

## Assessing Development in the Pediatric Office

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**ABSTRACT.** *Objective.* To determine the proportion of children aged 10 to 35 months who were reported ever to have received a developmental assessment (DA) and to examine characteristics of the child, family, and health care setting associated with the receipt of a DA.

*Methods.* The National Survey of Early Childhood Health, conducted in 2000, is a survey of 2068 parents of children 4 to 35 months of age. Children were classified as having received a DA in response to 2 questions: whether the child's pediatric provider ever told parents that he or she was doing a "developmental assessment" and/or parents recalled explicit components of a DA, such as stacking blocks or throwing a ball. Parent-reported receipt of a DA was assessed in relationship to child and family, health care access, other measures of health care content and process, and measures of quality and satisfaction.

*Results.* Approximately 57% of children 10 to 35 months of age ever received a DA. Forty-two percent of parents recalled ever being told by their child's pediatric provider that a DA was being done. Thirty-nine percent recalled their child's being asked to perform specific tasks routinely included in a DA. Bivariate analysis indicates that receipt of a DA is not associated with child or family sociodemographic characteristics such as maternal education and household income, with the exception of race/ethnicity. Less acculturated Hispanic parents reported a DA more frequently than parents in other racial/ethnic groups (66% vs 56%). A smaller proportion of parents whose children who used community health centers reported their child's ever having received a DA compared with children who use other settings (51% vs 60%). Compared with other children, parents whose child ever received a DA reported more frequently than other parents that the time spent with the child's provider during the last well-child visit was adequate (94% vs 80%). They also reported longer visits (19 minutes vs 16 minutes), higher family-centered care ratings (mean: 71 vs 59), and higher satisfaction with well-child care (8.9 vs 8.4). Receipt of a DA is also associated with the content of developmentally focused anticipatory guidance received. For each health supervision topic analyzed, frequency of discussion is higher for children who ever

received a DA. In multivariate analysis, odds of receiving a DA are higher for children with longer visits with the provider (odds ratio: 1.03; 95% confidence interval: 1.01–1.05) and lower for children in community health clinics compared with a private office (odds ratio: 0.61; 95% confidence interval: 0.39–0.96), even accounting for total well-child visits to the pediatric provider.

*Conclusion.* Although guidelines endorse the routine provision of DAs, parents of many children do not report receiving DAs. Children who receive assessments are more likely to receive other developmental services, and their parents are more likely to report greater satisfaction with care and rate the interpersonal quality of well-child care more favorably. The substantial number of children who do not receive these routinely recommended services raises important questions about the quality of care received. *Pediatrics* 2004;113:1926–1933; *developmental assessment, anticipatory guidance, quality of care, children.*

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ABBREVIATIONS. AAP, American Academy of Pediatrics; DA, developmental assessment; NSECH, National Survey of Early Childhood Health; PEDS, Parents' Evaluation of Developmental Status; FCC, family-centered care; OR, odds ratio; CI, confidence interval; HEDIS, Health Plan Employer Data and Information Set.

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Timely and periodic assessment of young children's development makes it possible to identify and treat developmental disabilities at the earliest possible point of manifestation and to prevent loss of developmental potential.<sup>1–3</sup> The American Academy of Pediatrics (AAP) and Bright Futures guidelines for well-child care recommend that development be assessed routinely, but the extent to which this is achieved is not known.<sup>4–8</sup> Ideally, appropriately timed developmental assessments (DAs) can also help to identify developmental risk factors and target effective anticipatory guidance to provide parents with strategies for promoting optimal developmental outcomes.<sup>9</sup> National data suggest that developmental disabilities and risks are often not identified in many children until they enter kindergarten, although nearly all young children have regular pediatric visits during which problems could have been identified.<sup>1,10–12</sup>

Attention to assessing and addressing developmental issues is likely to increase given the growing focus on child development, the importance of early experience on brain development, and evidence that early identification of developmental problems can result in better developmental outcomes.<sup>13</sup> The Future of Pediatric Education II has also highlighted the important relationship between early child develop-

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ment and child health and that training in pediatrics will require a heightened focus on child development issues and developmentally focused services.<sup>14</sup> The newest residency training requirements emphasize the importance of enhanced training in children's emotional growth and development.<sup>15</sup>

There is also consumer demand for better developmental services. Recent national surveys show that parents want more information about their child's development, as well as guidance in addressing common developmental concerns that range from effective discipline techniques to ways of optimizing their child's learning potential.<sup>16-18</sup> Assessing developmental capacities also has educational value for the parent by providing an opportunity to teach parents about child development, to highlight typical development in their children, and to reframe maladaptive perceptions and inappropriate attributions regarding their child's behavior.<sup>19</sup> Provision of DAs also sends the message that the physician places a priority on child development, thereby facilitating the discussion of developmental concerns with parents.

