

Parent Report of Reading to Young Children

Alice A. Kuo, MD, MEd*‡; Todd M. Franke, PhD‡§; Michael Regalado, MD||; and Neal Halfon, MD, MPH*‡¶

ABSTRACT. *Objective.* The purpose of this study was to investigate the predictors and frequency of book-sharing activities in a nationally representative sample of families with young children and to examine the extent to which parents report that pediatric health care providers are addressing early literacy activities.

Methods. This study analyzed data from the 2000 National Survey of Early Childhood Health (NSECH), a telephone survey of 2068 parents of children aged 4 to 35 months. Parents were queried about the frequency of reading with their child, whether their pediatric provider discussed reading in the past year, and, if not, whether a discussion of the importance of reading to their child would have been helpful. Descriptive statistics, bivariate analyses, and multivariate logistic regression to identify predictors of daily reading among parents of young children nationally were used.

Results. Approximately 52% of young children are reportedly read to every day by a parent. Significant predictors of daily reading include older child's age (19–35 months; odds ratio [OR]: 1.77; 95% confidence interval [CI]: 1.18–2.65, as compared with 4–9 months), maternal education greater than high school (OR: 2.00; 95% CI: 1.24–3.22), greater number of children's books in the home (OR: 1.01; 95% CI: 1.00–1.01), and discussion of reading by the pediatric provider (OR: 1.66; 95% CI: 1.23–2.24). Lower odds of daily reading are found for maternal full-time working status (OR: 0.68; 95% CI: 0.49–0.95), black race/ethnicity (OR: 0.61; 95% CI: 0.41–0.91), Hispanic race/ethnicity (OR: 0.56; 95% CI: 0.37–0.86), Spanish language–dominant parents (OR: 0.37; 95% CI: 0.22–0.62), and >1 child in the household (2 children OR: 0.68, 95% CI: 0.48–0.97; 3 children OR: 0.53, 95% CI: 0.35–0.82). Approximately 37% of parents of young children stated that their child's pediatric provider had not discussed reading with them. Nearly half (47%) of these parents indicated that they would have found such a discussion helpful.

Conclusions. Family context and daily reading routines are important for a child's early literacy development. This national study identifies how family characteristics and routines are associated with the family's literacy orientation. The analysis also indicates that a large percentage of parents with young children who do not read daily believe that it would be helpful to discuss

the importance of reading with their child's pediatric provider. *Pediatrics* 2004;113:1944–1951; reading, literacy promotion, health supervision.

ABBREVIATIONS. AAP, American Academy of Pediatrics; NSECH, National Survey of Early Childhood Health; PEDS, Parent Evaluation of Developmental Status; MHI-5, 5-item Mental Health Index; OR, odds ratio; CI, confidence interval; NSLP, National School Lunch Program.

Learning to read is a critical milestone for children. Reading skills are the foundation for children's academic success.¹ Educational research has focused on many aspects of literacy development, including the sociocultural context in which literacy develops and the links between a child's development of spoken language and subsequent ability to read.^{2,3} Although all children should begin school with the expectation of success in the school environment, many economically disadvantaged children have difficulty in the early years of schooling, primarily because of the failure to learn to read.^{4,5} If a child does not learn to read well within the first few years of school, then the chances of poor academic performance increase significantly.^{6,7}

Many educational researchers focus on the social context of literacy development and identify book reading as a family routine that contributes significantly to a child's later literacy skills. Shared book reading is an interactive activity that promotes literacy as well as the socioemotional development of young children.⁸ A child's growing interest in books can be both a prerequisite and a consequence of book reading. Children who are read to from an early age display more interest in reading than children who lack this experience.⁹ The potential language and cognitive gains from early reading cannot be completely achieved through other important development-promoting activities in the home, such as talking. The vocabulary and syntax of written language differ in many respects from more familiar, interactive verbal language, and exposure to both is complementary and an important prerequisite for the development of language and literacy skills.⁴

Given the importance and the opportunity to advise parents on family routines for young children, pediatric providers have identified a role to play in promoting early literacy. The American Academy of Pediatrics (AAP) Guidelines to Health Supervision III¹⁰ call for pediatric providers to encourage parents to read to their child from 6 months of age onward, and the Maternal and Child Health Bureau Bright

From the *Department of Pediatrics, Geffen School of Medicine, Los Angeles, California; ‡UCLA Center for Healthier Children, Families, and Communities, Los Angeles, California; §UCLA School of Public Policy and Social Research, Los Angeles, California; ||Department of Pediatrics, Cedars-Sinai Medical Center, Los Angeles, California; and ¶UCLA School of Public Health, Los Angeles, California.

Received for publication Oct 20, 2003; accepted Jan 13, 2004.

