 LEP population for all counties in California.

Language	Average physician rate per 100,000 population
Vietnamese	5,563
Thai	1,897
Tagalog	1,610
Spanish	959
Lao	500

POLICY CONSIDERATIONS

Our research analysis suggests that a language concordance mismatch exists in language proficient physicians serving the largest Southeast Asian (Vietnamese, Thai, and Lao), Tagalog, and Spanish-speaking communities within California's most populous counties. We determined that Spanish and Lao are the most under-represented language groups in the state of California (Table 3).

The discordance between Spanish-speaking physicians and Spanish-speaking LEP populations is highly problematic for growing Latino populations in California, including dense Latino populations in Northern and Central Valley counties (Fresno, Kern, Kings, Madera, Merced, and Tulare), the Inland Empire (San Bernardino and Riverside), Los Angeles, San Diego, and Imperial county.

To address the gap in language concordance, we recommend emphasizing language ability and fluency in medical school admissions for Spanish, Filipino/Tagalog, Thai, Lao, or Vietnamese languages (fluency in specialized clinical phrases and vocabulary); enhancing the educational pipeline framework for recruiting and preparing diverse students in healthcare careers; and addressing the geographic inequity in underserved rural and inland areas in Southern California by recruiting bilingual physicians and matching them with LEP patients in the clinical setting. Maximizing the existing workforce with culturally and linguistically-competent physicians in these communities will function to eliminate language barriers and reduce healthcare disparities (Race, Ethnicity, and Language Data, Institute of Medicine of the National Academies, 2009).

POLICY SOLUTIONS

1 INCREASE MEDICAL SCHOOL ADMISSIONS OF LANGUAGE-PROFICIENT APPLICANTS FROM UNDER-REPRESENTED LANGUAGE GROUPS

Increase medical school admissions of Spanish, Tagalog, and Southeast Asian language-proficient applicants to address the physician-to-patient language disparity observed in rural and urban underserved communities.

2 INCREASE FUNDING FOR MEDICAL SCHOOL PIPELINE PROGRAMS

Increase funding for pipeline programs that recruit, train, and retain under-represented students in the medical graduate and professional field to provide sustainable support for students interested in the pursuit of medicine.

3 EXPAND MEDICAL SCHOOL PROGRAMS

Expand California medical school programs to emphasize primary medical care for underserved communities in the form of new medical schools (rural MD schools and/or California State University MD programs).

4 INCREASE INTERNATIONAL MEDICAL GRADUATES IN CALIFORNIA

Increase the number of International Medical Graduates (IMG) in California by recruiting students trained as physicians in countries that can meet the need of medically underserved regions with underrepresented LEP populations in California (e.g. Central Valley and Inland Empire).

5 INCENTIVIZE PRACTICE IN LINGUISTICALLY UNDERSERVED REGIONS

Create incentives for medical practice in linguistically under-served regions to meet the needs of language-proficient physicians and to increase quality of care for LEP individuals.

APPENDIX

Table 1. Language proficient physician (LPP) rates per 100,000 Limited English Proficient (LEP) population for each county in California for Spanish and Tagalog.

