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Disparities in Provider Elicitation of Parents' Developmental Concerns for US Children

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KEY WORDS

racial/ethnic disparities, provider elicitation of developmental concerns, developmental surveillance, medical home, family-centered care

ABBREVIATIONS

PEDS—Parents Evaluation of Developmental Status
NSCH—National Survey of Children's Health
NEPL—non-English primary language
AAP—American Academy of Pediatrics
OR—odds ratio
CI—confidence interval

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WHAT'S KNOWN ON THIS SUBJECT: Provider elicitation of parents' developmental concerns is a critical first step in developmental surveillance, and linguistic disparities have been described for provider elicitation of parents' developmental concerns.

WHAT THIS STUDY ADDS: This is the first study to document racial/ethnic disparities in provider elicitation of parents' developmental concerns. This study also explores the association of the medical home with provider elicitation of parents' developmental concerns.

abstract

OBJECTIVE: To examine factors associated with provider elicitation of parents' developmental concerns among US children.

METHODS: The 2007 National Survey of Children's Health was used to examine factors associated with parents' reports of provider elicitation of developmental concerns in the previous 12 months. Independent variables included child characteristics, sociodemographic factors, insurance status, and having a medical home.

RESULTS: One-half of US parents reported provider elicitation of developmental concerns. African-American (41%) and Latino (49% in households with English as the primary language and 33% with a non-English primary language) parents were significantly less likely than white parents (55%) to report elicitation of developmental concerns. With multivariate adjustment, African-American (odds ratio [OR]: 0.67 [95% confidence interval [CI]: 0.55–0.81]) and Latino (OR: 0.61 [95% CI: 0.44–0.84]) parents, compared with white parents, had significantly lower adjusted odds of provider elicitation of developmental concerns. Lack of insurance (OR: 0.61 [95% CI: 0.44–0.85]) and having a medical home (OR: 1.42 [95% CI: 1.21–1.67]) were associated with elicitation of developmental concerns. Parents of African-American and Latino children who received family-centered care had almost twice the odds of provider elicitation. For Latino parents in households with a non-English primary language, other medical home components, including having a personal provider (OR: 1.51 [95% CI: 1.08–2.11]) and a usual source of care (OR: 1.76 [95% CI: 1.13–2.74]), were significantly associated with elicitation of developmental concerns.

CONCLUSIONS: Racial/ethnic and linguistic disparities exist in provider elicitation of developmental concerns. Addressing lack of insurance, medical homes, and specific medical-home components might reduce disparities. *Pediatrics* 2011;128:901–909

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There is substantial variability in developmental surveillance and screening,[1–3] and developmental problems that can be identified in early childhood often are not identified until school age.[4–6] The American Academy of Pediatrics (AAP) recommends provider elicitation of parents' developmental concerns, as a critical first part of developmental surveillance, at every pediatric visit throughout the first 5 years of life and beyond.[7] The extent to which parents of young children receive developmental surveillance has been shown to vary for parents in households in which Spanish is the primary language, compared with parents in households in which English is the primary language.[8] To our knowledge, no published studies have examined racial/ethnic disparities in provider elicitation of parents' developmental concerns, which is the first aim of this study. Addressing this knowledge gap is crucial, given the disproportionate burden of risk factors for behavioral and developmental disorders among Latino and African-American children[6,9,10] and the need to determine the extent to which healthcare providers might be underidentifying opportunities for anticipatory guidance and early interventions for high-risk groups.

A wide range of professional and accreditation organizations, along with the Patient Protection and Affordable Care Act, support the medical home as a central component of effective healthcare delivery. Care within a medical home is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective[11] and therefore has the potential to improve the quality of care in various areas of health for diverse pediatric populations. Few studies, however, have examined the association of medical homes with pediatric preventive care among children without special healthcare needs.[12,13] Therefore, the second aim of our study was to address a knowledge gap and to examine whether the medical home and each individual component of the medical home were associated with provider elicitation of developmental concerns.

