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# Pediatricians' Use of Language Services for Families With Limited English Proficiency

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## ABSTRACT

**OBJECTIVES.** Patients with limited English proficiency confront multiple barriers to health care access in the United States. Appropriate language services for families with limited English proficiency are essential; however, little is known about pediatricians' use of language services. The objective of this study was to examine pediatricians' provision of language services to patients with limited English proficiency and the pediatrician, practice, and state characteristics associated with use of these services.

**METHODS.** Data were obtained from the Periodic Survey of Fellows No. 60, a nationally representative survey of members of the American Academy of Pediatrics. A total of 1829 surveys were mailed, and responses were obtained from 58%. Use of 6 language services was assessed. Factors associated with language services use were examined after adjusting for physician, practice, and state characteristics.

**RESULTS.** Bilingual family members (70%) and bilingual staff (58%) were the most frequently reported language services; 40% of respondents report the use of professional interpreters, 28% use telephone interpreters, and 35% of practices report provision of translated written materials. Pediatricians in smaller and rural practices and in states with higher proportions of limited English proficiency persons report less use of professional interpreters. Pediatricians in states with third-party reimbursement for language services are more likely to report use of professional interpreters.

**CONCLUSIONS.** Most pediatricians report using untrained interpreters to communicate with limited English proficiency patients and their families. Pediatricians in regions with high proportions of limited English proficiency persons may be less likely to provide appropriate language services. Third-party reimbursement for professional language services may increase the use of trained interpreters and quality of care.

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### Key Words

child health services, multilingualism, translating

### Abbreviations

LEP—limited English proficiency  
AAP—American Academy of Pediatrics  
SCHIP—State Children's Health Insurance Program  
OR—odds ratio  
CI—confidence interval

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**R**APID GROWTH IS occurring in the number of Americans with limited English proficiency (LEP), defined as those with a self-reported ability to speak English less than "very well."<sup>1</sup> Twenty-one million Americans had LEP in 2000, a substantial increase from 14 million who had LEP in 1990.<sup>1,2</sup> Patients with language barriers are at risk for impaired health status,<sup>3-5</sup> lack of health insurance,<sup>6</sup> increased test charges and lengths of stay in emergency departments,<sup>7</sup> increased adverse events during hospitalization,<sup>8</sup> decreased adherence to medications and follow-up appointments,<sup>9</sup> and a lower likelihood of receiving follow-up appointments after emergency department visits.<sup>10</sup>

The array of language services used in health care settings includes bilingual physicians, bilingual staff, bilingual family members and friends, professional interpreters, telephone interpreters, and written materials in the primary language. Different methods, however, have been shown to have varying levels of effectiveness. The use of bilingual physicians and professional interpreters results in optimal communication and improved medical outcomes<sup>5</sup> and has been linked with higher patient adherence, increased use of screening tests, an increased number of office visits, higher rates of prescriptions being filled, fewer laboratory tests ordered, increased adherence to guidelines, and increased patient satisfaction.<sup>11-15</sup> In contrast, untrained ad hoc interpreters, such as untrained staff or family members, friends, or strangers from the waiting room, are associated with poorer self-reported understanding of diagnoses, increased numbers of interpreter errors of clinical consequence,<sup>16-18</sup> and higher rates of testing and admission from emergency departments.<sup>12</sup>

Title VI of the Civil Rights Act of 1964 mandates that health care providers receiving federal funds provide "meaningful access to their programs and activities by LEP persons" without cost to the patient.<sup>19</sup> The use of trained interpreters among internists and family physicians is low, with cited barriers being cost, inconvenience, limited availability of trained interpreters, and an ongoing perception that ad hoc interpreters are sufficient.<sup>20,21</sup> Little is known about pediatricians' use of language services for families with LEP. The objectives of this study were to examine how pediatricians communicate with families with LEP and to examine the pediatrician, practice, and state characteristics associated with use of various language services.

## METHODS

Data for this study were obtained from the 60th Periodic Survey of Fellows, conducted by the American Academy of Pediatrics (AAP) Division of Health Services Research. Periodic Surveys are conducted 4 times annually on topics of importance to pediatrics; each survey uses a unique random sample of US nonretired members of the AAP.<sup>22</sup> Periodic Survey 60, an 8-page self-administered

questionnaire, was sent to 1829 AAP members between April and October 2004, with 5 follow-up mailings. The survey examined pediatrician involvement in community child health activities and services provided in their practices. A subset of questions asked about language services for patients with LEP and their families among pediatricians who reported caring for patients with LEP. Survey content was informed by a national advisory group with expertise in community pediatrics and by review of the AAP Community Pediatrics Action Group and members of the Council on Community Pediatrics. Institutional review board approval was obtained from the AAP and the Johns Hopkins Committee on Human Research. The survey is available on request from the AAP.