Despite the potential impact of appropriate DA, the growing evidence base, and parental demand for more comprehensively focused developmental care, there are very few data on the provision of developmental services and in particular DAs. This study uses national data from parents to examine the provision of DAs in routine pediatric well-child care for US children younger than 3 years. This study addressed the following questions: 1) What proportion of young children are reported ever to have received a DA? 2) What characteristics of the child, family, and health care setting are associated with the child's ever having had a DA? 3) Do parents who recall their child's ever having received a DA also report higher interpersonal quality with their child's pediatric provider and more comprehensive content of anticipatory guidance?

## METHODS

### Sample

The 2000 National Survey of Early Childhood Health (NSECH), conducted by the National Center for Health Statistics, used a stratified random-digit-dial sampling design to achieve a nationally representative sample of children 4 to 35 months of age. The survey oversampled black and Hispanic children to permit precise estimates for these subgroups. Child-level sampling weights were developed to adjust for nonresponse, oversampling, and the survey sampling design. Thirty-minute structured telephone interviews were conducted in English or Spanish between February 16, 2000, and July 16, 2000, with the primary caregiver of a child in the target age group. Eighty-seven percent of the respondents were mothers of the sampled child. The remaining were fathers (11%), grandparents (2%), or other guardians (<1%). The Council of American Survey Research Organizations response rate was 65.6%. A more complete description of the NSECH is presented elsewhere.<sup>20</sup>

### Measures

Parents were asked, "Did your child's doctors or other health care providers ever tell you that they were carrying out what doctors call a 'developmental assessment' of your child?" In this article, the term "developmental assessment" is used to refer to screening and assessment activities conducted by pediatric providers, with or without validated tools or diagnostic instruments.

Because not all parents may remember being told that a DA is being done, parents were also asked, "Did your child's doctors or other health care providers ever have him/her pick up small objects or stack blocks, use a crayon, or throw a ball or recognize different pictures?"

Children were identified as ever having had a DA when the parent recalled 1) being told that a DA was being done; 2) the child's being asked to do a task such as stacking blocks; or 3) both being told and observing the child complete the tasks. Findings are reported for children 10 to 35 months of age. Children 4 to 9 months of age were excluded because they are less likely than older children to have undergone the kind of DA that a parent would remember. The characteristics of the NSECH population of young children 10 to 35 months are presented in Table 1.

Included in the measures for this study is the Parents' Evaluation of Developmental Status (PEDS). The PEDS is a clinical screening tool recently adapted for telephone interviews about

**TABLE 1.** Characteristics of Young Children (10–35 Months)

	%*	SE	n
Child age, mo			
10–18	34	1.6	674
19–35	66	1.6	962
Child gender			
Male	52	1.7	843
Female	48	1.7	793
Child race/ethnicity			
Non-Hispanic white	62	1.5	568
Non-Hispanic black	15	0.9	373
Hispanic, English	9	0.6	332
Hispanic, Spanish	9	0.7	316
Other non-Hispanic	4	0.7	47
Child health status			
Excellent	52	1.7	817
Very good	32	1.6	507
Good	12	1.1	252
Fair/poor	4	0.7	60
Child developmental risk (PEDS)			
High	29	1.6	518
Moderate	22	1.4	368
Low	21	1.4	329
None	28	1.6	420
Low birth weight			
Yes	9	1.1	116
No	91	1.1	1484
Maternal age, y			
<20	7	0.8	104
20–29	45	1.7	786
30–39	42	1.7	644
40+	6	0.8	93
Maternal education			
Less than high school	21	1.4	348
High school	34	1.7	511
More than high school	46	1.7	777
Annual household income			
<\$17 500	25	1.5	431
\$17 501–\$35 000	29	1.7	452
\$35 001–\$60 000	22	1.5	301
>\$60 000	24	1.6	287
Child health insurance type			
Private only	52	1.7	761
Public only	26	1.5	470
Other	14	1.1	252
Uninsured	8	0.9	152
Location of care			
Private clinic/group practice	74	1.5	1127
Community health clinic	3	0.6	46
Urgent care/walk-in clinic	17	1.4	301
Outpatient	6	0.8	121
Particular provider for well-child care			
Yes	46	1.7	729
No	54	1.7	893

SE indicates standard error.