METHODS

Data Source and Study Sample

The data source was the 2007 National Survey of Children's Health (NSCH) sponsored by the Maternal and Child Health Bureau, which surveyed a nationally representative sample of parents of children 0 to 17 years old. The NSCH was designed to estimate a variety of physical, emotional, and behavioral child health and healthcare indicators. A random-digit dialed sample of US households completed a telephone survey in 2007 and 2008. Informed consent of adult respondents for study participation was obtained by using a consent script that described the voluntary nature of the survey, the confidentiality of responses, the survey content, and the expected duration. Interviews were conducted in 66% of sampled households with children, with an overall weighted response rate of 46.7%. Of the total of 91 642 completed interviews, ~5% (n = 4828) were completed in Spanish. Details of the NSCH survey design, operation, methods, and weighting procedures were described elsewhere.[14]

The study sample included children 0 to 5 years old. We excluded children older than 5 years old and children without a physician visit in the previous 12 months because their parents were not asked about any developmental concerns. Our final analytic sample included children who had complete data for all of the measures of interest in our a priori model. This study was considered exempt from review by the University of California, Los Angeles, institutional review board.

Measures

The main dependent variable was a parent's report of provider elicitation of developmental concerns. Parents/guardians who reported that their child had been to a healthcare provider in the previous 12 months were asked, "During the past 12 months, did [child's name]'s doctors or other healthcare providers ask if you have concerns about (his/her) learning, development, or behavior?" Responses were dichotomized as "yes" or "no."

Following previous studies that used the Andersen behavioral model of health services to analyze pediatric experiences of care and patient satisfaction,[15,16] variables in this study included predisposing, enabling, and need factors that were shown previously to be associated with pediatric experiences of care.[9,17–21] Predisposing characteristics included the child's race/ethnicity, age, and gender and the mother's educational attainment. We used the NSCH parent-reported race/ethnicity for each child to classify race/ethnicity as Latino, non-Latino African-American, or non-Latino white, referred to hereafter as Latino, African-American, and white, respectively. Children categorized in the "other" racial/ethnic group, which includes Asian/Pacific Islander and American Indian/Alaska Native, were excluded because of heterogeneity and our inability to draw any definitive conclusions about such a diverse group. The primary language spoken at home was dichotomized as English or a language other than English; these categories are referred to as English or a non-English primary language (NEPL) at home.

Enabling characteristics included the child's insurance coverage, the family's poverty status, and the presence of

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a medical home. The Department of Health and Human Services poverty guidelines and imputed values for any missing household income and/or household size data were used to establish the federal poverty threshold for a family of 4 in 2007, and findings were categorized as 0% to 99%, 100% to 199%, 200% to 399%, or ≥400% of the federal poverty threshold.[14] We used the items, major components, and scoring algorithm for the medical home developed by the Child and Adolescent Health Measurement Initiative Data Resource Center of the NSCH.[22] The scoring algorithm provides a dichotomous medical home composite that classifies children as either having or not having a medical home. Of the 7 AAP medical home components, 5 were assessed in the 2007 NSCH, including (1) having a personal doctor or nurse, (2) comprehensive care, (3) family-centered care, (4) coordinated care, and (5) culturally effective care. Continuous care and accessible care were not captured by 2007 NSCH items and are not included in the medical home composite of this analysis.

Need characteristics included an overall child health status measure and the child's risk of a developmental or behavioral disorder, on the basis of responses from the Parents' Evaluation of Developmental Status (PEDS). The PEDS in the 2007 NSCH is the only standardized developmental screener that consists of 12 close-ended questions; it differs from the clinical version of the PEDS, which includes only open-ended questions. Health status was dichotomized as excellent or very good versus good, fair, or poor. By using responses to the specific probes and the scoring scheme developed by the Child and Adolescent Health Measurement Initiative Data Resource Center,[22] children were categorized as having low or no developmental risk versus high or moderate developmental risk.

