

Household Language Use and Health Care Access, Unmet Need, and Family Impact Among CSHCN

abstract

OBJECTIVES: We examined the association of household language use and access to care among children with special health care needs (CSHCN). From this study we describe the demographics of children and the prevalence of selected access characteristics according to their primary household language and examine the independent effects of household language on health care access, unmet needs, and family impact while controlling for confounding variables.

METHODS: Data from the 2005–2006 National Survey of Children With Special Health Care Needs, a nationally representative telephone survey of 40 723 CSHCN, were analyzed. Bivariate and multivariable analyses were used to examine disparities and estimate adjusted odds ratios of health care access, satisfaction, and family-impact measures for CSHCN from non–English-primary-language (NEPL) versus English-primary-language (EPL) households.

RESULTS: Nearly 14% of all US children live in NEPL households. NEPL CSHCN were significantly more likely to be Hispanic or other race, be poor, have less educated parents, and reside in metropolitan areas and larger households and yet were less likely to be on cash assistance from welfare. Logistic regression showed that NEPL CSHCN were twice as likely to lack access to a medical home, a usual source of care, and family-centered care. They were 4 times as likely to lack health insurance, and their family members were also more likely to lack adequate insurance. Family members of NEPL children were almost twice as likely to have to stop employment as a result of their child's condition.

CONCLUSIONS: Although limited by program eligibility contingent on immigrant status and state policies, increased referrals to programs such as the State Children's Health Insurance Program and Medicaid can improve access while utilization can be improved by the availability of interpreters, community health workers, linguistically concordant providers, and outreach education efforts of NEPL parents. *Pediatrics* 2009;124:S414–S419

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KEY WORDS

household language use, medical home, unmet need, CSHCN, disparities, socioeconomic status, United States

ABBREVIATIONS

LEP—limited English proficiency

CSHCN—children with special health care needs

NS-CSHCN—National Survey of Children With Special Health Care Needs

EPL—English-primary-language

NEPL—non–English-primary-language

OR—odds ratio

CI—confidence interval

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According to US Census Bureau estimates, 20.3% of school-aged children in 2006 spoke a language other than English at home, and 8.7% (24.2 million) of people in the United States speak English “less than ‘very well,’” or are officially classified as having limited English proficiency (LEP).^{1,2} Being of LEP has been recognized as an obstacle to receiving health care and can affect the health of specific minority populations, as well as the general population.^{3–5} LEP speakers report “lack of knowledge” as an access barrier to health services more frequently, and they are less likely to understand their diagnosis, medications, treatment, and follow-up instructions than more proficient English speakers.^{6–8} Adverse effects of language barriers have been documented in primary care, asthma care, and pharmacy settings.^{9–11} Studies have shown that, in various circumstances, non-English speakers are less likely to have a usual source of care, to receive preventive services, follow-up appointments, sufficient information, and adequate therapy, and to participate in medical decision-making.^{12,13} Studies of emergency department use have shown that patients with language barriers may also experience higher admission rates and more diagnostic studies, leading to higher costs for emergency services.^{14–17} In addition, language barriers have been associated with lacking components consistent with family-centered care, fewer physician visits, lower rates of patient satisfaction, and increased reports of lower quality of care.^{18–21} English proficiency is also a strong predictor of access to health insurance for children, and children from non-English-speaking families are especially likely to rely on other countries for their health care because of the relative lack of familiarity with and access to US health care systems.²² In fact, English proficiency has been suggested

to mitigate the effects of race/ethnicity commonly observed in health care access and utilization studies. Language barriers have even more deleterious effects in vulnerable populations such as children with special health care needs (CSHCN), partly because of the complexity of some children’s needs and the increased importance of clear communication between parents and health care providers.^{23,24} Although the need for and access to interpreters have increased in recent years, the actual implementation has not been optimal.^{25,26}

To our knowledge, no previous study has focused on examining household language use and children’s access to health care, unmet needs, and health care experiences among CSHCN. The 2005–2006 National Survey of Children With Special Health Care Needs (NS-CSHCN) collected the information necessary to accomplish this analysis.²⁷ With our study we aimed to describe the demographics of children and the prevalence of selected access characteristics according to the primary household language reported by the responding parent and to examine the independent effects of primary household language on health care access, unmet needs, and health care experiences while controlling for confounding variables.