\* Percentages are weighted to children aged 10 to 35 months nationally.

health care.<sup>21</sup> It consists of a set of questions that elicits concerns about speech and language, motor development, behavior, social skills, self-help skills, school skills, sensory problems (sees or hears), and global cognitive function. Using caregiver responses to the specific probes, children were categorized as being at high, moderate, low, or no developmental risk. Additional information on scoring is available elsewhere.<sup>18,22,23</sup>

Parent rating of the interpersonal quality of their children's health care was measured using a composite measure of family-centered care (FCC), developed for the Child and Adolescent Health Measurement Initiative as part of the Promoting Healthy Development Survey.<sup>18</sup> FCC is a construct that assesses communication and experience of care and is measured by 4 items: How often did the child's health care provider 1) take time to understand the specific needs of your child, 2) respect that you were the expert on your child, 3) ask how you are feeling as a parent, and 4) understand you and your family and how you prefer to raise your child? Item responses on a 4-point Likert-type scale ranged from 0 (never) to 100 (always), from which an average score (range: 0–100) was calculated for the composite.<sup>18</sup>

The child's insurance status (at the time of interview) includes 4 categories: 1) private insurance only, which includes children who had health insurance obtained only through parental employment, or purchased directly; 2) public insurance only, which includes those insured through Medicaid, the State Children's Health Insurance Program, Title V, and/or military health care; 3) other, which includes children who had both public and private insurance or some other coverage such as a single-service plan; and 4) no insurance.

Language of interview (English/Spanish) was used as a proxy for acculturation among respondents of Hispanic race/ethnicity. Those who preferred to be interviewed in Spanish were categorized as "less acculturated," whereas those who interviewed in English were categorized as "more acculturated." This approach has been used in other research and found to be a good indicator of the level of acculturation among Hispanics in the United States.<sup>24–26</sup>

## Data Analysis

Bivariate analysis was used to assess differences in the provision of DA by child and family characteristics, factors associated with the delivery of health care, and content and process of care measures. Sociodemographic factors include child age, child race, maternal employment, maternal education, household size, and household income. Child health includes overall child health status rating, child's developmental risk status (PEDS), and low birth weight. Health care delivery measures include child health insurance, usual location for well-child care, and having a particular provider. Well-child care process measures include number of well-child visits in the past year or since birth, length of last well-child visit with provider, adequacy of the length of last well-child visit, and FCC rating. Content of anticipatory guidance received in the past year (children 10–35 months of age) includes 8 topics based on survey items on anticipatory guidance for parents of children 10 to 35 months of age: discipline, toilet training, car seat use, food/feeding, language development, reading, child care, and immunizations. Discussion of family and community risks and assets with the pediatric provider (children 10–35 months of age) includes 7 items based on survey items: community violence, parent physical health, smoking in the household, substance abuse, parent emotional support, spousal support for parenting, and financial troubles.

Data analysis was done using Stata 7.0 to account for the complex survey design. We use  $\chi^2$  analyses to identify significant bivariate associations ( $P < .05$ ). Generalized regression models (logistic regression for dichotomous outcomes, linear regression for continuous outcomes) were used to examine those factors associated with the provision of DA, as well as whether reported receipt of DA is associated with measures of satisfaction and FCC. Multivariate logistic regression is used to identify differences in the odds of receiving a DA on the basis of factors that are significantly associated with the provision of DA in bivariate analysis. To examine whether receipt of DA is predictive of satisfaction with well-child care (rating) and FCC rating, linear regression models based on significant bivariate relationships are used.

## RESULTS

Approximately 57% of children aged 10 to 35 months had ever received a DA, based on parent report. Forty-two percent of parents recalled ever being told by their child's pediatric provider that a DA was being done. Thirty-nine percent recalled their child's being asked to perform specific tasks routinely included in a DA.