Analyses

Analyses were performed by using Stata 10.1 (Stata Corp, College Station, TX), to account for the complex survey design of the NSCH and to yield national estimates by using survey weights. Bivariate analyses assessed associations between independent variables and reports of provider elicitation of developmental concerns. Multivariate logistic regression models were used to examine factors significantly associated with elicitation of developmental concerns, after adjustment for relevant covariates. Variables found to be significantly associated with elicitation of developmental concerns in bivariate analyses were included in the final regression models. To assess the robustness of the findings and to examine the impact of excluding observations with any missing data, sensitivity analyses were performed.

RESULTS

Sample

The analytic sample included 20 543 children. Approximately one-half of parents reported being asked by their child's provider about developmental concerns (Table 1). Most children were white, and the mean age was 2.5 years. Approximately one-half of the children were female. Approximately two-thirds of the children had parents who had attended at least some college. One in 5 children lived in poverty, and close to 1 in 12 was uninsured. Approximately two-thirds of children had a medical home, and one-fourth had moderate or high developmental risk. Compared with white children, African-American and Latino children were more likely to be poor, uninsured, and without a medical home. There were no significant differences in mean age or gender proportions among the racial/ethnic groups. African-American and Latino parents were less likely than white parents to report usually or always receiving all of the subcomponents of the medical home, except for the subcomponent of effective care coordination. In addition, minority children were more likely to have moderate or high risk for a developmental or behavioral disorder.

Bivariate Analyses

Parents of minority children were significantly less likely to have their developmental concerns elicited by a healthcare provider (Table 2). Parents of children who were poor, uninsured, and older also were less likely to have their developmental concerns elicited by a healthcare provider. The child's gender and developmental risk were not significantly associated with elicitation of developmental concerns. Parents of children who had a medical home or various subcomponents of the medical home, such as having a personal doctor or nurse, receiving family-centered care, and having a usual source of care, were more likely to experience provider elicitation of developmental concerns than were parents who did not have these medical home subcomponents. Experiencing effective care coordination, receiving needed referrals, and having access to an interpreter were not significantly associated with elicitation of developmental concerns.

Multivariate Analysis

Compared with white parents, African-American parents (odds ratio [OR]: 0.67 [95% confidence interval [CI]: 0.55–0.81]) and Latino parents in NEPL households (OR: 0.61 [95% CI: 0.44–0.84]) were significantly less likely to experience provider elicitation of developmental concerns, after adjustment for relevant covariates (Table 3). Low-income 200%–300% of FPT and uninsured children also had lower odds of provider elicitation of developmen-

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TABLE 1 Selected Characteristics of US Children 0 to 5 Years Old and Their Parents, According to Race/Ethnicity

