



Reach Out and Read: Literacy Promotion in Pediatric Primary Care

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Anyone who works with children, and especially with child development, balances the quantifiable and the ineffable. When one looks at social–emotional development, and specifically at infant attachment and parent–child interactions, one must take into account the carefully argued theories of mental and social development that define the history of developmental psychology, a vast literature of observation and experimentation, the variations described by cultural anthropologists, and the clashes of the nature–nurture debate. But it would be naïve to think that any of these intellectual endeavors fully captures what goes on between a parent and a child. To round out the picture, or gallery, one must include fiction, poetry, memoir, art, music, and all the complexities of emotion they evoke. Even if it does not have any clear place in scientific inquiry or evidence-based medicine, when one considers child development, one must make room for elements of spirit, serendipity, and occasionally magic.

This is also true when one thinks about how children learn, how children read, and how children learn to read. On one hand, the mechanics of teaching and learning the technical skills of reading can be studied and quantified and can engender passionate debate among different schools of educational thought. Yet, on the other hand, the relationships between children and books, both before and after literacy acquisition, can go far beyond quantification. What books can mean in a child's life—what a specific book can mean to a specific child—is not something that can be broken down into components easily, or understood by formula. The explanation of why that specific book means so much to that specific child defies analysis and quantification, as does the phenomenon of mass appeal. Just watch the publishing companies flail as they search for another Harry Potter.

Reach Out and Read (ROR) is an evidence-based national pediatric literacy program through which medical providers, as part of routine primary care for young children, are trained to offer parents anticipatory guidance about the

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importance of reading aloud. The program model focuses on children from 6 months to 5 years of age, and at each health supervision visit during that period, each child receives a new book to take home and keep. The book is chosen carefully to be developmentally appropriate. The family leaves the health supervision visit with the parents understanding the importance of reading aloud and primed with age-appropriate techniques to make it work (Fig. 1). This article reviews the history and development of the ROR program, the ROR model, and the recommended strategies for literacy promotion in the examination room, along with the evidence that the model is effective and the current structure that exists to support clinics that incorporate the model into daily practice. The article considers what books can mean in the lives of children, in both quantifiable and unquantifiable ways.

ROR is designed to promote books and reading aloud in the preschool years. The program's mission is to help children grow up with books and a love of reading. Although that mission does not mention the process of learning to read explicitly, one major goal of preschool literacy activities is to provide children with some of the cognitive skills they need for successfully learning to read once they get to school. Early exposure to books and reading aloud contributes to a child's readiness to read and learn at school entry, as does more general language exposure [1,2]. Successfully learning to read on time and on grade level is an essential key to overall school success [3]. Children who require remedial reading help in the first grade are statistically at increased risk to remain in remedial reading groups [4]. Children who go through school reading below grade level are at risk in their other subjects, especially once they get beyond the third grade, because school assignments and tests rely increasingly on printed texts and the fluency, efficiency, and accuracy with which the child can interpret, manipulate, and respond to text. To go from printed words to meaning is an essential part of the intellectual journey of



Fig. 1. The Reach Out and Read program is incorporated into routine primary care visits for young children. (Courtesy of the Reach Out and Read National Center.)

education, including early education. The child who struggles with the mechanics of decoding print is a child who may struggle with a whole range of aspects of school achievement and school function.

For children too young to read, picture books offer an attractive introduction to the mechanics of book handling and story structure (Fig. 2). They offer occasions for language exposure and language practice, both expressive and receptive, for naming and for dialogue and discussion as the child's verbal ability grows. "Dialogic reading" techniques, as elaborated by Whitehurst and the Stony Brook Reading Project [5], enhance the back-and-forth between adult reader and read-to child, which promotes pleasure and learning as the child becomes the teller of the story. Books and the routine of reading aloud also form links between child and parent/caretaker, because reading aloud to young children provides them with opportunities for close contact and concentrated parental attention. The stories and pictures that constitute the content of children's books can enrich and enlarge a young child's world with everything from animals (real, extinct, imaginary) to silly rhymes [6]. Books should serve young children as both mirrors and windows, reflecting back aspects of their own family's life and also offering a vision of the great wide world and all of its possibilities [7]. Given the current dominance of television and electronic media, reading aloud may be more important than ever. A growing body of evidence has documented the degree to which television exposure is associated with reduced reading, teaching and verbal interactions, reduced early learning, and reduced later achievement in school [8–11].