Respondents estimated the percentage of their patients with LEP, defined in the question as those for whom English was not the primary language and was spoken less than "very well." Questions were asked about the primary languages spoken by patients with LEP. For each primary language encountered, respondents were asked whether they provided each of 6 different methods of communication: bilingual physicians (self or other), bilingual staff, bilingual family members, professional interpreters, written materials in the primary language, and telephone interpreters.

Additional information was collected regarding physician and practice characteristics. Physician characteristics included age, gender, race, and Hispanic/Latino ethnicity (henceforth reported as Latino). Practices were categorized by setting (solo/2 physician, group with 3-10 pediatricians, group with >10 pediatricians/multi-specialty group/staff model health maintenance organization, or hospital/clinic/medical school), location (inner-city, other urban, suburban, or rural), and region (Northeast, Midwest, South, or West). Practices were dichotomized at the mean by the percentages of patients with public insurance as low ( $\leq 36\%$ ) or high ( $>36\%$ ) and also as having  $<20\%$  or  $\geq 20\%$  Latino patients.

States in which pediatricians practice were categorized by US Census-reported prevalence of LEP persons, growth in the Latino population, and the availability of public third-party (Medicaid or State Children's Health Insurance Program, SCHIP) reimbursement for language services. Ten states were identified as having high LEP, with  $\geq 9\%$  of the population speaking English less than "very well" relative to the national mean LEP proportion of 8%.<sup>23</sup> Ten states were categorized as having high LEP among Spanish speakers, defined as having  $\geq 5\%$  of the population speaking Spanish at home and speaking English less than very well.<sup>23</sup> Eight states were identified as having high LEP among Asian speakers, defined as having  $\geq 2\%$  of the population speaking an Asian or Pacific Island language and speaking English less than very well.<sup>23</sup> Twelve states were categorized as having a high interval population increase of Latinos, defined as an

increase of >200 000 Latinos between the 1990 and 2000 US Census.<sup>24</sup> Ten states were categorized as providing Medicaid/SCHIP reimbursement for interpreter services, ranging from direct provider or interpreter reimbursement to contracts with interpreter organizations for language services.<sup>25</sup>

Analyses were conducted using SPSS 12.0 (SPSS Inc, Chicago, IL). Tests for significance of means were conducted by *t* test and medians by Mann-Whitney and Kruskal-Wallis tests. Bivariate analyses were performed using  $\chi^2$  for categorical and analysis of variance for continuous variables. Multivariate analysis was performed by logistic regression using 3 domains of independent variables selected with health policy significance in mind: physician (age, gender, and Latino ethnicity), practice (setting and location), and state (LEP prevalence and Medicaid/SCHIP reimbursement) characteristics. The 6 methods of communication were selected as dependent variables, and all of the variables were forced in.

## RESULTS

Of the 1829 surveys mailed, 1053 were returned, for a response rate of 58%, which is consistent with previous AAP Periodic Surveys.<sup>26–29</sup> Survey respondents were more likely to be women ( $P < .01$ ), but no significant difference was found in age or geographic distribution.

Analyses were limited to the 835 respondents who finished their residency training, did not have a specialty fellow (certified by a board other than a pediatric board) designation, reported having patients with LEP, and responded to the subset of questions focusing on language services provided. A total of 51.8% of respondents included for analysis were women, with a mean age of 45.2 years and 7.6% reporting Latino ethnicity. Compared with 2006 national AAP member data, respondents included for analysis were more likely to report a younger age (mean age: 45.2 vs 46.3 years;  $P < .05$ ); no significant differences were found in gender or geographic distribution. Because the national AAP membership database does not contain sufficient information on ethnicity, aggregate data from AAP Periodic Surveys 59 to 61 were used for national comparison; survey respondents included for analysis were more likely to report Latino ethnicity (7.6% versus 5.2%;  $P < .001$ ).

Respondents self-reported a median percentage of 5.0% (mean: 13.4%) of patients with LEP. No patients with LEP were seen at 13% of practices, and >20% of patients had LEP in 19.3% of practices. Pediatricians reported 62 different languages spoken at home among their patients with LEP, most commonly Spanish (reported by 94.0%), Chinese (11.8%), and Vietnamese (10.5%). Pediatricians estimated that 53.8% of their patients were non-Latino white, 19.6% were Latino, 18.2% were black, and 5.8% were Asian/Pacific Islander. A mean of 53.2% of the patients had private insurance coverage, 36.7% had public insurance, 3.3%

had TRICARE (military) insurance, and 7.0% were uninsured.

Pediatricians who were <45 years old, women, or Latino reported caring for significantly higher proportions of LEP patients ( $P < .05$ ; Table 1). In addition, higher median proportions of patients with LEP were reported being seen by pediatricians practicing in hospitals, clinics or medical schools, the inner city, the Western United States, and those caring for high percentages of Latino and publicly insured patients.