Reprint requests to (A.A.K.) UCLA Center for Healthier Children, Families and Communities, 1100 Glendon Ave, Ste 850, Los Angeles, CA 90024. E-mail: akuo@mednet.ucla.edu

PEDIATRICS (ISSN 0031 4005). Copyright © 2004 by the American Academy of Pediatrics.

Futures Guidelines¹¹ from 2 months of age. Beginning in 1987, the national Reach Out and Read initiative has promoted an office-based literacy intervention in which pediatricians provide anticipatory guidance about reading aloud and distribute books with every well-child visit.¹² Research on this intervention has demonstrated increased likelihood for parents to read aloud to their young children^{13–15} and improved child language skills,^{16,17} even for a multilingual population.¹⁸

Although these initial intervention studies suggest that pediatric office-based literacy interventions can be effective, no study has examined the association between pediatric counseling on reading as it relates to other sociodemographic, family behavior, or health factors. It is not known whether parents who are least likely to read frequently to their young child are receiving advice about reading from their child's pediatric provider. The purpose of this study was to understand which families are more likely to read daily to their young children and the factors associated with provider discussion of reading.

METHODS

Sample

The National Survey of Early Childhood Health (NSECH) is a telephone survey of a national random sample of 2068 parents of children between the ages 4 and 35 months that was conducted in 2000.¹⁹ NSECH used the State and Local Area Integrated Telephone Survey mechanism, which is the sampling frame of the National Immunization Survey conducted by the National Center for Health Statistics. Structured telephone interviews of ~30 minutes were conducted in English or Spanish with parents, and questions addressed the content and quality of early childhood health care. Black and Hispanic children were oversampled to provide a nationally representative sample of underrepresented populations suitable for subgroup analyses. Child-level sampling weights adjust for nonresponse, oversampling, and the survey sampling design effects. Sociodemographic information weighted nationally for children 4–35 months is presented in Table 1.

Measures

Two reading outcome measures were constructed. Reading frequency is derived from parent response to the statement, "Please tell me the number of days in a typical week that you read stories to [child]." Response options are "never," "1 to 2 days," "3 to 6 days," or "every day." We analyzed the frequency of reading using these 4 categories, as well as using a dichotomous variable of whether a parent read every day to his or her child. The second outcome measure was whether the pediatric provider discussed reading in the past year with the parent. Parents who answered "no" were asked a follow-up survey item: "Would a discussion of the importance of reading to [child] have been helpful to you?" Our outcome variable has 3 categories: discussed, did not discuss but would not have been helpful, and did not discuss but would have been helpful.

Child's race/ethnicity was categorized as Hispanic, non-Hispanic white, non-Hispanic black, and other non-Hispanic. Hispanic children were further categorized on the basis of the language of parent interview (English or Spanish).

The NSECH included a modified version of the Parent Evaluation of Developmental Status (PEDS) as a measure of children's risk for developmental problems. The PEDS is a clinical screening tool that was adapted recently for telephone interviews about health care and asks parents to rate the level of concern that they have about how their child is learning, developing, and behaving.²⁰ The PEDS consists of a set of questions that probe into such developmental issues as how the child talks or makes speech sounds, sees or hears, understands what the parent says, uses hands and fingers to do things, uses arms and legs, behaves, gets along with others, is learning to do things him/herself, is learning preschool or school skills, and is behind others or cannot do what

peers can do. Parents are asked whether they have a lot, a little, or no concerns with respect to each issue. Using parent responses to the specific probes, children are categorized as being at high, moderate, low, or no developmental risk on the basis of a standard scoring method.²⁰

The NSECH also includes the 5-item Mental Health Index (MHI-5), which is used to measure the respondent's emotional well-being.²¹ The MHI-5 consists of the following questions: how much of the time during the last month have you 1) been a very nervous person, 2) felt calm and peaceful, 3) felt down-hearted and blue, 4) felt so down in the dumps that nothing can cheer you up, and 5) been a happy person? An average score with higher values representing better emotional well-being is calculated on the basis of responses to these 5 items with reverse coding of items 2 and 5.

Measures of the child's daily environment include hours of television watched daily (topcoded by National Center for Health Statistics at 6 hours), any participation in child care, and total books in the home.

Health care experience factors that are tested as predictors of provider discussion include length of the child's most recent well-child visit (mean length of a well-child visit in this study was found to be 17.7 minutes), parent ability to ask all questions at the last well-child visit (with 95% saying yes), and parent perception of time adequacy at the last visit (not enough time, enough time, too much time).

Analyses

All statistical analyses are performed using STATA (version 7; Stata Corp, College Station, TX). Descriptive statistics are performed with χ^2 tests between each predictor and the frequency of reading as an ordered categorical variable. Factors include household demographics, child's developmental risk (based on the PEDS), maternal well-being (based on the MHI-5), and measures of the child's daily environment, including television watching, participation in child care, and availability of books in the home.

