Medical Home Disparities for Latino Children by Parental Language of Interview

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Abstract: Examination of Latino children in aggregate ignores important subgroup differences due to the parents' English language ability. Previous reports of the pediatric medical home have not stratified Latino children by parental language differences to compare the two groups directly. We analyzed the 2007 National Survey of Children's Health to determine medical home prevalence among Latino children, stratified by language of parental interview. Most Latino children with a Spanish-language parental interview had a usual source of care, but only one-quarter had a medical home. Striking medical home disparities persisted for Latino children with a Spanish-language interview, even after adjustment for potential confounders. Lack of a medical home was associated with disparities in the quality of care, more so than access disparities. Addressing health care disparities for Latino children requires particular attention to the unique needs of Latino children with parents who may experience language barriers during health care encounters.

Key words: Pediatrics, primary health care, patient-centered care, health care disparities, Hispanic Americans.

The medical home model, often used to examine the primary care experiences of children, is a summative measure that incorporates elements of both primary care access and quality. The medical home, as defined by the American Academy of Pediatrics, includes access to a usual source of care, a usual provider at the usual source of care, and care that is comprehensive, coordinated, family-centered, compassionate, and culturally-effective.[1] Latino children are less likely than non-Latino White children to have access to high-quality primary care, including having a medical home. Additionally, adjustment for interview language or a non-English language spoken at home reduces, but does not eliminate, primary care disparities between Latinos and White children.[2–6]

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To further understand primary care disparities among Latino children, more information on differences between Latino children according to language status of the parent is needed. Children with parents with limited English proficiency (LEP), or in households where the primary language is not English, are more likely to be uninsured, to have worse access to health care, to have decreased preventive care use, to experience poorer communication between parents and health care providers, and to have greater parental dissatisfaction with care than children in English-speaking families.[2–15] However, previous studies that have examined the effect of language barriers have rarely separated out Latino children from children of other races/ethnicities. A study that examined Latino children separately from Asian/Pacific Islander children found key differences between the two groups with respect to insurance status, health care access, and reports of health care experiences.[12]

Health care disparities due to the parents' language barriers most likely disproportionately affect Latino children. According to U.S. Census data there are 22 million adults in the U.S. who speak English less than "very well" and thus are classified as having limited English proficiency (LEP).[16] Among LEP adults in the U.S., nearly two-thirds are of Latino ethnicity; almost half of all adult Latinos in the U.S. have LEP.[16] Examination of Latino children in aggregate misses important within-group differences due to parents' English language ability.[11] To our knowledge previous reports of primary care disparities using the medical home model have not focused on the direct comparison of the characteristics of Latino children stratified by parental language differences.

The purpose of this study is to examine sociodemographic differences and the prevalence of the medical home among Latino children, stratified by language of parental interview, and to examine how the primary care access and quality components of the medical home definition contribute to the medical home status of Latino children with a Spanish *versus* English-language interview.

Methods

Data source. The 2007 National Survey of Children's Health (NSCH) is a telephone survey conducted from April 2007 to July 2008. The NSCH comprised 91,642 interviews with a weighted response rate of 46.7%. Survey data were weighted to be nationally representative of non-institutionalized children 0–17 years of age. Respondents completed the survey in English (N=86,027), Spanish (N=4,407), or one of four Asian languages (N=123). We used the publically available data from the Child and Adolescent Health Measurement Initiative (CAHMI) to conduct these analyses.[17] Further information on the design, methods, and operation of the NSCH is reported elsewhere.[18]

Study sample. Our analysis sample included non-Latino White children and Latino children of any race. Latino children were stratified by whether or not the parent completed the interview in English. Our study includes three mutually exclusive racial/ethnic-linguistic groups: Latino children with a Spanish-language parental interview (SLI), Latino children with an English-language parental interview (ELI), and non-Latino White children. Latino children with a respondent who did not complete the survey interview in English were presumed to have completed the survey in Spanish and were categorized as SLI Latino children. Actual language of interview was suppressed in the final dataset due to privacy concerns and listed only as English *versus*

non-English. We restricted children classified as ELI Latino and non-Latino White children to those children with respondents who completed the survey in English *and* declined a need for an interpreter to communicate with health care providers to decrease the likelihood that parents of children in those groups experienced language barriers. Non-Latino White children who did not meet these criteria were excluded, as were non-Latino children of other races and children for whom race/ethnicity-language status could not be determined.