Characteristic	All (N = 20 543)	White (n = 15 257)	African-American (n = 1940)	Latino, English Primary Language (n = 1808)	Latino, NEPL (n = 1538)	P
Provider elicitation of developmental concerns, %	49.6	55.3	41.0	48.5	33.2	<.01
Predisposing factors						
Age, mean , y	2.6	2.6	2.7	2.6	2.7	.4
Female, %	47.8	47.8	52.3	43.8	46.1	.2
Mother's educational attainment, %						<.01
Not high-school graduate	12.9	5.2	12.9	7.6	50.6	
High-school graduate	23.9	19.3	30.5	31.6	32.7	
At least some college	63.2	75.5	56.6	60.8	16.7	
Enabling factors						
Income, %						<.01
<100% of FPT	20.4	9.5	35.9	17.3	55.8	
100%–199% of FPT	22.0	17.3	27.5	30.3	31.8	
200%–399% of FPT	29.2	35.3	21.6	29.7	8.9	
≥400% of FPT	28.4	37.9	15.0	22.7	3.5	
Health insurance, %						<.01
Private	58.9	74.4	36.7	53.8	15.4	
Public	33.4	19.9	55.3	37.2	69.7	
Uninsured	7.7	5.7	8.0	9.0	14.9	
Medical home, %	63.9	75.0	48.4	62.0	30.6	<.01
Has personal doctor or nurse	94.1	96.7	90.9	92.9	86.9	<.01
Has adequate family-centered care	73.8	83.8	59.4	72.5	44.1	<.01
Has usual source of care	94.1	97.3	90.4	95.7	82.6	<.01
Has no problems receiving needed referrals	97.7	98.3	94.7	96.9	98.8	<.01
Has effective care coordination	89.2	91.2	87.4	91.3	80.7	<.01
Has access to interpreter if needed	97.8	100.0	100.0	100.0	84.8	<.01
Need factors						
Child's health status, %						<.01
Excellent/very good	86.9	92.9	86.2	85.2	62.7	
Good	10.8	6.0	9.9	11.4	32.3	
Fair/poor	2.3	1.1	3.9	3.4	5.0	
Child's developmental risk (PEDS), %						<.01
None/low	74.3	78.6	68.6	74.3	60.3	
Moderate/high	25.7	21.4	31.4	25.7	39.7	

FPT indicates federal poverty threshold.

tal concerns. Higher maternal educational attainment was associated with higher adjusted odds of provider elicitation of developmental concerns.

Children with a medical home were significantly more likely than those without a medical home to experience provider elicitation of developmental concerns (Table 3). Parents of minority children who reported receiving family-centered care had approximately twice the odds of provider elicitation of developmental concerns (Table 4). Latino parents in NEPL households who reported that their child had a personal doctor or nurse or a usual source of care had almost double the odds of provider elicitation of developmental concerns. Latino parents who reported receiving needed referrals had approximately one-half the odds of provider elicitation of developmental concerns. Neither effective care coordination nor access to an interpreter was significantly associated with provider elicitation of developmental concerns for minority children.

DISCUSSION

Approximately one-half of US parents reported no provider elicitation of developmental concerns, and significant racial/ethnic disparities existed for parents of Latino and African-American children. This low rate of provider elicitation of developmental concerns was described previously in the literature.[8] Compared with parents of white children, parents of African-American and parents of Latino children in NEPL households had almost one-half the odds of not having their developmental concerns elicited, even with adjustment for child characteristics, socioeconomic factors, insurance status, and the presence of a medical home. This is the first study, to our knowledge, to describe racial/ethnic disparities in provider elicitation of parents' developmental concerns.

Previous studies either showed no racial/ethnic disparities in parents' reports of receiving developmental questionnaires[23] or indicated that less-acculturated Latino parents more fre-

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TABLE 2 Bivariate Analyses of Associations of Predisposing, Enabling, and Need Characteristics With Provider Elicitation of Developmental Concerns

Characteristic	Provider Elicited Developmental Concerns (*n* = 20 543), %	*P*
Predisposing factors		
Race/ethnicity		<.01
White	55.4	
African-American	41.0	
Latino, English primary language	48.5	
Latino, NEPL	33.2	
Female	48.2	.11
Mother's educational attainment		<.01
Not high-school graduate	33.6	
High-school graduate	45.4	
At least some college	54.5	
Enabling factors		
Income		<.01
<100% of FPT	41.0	
100%–199% of FPT	45.0	
200%–399% of FPT	51.3	
≥400% of FPT	57.7	
Health insurance		<.01
Private	54.7	
Public	44.2	
Uninsured	34.4	
Has medical home		<.01
Yes	55.0	
No	40.2	
Has personal doctor or nurse		<.01
Yes	50.5	
No	35.3	
Has adequate family-centered care		<.01
Yes	54.7	
No	35.4	
Has usual source of care		<.01
Yes	50.7	
No	32.6	
Has received needed referrals		.70
Yes	49.6	
No	52.0	
Has effective care coordination		.86
Yes	49.6	
No	50.2	
Has access to interpreter if needed		.08
Yes	50.0	
No	34.5	
Need factors		
Child's health status		.03
Excellent/very good	50.6	
Good	41.7	
Fair/poor	50.3	
Child's developmental risk (PEDS)		
None/low	48.9	
Moderate/high	49.9	.62

FPT indicates federal poverty threshold.

