

REACH OUT AND READ: LITERACY PROMOTION IN PEDIATRICS

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I am truly delighted to be here today and to take my part, as a pediatrician, in this important discussion of how children grow and learn, starting from a very young age. I am a pediatrician, and as a pediatrician, prevention is my professional model: the drive, in pediatrics, is always towards avoiding problems, avoiding illness, avoiding developmental delays. As pediatricians, we would rather give the MMR vaccine than treat measles; that's part of our professional imperative, and has been for a long time, with ever-increasing emphasis on early detection, screening, immunization, injury prevention, and what we call in the trade, "anticipatory guidance"—advice for parents about what lies ahead as their children grow and develop.

On the other hand, literacy and reading have not traditionally played an important role in pediatric practice; our training has not generally included much information about how children learn to read—or, indeed, how they learn anything—and we have probably, as a profession, tended to regard the whole subject as "belonging" to educators. On the other hand, developmental and behavioral issues have become more and more prominent in pediatric practice over the past several decades, and in recent years many pediatricians and pediatric nurse-practitioners have begun to include school function problems in their practice. Children are brought to us—for evaluation, for discussion, and, increasingly, for medication—when something goes wrong in school, when they are failing to learn, failing to get along, failing to progress. I would like to talk to you today about what happens when we begin to apply our pediatric professional model of preventing problems and encouraging healthy development to the issue of early literacy—and in fact, about what has happened to the practice of pediatrics and to pediatric medical "culture" because of a national pediatric literacy program, Reach Out and Read. I'm going to take you

through the rationale for this intervention, discuss the model in some detail, and then show you the research data that have now been collected to show that early literacy promotion by pediatricians and other medical providers who take care of young children can influence parental attitudes about books and reading, dramatically increase the amount that parents read to and with their very young children, and, most exciting of all, can have a positive effect on both expressive and receptive language in these children.

Reach Out and Read is a pediatric-based literacy promotion program developed to take advantage of our unique opportunity as pediatric clinicians to intervene, to intervene early, and to intervene in many many families—all to promote reading aloud and the establishment of a language-rich environment for young children, especially children at risk. The program was designed to take advantage of what we know about the importance of the early years of life in language and early literacy development—we know that these early years are crucial, and that the exposure and practice and repetition to spoken and written language makes a tremendous difference to the developing brain. We know from the early brain research about the tremendous proliferation of neurons and synapses during the first two years of life, followed by the “pruning process,” in which those neuronal pathways and connections which are not used are gradually lost. We also know from the teachers and specialists who work with young children when they get to school, or to preschool, that children coming out of low-literacy environments, children who have never been read to, children who have never themselves handled a book, are at a tremendous disadvantage.

As pediatric primary care providers, we do not have the daily opportunity that teachers and childcare workers have to build, piece by piece, on a child’s knowledge and

understanding. What we do have, however, is first of all access, time with parents—with almost every child’s parents—during those first essential years of growth and development. Parents of young children—infants, one-year-olds, two-year-olds—tend to build strong connections with their pediatricians, seeing them often for well-child visits (all those immunizations!) and also for any illnesses or concerns. For many parents, especially perhaps low-income families, the pediatrician or pediatric nurse-practitioner maybe the only person with formal training in child development with whom they speak regularly during those early years. Second, those well-child visits routinely include discussions of language and development, since part of our job is to check that all aspects of a child’s physical, cognitive, and social development are proceeding along normal trajectories, and to help parents encourage the next steps—literally or figuratively! Third, the physician or nurse-practitioner is often seen as an authority, and even an authority figure. And fourth, health care encompasses every child—not self-selected families who are already interested in literacy or learning.

Reach Out and Read was founded 13 years ago in Boston by pediatricians and early childhood educators working together, in particular by Robert Needlman MD, Barry Zuckerman MD, and Kathleen Fitzgerald Rice MEd, who together developed a simple three-part model particularly tailored to the special environment of a pediatric clinic, to its rhythms and possibilities, powers and limitations, excitements and exigencies. The program has now grown to include more than 1,400 sites in clinics, hospitals, health centers and practices around the country, in all 50 states, Puerto Rico, and the District of Columbia. We have trained over 14,000 medical providers in the model I’m going to describe, and we are now reaching over 1.5 million children a year,

and distributing over 3 million books a year. Our sites are concentrated in the clinics, health centers, hospitals, and practices which serve children growing up in or near poverty, and we give away more than 3 million books a year. We have been tremendously fortunate to be one of Laura Bush's key projects in the Ready to Read, Ready to Learn Initiative, and her leadership has attracted more medical interest, as well as the attention of important partners for our sites.