Bivariate analysis reveals that receipt of DAs is not associated with child or family sociodemographic characteristics (Table 2). A pairwise comparison shows that less acculturated Hispanic parents reported a DA more frequently than parents in other

**TABLE 2.** Receipt of DAs by Family and Health Care Characteristics (Children 10–35 Months)\*

Characteristics	Received DA (% [SE])	Sample <i>n</i>
Child gender		
Male	56.7 (2.4)	843
Female	57.9 (2.5)	793
Child race/ethnicity		
Non-Hispanic white	57.2 (2.5)	568
Non-Hispanic black	56.9 (3.4)	373
Hispanic, English	53.2 (3.5)	332
Hispanic, Spanish	64.4 (3.5)	316
Other non-Hispanic	54.2 (8.3)	47
Child health status		
Excellent/very good	57.6 (1.9)	1324
Good/fair/poor	55.7 (4.1)	312
Child developmental risk (PEDS)		
High/moderate	57.0 (2.5)	749
Low/none	57.0 (2.3)	886
Birth weight		
Normal	56.6 (1.8)	1484
Low	63.8 (6.4)	116
Maternal age, y		
<25	51.7 (3.6)	435
≥25	59.1 (2.0)	1192
Maternal education		
Less than high school	51.2 (4.0)	348
High school	57.6 (3.0)	511
More than high school	59.9 (2.4)	777
Maternal employment		
Full-time	60.0 (2.7)	638
Part-time	55.2 (4.0)	294
Not employed	56.0 (2.6)	697
Maternal marital status		
Married	57.0 (2.1)	1053
Never married	55.9 (3.6)	433
Other	63.4 (5.8)	144
Household income		
\$17 500	55.4 (3.5)	431
\$17 501–35 000	61.9 (3.3)	452
\$35 001–60 000	54.2 (3.9)	301
>\$60 000	57.1 (1.8)	287
Number of adults in household (18+ y)		
1	56.9 (5.0)	187
2 or more	57.3 (1.8)	573
Location		
Private or group practice	59.4 (2.0)	1127
Community health clinic	51.0 (4.3)	301
Hospital clinic/urgent care	62.6 (5.5)	167
Particular provider		
Yes	56.9 (2.5)	729
No	58.0 (2.4)	893
Child health insurance		
Public only	57.1 (3.4)	470
Private only	57.6 (2.4)	761
Other	58.8 (4.4)	252
Uninsured	53.4 (5.9)	152

\* No relationships were found to be statistically significant.

ethnic groups (66% vs 56%;  $P < .05$ ; not shown). There is no association with parent report of greater developmental risk, the child's health insurance, setting of health care, or having a particular provider for well-child care.

Parents of children who have received a DA report different experiences with well-child care. Measures of the process and interpersonal quality of well-child care are associated with ever having received a DA. Compared with other children, parents whose child ever received a DA are more likely to report that the time spent with the child's provider during the last well-child visit was adequate (94% vs 80%;  $P < .0001$ ; Table 3). They also report higher FCC ratings (mean: 71.2 vs 59.1;  $P < .001$ ), higher satisfaction with well-child care (8.9 vs 8.4;  $P < .0001$ ), and longer visits with the provider (19 minutes vs 16 minutes;  $P < .001$ ; Table 3). The percentage of parents who reported a DA by visit length are as follows: for  $\leq 10$  minutes, 48.4%; for 11 to 15 minutes, 56.6%; for 16 to 20 minutes, 65%; and  $> 20$  minutes, 65% (not shown).

As shown in Fig 1, parents whose child has ever had a DA are more likely than other parents to have discussed immunizations (97% vs 93%;  $P < .05$ ), food and feeding (83% vs 75%;  $P < .01$ ), words and phrases that the child uses (80% vs 58%;  $P < .0001$ ), car seat use (76% vs 57%;  $P < .0001$ ), reading (71% vs 49%;  $P < .0001$ ), discipline (55% vs 30%;  $P < .0001$ ), toilet training (42% vs 26%;  $P < .0001$ ), and child care (35% vs 20%;  $P < .0001$ ). Receipt of DA was also associated with a discussion of family and community risks and assets, such as household smoking status (79% vs 70%;  $P < .01$ ), substance abuse (49% vs 34%;  $P < .0001$ ), spousal support for parenting (42% vs 27%;  $P < .0001$ ), parental physical health (42% vs 25%;  $P < .0001$ ), parental emotional support (36% vs 21%;  $P < .0001$ ), financial troubles (15% vs 6%;  $P < .0001$ ), and community violence (13% vs 3%;  $P < .0001$ ). For each health supervision topic analyzed, frequency of discussion is higher for children who ever received a DA.