METHODS

To analyze disparities in CSHCN according to language use, we used the 2005–2006 NS-CSHCN, a nationally representative telephone health care survey of 40 723 CSHCN aged 17 years or younger. To estimate disparities in the overall CSHCN prevalence and provide socioeconomic and descriptive characteristics of children from English-primary-language (EPL) and non-English-primary-language (NEPL) households, we used the entire screener sample of 363 183 children. The survey was conducted by the Na-

tional Center for Health Statistics under the sponsorship and direction of the Maternal and Child Health Bureau.^{28–30} CSHCN are defined as those “who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.”³¹ The survey respondent was the parent or guardian who knew most about the health care experiences of the CSHCN.^{28–30} Substantive and methodologic details of the survey have been described elsewhere.^{28–30}

Using Maternal and Child Health Bureau criteria, the composite medical home variable was measured by a series of questions related to its 5 components: (1) having a usual place for sick/well care; (2) having a personal doctor or nurse; (3) experiencing no difficulty in obtaining needed referrals; (4) receipt of needed care coordination; and (5) the presence of family-centered care.³²

Besides primary language spoken at home (English or any other language) (our primary covariate of interest), we used, on the basis of previous research, the following variables as covariates: child’s age (0–5, 6–11, or 12–17 years), gender, race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic, or other), household income/poverty level (ratio of family income to poverty threshold: <100%, 100%–200%, 200%–400%, or ≥400% of the federal poverty level), insurance coverage at the time of the survey (except when this or inadequate insurance coverage was the outcome variable), child’s functional limitation (daily activities never affected, daily activities somewhat or moderately affected, or daily activities usually, always, or a great deal affected), and region of residence (Northeast, Midwest, South, or West).^{22,23}

Income/poverty status was missing for 9% of the households and was imputed by using a complex multiple-imputation technique.³³ For all other covariates, there were very few unknown responses, which were excluded from the multivariate analyses. The χ^2 statistic was used to test the overall association between each covariate and each of the health care access, utilization, and impact outcomes. Multivariate logistic regression was used to examine the association between household language use and the binary health care access, utilization, and impact outcome variables before and after controlling for the selected individual-level sociodemographic factors. Adjusted prevalence estimates were predicted marginals derived from the fitted logistic models. To account for the complex sample design of the survey, SUDAAN software³⁴ was used to conduct multivariate logistic analyses and determine crude and adjusted prevalence.

RESULTS

Table 1 lists the sociodemographic characteristics of children from EPL and NEPL households. Nearly 14% of all US children live in NEPL households. Among children from NEPL households, nearly 80% were Hispanic, nearly 15% lived in households with 4 or more adults, more than 90% lived in a metropolitan residence, and more than 40% lived in the Western region of the United States. Nearly half of these children lived below the federal poverty level, and nearly 40% had parents with less than 12 years of education. Only 7% of NEPL children received cash assistance from welfare, compared with 13% of children from EPL households.

Table 2 lists measures on health care access, satisfaction, and family impact among CSHCN in EPL and NEPL households. Measures with the highest dif-

TABLE 1 Descriptive Socioeconomic and Demographic Characteristics of Children Aged 17 Years or Younger in EPL and NEPL Households: 2005–2006 NS-CSHCN

Characteristic	EPL Households	NEPL Households
Estimated US child population, <i>N</i>	62 778 580	10 168 007
Total US child population, % (SE)	86.06 (0.19)	13.94 (0.19)
Non-Hispanic white population, % (SE)	66.01 (0.22)	5.43 (0.32)
Hispanic population, % (SE)	9.68 (0.15)	78.86 (0.60)
Non-Hispanic black population, % (SE)	16.63 (0.18)	2.32 (0.22)
Other race population, % (SE)	7.68 (0.12)	13.40 (0.50)
Households with ≥ 4 adults, % (SE)	5.39 (0.10)	14.93 (0.52)
Metropolitan residence, % (SE)	81.34 (0.15)	92.90 (0.31)
Residence in Western region, % (SE)	21.14 (0.18)	44.06 (0.77)
Households below poverty level, % (SE)	14.47 (0.18)	47.08 (0.85)
Households with income at $\geq 400\%$ of poverty level, % (SE)	31.64 (0.23)	8.61 (0.46)
Parental education < 12 y, % (SE)	5.07 (0.12)	37.06 (0.77)
Received cash assistance from welfare, % (SE)	13.49 (0.33)	6.94 (0.62)

Differentials in prevalence for each demographic characteristic between children in EPL and NEPL households were statistically significant at $P < .01$ using χ^2 statistics.

ference in prevalence between the 2 groups were lacking usual source of care, lacking a personal doctor/nurse, lacking family-centered care, and lacking insurance coverage at the time of the survey. Excess burdens on NEPL family members included a higher percentage spending more than 10 hours arranging or providing care for their child's condition; stopping employment; experiencing financial prob-

lems; and needing additional income to cover their child's medical expenses. However, a higher percentage of EPL families paid more than \$1000 for their child's medical care in the past year.