Outcome variable. We determined the medical home status of children based on the medical home scoring metric available from the CAHMI.[19] The CAHMI medical home measure uses a series of questions in the NSCH based on the American Academy of Pediatrics medical home definition and incorporates measures of both primary care access and quality.[1] To meet criteria for receiving care in a medical home, children had to have a usual source of care with a usual provider and meet quality-of-care threshold criteria in four domains: family-centered care, coordinated care, comprehensive care, and culturally-effective care. The CAHMI medical home measure collapses culturally-effective care into the family-centered care domain. We used CAHMI scoring criteria for question responses to separate these two medical home domains for our analyses. The CAHMI metrics for the medical home measure are summarized in the Appendix, and further specifics on the measure are available elsewhere.[19]

Sociodemographic, health insurance, and health status variables. Sociodemographic variables included child's age, sex, place of birth, household income, and mother's education. The NSCH reported household income as a percentage of the federal poverty level (FPL) using 2007 guidelines.[18]

Health insurance coverage was determined using health insurance status in the 12 months prior to the survey. Children were classified as having continuous coverage if the respondent reported that the child currently had health insurance and denied a lapse in health insurance coverage in the prior 12 months. Children with continuous coverage were subdivided according to the current type of insurance reported by the respondent (public or private). Children were classified as having discontinuous coverage if the respondent reported that the child currently had health insurance, but reported a lapse in coverage in the prior 12 months, or if the child was currently uninsured, but the respondent reported insurance coverage at some time during the prior 12 months. Uninsured children had no health insurance during the 12 months prior to the survey.

Consistent with other research, health status of the child was dichotomized to either poor/fair or good/very good/excellent.[20,21] Children with a special health care need (CSHCN) were identified by a composite variable in the NSCH constructed from the CSHCN screener developed by the CAHMI.[17,18]

Statistical analysis. We explored bivariate relationships between race/ethnicity-language status, sociodemographic, insurance coverage, health status, and primary care access and quality variables for all children. For children with a usual source of care and usual provider, we examined the relationship between race/ethnicity-language status and meeting threshold criteria for the four medical home domains, and the relationship between race/ethnicity-language status and question responses within the family-centered care and culturally-effective care domains.

The Pearson χ^2 was used to test the significance of differences in race/ethnicity-language across proportions for categorical variables. The adjusted Wald test was used

to test the significance of differences in means. We used multivariate logistic regression to examine the association between primary care access and quality measures and race/ethnicity-language status after adjusting for sociodemographic, health insurance, and health status characteristics.

We present findings only for children who had information for the medical home variable. Listwise deletion was also employed for children missing sociodemographic, health insurance, and health status variables, excepting household income, mother's education, and health insurance status. Multiple imputation by chained equations was used to impute missing values in the dataset for those variables due to the amount of missing data.[22] We conducted multivariate analyses with both imputed and non-imputed data, and findings were similar. Only multivariate findings presented in the Results section include imputed data. All analyses were performed using Stata/IC version 11.0 (Stata Corp., College Station, TX) to account for the complex survey design.

Results

Sample characteristics. Our study sample consisted of 69,901 children, and 48% of Latino children had respondents that completed the survey interview in Spanish. Nearly all (95%) of SLI Latino children lived in households where the primary language was not English, while 90% of ELI Latino children lived in households where the primary language was English. Other sample characteristics are presented in Table 1.