A 3-stage multivariate logit analysis was used to examine the association of sociodemographic, health care, and process-of-care measures with receipt of a DA (Table 4). The odds of receiving a DA were higher for Hispanic children when the interview was in Spanish (less acculturated) than for white children (odds ratio [OR]: 1.62; 95% confidence interval [CI]:

1.11–2.37), and odds were lower for children whose source of care is a community health clinic (OR: 0.65; 95% CI: 0.44–0.97) rather than a private office. When measures of the process of health care are added, the odds of receiving a DA are higher for children with longer visits with the provider (OR: 1.03; 95% CI: 1.01–1.05;  $P < .01$ ) and lower for children in community health clinics compared with a private office (OR: 0.61; 95% CI: 0.39–0.96), even accounting for total well-child visits to the pediatric provider. When 2 measures of the provision of other developmentally focused anticipatory guidance were added, parents who reported discussing discipline had twice the odds of ever receiving a DA (OR: 2.28; 95% CI: 1.65–3.15), and those who discussed community violence had 3 times the odds of ever receiving a DA (OR: 3.08; 95% CI: 1.65–5.76).

To examine the independent effect of receiving a DA on rating of satisfaction and FCC, we conducted logistic and linear regression analyses, where DA is a predictor (Table 5). Receipt of a DA is associated with higher satisfaction and FCC. Parents who reported that their child had received a DA also rated their overall satisfaction of care approximately half a point higher (0.42) on a 10-point scale ( $P < .0001$ ) and rated FCC nearly 12 points higher on a 100-point scale ( $P < .0001$ ).

## DISCUSSION

Although professional guidelines encourage the routine provision of DAs, a substantial proportion of parents with children 10 to 35 months of age do not recall their child's ever being assessed. Approximately half of parents recalled ever being told that a DA was being done or recalled their child's performing tasks that are typically included in routine assessments. Parents of children who reported receiving a DA were also more likely to report receiving recommended anticipatory guidance about developmental issues and family and community risks and assets. Children who received a DA were more likely to obtain care in a private setting rather than in a community health center and to have longer well-child visits. Receipt of DAs is also associated with higher satisfaction with well-child care and higher rating of FCC when controlling for demographic and health care delivery factors.

This is the first report of the provision of DAs to young children using national data based on parent reports. The NSECH used 2 questions designed to tap parent memory of a specific set of services. Given that previous research indicates that many parents may not understand the term "developmental assessment," a potential limitation of the study is the validity of the survey measures.<sup>27</sup> DAs could be over- or underreported by parents. The second question was intended to improve validity for parents who are unfamiliar with the term "developmental assessment" by asking parents whether they ever observed the child's doing things in the pediatric visit that a young child might be requested to do in a commonly administered developmental screening. This additional question did compensate somewhat for parents who might have underreported a DA

**TABLE 3.** Experiences With Health Care Among Children Who Received and Never Received DAs (Children 10–35 Months)\*

Experiences With Health Care	Received DA	Never Received DA
Visit length adequate (% yes)	94.0*	80.4
Length of last well-child visit, min	18.8†	16.2
Family centered care rating (mean: 0–100)	71.2*	59.1
Satisfaction with well-child care rating (mean: 0–10)	8.9*	8.4
Number of well-child visits in past year, mean	3.4	3.5

\*  $P < .001$  ( $\chi^2$  or analysis of variance test).

†  $P < .01$  ( $\chi^2$  test).