The Reach Out and Read model has three components, designed, as I said, to take advantage of the forms and functions of clinical settings where pediatric primary care is delivered. First of all, of course, families spend time in the waiting room—often more time than we would like them to spend there, almost always more time than they would like to spend. So the first component of the ROR model is that volunteer readers read aloud to children while they are waiting for their appointments. The second component is anticipatory guidance from the pediatric clinician, the doctor or nurse responsible for the child's medical care, and this is advice delivered in the setting of the well-child visit, age-appropriate and developmentally appropriate advice for parents about how important it is to read to young children, and about how to do it successfully and effectively with a child of this particular age. And the third component is a book—a beautiful and new and age-appropriate book, given to the child by the pediatrician during the visit at every well-child check-up from six months of age through five years of age.

Let me examine each of these components in a little more detail. The volunteer readers in the waiting room do several things. First of all, they are there to model so that parents can observe techniques for reading aloud—varying voices, for example, or question-and-answer with the listening children: where's the dog? Show me the baby!

Which is the blue flower? In addition, the attention of the children demonstrates to parents—especially to parents who were not read to themselves, and are unfamiliar with its effects—that reading aloud entertains and interests children, that children of different ages will listen to the same book, and, of course, that it helps pass what would otherwise be difficult squirm-laden tense time. Many physicians and nurses have reported that the presence of the waiting room readers markedly decreases parental anxiety and even anger when waiting room waits get long. And finally, the presence of the waiting room reader adds a literacy component to every clinic visit for every child—and for every parent, since many parents find the experience of hearing a story both novel and seductive.

The anticipatory guidance in the exam room is absolutely essential to the Reach Out and Read mission. This program was never intended as a book give-away, and all of the research I will be telling you about has included well-trained clinical providers offering short but carefully chosen and most importantly age-appropriate advice to help parents succeed in fostering early literacy at home with their own children. Our Reach Out and Read training curriculum, which we make available to medical providers through formal training sessions and workshops, including workshops at big medical meetings, by videotape and written curriculum, and now on-line as well through a distance learning continuing medical education course as well, stresses that the anticipatory guidance given around early literacy needs to be simple, positive, and carefully cued to the other discussions of language, development, and behavior that take place at the well-child visits. Thus, a pediatrician speaking to the parent of a six-month-old might stress the importance of talking to a young baby—and reading to her as well, and might suggest that the parent point at pictures in the book and name the objects pictured, just as one

points at other objects in a baby's world and names them, over and over. With a one-year-old, the clinician might focus on the importance of routine in a toddler's life, and suggest that building a bedtime routine, including a book, will help with the sleep and behavior issues which loom so large in the lives of many small children—and their parents! With a two-year-old, the anticipatory guidance might well touch on attention span, and a parent might be advised that a child of this age may not listen through an entire book. Whatever the developmentally normal behavior, whether it's a six-month-old eating the book or a two-year-old taking off to run laps after a couple of pages, the anticipatory guidance is aimed at helping the parent enjoy books with that child.

The book which is given at the well-child visit is the essential tool which helps the parent follow this good advice. We start with board books for young babies, especially board books with pictures of baby faces. We progress on through more complicated board books and into story books, allowing for the change in children's fine motor skills which allows them to make the transition from board pages to paper pages. There are nine to ten visits during ROR's target years, so if the program is followed faithfully, a child starts kindergarten with a home library of nine to ten books, each given with age-appropriate advice from a familiar and, we hope, trusted figure in the family's life.

Reach Out and Read is not simply a book give-away program. One key to the program's power is counseling by pediatrician, or other clinician, and therefore we have placed strong emphasis on training these clinicians. As I said earlier, although we pediatricians consider ourselves experts on children and childhood, our training has not traditionally included much (or any) background on how literacy develops. The ROR

training that we have developed therefore gives pediatricians and other primary care clinicians skills to help them emphasize to parents that this program is designed to help children grow up with the basic book handling and picture reading skills that come with book exposure and reading aloud. These are the skills which set children up to be ready to learn to read.

For example, as children's gross and fine motor development progresses, their book handling and picture related skills change and develop. A six-month-old, who has no pincer grasp, will hold a book in his fist and put it in his mouth immediately. By twelve months, he will turn it right side up to see the picture the right way—but he can't cope if the picture is upside down—a clown standing on his head. But a two-year-old copes very well. A six-month-old can't point—she shows her interest by hitting the page with her whole hand—but a nine-month-old can point, and by a year, point in response to a question: where's the.....?

The language-based developmental story-reading skills include book babble, a wordless babble that contains the cadences of reading aloud. This is very important, since one of the hypotheses for how reading aloud helps children with reading has to do with the fact that written language has cadences and grammar distinct from spoken language. Children need to be acquainted with these cadences, grammatical forms, and story structures, or else they face not only the decoding work of learning to read but also a kind of translation, as if they are learning to read in a slightly different language than their own. Other story-reading skills include filling in the word, or the rhyme, at the end of a sentence in a familiar book, and correcting an adult who gets a word wrong—very

familiar to anyone with a two-year-old. Finally, older children learn to answer more complex questions about what is happening or will happen in the story.