Primary care access and quality. In bivariate analyses, shown in Table 2, SLI Latino children were less likely than ELI Latino children to have a medical home, and both groups of Latino children were less likely than White children to have a medical home. Additionally SLI children were less likely then ELI Latino children to have access to primary care at a usual source of care and a usual provider at the usual source of care. We also found disparities between ELI Latino children and non-Latino White children across primary care access and quality measures.

In multivariate analyses (Table 3) adjusted for sociodemographic, health insurance, and health status characteristics, disparities in primary care access and quality persisted for both Latino children with Spanish and English-language interviews compared with non-Latino White children. Spanish-language interview Latino children had less than one-third the odds of having a medical home, and ELI Latino children had slightly more than one-half the odds of having a medical home compared with non-Latino White children.

Quality of care characteristics within the medical home measure. Figure 1 presents the proportion of children meeting quality of care criteria for a medical home across the four care domains (comprehensive care, coordinated care, culturally-effective care, and family-centered care) by race/ethnicity-language. Among the four medical home domains, SLI Latino children were least likely to have family-centered care.

Figure 2 displays the differences in responses among the questions in the family-centered care domain. Responses of "usually" or "always" met threshold criteria for family-centered care, while responses of "sometimes" or "never" did not. Compared with other family-centered care questions, respondents for SLI Latino children were least likely to feel the provider spent enough time with the child during appointments.

Table 1.

SELECTED CHILD AND FAMILY SOCIODEMOGRAPHIC AND CHILD HEALTH INSURANCE AND HEALTH STATUS CHARACTERISTICS

Characteristic	Latino with Sp-lang interview (SLI) (n=3959)	Latino with Eng-lang interview (ELI) (n=6772)	Non-Latino White (n=59170)	p-values[a]	
				SLI vs. ELI Latino	ELI Latino vs. White
Sociodemographics					
Mean age of child, years (95% CI)[b]	7.9 (7.5–8.3)	8.2 (7.9–8.6)	8.7 (8.6–8.8)	.25	.007
Female, %	48	49	48	.77	.59
Foreign-born child, %	20	3	1	<.001	<.001
Household income by federal poverty level (FPL)					
≤100% FPL, %	56	18	9		
>100%–200% FPL, %	34	25	17	<.001	<.001
>200% FPL, %	10	57	75		
Mother's education level					
Less than high school, %	57	12	5		
High school graduate, %	29	30	23	<.001	<.001
More than high school, %	14	58	72		

(Continued on p. 1156)

Table 1. *(continued)*

Characteristic	Latino with Sp-lang interview (SLI) (n=3959)	Latino with Eng-lang interview (ELI) (n=6772)	Non-Latino White (n=59170)	p-values[a]	
Health Insurance Status					
Insurance coverage prior 12 months					
Continuous private coverage, %	13	54	74		
Continuous public coverage, %	51	27	15		
Discontinuous coverage, %	17	16	8	<.001	<.001
Uninsured, %	19	4	2		
Health Status					
Perceived health status, fair/poor, %	12	4	2	<.001	<.001
Child with special health care need, %	9	19	21	<.001	.20

[a]Pearson χ^2 was used to test the significance of differences in race/ethnicity-language across proportions.
[b]Uses adjusted Wald test to test for the difference in the significance of means.

Table 2.

PRIMARY CARE ACCESS AND QUALITY BY RACE/ETHNICITY-LANGUAGE STATUS

Primary Care Access	Latino with Sp-lang Interview (SLI)	Latino with Eng-lang interview (ELI)	Non-Latino White	p-values	
				SLI vs. ELI Latino	ELI Latino vs. White
Usual source of health care, %	78	93	97	<.001	<.001
Primary Care Quality					
Usual provider at usual source of health care, %	68	86	93	<.001	<.001
Medical home,[a] %	25	51	68	<.001	<.001

[a]As defined in methods.