Analyses using multivariate logistic regression were then performed using the dependent variable of daily reading. The model was built in a hierarchical manner with 2 steps. In step 1, the predictors in each of the following 4 domains were regressed onto the outcome variable of daily reading: 1) child factors (age, gender, race/ethnicity, and developmental risk status), 2) maternal factors (age, level of education, working status, and well-being), 3) family routines and household factors (whether the child was in child care, number of children's books in home, number of hours of television, household income, and number of adults and children in household), and 4) provider factors (whether the child's provider discussed reading in the past 12 months). Using separate logistic regression of all variables in each of the 4 domains with the outcome of daily reading, variables with a statistical significance level of $P < .15$ were retained for the final multivariate model.

This stepwise, hierarchical method was also used to identify predictors of clinician counseling about reading at well-child visits. The following variables are used from 3 domains: 1) child factors (age, gender, race/ethnicity, and developmental risk status), 2) maternal factors (age, level of education, working status, and emotional well-being), and 3) health care experience factors (health insurance type, duration of well-child visits, whether parent had all of his or her questions asked, and the adequacy of time spent by provider at last well-child visit).

Eighty-seven percent of the respondents are mothers of the sampled child. The remaining are 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.²²

RESULTS

Overall, 52% of children aged 4 to 35 months are read to every day. Approximately 27% are read to 3 to 6 times a week, and 15% are read to 1 to 2 times a week. Only 6% of children are never read to. The mean number of children's books in the home (including library books) is 63, and the median is 30. Approximately 21% of children have 10 or fewer children's books in the home, with 2% reporting having no children's books at all.

TABLE 1. Characteristics of US Children Age 4 to 35 Months

	No. of Children in Sample	% of Children in US Population
Child characteristics		
Age		
4–9 mo	432	19
10–18 mo	674	28
19–35 mo	962	53
Race/ethnicity		
White	718	61
Black	477	15
Hispanic, English interview	422	9
Hispanic, Spanish interview	395	9
Other	56	4
Developmental risk		
No risk	568	30
Low risk	280	16
Moderate risk	381	19
High risk	828	36
Mother characteristics		
Educational attainment		
Less than high school	443	21
High school diploma	655	34
More than high school	970	46
Employment status		
Full-time	785	35
Part-time	368	19
Not employed	908	46
Family characteristics		
Household income		
<\$17 500	530	25
\$17 500–\$45 000	756	40
>\$45 000	561	35
Care arrangement for child		
Any form of child care	1259	67
Exclusively parent care	657	33
No. of adults in household		
1	228	10
2	1438	75
≥3	399	14
No. of children in household		
1	662	30
2	719	36
3	447	23
≥4	240	11
Hours of daily television		Median 1
No. of children's books in home		Mean 63 (SE 2) Median 30

SE indicates standard error.

Percentages are weighted to US children age 4 to 35 months.

Table 2 shows the characteristics associated with frequency of daily reading in bivariate analysis. More toddlers 19 to 35 months of age are read to every day (58%) compared with children 10 to 18 months (49%) and infants 4 to 9 months of age (42%; $P < .0001$). More white children are read to every day (61%) compared with black children (46%), Hispanic children with a predominantly English-speaking parent (42%), and Hispanic children with a predominantly Spanish-speaking parent (15%; $P < .0001$). More children of mothers with more than a high school education are read to every day (63%) compared with children of mothers with a high school diploma (48%) and children of mothers with less than a high school diploma (35%; $P < .0001$). Developmental risk of the child is not associated with reading frequency. Whether a child was in child care and the number of hours of television watched daily are also not associated with reading frequency.

The following predictors using child, maternal, family, and health care covariates with a significance level of $P < .15$ in the initial domain-specific hierarchical logistic regression models are associated with daily reading in the final model at $P < .05$ (Table 3): children age 19 to 35 months (OR: 1.87; 95% CI: 1.24–2.82) compared with younger children, maternal education above high school (OR: 2.14; 95% CI: 1.32–3.45), the number of children's books in the home, and whether the child's provider discussed reading in the last 12 months (OR: 1.65; 95% CI: 1.23–2.23). In addition, odds of being read to daily are lower for black children (OR: 0.62; 95% CI: 0.41–0.92), Hispanic children with a predominantly English-speaking parent (OR: 0.56; 95% CI: 0.39–0.82), and Hispanic children with a predominantly Spanish-speaking parent (OR: 0.20; 95% CI: 0.12–0.34) compared with white children. Odds of daily reading are lower for full-time employed parents (OR: 0.69; 95% CI: 0.49–0.96) than for nonworking parents and are lower for children in households with 2 children (OR: 0.67; 95% CI: 0.47–0.94) or with 3 children (OR: 0.51; 95% CI: 0.33–0.78) compared with children who are the only child in the household.