Pediatricians reported multiple methods of communicating with patients with LEP. For respondents reporting provision of a language service, the most commonly identified methods were bilingual family members (69.6%), bilingual staff (58.3%), and bilingual physicians (52.4%; Table 2). The use of professional interpret-

**TABLE 1 Percentage of Patients With LEP by Selected Pediatrician and Practice Characteristics (N = 835)**

Characteristics	Mean (SD), %	Median (Range), %	<i>P</i> <sup>a</sup>
Pediatrician characteristics			
Age, y			
≤45	15.1 (20.4)	5.0 (0–99)	
>45	11.2 (14.8)	5.0 (0–85)	.02
Gender			
Male	11.5 (15.3)	5.0 (0–90)	
Female	15.2 (20.5)	5.0 (0–99)	.04
Latino ethnicity			
Yes	22.7 (25.8)	20.0 (0–90)	
No	12.1 (16.8)	5.0 (0–99)	<.001
Practice characteristics			
Practice setting			
Solo/2-physician practice	9.9 (15.3)	4.0 (0–80)	
Pediatric group, 3–10 pediatricians	8.3 (14.3)	4.0 (0–95)	
Pediatric group, >10; multispecialty group, staff model HMO	11.2 (14.2)	5.0 (0–85)	
Hospital/clinic/medical school	21.6 (21.9)	15.0 (0–99)	<.001
Practice location			
Inner city	25.8 (25.2)	20.0 (0–99)	
Noninner city urban area	14.8 (18.0)	5.0 (0–85)	
Suburban	7.2 (10.2)	5.0 (0–60)	
Rural	8.4 (12.4)	4.0 (0–80)	<.001
Practice region			
Northeast US Census region	14.2 (20.3)	5.0 (0–95)	
Midwest	8.1 (11.6)	5.0 (0–60)	
South	11.0 (14.8)	5.0 (0–85)	
West	20.9 (22.4)	10.0 (0–99)	<.001
Insurance status of patients			
Low public health insurance (≤36%)	7.0 (9.8)	5.0 (0–80)	
High public health insurance (>36%)	21.4 (22.9)	12.0 (0–99)	<.001
Latino patients			
<20%	6.1 (8.7)	4.0 (0–95)	<.001
≥20%	30.8 (22.4)	25.0 (0–99)	

Comparable significance was obtained using *t* tests to compared means.

<sup>a</sup> Statistical tests reported for median comparisons using Mann-Whitney and Kruskal-Wallis tests.

**TABLE 2** Pediatricians' Reported Method of Communication for Patients With LEP and Median Percentage of LEP Patients by Method of Communication (N = 698)

Method	Communication Method <sup>a</sup>		Median % (Range) of LEP Patients by Communication Method	
	n	%	Yes	No
			(Range)	(Range)
Bilingual family member	486	69.6	5 (1–90)	10 (1–99) <sup>b</sup>
Bilingual staff	407	58.3	10 (1–95)	5 (1–99) <sup>c</sup>
Bilingual physician (self or other)	366	52.4	10 (1–99)	5 (1–90) <sup>c</sup>
Professional interpreters	280	40.1	10 (1–90)	5 (1–99) <sup>c</sup>
Written materials in primary language	246	35.2	10 (1–95)	5 (1–99) <sup>c</sup>
Telephone interpreter	197	28.2	11 (1–90)	5 (1–99) <sup>c</sup>

<sup>a</sup> Multiple methods were reported.

<sup>b</sup>  $P < .01$ .

<sup>c</sup>  $P < .001$ .

ers (40.1%) and telephone interpreters (28.2%) was reported by fewer than half of respondents. More than one third (35.2%) of pediatricians reported providing written materials in the primary language. Higher median proportions of LEP patients were associated with pediatricians' use of all language services except for use of family members.

Language service use varied by selected physician, practice, and state characteristics (Table 3). Higher proportions of Latino than non-Latino pediatricians reported using bilingual physicians, and fewer Latino pediatricians relied on bilingual family members and professional interpreters ( $P < .001$ ). Significantly greater use of most language services was reported for pediatricians with more publicly insured patients and for those in practices located in inner cities and hospitals, clinics, or medical schools. Rural pediatricians reported significantly greater use of bilingual family members ( $P < .01$ ). Clinician age was not associated with language service use, but a greater percentage of female clinicians than male clinicians reported the use of bilingual family members and provision of written materials in the primary language.

Respondents in states with larger proportions of LEP patients, Spanish-speaking LEP patients, and Latino population growth estimated greater use of bilingual physicians and staff but a significantly lower use of professional interpreters (Table 4). In additional analyses limited to respondents who did not report the use of a bilingual physician or staff member, respondents in states with larger proportions of patient with LEP continued to report lower use of a professional interpreter ( $P < .01$ ; data not shown). No significant difference was found in high LEP states on reported professional interpreter use for pediatricians who reported use of a bilingual physician versus those who reported no use of a bilingual physician (data not shown).