Differences in question responses were also analyzed for culturally-effective care. Spanish-language interview Latino children were significantly less likely than ELI Latino children to experience care that was "usually" or "always" sensitive to the family's values or customs (78% and 88%, respectively; $p<.001$). Among non-Latino White children, 95% had care that was "usually" or "always" culturally-sensitive. Adequate availability of interpreters was also required to qualify as having culturally-effective care for SLI Latino children; non-family member interpreters were "usually" or "always" available for 70% of children whose families needed an interpreter.

Discussion

This study uses the most recent national data available to address the question of English proficiency and access to the medical home and demonstrates marked medical home disparities by ethnicity and language among Latino children's families. Only one-quarter of Latino children with a Spanish-language parental interview, and only one-half of Latino children with an English-language interview, had a medical home compared with two-thirds of non-Latino White children. As a result of subdividing Latino children by their parents' language differences, we have identified SLI Latino children as an especially vulnerable subgroup of Latino children for disparities in health care access and quality. Addressing health care disparities for Latino children will require particular attention to the unique needs of Latino children with parents who may experience linguistic barriers during health care encounters.

While the medical home concept encompasses an array of health care services, our

Table 3.

ADJUSTED ODDS RATIOS FOR PRIMARY CARE ACCESS AND QUALITY MEASURES[a,b]

Characteristic	Primary Care Access	Primary Care Quality	
	Usual source of health care OR (95% CI)	Usual provider at usual source of care OR (95% CI)	Medical Home OR (95% CI)
Race/Ethnicity-language			
Latino with Sp-lang interview	0.37 (0.27–0.50)	0.45 (0.35–0.58)	0.30 (0.24–0.38)
Latino with Eng-lang interview	0.53 (0.38–0.73)	0.57 (0.45–0.72)	0.57 (0.49–0.65)
Non-Latino White	1.00	1.00	1.00
Insurance Coverage Prior 12 Months			
Uninsured	0.30 (0.20–0.45)	0.26 (0.20–0.35)	0.48 (0.36–0.64)
Discontinuous coverage	0.49 (0.34–0.70)	0.49 (0.38–0.63)	0.53 (0.46–0.62)
Continuous public coverage	0.74 (0.52–1.04)	0.79 (0.62–1.00)	0.78 (0.68–0.90)
Continuous private coverage	1.00	1.00	1.00
Household income			
≤100% FPL	0.77 (0.52–1.14)	0.68 (0.51–0.89)	0.73 (0.61–0.88)
>100%–200% FPL	0.87 (0.63–1.21)	0.69 (0.56–0.86)	0.83 (0.73–0.95)
>200% FPL	1.00	1.00	1.00

[a]In addition to the covariates above, multivariate models were also adjusted for child's age, sex, foreign birth of child, mother's education, health status, and special health care need status.
[b]These results include imputed data.

findings underscore the critical importance of the relationship between the patient/family and provider on primary care quality for children whose parents may not speak English well. Previous studies on health care disparities among Latino children have more often focused on disparities in structural aspects of primary care such as access to care or receiving particular services (i.e. developmental screening or anticipatory guidance) rather than relational aspects of primary care. However, for SLI Latino children the quality of the relationship with the usual provider was a significant determinant of medical home status. One-half of SLI Latino children who had both a usual provider and a usual source of care experienced inadequate family-centered care and thus did not have a medical home. Both linguistic barriers and cultural differences may contribute to perceived low quality of relationship among SLI Latino famillies.[15,23,24] Interpreters, particularly certified interpreters, and bilingual providers can reduce the negative effects of linguistic barriers on health care quality.[23,25–30] However, neither offers a perfect solu-

tion as cultural barriers may still be present. Patient quality-of-care assessments can be lower for encounters using an interpreter rather than a bilingual provider, though a recent study based in the pediatric emergency department found equivalent to higher levels of satisfaction with interpretation compared with bilingual providers.[23,25,29]