County	Total County Population	Spanish				Tagalog			
		Number of Spanish-LPPs*	Number of LEP individuals[1]	Number of LEPs per 100,000	LPP rate per 100,000 LEP population	Number of Tagalog LPPs*	Number of LEP individuals[1]	Number of LEPs per 100,000	LPP rate per 100,000 LEP population
Alameda	1,531,853	711	107,952	1.07952	659	62	18,789	0.18789	330
Alpine	1,180	1	5	0.00005	20,000	0	0	0	0
Amador	35,835	7	820	0.00820	854	0	24	0.00024	0
Butte	212,825	55	6,789	0.06789	810	3	193	0.00193	1,554
Calaveras	43,151	10	551	0.00551	1,815	2	64	0.00064	3,125
Colusa	19,926	4	4,007	0.04007	100	0	14	0.00014	0
Contra Costa	1,058,105	395	83,084	0.83084	475	45	11,075	0.11075	406
Del Norte	25,808	1	725	0.00725	138	0	51	0.00051	0
El Dorado	176,444	25	4,000	0.04000	625	3	201	0.00201	1,493
Fresno	892,606	334	128,827	1.28827	259	56	2,013	0.02013	2,782
Glenn	25,904	4	4,089	0.04089	98	0	90	0.00090	0
Humboldt	128,103	43	2,703	0.02703	1,591	1	54	0.00054	1,852
Imperial	164,834	63	53,759	0.53759	117	8	137	0.00137	5,839
Inyo	17,159	3	734	0.00734	409	0	4	0.00004	0
Kern	806,894	186	128,340	1.28340	145	62	2,985	0.02985	2,077
Kings	138,382	23	23,177	0.23177	99	8	864	0.00864	926
Lake	60,495	15	3,508	0.03508	428	2	94	0.00094	2,128
Lassen	30,054	9	1,613	0.01613	558	0	2	0.00002	0
Los Angeles	9,473,811	5,904	1,565,418	15.65418	377	610	71,896	0.71896	848
Madera	142,745	37	26,034	0.26034	142	3	126	0.00126	2,381
Marin	248,260	186	15,133	0.15133	1,229	1	469	0.00469	213
Mariposa	16,900	1	242	0.00242	413	0	60	0.00060	0
Mendocino	82,322	39	6,974	0.06974	559	0	40	0.00040	0
Merced	246,042	54	47,785	0.47785	113	14	425	0.00425	3,294
Modoc	8,637	2	456	0.00456	439	0	1	0.00001	0
Mono	13,563	5	1,067	0.01067	469	0	1	0.00001	0
Monterey	400,322	199	102,121	1.02121	195	19	2,370	0.02370	802
Napa	133,501	62	17,036	0.17036	364	12	1,550	0.01550	774
Nevada	94,626	21	1,528	0.01528	1,374	0	47	0.00047	0
Orange	2,966,864	1,672	329,091	3.29091	508	137	13,178	0.13178	1,040
Placer	354,772	104	7,687	0.07687	1,353	24	1,361	0.01361	1,763
Plumas	17,892	7	193	0.00193	3,627	0	0	0.00000	0
Riverside	2,197,304	542	271,124	2.71124	200	127	9,772	0.09772	1,300
Sacramento	1,396,167	394	72,120	0.72120	546	61	9,507	0.09507	642
San Benito	54,782	16	9,048	0.09048	177	2	64	0.00064	3,125
San Bernardino	1,967,150	569	238,109	2.38109	239	144	8,443	0.08443	1,706
San Diego	3,070,763	1,782	288,365	2.88365	618	125	35,713	0.35713	350
San Francisco	825,057	803	34,760	0.34760	2,310	35	8,989	0.08989	389
San Joaquin	671,597	144	73,416	0.73416	196	70	8,304	0.08304	843
San Luis Obispo	266,471	123	14,707	0.14707	836	11	685	0.00685	1,606
San Mateo	718,121	343	60,453	0.60453	567	61	15,944	0.15944	383
Santa Barbara	414,427	244	62,623	0.62623	390	8	1,775	0.01775	451
Santa Clara	1,791,341	871	128,699	1.28699	677	79	21,202	0.21202	373
Santa Cruz	258,509	176	29,841	0.29841	590	8	306	0.00306	2,614
Shasta	168,441	47	1,998	0.01998	2,352	6	144	0.00144	4,167
Sierra	2,778	0	40	0.00040	0	0	0	0	0
Siskiyou	41,278	10	934	0.00934	1,071	0	20	0.00020	0
Solano	408,415	106	27,368	0.27368	387	35	9,210	0.09210	380
Sonoma	474,758	252	43,396	0.43396	581	11	613	0.00613	1,794
Stanislaus	496,438	145	65,217	0.65217	222	52	1,106	0.01106	4,702
Sutter	89,006	13	8,031	0.08031	162	6	205	0.00205	2,927
Tehama	59,371	4	4,296	0.04296	93	2	13	0.00013	15,385
Trinity	12,468	0	295	0.00295	0	0	0	0	0
Tulare	419,508	119	103,159	1.03159	115	29	1,362	0.01362	2,129
Tuolumne	51,492	13	681	0.00681	1,909	2	19	0.00019	10,526
Ventura	795,075	447	100,584	1.00584	444	23	4,356	0.04356	528
Yolo	200,208	64	16,315	0.16315	392	5	301	0.00301	1,661
Yuba	68,562	8	4,387	0.04387	182	3	169	0.00169	1,775