**TABLE 3** Methods of Communication by Pediatrician and Practice Characteristics (Proportion of Pediatricians Reporting)

Method	Age, %		Gender, %		Latino Ethnicity, %		Practice Location, %				Practice Setting, %			High Percentage of Patients With Public Insurance, %		
	<43 y (N = 342)	≥43 y (N = 356)	Male (N = 330)	Female (N = 367)	Yes (N = 52)	No (N = 634)	Inner City (N = 156)	Other Urban (N = 212)	Suburban (N = 241)	Rural (N = 78)	Solo/2 Physicians (N = 86)	Group 3–10 (N = 204)	Group >10 (N = 145)	Hospital/Clinic (N = 230)	<36% (N = 330)	≥36% (N = 309)
Bilingual family member	68.4	70.8	65.5	73.3 <sup>a</sup>	36.5	72.2 <sup>b</sup>	62.2	64.2	74.7	82.1 <sup>c</sup>	75.6	75.5	71.0	61.3 <sup>c</sup>	70.3	72.8
Bilingual staff	55.8	60.7	58.8	57.8	51.9	58.7	69.2	59.0	56.0	46.2 <sup>c</sup>	51.2	56.4	54.5	65.2	53.6	66.0 <sup>c</sup>
Bilingual physician	55.6	49.4	50.6	54.0	90.4	48.9 <sup>b</sup>	63.5	51.4	42.5	43.6 <sup>c</sup>	53.5	52.0	45.5	57.4	46.4	60.5 <sup>b</sup>
Professional interpreters	43.0	37.4	40.9	39.5	15.4	42.3 <sup>b</sup>	64.1	47.6	22.0	25.6 <sup>b</sup>	15.1	17.2	26.9	43.9 <sup>b</sup>	30.9	44.7 <sup>b</sup>
Written materials in primary language	35.1	35.4	30.3	39.8 <sup>c</sup>	40.4	34.7	43.6	36.8	28.2	38.5 <sup>a</sup>	30.2	24.0	42.8	41.3 <sup>b</sup>	42.9	57.1 <sup>c</sup>
Telephone interpreter	28.9	27.5	27.6	28.9	23.1	28.7	45.5	27.8	18.7	24.4 <sup>b</sup>	17.2	17.2	26.9	43.9 <sup>b</sup>	20.6	33.3 <sup>b</sup>

<sup>a</sup>  $P < .05$ .

<sup>b</sup>  $P < .001$ .

<sup>c</sup>  $P < .01$ .

**TABLE 4 Method of Communication by Pediatricians in States With Varying Characteristics (Proportion of Pediatricians Reporting)**

Method	High LEP, % <sup>a</sup>		High LEP Among Spanish Speakers, % <sup>b</sup>		High LEP Among Asian Speakers, % <sup>c</sup>		High Increase in Latino Population Since 1990, % <sup>d</sup>		Medicaid/SCHIP Reimbursement, % <sup>e</sup>	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	(N = 317)	(N = 381)	(N = 285)	(N = 413)	(N = 235)	(N = 463)	(N = 321)	(N = 377)	(N = 72)	(N = 626)
Bilingual family member	72.6	67.2	72.6	67.6	71.5	68.7	70.6	68.5	63.9	70.3
Bilingual staff	76.0	43.6 <sup>f</sup>	74.7	47.0 <sup>f</sup>	72.3	51.2 <sup>f</sup>	70.3	44.2 <sup>f</sup>	43.1	60.1 <sup>g</sup>
Bilingual physician	63.1	43.6 <sup>f</sup>	63.5	44.8 <sup>f</sup>	62.6	47.3 <sup>f</sup>	63.4	36.6 <sup>f</sup>	43.1	53.5
Professional interpreters	30.9	47.8 <sup>f</sup>	30.9	46.5 <sup>f</sup>	36.2	42.1	33.4	48.0 <sup>f</sup>	59.7	37.9 <sup>f</sup>
Written materials in primary language	36.3	34.4	36.1	34.6	39.6	33.0	35.0	35.5	37.5	35.0
Telephone interpreter	24.3	31.5 <sup>h</sup>	24.2	31.0	27.2	28.7	24.9	32.1 <sup>h</sup>	31.9	27.8

<sup>a</sup> States include Arizona, California, Florida, Hawaii, Illinois, New Jersey, New Mexico, Nevada, New York, and Texas.

<sup>b</sup> States include Arizona, California, Colorado, Florida, Illinois, New Jersey, New Mexico, Nevada, New York, and Texas.