Percent Discussing Topic

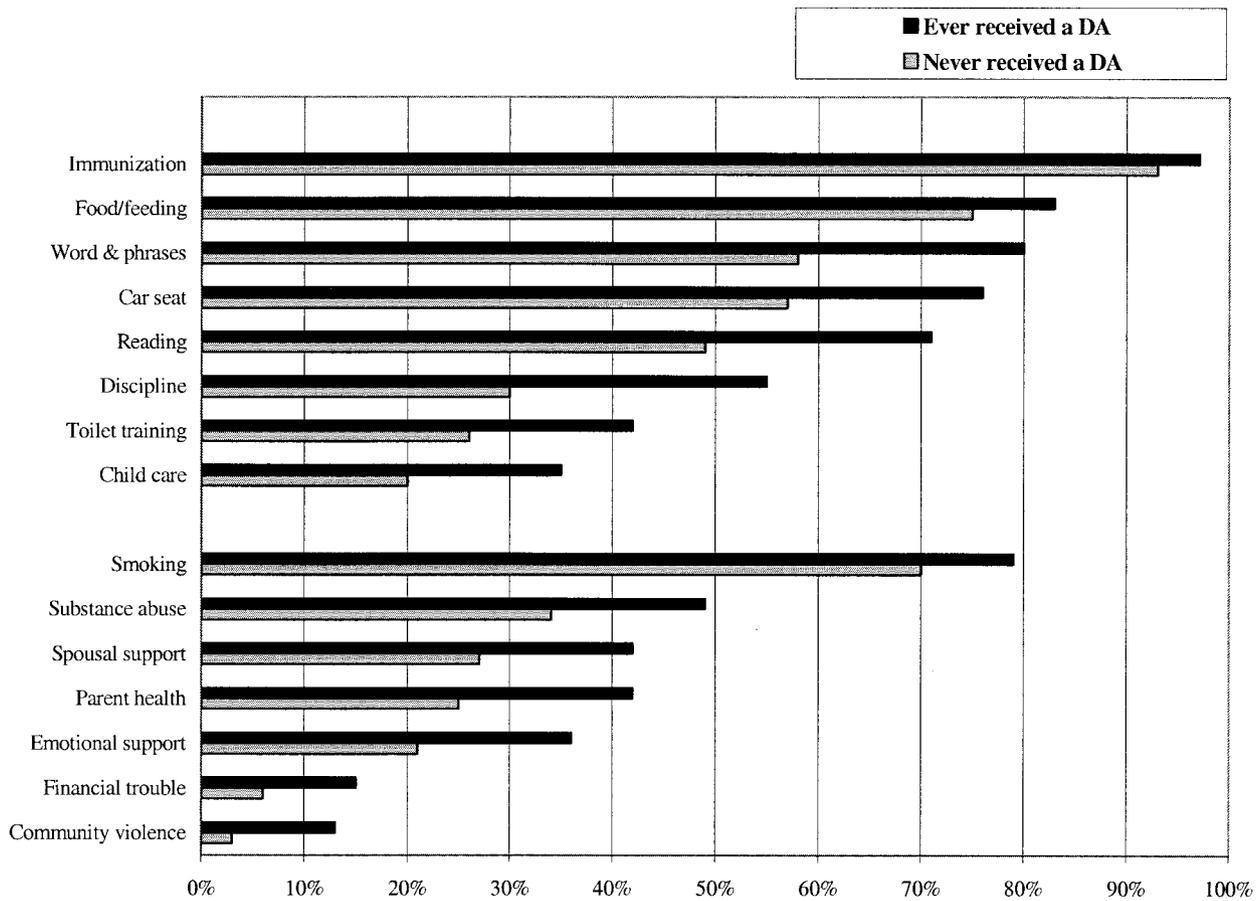


Fig 1. Percentage of parents who discussed anticipatory guidance topics among children (10-35 months) who received and did not receive a DA.