TABLE 3 Multivariate Analysis of Factors Associated With Provider Elicitation of Developmental Concerns

Independent Variable	OR (95% CI)
Predisposing factors	
Race/ethnicity	
White	Referent
African-American	0.67 (0.55–0.81)
Latino, English primary language	0.83 (0.63–1.08)
Latino, NEPL	0.61 (0.44–0.84)
Child's age	0.87 (0.84–0.91)
Mother's educational attainment	
Not high school graduate	Referent
High school graduate	1.36 (1.00–1.84)
At least some college	1.58 (1.19–2.09)
Enabling factors	
Income	
<100% of FPT	0.86 (0.65–1.12)
100%–199% of FPT	0.81 (0.65–1.02)
200%–399% of FPT	0.83 (0.71–0.98)
≥400% of FPT	Referent
Health insurance	
Private	Referent
Uninsured	0.61 (0.44–0.85)
Public	1.02 (0.83–1.25)
Medical home	
No	Referent
Yes	1.42 (1.21–1.67)
Need factors	
Child's health status	
Excellent/very good	Referent
Good	1.03 (0.78–1.37)
Fair/poor	1.63 (0.98–2.69)

FPT indicates federal poverty threshold.

quently reported receipt of a developmental assessment than did parents in other racial/ethnic groups.[20] The study findings that significant racial/ethnic disparities in provider elicitation of developmental concerns exist despite adjustment for health insurance and a medical home is concerning, given the disproportionate burden of risk factors for behavioral and developmental disorders among Latino and African-American children[6,9,10] and evidence that early identification of and interventions for children with developmental risks can improve outcomes, enhance function, and reduce the likelihood of developing secondary behavioral problems.[24,25] The reasons for these disparities might include poor healthcare provider knowledge about the AAP guidelines regarding developmental surveillance, time constraints,[2,26] an increasing number of recommended topics to be discussed during well-child care visits,[27,28] and other factors not described previously, such as healthcare provider attitudes and bias toward the perceived effectiveness of recommended strategies to elicit parents' developmental concerns, particularly among minority populations.

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TABLE 4 Multivariate Analysis of Association of Medical Home Subcomponents With Provider Elicitation of Developmental Concerns, Stratified According to Race/Ethnicity and Primary Language Spoken at Home, Compared With White Parents

Medical Home Subcomponent	OR (95% CI)		
	African-American	Latino, English Primary Language	Latino, NEPL
Has adequate family-centered care			
No	Referent	Referent	Referent
Yes	1.64 (1.38–1.96)	1.57 (1.30–1.89)	1.71 (1.39–2.10)
Has personal doctor or nurse			
No	Referent	Referent	Referent
Yes	1.34 (0.98–1.83)	1.20 (0.83–1.74)	1.51 (1.08–2.11)
Has usual source of care			
No	Referent	Referent	Referent
Yes	1.41 (0.96–2.10)	1.48 (0.94–2.31)	1.76 (1.13–2.74)
Has received needed referrals			
No	Referent	Referent	Referent
Yes	1.02 (0.64–1.58)	0.59 (0.38–0.91)	0.66 (0.45–0.97)
Has effective care coordination			
No	Referent	Referent	Referent
Yes	0.94 (0.74–1.25)	0.89 (0.67–1.18)	0.82 (0.61–1.10)
Has access to interpreter if needed			
No	Referent	Referent	Referent
Yes	NA	NA	1.08 (0.49–2.41)

All ORs were adjusted for child's age, mother's education, poverty, child's health insurance, and child's health status. NA indicates not applicable.