Provider Discussion of Reading

Sixty-two percent of parents of young children reported having discussed reading with their pediatric provider in the last 12 months. Of these parents, 55% reported also reading daily to their child. Of the 38% of parents of young children who had not discussed reading with their pediatric provider, approximately half (47%) said that they would have found such a discussion helpful. Of those parents who had not discussed reading with their pediatric provider and would find such a discussion helpful, only 35% reported reading daily to their child.

Table 4 shows the factors with significant bivariate associations with provider discussion of reading in the last 12 months, which include child race/ethnicity and maternal level of education. Factors such as child age, developmental risk, overall health status, health insurance status, maternal employment, and household income are not associated with provider discussion of reading.

Among health care experience factors, whether the parent had asked all of his or her questions and the adequacy of time spent by the provider at the last visit were statistically significant predictors of the provider discussion of reading (Table 4). Only 39% of parents of young children who did not have enough time at the last well-child visit reported discussion of reading, compared with 65% of parents who had enough time.

In step 1 of the multivariate logistic regression model for provider discussion of reading, only child race/ethnicity is retained for the final model from the child domain based on the $P < .15$ level. Retained factors in the maternal domain included level of education and well-being as measured by MHI-5 score. None of the predictors in the provider domain is retained. Health care experience factors retained for the final model include length of visit, whether the parent had been able to ask all questions at the

TABLE 2. Bivariate Analyses of Frequency of Reading

	Every Day	3–6 Times/Week	1–2 Times/Week	Never	<i>P</i> Value*
Total children 4–35 mo	52%	27%	15%	6%	
Child age					<.0001
4–9 mo	42%	28%	21%	9%	
10–18 mo	49%	27%	16%	8%	
19–35 mo	58%	26%	13%	3%	
Child race/ethnicity					<.0001
White	61%	25%	11%	3%	
Black	46%	29%	19%	5%	
Hispanic, English	42%	34%	18%	6%	
Hispanic, Spanish	15%	30%	30%	25%	
Other	50%	27%	17%	6%	
Maternal education					<.0001
Less than high school	35%	27%	26%	12%	
High school diploma	48%	30%	17%	6%	
More than high school	63%	25%	9%	3%	
Household income					<.0001
<\$17 500	43%	29%	19%	9%	
\$17 500–45 000	50%	30%	15%	5%	
>\$45 000	64%	20%	13%	3%	
No. of adults in household					<.0005
1	49%	27%	19%	5%	
2	56%	25%	14%	5%	
≥3	38%	37%	16%	9%	
Provider discussed reading					<.0001
Yes	55%	28%	14%	3%	
No	47%	26%	17%	10%	

* *P* values associated with χ^2 test of independence.

TABLE 3. Multivariate Logistic Regression of Predictors of Daily Reading

	OR	95% CI	<i>P</i> Value
Child domain			
Child age			
4–9 mo	1.00		
10–18 mo	1.41	0.94 2.12	NS
19–35 mo	1.87	1.24 2.82	<.005
Child race/ethnicity			
White	1.00		
Black	0.62	0.41 0.92	<.05
Hispanic, English	0.56	0.39 0.82	<.005
Hispanic, Spanish	0.20	0.12 0.34	<.001
Other	0.66	0.32 1.35	NS
Maternal domain			
Maternal level of education			
Less than high school	1.00		
High school diploma	1.19	0.74 1.90	NS
More than high school	2.14	1.32 3.45	<.005
Maternal working status			
Full-time	0.69	0.49 0.96	<.05
Part-time	0.68	0.45 1.02	NS
Not working	1.00		
Family domain			
No. of children's books in home	1.01	1.00 1.01	<.001
No. of children in household			
1	1.00		
2	0.67	0.47 0.94	<.05
3	0.51	0.33 0.78	<.005
≥4	0.65	0.39 1.09	NS
Health care domain			
Provider discussed reading			
Yes	1.65	1.23 2.23	<.005
No			

NS indicates not significant.

Other factors included in the model that are not associated with daily reading include the MHI-5, hours of television watched, household income, and total adults in the household.

last visit, and the adequacy of time with the provider at the last visit.

Table 5 shows that none of the sociodemographic

TABLE 4. Bivariate Analyses for Provider Discussion of Reading

	Discussed Reading	<i>P</i> Value
Child race/ethnicity		<.05
White	59%	
Black	69%	
Hispanic, English	64%	
Hispanic, Spanish	66%	
Other	54%	
Maternal education		<.05
Less than high school	65%	
High school diploma	66%	
More than high school	57%	
Experiences with well-child care		
Parent able to ask all questions at last visit		<.0001
Yes	64%	
No	34%	
Adequate time with provider at last visit		<.0001
Not enough	39%	
About right	65%	
Too much	72%	

factors in the final model (child race/ethnicity, maternal education) are significant predictors of provider discussion. Factors that are associated with provider discussion include higher maternal well-being (MHI-5 score; $P < .005$) and length of visit in minutes (OR: 1.04; 95% CI: 1.02–1.06). Compared with parents of other children, odds of provider discussion are lower for parents who reported not asking all questions at the last visit (OR: 0.46; 95% CI: 0.24–0.90) or who reported having inadequate time with the child's provider at the last visit (OR: 0.59; 95% CI: 0.37–0.92).