*Number of Language Proficient Physicians (LLPs): 2016 Medical Board of California's Physician Survey of Physicians and Surgeons (licensees) by language spoken and county practice location.

[1]Number of Spanish, Tagalog, or Vietnamese-speaking LEPs: Total individuals 5-years and older who speak a language other than English at home and speak English less than very well (Source: U.S. Census Bureau, 2017 American Community Survey 5-year estimates (2013-2017)).

Table 2. Language proficient physician (LPP) rates per 100,000 Limited English Proficient (LEP) population for each county in California for Thai, Lao, and Vietnamese.

County	Thai				Lao				Vietnamese			
	Number of Thai-LPPs*	Number of LEP individuals[2]	Number of LEPs per 100,000	LPP rate per 100,000 LEP population	Number of Lao-LPPs*	Number of LEP individuals[2]	Number of LEPs per 100,000	LPP rate per 100,000 LEP population	Number of Vietnamese-LPPs*	Number of LEPs individuals[1]	Number of LEPs per 100,000	LPP rate per 100,000 LEP population
Alameda	5	1,034	0.01034	484	1	1,191	0.01191	84	129	14,949	0.14949	863
Alpine	0	0	0	0	0	0	0	0	0	4	0.00004	0
Amador	0	0	0	0	0	48	0.00048	0	1	4	0.00004	25,000
Butte	2	42	0.00042	4,762	0	82	0.00082	0	6	182	0.00182	3,297
Calaveras	0	0	0	0	0	0	0	0	0	26	0.00026	0
Colusa	0	0	0	0	0	0	0	0	0	13	0.00013	0
Contra Costa	8	479	0.00479	1,670	0	609	0.00609	0	56	4,316	0.04316	1,297
Del Norte	0	29	0.00029	0	0	0	0	0	0	76	0.00076	0
El Dorado	0	41	0.00041	0	0	20	0.00020	0	2	140	0.00140	1,429
Fresno	14	268	0.00268	5,224	7	3,320	0.03320	211	56	2,195	0.02195	2,551
Glenn	0	0	0	0	0	52	0.00052	0	0	66	0.00066	0
Humboldt	0	1	0.00001	0	0	31	0.00031	0	1	22	0.00022	4,545
Imperial	1	0	0	0	0	0	0	0	8	29	0.00029	27,586
Inyo	0	0	0	0	0	0	0	0	0	3	0.00003	0
Kern	3	132	0.00132	2,273	0	16	0.00016	0	52	884	0.00884	5,882
Kings	1	17	0.00017	5,882	0	5	0.00005	0	5	119	0.00119	4,202
Lake	2	0	0.00000	0	0	0	0	0	0	9	0.00009	0
Lassen	0	7	0.00007	0	0	17	0.00017	0	0	42	0.00042	0
Los Angeles	71	13,569	0.13569	523	4	1,602	0.01602	250	491	50,288	0.50288	976
Madera	1	0	0	0	0	10	0.00010	0	7	9	0.00009	77,778
Marin	0	90	0.00090	0	0	18	0.00018	0	5	803	0.00803	623
Mariposa	0	0	0	0	0	0	0	0	1	0	0	0
Mendocino	0	9	0.00009	0	0	0	0	0	1	3	0.00003	33,333
Merced	1	158	0.00158	633	2	301	0.00301	664	8	140	0.00140	5,714
Modoc	0	2	0.00002	0	0	19	0.00019	0	0	13	0.00013	0
Mono	0	0	0	0	0	0	0	0	0	1	0.00001	0
Monterey	0	111	0.00111	0	0	0	0	0	10	921	0.00921	1,086