Table 3 lists the adjusted odds ratios (ORs) of health care access, satisfaction, and family-impact measures for CSHCN from NEPL versus EPL house-

TABLE 2 Observed (Weighted) Prevalence of Health Care Access, Satisfaction, and Family-Impact Measures Among CSHCN in EPL and NEPL Households: 2005–2006 NS-CSHCN

Health Care Access, Satisfaction, and Family-Impact Measures	EPL Households		NEPL Households		% Difference in Prevalence
	%	SE	%	SE	
	Overall CSHCN prevalence	15.17	0.12	4.53	
Lack of access to medical home	51.68	0.44	77.89	1.99	33.7
Child had no usual source of care	6.47	0.21	19.26	2.1	66.4
Child had no personal doctor/nurse	6.18	0.21	12.99	1.65	52.4
Difficulty obtaining needed referrals	20.52	0.64	37.01	4.28	44.6
Not receiving needed effective care coordination	40.18	0.49	54.61	2.77	26.4
Lacking family-centered care	32.82	0.42	66.49	2.35	50.6
Delayed/foregone care	8.02	0.24	14.33	1.6	44.0
Unmet health care need	15.85	0.33	20.90	1.84	24.2
Unmet need for family support services	4.81	0.19	6.02	1.34	20.1
Lacking insurance coverage at time of survey	2.98	0.13	13.66	1.52	78.2
Family lacking adequate insurance coverage	37.26	0.42	53.09	2.37	29.8
Child's condition caused financial problems	17.84	0.33	22.81	1.86	21.8
Family spent ≥ 10 h arranging or providing for child's condition	4.25	0.20	7.74	1.24	45.1
Family members had to stop employment because of child's condition	22.89	0.36	42.33	2.31	45.9
Family needed additional income to cover child's medical expenses	16.06	0.32	20.32	1.76	21.0
Family paid \$1000 or more for child's medical care in the last year	20.01	0.33	13.47	1.43	–48.6

All differences in prevalence among children in EPL and NEPL households were statistically significant at $P < .05$.

TABLE 3 Adjusted ORs (for NEPL CSHCN Relative to EPL CSHCN) and Adjusted Prevalence of Various Health Care Access, Satisfaction, and Family-Impact Measures Among CSHCN in EPL and NEPL Households: 2005–2006 NS-CSHCN

Health Care Access, Satisfaction, and Family-Impact Measures	(NEPL vs EPL Households)		Adjusted Prevalence			
	Adjusted OR	95% CI	EPL Households		NEPL Households	
			%	SE	%	SE
Overall CSHCN prevalence	0.28	0.25–0.31	15.07	0.13	4.92	0.25
Lack of access to medical home	2.06	1.57–2.67	52.21	0.45	67.99	2.71
Child had no usual source of care	2.12	1.42–3.17	6.64	0.23	12.78	2.09
Child had no personal doctor/nurse	1.17	0.82–1.69	6.42	0.23	7.41	1.16
Difficulty obtaining needed referrals	1.51	0.99–2.29	20.81	0.66	28.08	3.99
Not receiving needed effective care coordination	1.34	1.01–1.78	40.54	0.50	47.18	3.27
Lacking family-centered care	2.30	1.79–2.95	33.40	0.43	52.08	2.88
Delayed/foregone care	0.81	0.54–1.21	8.18	0.26	6.84	1.16
Unmet health care need	0.67	0.51–0.89	16.35	0.34	12.02	1.3
Unmet need for family support services	0.85	0.50–1.44	4.92	0.20	4.23	1.01
Lacking insurance coverage at time of survey	3.60	2.46–5.27	3.05	0.14	9.91	1.58
Family lacking adequate insurance coverage	1.56	1.24–1.95	37.50	0.43	48.00	2.74
Child's condition caused financial problems	1.10	0.85–1.43	17.99	0.34	19.29	1.82
Family spent ≥10 h arranging or providing for child's condition	0.91	0.55–1.51	4.43	0.23	4.07	0.87
Family members had to stop employment because of child's condition	1.87	1.47–2.39	23.20	0.38	34.14	2.29
Family needed additional income to cover child's medical expenses	1.10	0.84–1.44	16.17	0.33	17.35	1.76
Family paid \$1000 or more for child's medical care in the previous year	1.17	0.88–1.56	19.60	0.32	22.01	2.21