DISCUSSION

Using a new national survey, this study finds that parents are reading to their young children less fre-

TABLE 5. Multivariate Logistic Regression of Predictors of Provider Discussion of Reading

	OR	95% CI	P Value
Maternal well-being (MHI-5 score)	1.02	1.01–1.02	<.005
Length of visit, min	1.04	1.02–1.06	<.001
Parent able to ask all questions at last visit			
Yes	1.00		
No	0.46	0.24–0.90	<.001
Adequate time with provider at last visit			
Not enough	0.59	0.37–0.92	<.05
About right	1.00		
Too much	0.95	0.14–6.43	NS

Child race/ethnicity and maternal level of education were included in the model but were not statistically significant at $P < .05$.

quently than is optimal. Only 52% of children aged 4 to 35 months are read to every day. Lower rates of reading are found for black and Hispanic children than for white children. Substantially lower frequency of reading is found for parents of young children with fewer family resources, such as the number of children's books in the home. The survey also shows that pediatric clinicians are missing opportunities to discuss the importance of reading with young children during well-child visits. Approximately half of parents of young children who had not discussed reading with the child's clinician believed that such a discussion would be helpful to them.

These findings provide important information about reading patterns, given that reading is important for a young child's development and for eventual school success. The process of book sharing between a parent and a child not only promotes language and literacy development but also strengthens a child's emotional attachment to the parent and enhances the parent-child interaction.²³ Therefore, when a parent and a child read together, not only is language and cognitive development supported but also emotional development, all of which are crucial supports for a child's readiness for school entry. Moreover, in 1 well-cited study, Hart and Risley²⁴ identified a nearly linear association between children's expressive language ability at 3 years of age and the number of spoken words exposed to in the home environment. Daily book sharing as an intervention can enhance the language level of the home environment by increasing the number of words that a child hears. In this way, daily reading can help to optimize exposure to the spoken word, especially in homes where verbal exposure for young children may be less than optimal.

That child race/ethnicity and maternal education are independently associated with lower frequency of daily reading points to important social disparities in this early childhood activity. Parents' lower educational attainment is likely associated with a lessened ability to read to young children at home. Growing attention to the literacy needs of families is now resulting in intensive interest in expanding adult and family literacy programs.²⁵ The National Adult Literacy Survey found that ~90 million adults

in the United States have low English literacy proficiency, with 35% of these adults between the ages of 16 and 34 years.²⁶ Parent literacy may affect the frequency of shared reading with young children.

These findings of low reading rates are important given the literacy problems that are occurring in school-aged children in the United States. Despite the attention given to the importance of reading and related activities that encourage young children to learn to read, many children in the United States still experience difficulty mastering basic reading skills. In the 2000 Nation's Report Card of Fourth Grade Reading, only 32% of children in the sample tested at or above proficient level, and 37% tested below basic (partial mastery) level.²⁷ This evidence of serious reading failure cuts across all ethnic and socioeconomic variables. Although 63% of black and 58% of Hispanic children were reading below basic levels, 27% of white students in the fourth grade were also below the basic mastery of reading skills that are fundamental for grade-level proficient work.²⁷

The indicator for poverty in the Nation's Report Card was eligibility for the National School Lunch Program (NSLP). The relevance of poverty to literacy later in childhood is substantial. In 2000, 14% of children who were identified as low income on the basis of NSLP eligibility tested at or above proficient level, whereas 60% tested below basic level. In comparison, 41% of children who were not eligible for the NSLP tested at or above proficient level, with 28% below basic level.²⁷ Our study shows that this kind of disadvantage may begin early in a child's life.

Although our study demonstrates that a lower percentage of black and Hispanic families than white families read daily to their young child, low reading rates in early childhood are not a concern only for nonwhite children. Our study shows that 44% of young children who are not read to daily are white and nonpoor and represent >2 million young children nationally; the total number of white nonpoor children who are not read to daily exceeds the number of low-income black and Hispanic children who are not read to daily. This suggests that lower-than-recommended levels of reading to young children is a widespread problem that transcends race/ethnicity and is not a problem only for low-income nonwhite children in the United States. These patterns suggest that a universal strategy to promote daily reading is needed to address low reading rates, rather than an exclusively targeted approach that focuses only on low-income, nonwhite children, especially if early childhood reading rates are to increase substantially.