The authors will state their prejudice at the outset, that storybooks and picture books for young children teach their many, varied, valuable, and somewhat unpredictable lessons best when they are not explicitly educational. Children have an excellent eye for a message and a moral, and they seem to know immediately when a book has been concocted to improve them, rather than confected to engross and excite them. Real books, whether classics that have been calling out to children successfully for decades, or new flashes of mysterious picture book genius, cannot be replaced by carefully weighed and measured doses of approved vocabulary and character-building message. Anyone who has lived with a young child also knows that sometimes all the time-tested childhood classics, along with this year's expensively produced and stunning award-winning works of art, fade for an individual child compared with some particular inexplicable (and often highly tedious) work that becomes that particular child's particular obsession for some period of time. Parents of a 2-year old boy, for example, found it tedious to read *Bernie Drives a Truck* night after night, for some number of weeks (actually, it felt like months, if not years), but the boy was satisfied with nothing else. This must be considered a triumphant demonstration of the individuality and personality of the developing brain and the tenacity and determination of the 2-year-old will.

Books and stories and pictures enlarge a child's world and a child's vocabulary. Reading aloud to a young child fosters attachment to books and also

Developmental Milestones of Early Literacy		Reach Out and Read [®]
MOTOR:	COGNITIVE:	WHAT PARENTS CAN DO:
	6–12 months	
<ul style="list-style-type: none"> reaches for book book to mouth sits in lap, head steady turns pages with adult help 	<ul style="list-style-type: none"> looks at pictures vocalizes, pats pictures prefers pictures of faces 	<ul style="list-style-type: none"> hold child comfortably; face-to-face gaze follow baby's cues for "more" and "stop" point and name pictures
	12–18 months	
<ul style="list-style-type: none"> sits without support may carry book holds book with help turns board pages, several at a time 	<ul style="list-style-type: none"> no longer mouths right away points at pictures with one finger may make same sound for particular picture (labels) points when asked, "where's...?" turns book right side up gives book to adult to read 	<ul style="list-style-type: none"> respond to child's prompting to read let the child control the book be comfortable with toddler's short attention span ask "where's the...?" and let child point
	18–24 months	
<ul style="list-style-type: none"> turns board book pages easily, one at a time carries book around the house may use book as transitional object 	<ul style="list-style-type: none"> names familiar pictures fills in words in familiar stories "reads" to dolls or stuffed animals recites parts of well-known stories attention span highly variable 	<ul style="list-style-type: none"> relate books to child's experiences use books in routines, bedtimes ask "what's that?" and give child time to answer pause and let child complete the sentence
	24–36 months	
<ul style="list-style-type: none"> learns to handle paper pages goes back and forth in books to find favorite pictures 	<ul style="list-style-type: none"> recites whole phrases, sometimes whole stories coordinates text with picture protests when adult gets a word wrong in a familiar story reads familiar books to self 	<ul style="list-style-type: none"> keep using books in routines read at bedtime be willing to read the same story over and over ask "what's that?" relate books to child's experiences provide crayons and paper
	3 years and up	
<ul style="list-style-type: none"> competent book handling turns paper pages one at a time 	<ul style="list-style-type: none"> listens to longer stories can retell familiar story understands what text is moves finger along text "writes" name moves toward letter recognition 	<ul style="list-style-type: none"> ask "what's happening?" encourage writing and drawing let the child tell the story

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Fig. 2. Developmental milestones of early literacy. (Courtesy of the Reach Out and Read National Center.)

promotes the language-rich attachment between parent and child. Part of the curriculum of ROR, included in the section describing techniques for literacy promotion in primary care, involves using books in the examination room to reinforce other important behavioral and developmental messages, including dialogic language with young children and building routines and rituals into

toddlers' days. Books and literacy promotion in the examination room can offer providers avenues for anticipatory guidance and intervention that support families with young children on a level that is practical, pleasurable, and rewarding for the provider, parent, and child.