ORs and prevalence were adjusted by logistic regression for child's age, gender, race/ethnicity, household poverty status, region of residence, insurance coverage at time of survey (except when this or inadequate insurance coverage was the outcome variable), and impact of condition on activity.

holds, controlling for child age, gender, race/ethnicity, household poverty status, region of residence, insurance status, and impact of condition on activity. NEPL children were twice as likely to be lacking access to a medical home (OR: 2.06 [95% confidence interval (CI): 1.57–2.67]), lacking a usual source of care (OR: 2.12 [95% CI: 1.42–3.17]), and lacking family-centered care (OR: 2.3 [95% CI: 1.79–2.95]). They were more likely to not receive effective care coordination (OR: 1.34 [95% CI: 1.01–1.78]). NEPL children were also significantly more likely to lack health insurance coverage at the time of the survey (OR: 3.6 [95% CI: 2.46–5.27]), and their family members were also more likely to be lacking adequate insurance coverage (OR: 1.56 [95% CI: 1.24–1.95]). Family members of NEPL children were almost twice as likely to have to stop employment because of their child's condition (OR:

1.87 [95% CI: 1.47–2.39]). The adjusted prevalence of each measure for both EPL and NEPL children are also listed.

DISCUSSION

Overall, more than 10 million children live in NEPL households that together make up approximately one seventh of the US child population. Our analysis indicates that the prevalence of CSHCN is 3 times as much in EPL compared with NEPL households, and yet the small proportion of CSHCN identified in NEPL households by the current survey had less access to health care and insurance and less satisfactory health care experience. Because fewer services were likely available to their children, NEPL families sacrificed more time and employment opportunities to care for their CSHCN.

The lower prevalence of CSHCN among the NEPL population can be partly at-

tributed to the screener definition of requiring children to use prescriptions, additional services, specialized therapies, and mental health counseling.²⁹ All these components require participation in the medical care system. For NEPL children who were not already in the health care system, it would be less likely for them to be characterized as having a special health care need. Additional possible explanations for the lower prevalence can be a result of the healthy-immigrant effect and the ethnic differences in the cultural perceptions of health. Previous studies have also demonstrated that immigrant populations have lower expectations of health care systems.^{22,35}

Compared with the 2001 NS-CSHCN, uninsurance has declined for both CSHCN from EPL (from 5.2% to 3%) and NEPL (from 21.2% to 13.7%) households.²³ However, the risks of lacking a usual source of care and having family employment consequences remain twofold for NEPL children when compared with EPL children. CSHCN from NEPL households in the current survey were less likely to report an unmet health care need compared with those in the 2001 NS-CSHCN (OR: 0.67 [95% CI: 0.51–0.89] vs National Survey in 2001). Although the analyses based on the 2001 NS-CSHCN were based on language of the interview, which included the most linguistically isolated population, the current definition of the NEPL population captured those who responded to the survey in both English and non-English. We may, in fact, be seeing access barriers expanded to a slightly larger, lower-risk population.

Compared with the more recent National Survey of Children's Health conducted in 2003, among the NEPL children, 27% had no insurance at the time of the interview versus only 14% identified among CSHCN in the current survey.⁸ Thirty-eight percent of all NEPL children had no usual source of care in 2003, whereas 19.3% of CSHCN lacked

a usual source of care in the current survey. It seems that the NEPL CSHCN population had a more favorable health care access profile compared with the general NEPL population. On the other hand, the reduced diagnosis of CSHCN among NEPL children is likely associated with less access to care of the NEPL population.