Insufficient access to linguistic services was also associated with lack of a medical home. Nearly one-third of SLI Latino children who had a usual provider and a usual source of care and needed an interpreter did not have consistent access to one. Due to a limited supply of interpreters in health care settings, interpreters are commonly not available when needed, but inadequate use of interpreters by providers even when available may also contribute to reports of inadequate interpreter access.[26,27,31,32] We could not assess the adequacy of interpretation for those children with access, so the need for interpreter services may be even greater than that identified in this study. The NSCH only asked families to report on the availability of non-family member interpreters. Therefore we could not distinguish between those families with access to a certified interpreter from those who only had access to clinic staff whose primary duty/training was not interpretation, such as nurses or clerical staff. Such *ad hoc* interpretation has been shown to be of relatively low quality.[26,27,33]

While access to high-quality interpretation must be improved, addressing the impact of cultural differences on perceived provider relationship quality is also necessary. Cultural differences appeared to contribute to decreased medical home prevalence for both SLI and ELI Latino children. Regardless of language of interview, respondents for Latino children were significantly less likely than respondents for non-Latino White

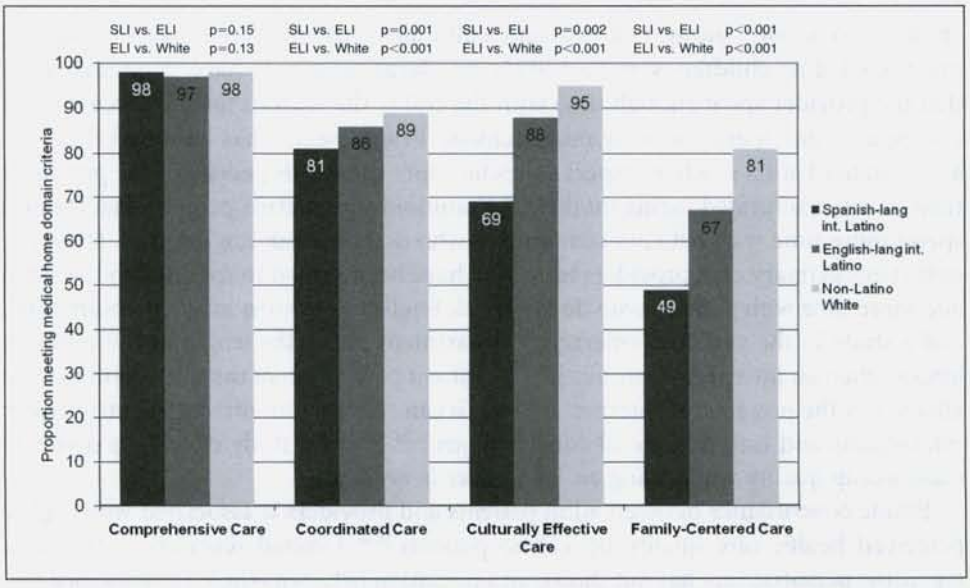

Figure 1. Proportion of children meeting medical home domain criteria by race/ethnicity-language status among children with a usual source of care and a usual provider.