TABLE 4. Adjusted ORs for Receipt of a DA (Children 10–35 Months)

	Race/Acculturation/ Health Care Analysis		Process of Health Care Delivery Analysis*		Content of Care Analysis†	
	OR	95% CI	OR	95% CI	OR	95% CI
<b>Sociodemographic</b>						
Child race/ethnicity (vs white)						
Non-Hispanic black	1.03	0.73–1.46	0.99	0.66–1.49	0.87	0.57–1.32
Hispanic, English	0.83	0.59–1.18	0.79	0.53–1.18	0.66	0.44–1.00
Hispanic, Spanish	1.62‡	1.11–2.37	1.66	0.99–2.78	1.36	0.79–2.33
Other	1.00	0.49–2.06	0.82	0.37–1.84	0.73	0.32–1.68
<b>Health care</b>						
Location of care (vs private or group practice)						
Community health clinic	0.65‡	0.44–0.97	0.61‡	0.39–0.96	0.61‡	0.39–0.94
Outpatient	0.91	0.50–1.66	0.84	0.42–1.70	0.86	0.44–1.66
Other	1.67	0.73–3.82	1.02	0.38–2.77	0.92	0.35–2.40
<b>Process of health care delivery</b>						
Length of last well child (no. of minutes)	—	—	1.03§	1.01–1.05	1.02	0.99–1.03
Number of well-child visits in past year	—	—	1.00	0.94–1.08	1.02	0.94–1.10
<b>Content of care</b>						
Discipline	—	—	—	—	2.28	1.65–3.15
Community violence	—	—	—	—	3.08	1.65–5.76

Outcome is ever receiving a DA.

\* Includes the factors in the race/acculturation/health care analysis in addition to child age, gender, whether low birth weight, developmental risk (high/moderate), maternal age, annual household income, and child health insurance.

† Includes factors in process of health care delivery analysis in addition to anticipatory guidance (discipline) and psychosocial issues (community violence).

‡  $P < .05$

§  $P < .01$

||  $P < .001$

**TABLE 5.** Multivariate Analysis: Association of Satisfaction and FCC With Receipt of a DA (Children 10–35 Months)\*

	Satisfaction Rating ( $\beta$ [P Value])	FCC Rating ( $\beta$ [P Value])
Ever received DA (vs never received DA)	0.42 (<.0001)	11.48 (<.0001)

\* All models control for low birth weight, child race, maternal education, household income, location of health care, child health insurance, and region.

because of unfamiliarity with the term. Underreporting using the NSECH questions may have occurred for children whose development was assessed using a checklist or form, rather than direct observation of performance on specific tasks.

Another reason to expect underreporting is that components of a DA within well-child care may be conducted informally, partially, or interspersed with other components of well-child care. For example, if pediatric providers simply ask parents to report on the attainment of age-specific developmental milestones, without attempting to elicit specific behaviors and skills as part of a more formal or instrument guided assessment, then parents might not be aware that their child's development was being assessed. This practice of informal assessment is suggested by 2 recent surveys of pediatric practitioners (N. Halfon, M. Hochstein, M. Regalado, M. Inkelas, M. Schuster, and L. Barthauer, unpublished manuscript, 2003; also tabulations by the authors from the Periodic Survey of Fellows, no 46, American Academy of Pediatrics). Most providers in these 2 surveys reported that they routinely assess development at each visit, although rarely using a formal instrument. Informal assessment has questionable validity and accuracy<sup>12</sup> and limits the potential educational value to parents of a more explicit assessment process that permits the clinician to frame developmental expectations for parents and reframe maladaptive perceptions and attributions.

This study using NSECH also suggests that physicians who conduct DAs also routinely address a broader range of topics related to development and to family and community risks and assets. DAs may facilitate discussion of behavioral and developmental topics and the family context that influences parent-child interactions. Some pediatric providers seem to have a practice style with greater focus on developmental issues, developmentally focused anticipatory guidance, and the provision of DAs. The association between receiving a DA and longer visit length suggests that time constraints limit formal DAs. However, given the growing number of recommended anticipatory guidance topics, it may not be practical or feasible to improve DA rates simply by lengthening visits.

This study also suggests that parents value more comprehensive and developmentally focused care. Parents who reported that their children received a DA also reported greater overall satisfaction with their child's care and gave higher ratings of interpersonal quality. Both of these findings suggest that the provision of DA may be a useful marker for quality

of well-child care. The NSECH and earlier surveys of parents of young children all suggest that parents want additional guidance and information about developmental issues ranging from early literacy and learning to discipline and toilet training.<sup>16–18</sup> Greater use of DA could improve counseling on topics that concern parents. Effective counseling about the common developmental issues that are important to parents requires knowledge of the child's developmental progress and functional "trajectories." Such knowledge can be obtained only by assessing a child's development over time.<sup>28,29</sup>