TWENTY YEARS, TWENTY MILLION BOOKS

ROR was born 20 years ago in Boston. The program was an intervention in the primary care clinic at what was then Boston City Hospital. Other pediatric clinics, especially those serving children growing up at risk and in poverty heard about ROR, and the group in Boston developed materials and a training curriculum to replicate ROR. The Reach Out and Read Manual was published with support from the Association of American Publishers and with an initial grant from the Annie E. Casey Foundation. Several additional teaching hospitals were given seed money to start programs. Over the course of the 1990s, the Reach Out and Read National Center, still based in Boston and affiliated with what is now Boston Medical Center, became a national nonprofit organization, assisting clinics, health centers, hospitals, and practices around the United States to develop ROR programs, train their medical providers and staff, choose and order appropriate books, and raise the money needed to buy books on a continuing basis. As the program reaches its 20th anniversary, there are over 4500 ROR sites operating in all 50 states, the District of Columbia, Guam, Puerto Rico, and the US Virgin Islands. Currently, the program reaches about 25% of the children in the United States who live in or near poverty. Most US sites are organized into more than 30 state and regional coalitions, which provide resources ranging from training to fundraising and advocacy. In addition, ROR programs operate in several foreign countries. The National Center collects reports from ROR sites twice a year and compiles information based on those data. As of this writing, ROR has trained 50,000 doctors and nurse-practitioners, and in this 2009 anniversary year, will present an estimated 5.4 million books to 3.3 million children in the United States. Since its inception, the program has distributed more than 20 million books to children [12].

In the recent revision of Bright Futures by the American Academy of Pediatrics, ROR is discussed as an evidence-based intervention, and reading milestones are incorporated into developmental assessment at pediatric visits [13]. The National Center has targeted residency programs and teaching hospitals as important sites for the ROR intervention because of opportunities to provide primary care to children at social and economic risk and change the culture of pediatric and family medicine practice by training doctors to incorporate books and literacy promotion into the delivery of primary care.

THE REACH OUT AND READ MODEL

The model was developed by busy primary care providers in health centers or clinic environments who consider the reality of primary care sites where the work of ROR is done, visit by visit. ROR offers opportunities to enhance

the powerful relationship between parent and the primary care provider, who balances the many imperatives of the visit with attention to the patient's development and home environment. An important goal of ROR is to influence early attitudes and behaviors related to shared reading beginning in infancy and continuing into the preschool period. This period is critical both to child development and school readiness and to development of long-term patterns of parent-child interaction related to reading aloud [14].

The basic Reach Out and Read model has three components.

Literacy-rich waiting rooms

First, there is a waiting room intervention, which is scaled to the particular clinic, health center, or practice. The original ROR model took advantage of a big pediatric primary clinic waiting room full of children and deployed volunteer readers, who brought books to read to the waiting children. When this is possible, volunteer readers enhance the ROR intervention to a tremendous degree. They model techniques for reading aloud to parents who may perhaps not be familiar with the practice and show by example that the same books work with children of different ages, that the reader can put exaggerated expression into the reading voice, or use different voices for characters or animals. Volunteer readers make reading aloud a participatory adventure, with children calling out suggestions, answering questions, or jumping up to point to pictures on the page. And parents of very young children can experience the power of the reading aloud experience as they watch their child, wide-eyed and with rapt attention, listen to the reader and look at the pictures and words in the book. In addition, readers change the quality of the waiting room by changing the experience of waiting to be seen in the clinic. ROR sites report that children and parents, even after a "too-long" wait, do not want to leave the waiting room when they are called, because they want to hear the end of the story.