In addition to these early literacy skills, in addition to the exposure to printed language, in addition to the specific exposure to the mechanics of print (understanding, for example, that the message, the story, resides in the printed words and not in the pictures, understanding the spaces between the words, recognizing familiar letters on the page), the goal of this program, and of getting books into the home, is also to provide motivation, so that children arrive at formal reading instruction with the secure sense that books are sources of pleasure and information. Our goal, as practitioners who take care of young children, is to give the teachers who see these children in their early years the students they can work with. To this end, since we are after all working with infants and toddlers and preschoolers, Reach Out and Read attempts to encourage literacy activities by building on the strong need of young children for parental attention and by helping physicians encourage and foster that positive parental attention—specifically with reference to those early literacy activities.

I come from a medical model, and the medical model, of course, is very much oriented towards research, efficacy data, and more and more, what is called evidence-based medicine (it even has its own acronym, EBM, always a sign of medical acceptance!). What are the research questions to ask and answer about ROR? They are probably similar in form and logic to the questions we ask about many other primary care-based interventions:

Does ROR influence parents' attitudes?

Does ROR influence parents' behavior?

Does ROR influence the home environment of children?

Does ROR influence children's language development?

Does ROR influence children's school readiness?

Does ROR influence medical providers' attitudes?

Does ROR influence medical providers' behavior?

We have excellent peer-reviewed data now to show that the intervention, in multiple clinical settings, does indeed influence parental attitudes and behaviors, and that it improves the home literacy environment. I should emphasize that all the studies I am going to discuss have been published in the peer-reviewed medical literature, and that a full list of references can be found on the ROR website, www.reachoutandread.org. The first study, which was a pilot study done in a waiting room, asked parents to name everything they had done with their children over the past 24 hours, and asked them to name their children's three favorite activities. This technique, which has been used in many of the studies on ROR, has the advantage of lessening the social desirability issues—we aren't asking parents if they read to their children, we're asking them to tell us what they do do with their children, and scoring them as positive if, unprompted, they mention reading or books. In this small preliminary study, parents who had received a book at their previous clinic visit were four times as likely to mention books and reading as parents who had not, and among parents receiving government assistance, the difference was even greater.

These results have been replicated in larger studies with more rigorous methodology. In a bigger study done in Rhode Island, comparing low-income families who had received a ROR-model intervention with those who had not, the intervention

families read aloud more frequently to their children and had more positive attitudes toward reading. In this first study, with a historical control, there was a four-fold increase in what they called child-centered literacy orientation in those families who received the intervention. But in prospective studies done by this research group in which families were randomized to receive books and guidance or not, a more powerful methodology, parents who received the ROR-model intervention were ten times as likely to report reading aloud to their children at least three nights a week.

In a study done in California among immigrant families, mainly Hispanic, parents who received at least one book through the ROR program were twice as likely to engage in what these researchers termed “frequent book sharing” with their children.

We now have two published studies, with several more in the works, that have actually looked at children’s language. The first measured children’s language by parent report, and showed that among older toddlers, 18-25 months, both expressive and receptive language scores improved significantly in those children who received the intervention—the differences were not significant among the younger toddlers, 13-17 months. Among the 18-25 month olds, however, improvements were seen both in a test that used specific words that appeared in the books given out by the clinic, but also in a general vocabulary word list.

Finally, two different controlled studies, both done in New York, published in 2001 and 2002, directly tested the children’s language, using the One-Word Expressive and Receptive Picture Vocabulary Tests; this study also assessed parental activities and the home environment, using the READ subscale on the StimQ test. As in other studies, the frequency of reading aloud was significantly higher among intervention families, and

there were more books in their homes. In addition, children participating in the Reach Out and Read intervention had higher receptive (in both studies) and expressive (in one study) language scores, and one group was able to measure a “dose-response effect.” each additional contact with the ROR program was associated with an additional score increase.

There are a number of other exciting studies I could talk about, including one just published in the journal *Pediatrics* which demonstrated a positive effect for the program even among non-English-speaking families in Seattle, families for whom the waiting room reader and the text of the available books were not obviously intelligible. What is particularly striking to a pediatrician about this body of research is that we have much stronger efficacy data for ROR than we do for most of the other things that we do in the primary care visit. We give a lot of very good advice, but we don’t always know whether it’s being followed, or whether it has the desired effect even if parents try to follow it. In fact, as Dr. Zuckerman likes to point out, this is the single pediatric activity that has been shown by real evidence to promote healthy development in young children.