Our study shows that mothers with lower emotional well-being less frequently reported discussing reading with their child's clinician. The lack of association of emotional well-being with reading frequency is interesting given that previous studies suggested an association with depression and reading frequency. One study examined maternal depression and its specific effect on a literacy intervention and found that depressed mothers engaged in fewer literacy-enhancing behaviors (eg, story time, book sharing) with their children than nondepressed mothers.²⁸ Several studies have documented diffi-

culty with mother-child attachment and decreased availability in general to the child in depressed mothers.²⁹⁻³¹ Our measure of emotional well-being is less specific than maternal depression and may not identify this subgroup of at-risk mothers.

The finding that the reported amount of time spent watching television is not associated with diminished reading frequency suggests that television watching does not supplant reading for young children. As expected, families with more children's books (including library books) in the home reported increased frequency of reading to their young child. A greater number of books in the home is clearly a marker for daily reading, although it is not possible to determine in the study whether having more books increases reading frequency or parents who read more frequently are those who then acquire more books.

In conclusion, our study shows the need to improve reading rates among parents of young children and also supports a greater role for pediatric providers to promote literacy. Both Bright Futures and AAP guidelines and policy statements recommend that the pediatric provider address early literacy issues to raise awareness among parents about the importance of reading to young children.^{10,11} Our study demonstrates that ~6 of 10 parents reported that their child's clinician has discussed reading with them in the past year, but we also find "missed opportunities" to counsel parents on reading and influence the early experiences of children in the home. Nearly half of those parents who did not discuss reading said that they would have found such a discussion helpful.

Another relevant finding for pediatric clinicians is that daily reading is only slightly more frequent for toddlers aged 19 to 35 months than for infants aged 4 to 9 months (58% vs 42%, respectively). Although the data from the NSECH are not longitudinal and cannot address whether parents who begin reading early continue this pattern through toddlerhood, future research is warranted to shed light on such patterns. If daily reading habits begin early and are maintained, then there would be implications for when and how anticipatory guidance about early reading should occur. Because reading to a 5-month-old is clearly a different experience for both infant and parent than reading to an 18-month-old or a 3-year-old, customizing anticipatory guidance to respond sensitively to age- and developmental stage-related differences is essential. Not all clinicians may recommend to parents in early health supervision visits that they read to a young child until he or she has the developmental capacity to sit still and attend to a book or fix and follow words on a page. Although not without controversy, the act of book sharing accomplishes different developmental goals at different ages. Although a 2-month-old may not be cognitively prepared to benefit from the words on the page of a book, the act of sitting in a parent's lap and listening to the rhythm and intonation of language may not only strengthen the socioemotional bond between parent and child but also address

important linguistic precursors such as rhythm and prosody.

National guidelines demonstrate a lack of consensus on how early to recommend parent-child reading. The AAP Guidelines to Health Supervision recommend counseling on reading beginning with the 6-month visit, and the Bright Futures Guidelines advocate for reading to infants beginning with the 2-month visit. Growing evidence that pediatric-based interventions focused on reading and book sharing can improve this important early literacy behavior in homes supports an important role for the pediatric provider in this regard. During health supervision, pediatricians can advocate for increased reading and book-sharing practices. However, more than simply stating that parents should read to their young children is required; pediatric providers need to assess the parents' resources and capacity to read, as well as their capability to change if they are not engaging in reading practices in the home. Pediatricians face alternative demands on time during well-child visits; however, discussion of reading is perhaps the most important topic that can promote children's development. Reach Out and Read is an evidence-based intervention that is situated in the pediatric office and that can help pediatricians to promote parents' reading to their children. A number of studies have documented that this office-based intervention makes a difference in increasing parental frequency of reading and language outcomes for children.¹³⁻¹⁸ A recent study has demonstrated that more reading to a young child was reflected in higher receptive language scores³²; thus, habitually reading every day as early as possible is the more desirable option. Through the provision of books, clinician training on how to give literacy guidance, and modeling book sharing by the pediatrician and waiting room volunteers, families are exposed to the importance of literacy with a multifaceted approach.

Policy Implications

A large number of young children in the United States do not receive optimal exposure to daily reading, and many pediatricians are not addressing this issue during well-child visits. Our study ties the self-report of reading by parents to what pediatric clinicians are (or are not) counseling about, thereby identifying an unmet need in pediatric service delivery. Pediatric clinicians face many challenges such as time constraints, lack of reimbursement, and lack of adequate training in the delivery of developmentally oriented anticipatory guidance.³³ Although pediatricians may recognize the importance of discussing literacy development during well-child visits, they may not be equipped to incorporate literacy messages efficiently into their practice. An intervention such as Reach Out and Read can help pediatricians to enhance their anticipatory guidance delivery by incorporating discussions around literacy to address common childhood issues such as sleep behaviors, autonomy, attention spans, tantrums, and the importance of routine. Bringing a book to the child at the beginning of a well-child visit also offers an opportunity to assess different aspects of development via

structured clinical observations of the child and parent interacting with the book.