There are many ROR sites where consistent coverage by volunteer readers is not practical or realistic. Some sites do not have many children waiting regularly, while others do not have the facilities to recruit, screen, train, and supervise volunteers. Although sites are encouraged to consider volunteer readers, there are other waiting room interventions that support the message of ROR. The National Center has developed the concept of a literacy-rich waiting room that includes book displays and information on family literacy, libraries, and reading aloud. Some sites supply gently used books in the waiting room for children to read and take home. Others sites have success with videotapes of adults reading books aloud to cover times when there are no readers present. Some waiting rooms offer professional counselors who work with parents. Sites may invite a librarian into the waiting room to provide information on story hour and to issue library cards. These methods can be combined to meet the needs and the resources of each site. The literacy-rich waiting room introduces and reinforces the importance of reading

and of having books in children's lives, making every clinic visit to some degree connected to books and reading.

Anticipatory guidance

The second major component is anticipatory guidance, which is at the heart of ROR's mission [15]. The primary care provider helps parents understand the importance of reading aloud to young children and offers parents age- and developmentally appropriate strategies for enjoying books with their children. Successful anticipatory guidance needs to be keyed to the child's developmental level, to the parent's skills and understanding, and to the family's situation. There are some general principles for ROR anticipatory guidance, however, that can help the intervention be maximally effective:

- Bring the book in early. Providers should come into the examination room with a book, or keep a selection available in the room. Children who are old enough should be offered at least a few books and invited to choose. By offering a book to the child early in the examination (before the otoscopy or immunization), providers can use the book, the child's reaction to the book, and the parent's reaction to the child's reaction as a way to assess development and discuss developmental stimulation [16]. The child's use of the book is an interactional and conversational tool that allows the provider to incorporate literacy into other aspects of anticipatory guidance offered during the visit.
- Give age-appropriate guidance about enjoying books with the child and about the child's ability to handle the book. Parents may need to be reassured that it is okay for 6-month-olds to put books in their mouths, or that it is normal for a 1-year-old to experiment with throwing a book on the floor.
- Emphasize that this should be fun. Reinforce the importance to babies and young children of having face time with their parents and hearing the sound of the parent's voice.
- Comment on the way the child handles the book in the examination room. Notice the 6-month-old who tries to grasp the book with her fist, the 12-month-old who points to a particular picture, the 12-month-old who uses a pincer grasp to turn one board page at a time. These responses represent developmental stages and progress that a parent can see.
- Make the connection for parents between the associations young children form by being on the parent's lap, listening to the parent's voice, and the later importance of literacy in school and enjoying books as a reader. This connection can be made more strongly as children get closer to school age and as their ability to understand and discuss books, stories, and illustrations becomes more sophisticated.
- Model dialogic reading and interactive behavior around books. For young children, point and name (Where's the baby? There's the baby! Where's the baby's nose? Where's your nose?). Ask the child specific questions. (What's that? Right, that's a dog! What does a dog say?) Allow the child to master new developmental tasks (Look, he turned the book right-side up, and now he's turning the pages one by one!) In the preschool years, a child might identify colors and name objects. Older children might tell a story and

describe story elements in illustrations [17]. Encourage the child's verbal language with interest, questions, and comments.

Use books as tools in anticipatory guidance that is not explicitly about literacy. Books can be an important part of bedtime and other transitions/routines. Books can help calm a child during a difficult wait or offer a parent strategies to spend one-on-one special time with an older child when a new baby arrives. In short, the book that is offered to the child to take home is in fact a small but real intervention to modify the child's home environment.

A book to take home

Through ROR, each child receives a new, developmentally appropriate book given by the primary care provider during the course of every health supervision visit, from the age of 6 months to 5 years. By kindergarten age, the child will have a ROR home library of 9 or 10 books provided by a consistent figure in the family's life and the child's growth and development.