This is a small intervention, taking place only nine to ten times over a child’s first five years of life. It is an inexpensive intervention, since the infrastructure of health care delivery already exists, and there are many powerful incentives drawing infants, toddlers, and preschoolers in for primary care. We work with publishers, and our estimate is that it costs about \$25 to provide that library of ten books by kindergarten for one child. It is, however, a powerful intervention, with clear evidence to show effects on parents, on the home environment, and on the children. It is possible that some of the intervention’s power derives from the barrenness of the background—that is, our surveys and

interviews have shown us that in many cases, the books provided by Reach Out and Read are the only books in a child's home. Many of the families we work with may not be getting this message about the importance of talking to babies and young children, reading to them, exposing them to language and vocabulary and the letters of the alphabet—anywhere else or from any other source.

Pediatricians and nurse-practitioners and family physicians tell us that they love giving out the books. They report that children come into the exam room demanding their books—instead of the wary inquiry, “are you going to give me a shot today?” we sometimes hear, “hey, am I going to get a book?” Parents appreciate the books and enjoy watching their children react with pleasure and with age-appropriate book-handling skills. They return to report that they have been asked to read a favorite book over and over and over, or that a child is using a book as a transitional object, carrying it everywhere he goes, taking it to bed every night. I think that part of what parents appreciate is this: giving a book to a baby or a toddler or a preschooler is a gesture of belief in that child's potential as a reader and a learner. When that book is handed over, it carries a message of faith and possibility, and when it is accompanied by advice for the parent, there is also a message of belief in that parent's ability to help the child along. And during these very early years of life most of all, it is vital that parents believe that their children can learn and succeed, and believe that they themselves have the knowledge and the tools to help. As a pediatrician, it is an honor to help in the process—and a pleasure to have the research that shows the message is getting across, loud and clear.



Efficacy of Pediatric Office-Based Interventions to Support Literacy Development

A body of research has now accumulated to show that literacy-promoting interventions by the pediatrician, according to the Reach Out and Read (ROR) model, including anticipatory guidance about the importance of reading to young children, coupled with an age-appropriate book for the child to take home, have a significant effect on parental behavior, beliefs, and attitudes toward reading aloud.

These studies have shown that parents who get books and literacy counseling from their pediatricians, according to the ROR model, are more likely to read to their young children, read more often, and provide more books in the home. In addition, several studies have now shown improvements in the language scores of young children receiving the intervention.

The following studies have been published in peer-reviewed, scientific journals:

Study	N*	Main Findings
Needlman, 1991 ¹ Boston, MA	79	Among parents in a primary care waiting room, those who had been given books and guidance were four times more likely to report loving reading aloud or doing it in the last 24 hours.
High, 1998 ² Providence, RI	151	Comparing parents in clinic before ROR was instituted, versus after, there was approximately four times increase in literacy orientation (reading aloud as a favorite activity, or as a regular bedtime activity, or reading aloud more than 3x/week) in the “after” group
Golova, 1999 ³ Providence, RI	135	In this study, families were randomly chosen to receive books and guidance, or usual care. After 10 weeks, parents were surveyed. There was a ten times (!) increase in parents reading aloud ≥ 3 night/week, and large, statistically-significant increases in “favorite activity” and other measures.
High, 2000 ⁴ Providence, RI	205	A group of parents randomly chosen to get ROR guidance and books had significantly higher literacy orientation (as defined above), compared to a control group that got usual care. Among children 18 months and older, there were also significant increases in language scores using a modified standard language assessment, both for speaking and understanding. Language development is crucial for successful reading acquisition.
Sanders, 2000 ⁵ Palo Alto	122	Among Spanish speaking, immigrant families, those who had been exposed to ROR reported a doubling in the rate of frequent book sharing, defined as reading aloud 3 or more days per week.
Jones, 2000 ⁶ Louisville	352	Parents given books and guidance were twice as likely to report reading aloud as a favorite activity, and rated the pediatrician as significantly more “helpful” than did a comparison group of parents.
Mendelsohn, 2001 ⁷ NYC	122	One urban clinic had ROR for three years; another which was similar in all other respects, did not have ROR in place. Reading aloud by parents, and children’s book ownership were significantly higher in the ROR clinic. What’s more, scores on standardized vocabulary test were significantly higher in the ROR clinic -- 8.6 points higher for receptive language (understanding words) and 4.3 points higher for expressive (picture naming), both large, meaningful effects.
Sharif, 2002 ⁸ NYC	200	Comparison between two similar clinics in the South Bronx, one with ROR for 3 years, one with ROR for 3 months; otherwise, very similar. Receptive vocabulary (One-Word Picture Vocabulary Tests) was higher (average 81.5 versus 74.3) at the ROR site; parents scored higher on the STIM-Q reading section (more frequent reading aloud, more book ownership) and on the Literacy Orientation questions (book as favorite activity, and bedtime activity).

*N= number of subjects enrolled (over, for references)

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