Napa	0	77	0.00077	0	0	10	0.00010	0	10	145	0.00145	6,897
Nevada	0	13	0.00013	0	0	0	0	0	2	5	0.00005	40,000
Orange	31	2,242	0.02242	1,383	6	979	0.00979	613	615	105,507	1.05507	583
Placer	2	124	0.00124	1,613	1	6	0.00006	16,667	27	415	0.00415	6,506
Plumas	0	0	0.00000	0	0	0	0	0	0	1	0.00001	0
Riverside	8	1,357	0.01357	590	0	692	0.00692	0	115	7,629	0.07629	1,507
Sacramento	11	631	0.00631	1,743	2	2,054	0.02054	97	93	13,275	0.13275	701
San Benito	0	0	0	0	0	0	0	0	3	21	0.00021	14,286
San Bernardino	18	1,835	0.01835	981	0	192	0.00192	0	118	5,985	0.05985	1,972
San Diego	6	1,103	0.01103	544	2	2,976	0.02976	67	154	25,300	0.25300	609
San Francisco	8	1,274	0.01274	628	1	202	0.00202	495	52	6,049	0.06049	860
San Joaquin	3	201	0.00201	1,493	1	1,038	0.01038	96	59	3,802	0.03802	1,552
San Luis Obispo	1	152	0.00152	658	0	23	0.00023	0	2	117	0.00117	1,709
San Mateo	1	306	0.00306	327	0	190	0.00190	0	35	1,346	0.01346	2,600
Santa Barbara	1	192	0.00192	521	1	11	0.00011	9,091	7	607	0.00607	1,153
Santa Clara	7	1,073	0.01073	652	0	458	0.00458	0	296	73,460	0.73460	403
Santa Cruz	0	78	0.00078	0	0	0	0	0	5	167	0.00167	2,994
Shasta	0	114	0.00114	0	0	127	0.00127	0	3	91	0.00091	3,297
Sierra	0	0	0	0	0	0	0	0	0	0	0	0
Siskiyou	0	4	0.00004	0	0	33	0.00033	0	1	0	0	0
Solano	2	173	0.00173	1,156	1	318	0.00318	314	13	1,533	0.01533	848
Sonoma	1	155	0.00155	645	0	396	0.00396	0	11	822	0.00822	1,338
Stanislaus	3	13	0.00013	23,077	1	587	0.00587	170	33	729	0.00729	4,527
Sutter	0	0	0	0	0	34	0.00034	0	9	118	0.00118	7,627
Tehama	0	0	0	0	0	0	0	0	0	52	0.00052	0
Trinity	0	0	0	0	0	0	0	0	0	0	0	0
Tulare	1	2	0.00002	50,000	1	594	0.00594	168	13	140	0.00140	9,286
Tuolumne	0	8	0.00008	0	0	6	0.00006	0	0	0	0	0
Ventura	5	376	0.00376	1,330	0	32	0.00032	0	32	1,656	0.01656	1,932
Yolo	2	161	0.00161	1,242	0	222	0.00222	0	8	714	0.00714	1,120
Yuba	0	13	0.00013	0	0	19	0.00019	0	5	41	0.00041	12,195

*Number of Language Proficient Physicians (LLPs): 2016 Medical Board of California's Physician Survey of Physicians and Surgeons (licensees) by language spoken and county practice location.

[1]Number of Spanish, Tagalog, or Vietnamese-speaking LEPs: Total individuals 5-years and older who speak a language other than English at home and speak English less than very well (Source: U.S. Census Bureau, 2017 American Community Survey 5-year estimates (2013-2017)).

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