Books are selected by each ROR site with specialized populations considered (books are available in English and Spanish, with more limited availability in many other languages). Sites access the National Center's research, reviews, and negotiated discounted prices. The books may include children's classics like *Goodnight Moon* and *Curious George*, as well as delightful and innovative newcomers.

Part of the ROR training curriculum involves reviews developmentally appropriate books. The program starts with simple board books for babies, which have the advantage of being chewable, and progresses to more complex board books for toddlers. Such books can have more complex concepts or stories, but they are also simple and durable. By age 2, children are enjoying books with rhymes, humor, counting, and question-and-answer. Furthermore, sometime around age 2, they develop the fine motor skills needed to handle paper pages. As they grow into the preschool years, children enjoy alphabet books, counting books, and stories that increase in complexity and length [18].

PRACTICAL TIPS FOR THE EXAMINATION ROOM: MAKING IT WORK

Pediatric primary care providers who undertake the ROR intervention sometimes are concerned that literacy promotion may be just one more worthy item on an already too long laundry list of anticipatory guidance strategies and preventive interventions to perform, in the setting of waiting rooms at capacity and an already busy day of patient visits. ROR providers, however, often find that literacy guidance actually makes the visit more efficient and effective. The basic strategies for anticipatory guidance, as discussed previously, also can be used as practical strategies; by incorporating the book into our interaction with the child and parent, one can establish more effective connections, gather information, and deliver useful advice.

Early in the visit, hand the book directly to the child; make it clear that the book is coming from the primary care provider, and that it is intended for the

child. The authors reiterate this advice, because it is probably the single most important strategy.

Allow older children to choose from a small selection of possible books.

Comment on the child's interest, or on developmentally appropriate book-handling behavior ("You expect a six-month-old to put the book directly into his mouth. That's normal, and that's why we give him a board book.").

Use the child's behavior with the book to assess the child's development and the parent's ability to respond to the child's cues.

Make the connection between growing up with books and being ready for school.

Be enthusiastic about the child's interest, pleasure, and potential as a reader and about the parent's ability to help the child achieve that potential.

In summary, effective use of the book in the examination room is most likely when the book is in the child's hands throughout the visit, when the child's book-handling behaviors and reactions to the book and pictures provide natural opportunities for the provider's comments and guidance about reading aloud and early literacy skills, and when the provider is able to incorporate books and reading into the other topics of anticipatory guidance including bedtime and daily routines and school readiness.

BEYOND THE BASICS: THE BOOK AS ASSESSMENT TOOL

In the authors' experience, practitioners comment on the power and the potential of the book as a developmental assessment tool. The book in the examination room elicits spontaneous language from many children. Providers observe gross and fine motor skills as the 6-month-old sits alone, reaches for the book, grasps it in his or her whole hand, and transfers it to his or her mouth. The 18-month-old holds the book and walks around; the 3-year-old turns paper pages with no difficulty. Practitioners see evidence of cognitive progress in the 18-month old who turns a book right-side up. The provider and parent enjoy listening to the 2-year-old who is beginning to name the animals. Practitioners hear pronoun use or complex sentences as the older child comments on illustrations.

Notice evidence of attentive parenting behavior in the way the parent follows the child's interest. Does the 6-month-old slap the page with her whole hand and the 1-year-old point to pictures? How does the parent respond to the 2-year-old who insistently demands to hear a story again and again? Observe the interaction as the child calls the parent's attention to pictures or to elements of the story.

A child's book-handling skills demonstrate both gross motor and fine motor progress, and the illustrations offer opportunities for the child to show language and communication skills, vocabulary range, and specific school readiness skills such as letter recognition and an understanding of print and its properties.

BEYOND THE BASICS: SPECIAL INITIATIVES

ROR has made efforts to provide better and more tailored literacy promotion to several specific populations.