Although developmental issues are a key component of primary pediatric health care, current quality-of-care measures do not address developmental services, including DAs. The most widely used measures of the quality of pediatric care are the National Committee for Quality Assurance Health Plan Employer Data and Information Set (HEDIS) measures.<sup>30</sup> HEDIS measures are used by most state Medicaid and State Children's Health Insurance Programs, as well as by many private health insurers and health plans. HEDIS measures of well-child care are limited to the number of well-child visits and immunization rates and include no indicators of specific surveillance, guidance, and assessment activities that are essential components of early childhood health care. Adding a provision of DAs to HEDIS could provide important information about the quality of developmental services. Because receipt of a DA is associated with developmentally focused anticipatory guidance as well as the level of interpersonal quality, it could serve as an important new quality indicator. Before such a measure can be used, a validation process similar to that undertaken for other standardized quality indicators would be required to evaluate the validity of parent report and determine whether administrative data, medical records, or parent survey (through the Consumer Assessment of Health Plan Satisfaction instrument for example) would be feasible for a valid DA measure.

Adopting an approach to DA that relies on principles of developmental surveillance could improve the rates and effectiveness of assessing development. In the past 10 years, several researchers and the AAP Committee on Children with Disabilities have endorsed developmental surveillance as a strategy to help pediatricians more efficiently and effectively assess development.<sup>3</sup> Developmental surveillance emphasizes a systematic assessment of parent concerns and includes taking a developmental history, making skill observations, and determining the need for additional instrument-based formal screening or assessment. Developmental surveillance is preferably accomplished using a parent checklist or questionnaire such as the PEDS. If a developmental surveillance suggests a problem, then a more select group of children can be screened to determine who requires a complete diagnostic developmental evaluation. Newly available tools can further facilitate developmental surveillance, screening, and assessment.<sup>2,31</sup>

In summary, national rates of DA are important

because detection of developmental problems is a precursor to providing children with the positive developmental environment that they need. Surveillance, screening, and assessment of development is the gateway to the interventions and support services that a developmentally at-risk child and family might require.<sup>9,31</sup> Effective counseling that targets child and parent needs requires accurate knowledge of the child's developmental progress. DAs also provide an opportunity to elicit parent concerns and to help parents understand their child's unique individuality and thereby encourage developmentally responsive parenting styles.<sup>2,32</sup>

### CONCLUSIONS

In this national sample of young children, only a little more than half of all children aged 10 to 35 months are reported to have received a DA as part of their routine well-child care. Children who receive assessments are more likely to receive other developmental services, and their parents are more satisfied with care and with the interpersonal quality of well-child care. The substantial number of children who do not receive these routinely recommended services raises important questions about the quality of care received. As this is the first attempt to measure the routine provision of DAs in a national sample of children, more research is needed to validate measures of DA receipt. Because "what gets measured gets done," consideration should be given to including a measure of the receipt of DA in quality monitoring systems used at the federal, state, and/or local level.

Given the low reported rates of DAs in this study, what might be done to improve the delivery and impact of assessment? Barriers to the provision of developmental services include a lack of training, unfamiliarity with new assessment screening and surveillance measures, insufficient time, insufficient reimbursement, and lack of accountability to patients and payers for the provision of these services.<sup>33</sup> Several new initiatives address these barriers to improve delivery of developmental services. These programs include statewide initiatives to improve reimbursements; practice redesign efforts such as Healthy Steps to reengineer the way early childhood services are delivered; and new care coordination, quality improvement, and quality measurement efforts.<sup>33-36</sup>

For the practicing pediatrician, it is important to note that provision of developmental surveillance and screening using valid standardized tools has recently been reaffirmed by the AAP.<sup>3</sup> A shift to a surveillance approach, using screening tools such as the PEDS or Ages and Stages questionnaire—not at every visit but at strategic intervals—could improve the effectiveness and rates of DA. The surveillance approach also would provide more opportunities for "teachable moments"<sup>19</sup> concerning some of the issues that matter most to parents and can have an impact on their child's development. As indicated in the 2001 AAP statement,<sup>3</sup> such an approach is likely 1) to improve the identification of children who either have or are at risk for developmental disabilities and 2) allow pediatricians to be more responsive to

the developmental and behavioral concerns of parents.

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