<sup>c</sup> States include Arkansas, California, Hawaii, New Jersey, Nevada, New York, Massachusetts, and Washington.

<sup>d</sup> States include Arizona, California, Colorado, Florida, Georgia, Illinois, North Carolina, New Jersey, Nevada, New York, Texas, and Washington.

<sup>e</sup> States include Hawaii, Idaho, Kansas, Massachusetts, Maine, Minnesota, Montana, New Hampshire, Utah, and Washington.

<sup>f</sup>  $P < .001$ .

<sup>g</sup>  $P < .01$ .

<sup>h</sup>  $P < .05$ .

States with higher proportions of Asian-language-speaking LEP patients had greater reported use of bilingual physicians and staff (Table 4). Lower rates of telephone interpreter use were described by respondents among states with the highest proportion of LEP persons and Latino population growth. There was significantly greater reported use of professional interpreters and lower use of bilingual staff in states with third party reimbursement for interpreter services.

In multivariate analysis (Table 5), female physicians had increased odds of using a bilingual family member (odds ratio, OR: 1.49; 95% confidence interval, CI: 1.05–2.11) and written materials in the primary language (OR: 1.60; 95% CI: 1.15–2.23). Non-Latino physicians had decreased odds of using a bilingual physician and increased odds of using bilingual family members, bilin-

gual staff, and professional interpreters. Suburban, rural, and noninner city urban practices were substantially less likely to use professional interpreters. Smaller practices had 8 to 9 times lower odds of using professional interpreters. Physicians in states with higher proportions of LEP persons were more likely to use bilingual physicians (OR: 2.17; 95% CI: 1.55–3.05) and bilingual staff (OR: 4.63; 95% CI: 3.22–6.67) but less likely to use professional interpreters (OR: 0.46; 95% CI: 0.31–0.69). Physicians in states with public third-party reimbursement for language services were more likely to use professional interpreters (OR: 2.05; 95% CI: 1.10–3.83).

## DISCUSSION

More than two thirds of US pediatricians report using family members as interpreters during encounters with

**TABLE 5 Multivariable Analyses of Factors Associated With Modes of Communication With LEP Patients Used in US Pediatricians' Offices**

Practice Characteristic	Adjusted OR (95% CI) of Using Communication Mode With LEP Patients/Families					
	Bilingual Family Member	Bilingual Staff	Bilingual Physician	Professional Interpreter	Written Materials in Primary Language	Telephone Interpreter Services
Pediatrician						
Age >45 y	1.19 (0.83–1.69)	1.01 (0.72–1.42)	0.83 (0.60–1.15)	0.76 (0.52–1.12)	1.05 (0.75–1.47)	0.96 (0.67–1.37)
Female gender	1.49 (1.05–2.11)	0.86 (0.61–1.20)	1.12 (0.81–1.54)	0.88 (0.60–1.28)	1.60 (1.15–2.23)	1.09 (0.76–1.56)
Not Latino	4.36 (2.36–8.05)	1.99 (1.07–3.71)	0.11 (0.04–0.30)	7.35 (3.10–17.5)	0.78 (0.43–1.42)	1.48 (0.73–3.00)
Practice						
Area						
Urban, not inner-city	0.91 (0.58–1.45)	0.68 (0.43–1.06)	0.83 (0.52–1.32)	0.60 (0.37–0.99)	0.90 (0.58–1.39)	0.58 (0.37–0.92)
Suburban	1.24 (0.75–2.06)	0.66 (0.41–1.07)	0.78 (0.47–1.28)	0.26 (0.15–0.45)	0.68 (0.42–1.10)	0.42 (0.25–0.70)
Rural	2.10 (1.03–4.29)	0.54 (0.29–1.00)	0.55 (0.29–1.03)	0.30 (0.15–0.61)	1.20 (0.66–2.20)	0.61 (0.32–1.17)
Setting						
Solo/2-person	1.52 (0.83–2.78)	0.94 (0.54–1.63)	0.46 (0.26–0.81)	0.13 (0.07–0.26)	0.67 (0.38–1.17)	0.34 (0.17–0.67)
3–10 person office	1.67 (1.04–2.67)	1.09 (0.71–1.69)	0.84 (0.53–1.31)	0.11 (0.07–0.19)	0.50 (0.32–0.79)	0.40 (0.25–0.66)
Multispecialty office/HMO	1.28 (0.79–2.08)	0.74 (0.46–1.17)	0.63 (0.39–1.01)	0.48 (0.30–0.77)	1.23 (0.78–1.93)	0.71 (0.44–1.15)
State						
High LEP	1.36 (0.94–1.96)	4.63 (3.22–6.67)	2.17 (1.55–3.05)	0.46 (0.31–0.69)	1.09 (0.77–1.54)	0.69 (0.48–1.01)
Medicaid/SCHIP reimbursement	0.83 (0.47–1.45)	0.92 (0.54–1.56)	1.03 (0.61–1.76)	2.05 (1.10–3.83)	1.16 (0.67–2.02)	1.06 (0.60–1.89)

Referent group was age ≤45 years, male, Latino, urban/inner city, hospital/medical school/community clinic, low LEP, with no Medicaid/SCHIP reimbursement.