Military families

An initiative supported by the Department of Defense will open 20 sites on military bases in 2009 and expand to more sites. The program is based on the idea that the best possible pediatric care includes early literacy promotion with the ROR model, and military families deserve that best possible care. Books about some of the issues that military families face, including separation and the deployment of a parent, will also be available to these programs.

Spanish-speaking families

Through the *Leyendo Juntos* initiative, the ROR National Center has assembled a team of bilingual and bicultural pediatric primary care providers who are assessing how best to provide anticipatory guidance to Spanish-speaking families. Through focus groups with Spanish-speaking parents, this initiative has identified several messages about reading to young children that are particularly welcome and effective with Latino families. The providers have assembled a Spanish phrase book and guide for discussing literacy and reading aloud with parents at the visit. The guide provides medical Spanish vocabulary and phrase book assistance for those who are not bilingual. The *Leyendo Juntos* initiative also includes more Spanish and Spanish-English books available to sites, and participation in research and advocacy groups concerned with health care for Spanish-speaking families [19].

American Indian/Alaska Native children

The ROR National Center has partnered with the American Academy of Pediatrics Committee on Native American Child Health, working with the Indian Health Service to reach more children who are American Indians and Alaska Natives. This initiative includes an effort to locate, make available, and sometimes help produce books in Native American languages, and books with stories and illustrations that reflect Native American families and traditions.

Children with special needs

There are several ROR programs in clinics for children with special needs and many children with special needs who receive their care at clinics where ROR is offered. Specialists in behavior and development have offered insights on how books can best be employed and enjoyed with children who have special needs including those who have hearing, visual, or neurodevelopmental challenges (M. Ulmann, personal communication, 2008).

READING TO YOUNG CHILDREN: LANGUAGE, SCHOOL READINESS, AND RISK

Reading aloud has been identified as an important precursor of successful literacy acquisition. Children who are read to in their preschool years are more likely to learn to read on schedule in school. Although reading aloud is also a marker for more educated parents and more generally literacy-rich environments, the amount of time children spend listening to books being read aloud is clearly associated with their language skills at school entry, and

reading aloud in the preschool years is associated with childhood literacy acquisition [20,21]. After controlling for family education and socioeconomic status, the literacy qualities of a child's home are associated with language skills [22,23]. Other studies have shown that being read to from an earlier age is associated with better preschool language skills and with increased interest in reading [24]. Reading aloud to young children has been found to increase the richness of the vocabulary to which they are exposed and the complexity of syntax [25]. Books have been shown to stimulate increased interaction between adult and child [26,27].

Children with reading problems are at risk for school difficulties and school failure. By fourth grade in most school curricula, all school success is to some extent dependent on the child's ability to extract information and meaning efficiently from a printed text. Homework assignments, class assignments, and tests all favor the child who has achieved fluent reading, while the child who continues to struggle is likely to find every aspect of schoolwork more time-consuming and burdensome. Homework is more frustrating. Tests are more terrifying. Reading problems in the early grades are one very potent risk factor for later school problems, and there is a real danger that school will become a scene of struggle and failure [28]. The children who are most at risk may be the children whose parents are less able to advocate for them, to get them special help or additional tutoring, and to work with them outside of school to help them catch up.

The study by Hart and Risley pointed to dramatic socioeconomic differences in language exposure with children in families receiving economic assistance hearing on average only 620 words an hour, compared with an average of 2150 words per hour for children in professional families and 1250 words per hour for children in working class families. The study also examined the quality of the language to which these children were exposed, pointing up distinct gaps in the amount of feedback and interaction experienced by the children in poorer families. The vocabulary differences were impressive by age 3 and persisted into school age [29].

Children's literacy skills at school entry, kindergarten, and first grade predict their later reading success. In one study, 88% of children who had reading problems in kindergarten were still struggling with reading in the fourth grade [3]. Even reading skills in 11th or 12th grade can be predicted from reading skills in first grade [30].