The study findings, however, suggest possible strategies to reduce or to eliminate disparities in provider elicitation of developmental concerns. Compared with parents of children without a medical home, those with a medical home had significantly higher adjusted odds of provider elicitation of developmental concerns. In addition, several subcomponents of the medical home were associated with provider elicitation of developmental concerns for minority children. Family-centered care was significantly associated with provider elicitation of developmental concerns for all minority groups examined, whereas having a personal doctor or nurse or a usual source of care was associated with elicitation of developmental concerns for Latino parents in NEPL households. Access to an interpreter if it was needed was not found to be significantly associated with provider elicitation of developmental concerns for Latino parents in NEPL households. Regardless of the primary language spoken at home, children of Latino parents who received needed referrals were less likely to have their concerns elicited by providers. These findings suggest that disparities in provider elicitation of developmental concerns might be reduced by increasing the proportion of children with medical homes and ensuring that all children receive family-centered care from a regular healthcare provider, with special attention to Latino children receiving needed referrals.

Our study is the first to show the association of the medical home and its individual components with provider elicitation of developmental concerns. These results add to a limited but growing knowledge base indicating that medical homes are associated with improved processes and outcomes in pediatric primary care[12,13] and are not only beneficial for children with special healthcare needs. Furthermore, the results indicate specific components of the medical home that might increase provider elicitation of developmental concerns. The family-centered care component of the medical home was associated with a significantly higher likelihood of provider elicitation of developmental concerns for all racial/ethnic groups. Family-centered care also has been shown to be associated with structured developmental assessments in pediatric primary care, with or without validated screening tools.[20,23] In addition, family-provider partnerships have been shown to benefit children with special healthcare needs, among those with a medical home; they experience significantly better self-management, care planning, satisfaction, experience of care, and transition to adult care.[29] Our findings, in light of the existing literature findings, suggest that family-centered care is associated with specific outcomes for children with or without special healthcare needs.

Strategies to improve medical homes and family-centered care, therefore, warrant further attention, for assessment of their potential impact on aspects of children's health and development. Strategies to support medical homes and family-centered care might include promoting interactive communication loop techniques,[30,31] using trained medical interpreters or bilingual providers for families with limited English proficiency,[32] and using medical practice tools and rapid-cycle quality improvement methods to translate and to implement the concepts of the medical home in daily clinical operations.[33]

Other components of the medical home were significantly associated with provider elicitation of developmental concerns, but only for Latino families. Children of parents with limited English proficiency are less likely to have a usual source of care and are more likely to have unmet medical and dental needs.[19,34,35] Our study showed, however, that, compared with parents of white children, Latino parents in

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NEPL households whose children had a personal doctor or a usual source of care were more likely to experience provider elicitation of developmental concerns. In contrast, our study also showed that Latino parents of children who received needed referrals were less likely to experience provider elicitation of developmental concerns. These results might be related to Latino parents having different expectations, on average, about healthcare referrals for their children, because of differences in health literacy and traditional cultural expectations that might delegate decision-making to healthcare providers.[36,37] Strategies to improve developmental surveillance for Latino families in NEPL households might include addressing components of the medical home, including adequacy of family-centered care and having a usual source of care and a personal healthcare provider.

The NSCH item used to estimate provider elicitation of developmental concerns for this study resembles the global question from the PEDS developmental instrument, which might not function the same across all racial, ethnic, and language groups surveyed in the 2007 NSCH.[8,36–38] Furthermore, definitions, expectations, and perceptions of child development vary among cultural groups,[39–41] which might create challenges in measuring developmental concerns or healthcare experiences related to surveillance and screening activities. The use of close-ended questions, such as the ones found in developmental instruments and the NSCH, with diverse populations might not be the ideal strategy to estimate parents' concerns and healthcare experiences related to child development. Close-ended questions fail to create opportunities for open communication and participation by both providers and parents to explore the interpretation of questions related to child development and the cultural context of child development.[42] All of these considerations must be accounted for in the interpretation of our results and merit attention from researchers involved in developing questions for future waves of the NSCH.