The AAP and other organizations that are in the position to influence pediatric practice have recognized the importance of promoting literacy discussions during office visits and have worked toward addressing some of the challenges that pediatricians face. Our study clearly demonstrates that parents want more information on the importance of reading to their young children. However, discussions of topics such as reading during well-child visits must compete with the demands of addressing other traditional topics such as safety, nutrition, and immunizations, as well as a growing list of topics such as child care and discipline.³⁴

The importance of reading has been embraced by some but not all pediatricians as a topic for discussion during well-child visits. Reading and other early childhood activities that promote child development are being increasingly recognized as crucial for affecting children's school readiness and school success. Research from the past decade points to the importance of early experiences on children's brain development and the impact that these early experiences can have on long-term social, economic, and academic outcomes in adulthood.³⁵ As Zuckerman and Halfon³⁶ stated in a recent commentary, there is a convergence occurring between the increasing recognition of the importance of optimizing early childhood development and the national agenda of improving educational opportunities and outcomes for all children. Greater exposure to rich language environments and other interventions that enhance early literacy and learning are clearly part of such an optimizing strategy. Pediatricians are in a key position to provide the clinical expertise that is necessary not only to identify children who are at risk for developmental problems but also to provide interventions that can promote optimal development,^{33,35,37} achieving the important societal goal not only of school and academic success but also of long-term health outcomes. Encouraging parents to read to their young children and supporting parents in their desire to optimize their children's learning abilities is an important step in contributing to the national priority of getting children ready for school.

ACKNOWLEDGMENTS

This research was made possible by funding from The Gerber Foundation, the American Academy of Pediatrics Friends of Children Fund, the Maternal and Child Health Bureau in the Health Resources and Services Administration (5-U05MC-00010200), and The Commonwealth Fund. This analysis was further supported by an Ambulatory Pediatric Association/Agency for Healthcare Research and Quality Young Investigator's Grant. Dr Kuo was also supported by the UCLA National Research Service Award Health Services and Primary Care Research Fellowship Program.