This study has several potential limitations. The survey was conducted in English or Spanish, and translation was provided for 4 Asian languages, thus excluding immigrant NEPL households that could not respond to the survey language options. Those immigrants who responded were likely to be more educated and fluent in English compared with their peers, thus resulting in a likely underestimate of risk for the actual NEPL populations in the United States. The lower prevalence of land-

line telephones among immigrant populations may also have contributed to the underrepresentation of NEPL respondents.³⁶ Unauthorized immigrants who may be at the highest risk of lacking access were likely to not have participated in the survey for fear of exposing their illegal status, although the surveyors did not ask questions about nativity or citizenship status. This selection bias likely excluded the most underserved populations. In 2008, it was estimated that ~11.9 million of unauthorized immigrants resided in the United States.³⁷ The use of household primary language has also been shown to be not as sensitive as parental LEP in predicting disparities in outcome, yet this was the only language measure in the survey, which likely underestimates the risk of the LEP population.³⁸

Because a large proportion of NEPL parents have low income and are less educated, clinicians who care for such populations should be familiar with resources such as the Supplemental Nutrition Program for Women, Infants, and Children (WIC), Head Start, and school nutrition programs so that appropriate referrals can be made. Eligibility for such programs often varies according to immigrant status, as well as state and local policies.³⁵ Enrolling more NEPL children in Medicaid and State Children's Health Insurance Programs can also alleviate some of the access disparities seen in our analysis, whereas utilization can be improved by the availability of interpreters, community health workers, linguistically concordant providers, and outreach education efforts of NEPL parents.

REFERENCES

1. US Census Bureau. Race: total population. In: *2006 American Community Survey*. Washington, DC: Census Bureau; 2006
2. US Census Bureau. *Summary File 3, Technical Documentation. 2000 Census of Population and Housing*. Washington, DC: US Department of Commerce; 2005
3. Flores G, Fuentes-Afflick E, Barbot O, et al. The health of Latino children: urgent priorities, unanswered questions, and a research agenda [published correction appears in *JAMA*. 2003;290(6):756]. *JAMA*. 2002;288(1):82–90
4. Vitullo MW, Taylor AK. Latino adults' health insurance coverage: an examination of Mexican and Puerto Rican subgroup differences. *J Health Care Poor Underserved*. 2002;13(4):504–525
5. Timmins CL. The impact of language barriers on the health care of Latinos in the United States: a review of the literature and guidelines for practice. *J Midwifery Womens Health*. 2002;47(2):80–96
6. Kelly NR, Groff JY. Exploring barriers to utilization of poison centers: a qualitative study of mothers attending an urban Women, Infants, and Children (WIC) clinic. *Pediatrics*. 2000;106(1 pt 2):199–204
7. Ramirez D, Engel KG, Tang TS. Language interpreter utilization in the emergency department setting: a clinical review. *J Health Care Poor Underserved*. 2008;19(2):352–362
8. Flores G, Tomany-Korman SC. The language spoken at home and disparities in medical and dental health, access to care, and use of services in US children. *Pediatrics*. 2008;121(6). Available at: www.pediatrics.org/cgi/content/full/121/6/e1703
9. Pippins JR, Alegria M, Haas JS. Association between language proficiency and the quality of primary care among a national sample of insured Latinos. *Med Care*. 2007;45(11):1020–1025
10. Mosnaim GS, Sadowski LS, Durazo-Arvizu RA, et al. Parental language and asthma among urban Hispanic children. *J Allergy Clin Immunol*. 2007;120(5):1160–1165
11. Bradshaw M, Tomany-Korman S, Flores G. Language barriers to prescriptions for patients with limited English proficiency: a survey of pharmacies. *Pediatrics*. 2007;120(2). Available at: www.pediatrics.org/cgi/content/full/120/2/e225
12. Sarver J, Baker DW. Effect of language barriers on follow-up appointments after an emergency department visit. *J Gen Intern Med*. 2000;15(4):256–264
13. Ferguson WJ, Candib LM. Culture, language and the doctor-patient relationship. *Fam Med*. 2002;34(5):353–361
14. Flores G, Rabke-Verani J, Pine W, Sabharwal A. The importance of cultural and linguistic issues in the emergency care of children. *Pediatr Emerg Care*. 2002;18(4):271–284
15. Waxman MA, Levitt MA. Are diagnostic testing and admission rates higher in non-English-speaking versus English-speaking patients in the emergency department? *Ann Emerg Med*. 2000;36(5):456–461
16. Hampers LC, Cha S, Gutglass DJ, Binns HJ, Krug EE. Language barriers and resource utilization in a pediatric emergency department. *Pediatrics*. 1999;103(6 pt 1):1253–1256
17. Lee ED, Rosenberg CR, Sixsmith DM, Pang, D, Abularrage J. Does a physician-patient language difference increase the probability of hospital admission [published correction appears in *Acad Emerg Med*. 1998;5(3):277]? *Acad Emerg Med*. 1998;5(1):86–89
18. Mazor SS, Hampers LC, Chande VT, Krug SE. Teaching Spanish to pediatric emergency physicians: effects on patient satisfaction. *Arch Pediatr Adolesc Med*. 2002;156(7):693–695
19. Derosé KP, Baker DW. Limited English proficiency