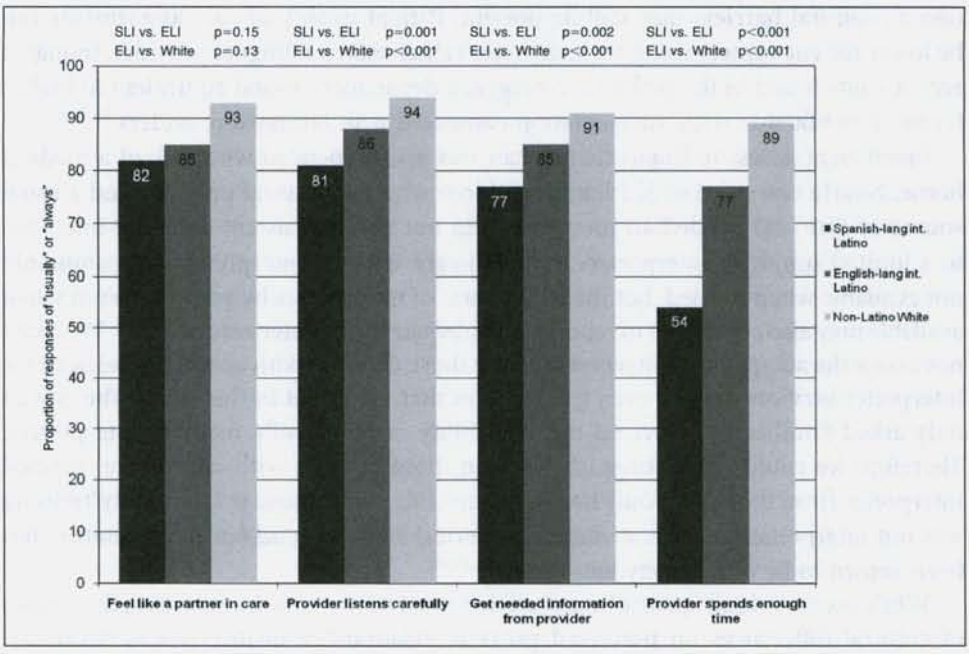

Figure 2. Proportion of responses of "usually" or "always" to family-centered care questions by race/ethnicity-language status among children with a usual source of care and a usual provider

children to report family-centered and culturally-sensitive care. Spanish-language interview Latino children were least likely, by a large margin, to have respondents feel that the provider spent enough time with the child. The reasons for the perception of inadequate time spent are likely multifactorial. Prior research has indicated that less-acculturated Latina mothers expect to spend more time with pediatric care providers than more acculturated Latina mothers.[34] Commonly, physicians perceive that they do spend more time with patients and families who do not speak English well. However, outpatient primary care providers for adults have been shown to spend both the same and more time with patients who do not speak English well when interpreters are used, and a study in the pediatric emergency department found the length of the visit was longer when an interpreter was used.[28,35–37] Patient perception of the time spent may be affected by the presence of interpreters, which can reduce both direct patient/provider interactions and informal social conversations.[24,38] Further study of how to optimize relationship quality while using an interpreter is needed.

Ethnic concordance between adult patients and providers is associated with higher perceived health care quality by Latino patients.[39,40] Limited research in this area regarding pediatric care has not shown an association between ethnic concordance and higher care quality, but this area merits further study.[41,42] Both cultural and linguistic barriers may be mitigated by a progressively more culturally and linguistically diverse pediatric care provider workforce in the future. Efforts by medical schools to recruit

a more diverse student body are ongoing and have resulted in increases in minority graduates, although the physician workforce does not yet reflect the diversity of the U.S. population.[43]

This study has certain limitations. First, we used language of survey interview as a proxy for parental language barriers, as the NSCH does not ask respondents to report their English proficiency. While the majority of respondents who completed a Spanish-language interview reported a need for an interpreter, and lack of report of need could be due to availability of bilingual providers, completing the survey in Spanish may not mean that the respondent or other members of the child's family have a limited capacity for communicating in English. Language of survey interview and a non-English primary household language have both been used previously as markers of limited English language ability of the respondent.[7–10,12,13,44–47] Using primary household language as a proxy for LEP has been shown to overestimate linguistic barriers among respondents, but to our knowledge no formal comparison of language of interview to self-reported English proficiency has been conducted.[48] Determination of the correlation between language of interview and self-reported English proficiency is important for interpreting this, and other studies, using language of interview as a marker for linguistic barriers. However, incorporation of self-reported English proficiency into large-scale national surveys may be a better solution to the study of the effect of linguistic barriers on health and health care. Population-based estimates of health care access, quality, and health status using self-reported English proficiency would facilitate comparison of LEP populations across studies and facilitate translation of population-based research findings to clinical care settings that record patients' language preferences and English proficiency per Institute of Medicine recommendations.[49]

Our study has several important implications. By studying both health care access and quality, we were able to demonstrate that disparities in health care quality, in fact, were more prevalent than access disparities for Latino children. The majority of Latino children had access to a usual source of care, but few had a medical home. We found that having health insurance promotes both primary care access and quality. Policies and programs that promote health insurance coverage and continuity remain a mainstay of eliminating disparities in both primary care access and quality. Addressing medical home disparities for SLI Latino children requires improving access to and quality of language services. Unfortunately, reimbursement for provision of language services continues to be limited, and health care systems continue to struggle to provide adequate language services.