REFERENCES

- Whitehurst GJ, Lonigan CJ. Emergent literacy: development from prereaders to readers. In: SB Neuman, DK Dickinson, eds. *Handbook of Early Literacy Research*. New York, NY: Guilford Press; 2001:11-29
- Gee JP. A sociocultural perspective on early literacy development. In: SB Neuman, DK Dickinson, eds. *Handbook of Early Literacy Research*. New York, NY: Guilford Press; 2001:30-42
- Watson R. Literacy and oral language: implications for early literacy acquisition. In: SB Neuman, DK Dickinson, eds. *Handbook of Early Literacy Research*. New York, NY: Guilford Press; 2001:43-53
- Snow CE, Burns MS, Griffin P, eds. *Preventing Reading Difficulties in Young Children*. Committee on the Prevention of Reading Difficulties in Young Children. Washington, DC: National Academy Press; 1998
- Vernon-Feagans L. *Children's Talk in Communities and Classrooms*. Cambridge, MA: Blackwell Publishers; 1996
- Alexander KL, Entwisle DR. *Achievement in the First 2 Years of School: Patterns and Processes*. Chicago, IL: University of Chicago Press; 1988
- Snow CE, Tabors PO. Language skills that relate to literacy development. In: Spodek B, Saracho ON eds. *Language and Literacy in Early Childhood Education*. New York, NY: Teachers College Press; 1993:1-20
- Sulzby E, Teale W. Emergent literacy. In: Barr R, Kamil M, Mosenthal P, Pearson PD, eds. *Handbook of Reading Research*. Vol II. New York, NY: Longman; 1991:727-758
- Arnold DH, Lonigan CJ, Whitehurst GJ, Epstein JN. Accelerating language development through picture book reading: replication and extension to a videotape training format. *J Educ Psychol*. 1994;86:235-243
- American Academy of Pediatrics, Committee on Psychosocial Aspects of Child and Family Health. *Guidelines for Health Supervision III*. Elk Grove Village, IL: American Academy of Pediatrics; 1997 (updated 2002)
- Green M, Palfrey JS, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. 2nd ed., rev. Arlington, VA: National Center for Education in Maternal and Child Health; 2002
- Needlman R, Fried LE, Morley DS, Taylor S, Zuckerman B. Clinic-based intervention to promote literacy. *Am J Dis Child*. 1991;145:881-884
- High P, Hopmann M, LaGasse L, et al. Child centered literacy orientation: a form of social capital? *Pediatrics*. 1999;103(4). Available at: www.pediatrics.org/cgi/content/full/103/4/e55
- Golova N, Alario AJ, Vivier PM, Rodriguez M, High PC. Literacy promotion for Hispanic families in a primary care setting: a randomized, controlled trial. *Pediatrics*. 1999;103:993-997
- Sanders LM, Gershon TD, Huffman LC, Mendoza FS. Prescribing books for immigrant children: a pilot study to promote emergent literacy among the children of Mexican-American immigrants. *Arch Pediatr Adolesc Med*. 2000;154:771-777
- High PC, LaGasse L, Becker S, Ahlgren I, Gardner A. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics*. 2000;105:927-934
- Mendelsohn AL, Mogilner LN, Dreyer BP, et al. The impact of a clinic-based literacy intervention on language development in inner-city preschool children. *Pediatrics*. 2001;107:130-134
- Silverstein M, Iverson L, Lozano P. An English language clinic-based literacy program is effective for a multilingual population. *Pediatrics*. 2002;109(5). Available at: www.pediatrics.org/cgi/content/full/109/5/e76
- Halfon N, Olson L, Inkelas M, et al. Summary statistics from the National Survey of Early Childhood Health, 2000. National Center for Health Statistics. *Vital Health Stat*. 2002;15(3)
- Glascow FP. Parents' concerns about children's development: prescreening technique or screening test? *Pediatrics*. 1997;99:522-528
- Berwick DM, Murphy JM, Goldman PA, Ware JE, Barsky AJ, Weinstein MC. Performance of a five-item mental health screening test. *Med Care*. 1991;29:169-176
- Blumberg SJ, Olson L, Osborn L, Srinath KP, Harrison H. Design and operation of the National Survey of Early Childhood Health, 2000. *Vital Health Stat* 1. 2002;(40):1-97
- Bus AG. Joint caregiver-child storybook reading: a route to literacy development. In: SB Neuman, DK Dickinson, eds. *Handbook of Early Literacy Research*. New York, NY: Guilford Press; 2001:179-191
- Hart B, Risley TR. Intervention to equalize early experience. In: *Meaningful Differences in the Everyday Experience of Young American Children*. Baltimore, MD: Paul H. Brookes Publishing Co; 1995:191-219
- Department of Health and Human Services. HHS Fact Sheet, Head Start: Promoting Early Childhood Development; 2002. Available at: www.hhs.gov. Accessed February 5, 2004
- Kirsch IS, Jungeblut A, Jenkins L, Kolstad A. *Adult Literacy in America: A First Look at the Findings of the National Adult Literacy Survey*. Washington, DC: US Department of Education; 1993
- Donahue PL, Finnegan RJ, Lutkus AD, Allen NL, Campbell JR. *The Nation's Report Card: Fourth-Grade Reading 2000*, NCES 2001-499. Washington, DC: US Department of Education; 2001. Available at: <http://nces.ed.gov/nationsreportcard/pubs/main2000/2001499.asp>. Accessed February 5, 2004
- Bigatti SM, Cronan TA, Anaya A. The effects of maternal depression on the efficacy of a literacy intervention program. *Child Psychiatry Hum Dev*. 2001;32:147-162

29. Luoma I, Tamminen T, Kaukonen P, et al. Longitudinal study of maternal depressive symptoms and child well-being. *J Am Acad Child Adolesc Psychiatry*. 2001;40:1367-1374
30. Johnston C, Murray C, Hinshaw SP, William EP, Hoza B. Responsiveness in interactions of mothers and sons with ADHD: relations to maternal and child characteristics. *J Abnorm Child Psychol*. 2002;30:77-88
31. Foreman DM, Henshaw C. Objectivity and subjectivity in postnatally depressed mothers' perceptions of their infants. *Child Psychiatry Hum Dev*. 2002;32:263-275
32. Sharif I, Reiber S, Ozuah PO. Exposure to Reach Out and Read and vocabulary outcomes in inner city preschoolers. *J Natl Med Assoc*. 2002;94:171-177
33. Halfon N, Regalado M, McLearn KT, Kuo AA, Wright K. *Building a Bridge from Birth to School: Improving Developmental and Behavioral Health Services for Young Children*. New York, NY: The Commonwealth Fund; 2003. Available at: www.cmwf.org/publist/publist2.asp?CategoryID=2. Accessed March 4, 2004
34. Olson LM, Inkelas M, Halfon N, Schuster MA, O'Connor KG, Mistry R. Overview of the content of health supervision for young children: reports from parents and pediatricians. *Pediatrics*. 2004;113(suppl):1907-1916
35. Shonkoff JP, Phillips DA, eds. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, DC: National Academy Press; 2000
36. Zuckerman B, Halfon N. School readiness: an idea whose time has arrived. *Pediatrics*. 2003;111:1433-1436
37. Regalado M, Halfon N. Primary care services promoting optimal child development from birth to age 3: review of the literature. *Arch Pediatr Adolesc Med*. 2001;155:1311-1322