LEP patients and their families. Less than half of pediatricians report use of professional interpreters, and only approximately one third report provision of written materials in the primary language. Even in states with high proportions of LEP persons, less than half of pediatricians report using professional interpreters, and almost three quarters report using family members as interpreters. Pediatricians in high LEP states are more likely to use bilingual providers but less likely to use professional interpreters, after adjusting for physician, practice, and state characteristics. Finally, reported use of professional and telephone interpreters were low in all states, regardless of demographics. Given the documented association between language barriers and compromised health care quality and patient safety,<sup>5</sup> the study findings highlight the need to develop policies and programs to promote the provision of adequate language services in pediatric practices caring for the rapidly growing population of families with LEP.

Several findings have key policy implications. Smaller and rural practices are less likely to use professional interpreters, even after adjustment for state LEP prevalence and third-party reimbursement for interpreter services. Further research is needed to determine whether this finding relates to insufficient availability of professional interpreters, inadequate reimbursement for language services, or the need for greater education on the importance of professional interpreters in providing high-quality care and optimal communication. Non-Latino physicians report greater use of bilingual staff and family members, possibly reflecting the need for improved training on cultural competency and on the hazards of using family members as interpreters. Physicians in states with higher proportions of persons with LEP report lower use of a professional interpreter; similar reported use of professional interpreters among respondents who report use of bilingual physicians or staff members compared with respondents reporting no use suggests that this finding cannot be explained by higher use of bilingual personnel in such states. Our results may suggest an inadequate supply of professional interpreters to meet the increasing demand in states with a high LEP population.

It is encouraging that third-party reimbursement for language services is associated with greater use of professional interpreters, suggesting an important intervention that could increase the use of appropriate language services. States with public third-party reimbursement for language services may have a paucity of bilingual providers and staff; according to the 2000 US Census, 8 of 10 states providing Medicaid and SCHIP reimbursement for interpreter services (at the time of the survey) have an LEP population proportion that is less than or equal to the median LEP population proportion for the United States, with only Hawaii having both a high proportion of LEP patients and third-party language ser-

vices reimbursement. Although there was a significant association between third-party reimbursement and professional interpreter use in adjusted analysis, reported use of professional interpreters was <60% even in states with third-party reimbursement. Levels of and mechanisms for payment vary by state,<sup>25</sup> and we do not know how often practices bill for these services, making it difficult to fully assess the effect of third-party reimbursement. We also have no information regarding private third-party reimbursement, but patients with LEP disproportionately have public insurance.<sup>30</sup>

The distribution of LEP patients is uneven across pediatricians, practices, and states and offers starting points to improve the delivery of language services. The higher proportion of LEP patients reported by female and younger pediatricians highlights the importance of education on proper language services use during the early years of physician training. Despite an emphasis on providing culturally effective care in residency training,<sup>31</sup> a recent study found that 22% of pediatric residents report being very or somewhat unprepared to treat patients with LEP.<sup>32</sup> Misperceptions exist among practicing physicians that family members provide sufficient interpretation services,<sup>20</sup> highlighting the need for provider education and practice policies that ensure uniform delivery of effective language services. Successful strategies already being used by small practice providers include determining language needs at initial contact, use of trained bilingual staff, extensive use of written translations available either through community resources or the Internet, and use of telephone language lines.<sup>19,33</sup> Finally, an increase in interpreter use has been reported among physicians with previous training in interpreter use.<sup>34</sup>

The overall cost of providing language services may be relatively modest. A federal report by the Office of Management and Budget estimated that the cost of interpreter services for LEP persons, when averaged over all inpatient, outpatient, and dental visits, would be an average of \$4.04 more per visit, equivalent to 0.5% of the average cost per health care visit.<sup>35</sup> Latinos and Asians incur annual medical costs 20% to 60% less than the mean of non-Latino whites, and the overall cost of providing interpreter services is less than existing cost disparities.<sup>30</sup> However, health care providers in many states currently assume the burden of the cost of language services, potentially creating disincentives for providing language services. Outpatient providers, in particular, bear a disproportionate share of the cost. Third-party reimbursement would alleviate the burden<sup>30</sup> and may increase preventative medical services, which could further lower the overall cost of interpreter services.<sup>13</sup>