Finally, improving the quality of the relationship between the patient/family and provider, irrespective of language barriers, is critical. Both adult and pediatric health care increasingly use the medical home concept as a model for high-quality primary care, but the importance of relationship quality has been underemphasized compared with comprehensive clinical services and information technology. Our findings indicate that improving relationships between the patient/family and providers, particularly across cultural and linguistic gaps, must continue to be emphasized in discussions of medical homes. Future research should explore underlying reasons for differences in Spanish-speaking Latino parents' perceptions about the quality of the relationship with pediatric providers and their suggestions for improving this relationship.

Appendix 1. The Medical Home Composite Components and Questions, 2007 National Survey of Children's Health

Component	Survey Question[a]	Criteria for Credit in Primary Care Access/Quality Domain
Usual Source of Care	Is there a place that your child *usually* goes when he/she is sick or you need advice/information about his/her health?	Yes (Response to follow-up question of where could not be the emergency department)
Usual Provider at the Usual Source of Care	Do you have one or more persons you think of as your child's personal doctor or nurse?	Yes
Family-Centered Care	How often did your child's doctors and health care providers:[b] • Spend enough time with him/her? • Listen carefully to you? • Give you the specific information you needed? • Help you to feel like a partner in his/her care?	Response of "usually" *or* "always" for ALL questions
Comprehensive Care	Did your child need a referral to see any doctors or receive any services? *If yes,* was getting referrals a big problem, a small problem, or not a problem?	1) Child did not need a referral or 2) Child needed referral and obtaining referral was "not a problem"
Coordinated Care[c]	A) Help with care coordination • Does anyone help you to arrange or coordinate you child's care among the different doctors or services that he/she uses? • Have you felt that you could have used extra help arranging or coordination your child's care among the different health care providers or services? • *If yes,* how often did you get as much help as you wanted with arranging or coordinating your child's care?[d]	1) Child did not use 2 or more services or 2) Respondent did not need extra help coordinating care and respondent was "very satisfied" or "somewhat satisfied" with provider communication when needed or 3) Respondent "usually" got as much care coordination help as wanted and respondent was "very satisfied" or "somewhat satisfied" with provider communication when needed

Coordinated Care[c] (continued)	B) Provider communication • Overall how satisfied are you with the communication among your child's doctors and other health care providers?[e] • Do your child's doctors or other health care providers need to communicate with his/her [child care providers, early intervention programs, school, special education program, vocational education program]? • *If yes*, how satisfied are you with that communication?[e]	
Culturally-Effective Care	A) Respect for diversity • When your child is seen by doctors or other health care providers, how often are they sensitive to your family's values and customs?[b]	1) Provider was "usually" *or* "always" sensitive to the family's values or customs and no interpreter need was reported or
	B) Language services • Did you or your child need an interpreter to help speak with his/her doctors or other health care providers? • *If yes,* how often were you able to get someone other than a family member to help you speak with his/her doctors or other health care providers?[b]	2) Provider was "usually" *or* "always" sensitive to the family's values or customs and non-family member interpreter was "usually" *or* "always" available
Medical Home		Receipt of credit in *all* access/quality domains

[a]All questions asked about health care in the previous 12 months.
[b]Question response choices were: "always," "usually," "sometimes," or "never."
[c]Only asked of respondents who reported that their child used two or more health services (preventive medical care, preventive dental care, mental health, or a specialist).
[d]Question response choices were: "usually," "sometimes," or "never."
[e]Question response choices were: "very satisfied," "somewhat satisfied," "somewhat dissatisfied," or "dissatisfied."

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Notes

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