- ciency and Latinos' use of physician services. *Med Care Res Rev*. 2000;57(1):76–91
20. Fiscella K, Franks P, Doescher MP, Saver BG. Disparities in health care by race, ethnicity, and language among the insured: findings from a national sample. *Med Care*. 2002; 40(1):52–59
 21. Weech-Maldonado R, Morales LS, Spritzer K, Elliot M, Hays RD. Racial and ethnic differences in parents' assessments of pediatric care in Medicaid Managed Care. *Health Serv Res*. 2001;36(3):575–595
 22. Yu SM, Huang ZJ, Schwalberg RH, Nyman RM. Parental English proficiency and children's health services access. *Am J Public Health*. 2006;96(8):1449–1455
 23. 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(2):181–187
 24. Ngui EM, Flores G. Unmet needs for specialty, dental, mental, and allied health care among children with special health care needs: are there racial/ethnic disparities? *J Health Care Poor Underserved*. 2007; 18(4):931–949
 25. Flores G, Torres S, Holmes LJ, Salas-Lopez D, Youdelman MK, Tomany-Korman SC. Access to hospital interpreter services for limited English proficient patients in New Jersey: a statewide evaluation. *J Health Care Poor Underserved*. 2008;19(2):391–415
 26. Kuo DZ, O'Connor KG, Flores G, Minkovitz CS. Pediatricians' use of language services for families with limited English proficiency. *Pediatrics*. 2007;119(4). Available at: www.pediatrics.org/cgi/content/full/119/4/e920
 27. Kogan MD, Strickland BB, Newacheck PW. Building systems of care: findings from the National Survey of Children With Special Health Care Needs. *Pediatrics*. 2009; 124(suppl 4):S333–S336
 28. National Center for Health Statistics. *The National Survey of Children With Special Health Care Needs (NS-CSHCN), 2005–2006: The Public Use Data File*. Hyattsville, MD: US Department of Health and Human Services; 2007
 29. Blumberg SJ, Welch EM, Chowdhury SR, Upchurch HL, Parker EK, Skalland BJ. Design and operation of the National Survey of Children With Special Health Care Needs, 2005–2006. *Vital Health Stat 1*. 2008;(45): 1–188
 30. Health Resources and Services Administration, Maternal and Child Health Bureau. *The National Survey of Children With Special Health Care Needs Chartbook, 2005–2006*. Rockville, MD: US Department of Health and Human Services; 2007
 31. McPherson M, Arango P, Fox H, et al. A new definition of children with special health care needs. *Pediatrics*. 1998;102(1 pt 1): 137–140
 32. Strickland B, McPherson M, Weissman G, van Dyck P, Huang ZJ, Newacheck P. Access to the medical home: results of the National Survey of Children With Special Health Care Needs. *Pediatrics*. 2004;113(5 suppl): 1485–1492
 33. Pedlow S, Luke JV, Blumberg SJ. Multiple imputation of missing household poverty level values from the National Survey of Children With Special Health Care Needs, 2001, and the National Survey of Children's Health, 2003. Available at: www.cdc.gov/nchs/data/slaits/mimp01_03.pdf. Accessed April 28, 2008
 34. *SUDAAN: Software for the Statistical Analysis of Correlated Data* [computer program]. Release 9.0.1. Research Triangle Park, NC: Research Triangle Institute; 2005
 35. Yu SM, Huang ZJ, Kogan MD. State-level health care access and use among children in US immigrant families. *Am J Public Health*. 2008;98(11):1996–2003
 36. Blumberg SJ, Luke JV, Cynamon ML. Telephone coverage and health survey estimates: evaluating the need for concern about wireless substitution. *Am J Public Health*. 2006;96(5):926–931
 37. Passel JS, Cohn D. Trends in unauthorized immigration: undocumented inflow now trails legal flow. Pew Hispanic Center. Available at: <http://pewhispanic.org/reports/report.php?ReportID=94>. Accessed October 2, 2009
 38. 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(4): 418–430

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