Certain study limitations should be noted. First, the response rate was 58%; however, this is similar to that of other large national physician postal surveys,<sup>36</sup> and analysis of response rates in previous AAP surveys reveals

minimal nonresponse bias.<sup>29</sup> Respondents included for analysis tended to be younger relative to national AAP membership and to have a higher proportion reporting Latino ethnicity compared with overall Periodic Survey respondents, which could overestimate LEP patient prevalence and frequency of language service provision. Second, survey data were self-reported and subject to recall bias. Providers may vary in how they estimate the percentage of their patients with LEP, and reported use of a language service may not reflect actual frequency of use; for example, it is unlikely that the 52% of respondents reporting use of a bilingual physician provide a bilingual physician for each encounter with a patient with LEP. Third, no additional definitions for methods of communication were provided for survey respondents, possibly resulting in respondents having differing definitions of what may compose a “professional” interpreter or “written materials in the primary language.” Finally, our study does not address the quality or effectiveness of language services that are provided, and the quality of the training of individual interpreters is not known. Health care interpreter standards were issued recently by the National Council on Interpreting in Health Care<sup>37</sup>; how interpreter standards will impact the supply and costs of interpreter services is unknown.

## CONCLUSIONS

The provision of language services for LEP patients is inadequate in many pediatricians’ offices. The problem is particularly severe in smaller and rural practices and in states with high proportions of LEP patients. Given the documented risks of inadequate interpretation, including adverse health status, decreased preventative screening, compromised patient safety, and decreased patient satisfaction, there is an urgent need to promote appropriate language services through the use of interpreters, translated written materials, provider training, and third-party reimbursement.

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## REFERENCES

1. Shin HB, Bruno R. *Language Use and English-Speaking Ability: 2000*. Census 2000 Brief, C2KBR-29. 2003. Available at: www.census.gov/prod/2003pubs/c2kbr-29.pdf. Accessed October 2, 2006
2. US Census Bureau. *Language Use and English Ability, Persons 5 Years and Over, by State: 1990 Census*. CPHL-96, Table 1. Avail-

able at: www.census.gov/population/socdemo/language/table1.txt. Accessed October 2, 2006

3. Kirkman-Liff B, Mondragón D. Language of interview: relevance for research of southwest Hispanics. *Am J Public Health*. 1991;81:1399–1404
4. Flores G, Abreu M, Olivar MA, Kastner B. Access barriers to health care for Latino children. *Arch Pediatr Adolesc Med*. 1998; 152:1119–1125
5. Flores G. The impact of medical interpreter services on the quality of health care: a systematic review. *Med Care Res Rev*. 2005;62:255–299
6. Yu SM, Nyman RM, Kogan MD, Huang ZJ, Schwalberg RH. Parent’s language of interview and access to care for children with special health care needs. *Ambul Pediatr*. 2004;4:181–187
7. Hampers LC, Cha S, Gutglass DJ, Binns HJ, Krug SE. Language barriers and resource utilization in a pediatric emergency department. *Pediatrics*. 1999;103:1253–1256
8. Cohen AL, Rivara F, Marcuse EK, McPhillips H, Davis R. Are language barriers associated with serious medical events in hospitalized pediatric patients? *Pediatrics*. 2005;116:575–579
9. Manson A. Language concordance as a determinant of patient compliance and emergency room use in patients with asthma. *Med Care*. 1988;26:1119–1128
10. Sarver J, Baker DW. Effect of language barriers on follow-up appointments after an emergency department visit. *J Gen Intern Med*. 2000;15:256–264
11. Kuo D, Fagan MJ. Satisfaction with methods of Spanish interpretation in an ambulatory care clinic. *J Gen Intern Med*. 1999; 14:547–550
12. Hampers LC, McNulty JE. Professional interpreters and bilingual physicians in a pediatric emergency department: effect on resource utilization. *Arch Pediatr Adolesc Med*. 2002;156: 1108–1113
13. Jacobs EA, Shepard DS, Suaya JA, Stone EL. Overcoming language barriers in health care: costs and benefits of interpreter services. *Am J Public Health*. 2004;94:866–869
14. Garcia EA, Roy LC, Okada PJ, Perkins SD, Wiebe RA. A comparison of the influence of hospital-trained, ad hoc, and telephone interpreters on perceived satisfaction of limited English-proficient parents presenting to a pediatric emergency department. *Pediatr Emerg Care*. 2004;20:373–378
15. Green AR, Ngo-Metzger Q, Legeedza AT, Massagli MP, Phillips RS, Iezzoni LI. Interpreter services, language concordance, and health care quality. Experiences of Asian Americans with limited English proficiency. *J Gen Intern Med*. 2005;20:1050–1056
16. Flores G, Laws MB, Mayo SJ, et al. Errors in medical interpretation and their potential clinical consequences in pediatric encounters. *Pediatrics*. 2003;111:6–14
17. Flores G, Abreu M, Tomany-Korman SC. Limited English proficiency, primary language at home, and disparities in children’s health care: how language barriers are measured matters. *Public Health Rep*. 2005;120:418–430
18. Elderkin-Thompson V, Silver RC, Waitzkin H. When nurses double as interpreters: a study of Spanish-speaking patients in a US primary care setting. *Soc Sci Med*. 2001;52:1343–1358
19. Department of Health and Human Services. Guidance to federal financial assistance recipients regarding Title VI prohibition against national origin discrimination affecting Limited English Proficient persons. *Fed Regist*. 2003;68:47311–47323
20. Hornberger J, Itakura H, Wilson SR. Bridging language and culture barriers between physicians and patients. *Public Health Rep*. 1997;112:410–417
21. Ahmed R, Bowen J, O’Donnell W. Cultural competence and language interpreter services in Minnesota: results of a needs assessment survey administered to physician members of the Minnesota Medical Association. *Minn Med*. 2004;87:40–42
22. American Academy of Pediatrics. *Pediatric Survey of Fellows*.