Additional study limitations should be noted. The data are cross-sectional and highlight associations, but causality cannot be inferred. The data might be subject to recall and reporting biases, because they are based on parents' self-reports. The wording and close-ended questions used in the NSCH to determine the outcome of our study might lack the ability to estimate accurately parents' healthcare experiences related to child development. Previous studies, however, assessed parents' concerns and experiences of care related to child development by using comparable NSCH measures for linguistically, racially, and ethnically diverse populations.[8,20,23] A limited set of items is available in the NSCH to determine the medical home composite, and only 5 of 7 AAP criteria for the medical home are included in the NSCH. It is unclear whether including additional measures or removing measures, such as access to an interpreter if it was needed, would alter the findings and associations of the medical home with provider elicitation of developmental concerns.

CONCLUSIONS

Less than one-half of parents reported provider elicitation of developmental concerns, and there were significant racial/ethnic disparities in provider elicitation of developmental concerns. Further quantitative and qualitative research is needed to explore the causes of these racial/ethnic disparities. The study findings suggest that a medical home might improve provider elicitation of developmental concerns, whereas specific subcomponents of the medical home might reduce racial/ethnic disparities in provider elicitation of developmental concerns. Clinical and healthcare provider strategies to promote family-centered care might improve provider elicitation of developmental concerns for African-American and Latino patients, thereby potentially improving developmental outcomes for these high-risk groups. Targeted strategies and interventions to ensure that children have a personal healthcare provider and a usual source of care might be particularly powerful mechanisms for reducing or eliminating developmental surveillance disparities for Latino children. Therefore, initiatives and research are needed to evaluate further the impact of the medical home on preventive and primary care outcomes for all children, including children without special healthcare needs.

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MY LEFT FOOT: *Last week, I let my 16-year-old daughter drive us home from her late afternoon soccer practice. As she only has her learner's permit, I was the front seat passenger. She eased out of the parking lot but immediately had to stop at the stop sign. After a few choice words for the driver of the car immediately behind us, she pressed the gas pedal and the car began to lurch forward. My left foot immediately and instinctively pressed the imaginary clutch pedal on the passenger side of the car. After we stalled out, I gently and calmly (but not really) explained to her once again the timing for releasing the clutch and pressing the gas pedals. While I still drive a manual stick-shift and insist that my kids learn how to drive it, these types of cars are fast disappearing. As reported in* The Wall Street Journal *(Eyes On The Road: September 7, 2011), fewer than 10 percent of new cars and light trucks sold in the U.S. are equipped with a manual transmission and clutch pedal. While cars with manual transmissions are more fuel efficient than those equipped with automatic transmissions, technologic advances have narrowed the gap in fuel economy. In Europe, however, where gas prices are considerably higher, automakers have been refining "clutch-less" manual transmissions to exploit the gas savings. A car equipped with a clutch-less manual transmission can be driven in automatic mode, where the car's computer does all the shifting, or in manual. While in the manual mode, a button is used to manually shift the gears; depressing the + side of the button shifts the car into a higher gear while pressing the − button downshifts. The driver never has to worry about depressing a clutch pedal. For the first time, clutch-less transmissions are being offered in U.S. cars. While the option is fairly pricey, a car equipped with a clutch-less transmission saves 2 mpg over even a regular manual transmission car. The technology has spread to high end cars noted for their speed and acceleration. In this market, however, the reward is not so much fuel economy but speed. Drivers using clutch-less transmissions can shift faster than drivers using a traditional manual transmission. As for me, I still really enjoy working the stick and the pedal. As for my daughter, she is much smoother in first gear these days and justifiably proud of her driving (and shifting) skills.*

Noted by WVR, MD

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Disparities in Provider Elicitation of Parents' Developmental Concerns for US Children

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