- Available at: [www.aap.org/research/periodicsurvey/psf.htm](http://www.aap.org/research/periodicsurvey/psf.htm). Accessed October 2, 2006
23. US Census Bureau. *Language Spoken at Home and Ability to Speak English for the Population 5 Years and Over by State: 2000*. PHC-T-20, Table 4. 2003. Available at: [www.census.gov/population/cen2000/phc-t20/tab04.pdf](http://www.census.gov/population/cen2000/phc-t20/tab04.pdf). Accessed October 2, 2006
  24. Guzmán B. *The Hispanic Population*. Census 2000 Brief C2KBR/01-3. 2001. Available at: [www.census.gov/prod/2001pubs/c2kbr01-3.pdf](http://www.census.gov/prod/2001pubs/c2kbr01-3.pdf). Accessed October 2, 2006
  25. National Health Law Program. *Medicaid/SCHIP Reimbursement Models for Language Services*. Washington, DC: National Health Law Program; 2003
  26. Balk SJ, O'Connor KG, Saraiya M. Counseling parents and children on sun protection: a national survey of pediatricians. *Pediatrics*. 2004;114:1056-1064
  27. Kemper KJ, O'Connor KG. Pediatricians' recommendations for complementary and alternative medical (CAM) therapies. *Ambul Pediatr*. 2004;4:482-487
  28. Sand N, Silverstein M, Glascoe FP, Gupta VB, Tonniges TP, O'Connor KG. Pediatricians' reported practices regarding developmental screening: do guidelines work? Do they help? *Pediatrics*. 2005;116:174-179
  29. Cull WL, O'Connor KG, Sharp S, Tang SF. Response rates and response bias for 50 surveys of pediatricians. *Health Serv Res*. 2005;40:213-226
  30. Ku L, Flores G. Pay now or pay later: providing interpreter services in health care. *Health Aff (Millwood)*. 2005;24:435-444
  31. Rezet B, Risko W, Blaschke GS. Competency in community pediatrics: consensus statement of the Dyson Initiative Curriculum Committee. *Pediatrics*. 2005;115:1172-1183
  32. Weissman JS, Betancourt J, Campbell EG, et al. Resident physicians' preparedness to provide cross-cultural care. *JAMA*. 2005;294:1058-1067
  33. Youdelman M, Perkins J *Providing Language Services in Small Health Care Provider Settings: Examples from the Field*. The Commonwealth Fund. April 2005. Available at: [www.cmwf.org/usr\\_doc/810\\_Youdelman\\_providing\\_language\\_services.pdf](http://www.cmwf.org/usr_doc/810_Youdelman_providing_language_services.pdf). Accessed October 2, 2006
  34. Karliner LS, Pérez-Stable EJ, Gildengorin G. The language divide. The importance of training in the use of interpreters for outpatient practice. *J Gen Intern Med*. 2004;19:175-183
  35. Office of Management and Budget. *Report To Congress. Assessment of the Total Benefits and Costs of Implementing Executive Order No. 13166: Improving Access to Services for Persons with Limited English Proficiency*. 2002. Available at: [www.whitehouse.gov/omb/inforeg/lepfinal3-14.pdf](http://www.whitehouse.gov/omb/inforeg/lepfinal3-14.pdf). Accessed October 2, 2006
  36. Cummings SM, Savitz LA, Konrad TR. Reported response rates to mailed physician questionnaires. *Health Serv Res*. 2001;35:1347-1355
  37. National Council on Interpreting in Health Care. *National Standards of Practice for Interpreting in Health Care*. September 2005. Available at: [www.ncihc.org/NCIHC\\_PDF/National\\_Standards\\_of\\_Practice\\_for\\_Interpreter\\_in\\_Health\\_Care.pdf](http://www.ncihc.org/NCIHC_PDF/National_Standards_of_Practice_for_Interpreter_in_Health_Care.pdf). Accessed October 2, 2006

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