Reading problems are significantly more common in children from low socioeconomic backgrounds. Children coming from these backgrounds are also significantly more likely to be retained in a grade and to be diagnosed with learning disabilities [31,32].

In national survey data from 2000, 37% of American fourth graders did not have basic grade level reading skills. By 12th grade, when many poor readers may have left school, 23% of the students still do not have basic reading skills. Poor reading skills in adults are associated with poor economic potential and with the perpetuation of cycles of poverty and dependency [33].

ROR is designed as an intervention to encourage parent–child interactions at home, which increase language and book-reading exposure, integral parts of literacy. Parents learn the importance of reading aloud and using developmentally appropriate strategies for enjoying books with young children.

LITERACY PROMOTION IN PRIMARY CARE: THE EVIDENCE

In more than 12 studies, the ROR model intervention was effective in several different populations and settings. Parents participating in ROR report a more positive attitude toward books and reading. For example, when asked to name favorite activities with their child or their child’s favorite activities, parents are significantly more likely to mention looking at books and reading aloud than are parents in control groups who have not received the ROR intervention [34,35]. This significant increase in parents viewing reading with young children as a favorite activity has been found in English and Spanish-speaking parents, including recent immigrant populations [36]. One study looked at families who spoke languages in which no books were available. These families were given English books and still showed increased positive attitudes and practices [37].

Several studies have found differences in children’s expressive and receptive language either by parent report or by direct testing of the children [38]. In one paper, there was a 6-month developmental increase in the receptive language skills of the children (average age was 4 years old) whose families were participating in ROR. Children with more contacts with ROR had larger increases in their language skills [39]. Follow-up of children receiving care at the control site of that study demonstrated similar increases in language skill after implementation of ROR [40]. ROR also has been found to contribute positively to a child’s home literacy environment [41]. Additionally, a multicenter study of 19 sites before and after ROR showed increased parental support for reading aloud after the program was implemented in 19 pediatric primary care sites in 10 states [42].

In summary, research shows that in populations at risk, participation in the ROR intervention is associated with markedly more positive attitudes toward reading aloud, with more frequent reading aloud by parents, with improvements in the home literacy environment, and with significant increases in expressive and receptive language among children in the critical preschool age range [43].

FUTURE RESEARCH

Future studies could track children into adolescence and adulthood and explore the longitudinal effects of ROR components. Studies on comprehensive early childhood programs have demonstrated the importance of investing in programs that target the early childhood years. The Perry Preschool Project and the Abecedarian study are cited, for example, by Heckmann in his argument for the increased return on dollars invested in early childhood programs [44].

Even though ROR interventions are valuable, the program should not be compared with comprehensive preschool programs or with interventions that touch the lives of children and families for hours over time. At its best, the ROR intervention is performed in 10 primary care visits, each lasting perhaps 30 minutes. ROR directly forms some part of 5 hours plus waiting room time over the course of a child's first 5 years of life; the further effects of the program take place through the parent behaviors in the child's home.

Any longitudinal study of ROR interventions has to contend with a range of confounding variables, from family circumstances to learning disabilities as follow-up stretches into years, and the children enter school. Some researchers are now attempting to correlate the ROR exposures of school age children with reading success. Because it may be difficult to credit the ROR effect years after the intervention, researchers may construct shorter-term studies. There is already a much greater weight of evidence supporting ROR's effectiveness, however, than exists for many other primary care interventions that routinely are accepted as standard practice.

By counseling parents, early and often, about the importance of books and reading aloud, practitioners hope that parents seek out day care and preschool programs that support interactive literacy and look for other opportunities at library story hours and book fairs to increase their children's exposure to books.

PARENTAL LITERACY AND HEALTH LITERACY

What if the parent cannot read or cannot read very well? Many of the most at-risk children have parents who themselves struggled in school, who are not fluently literate themselves, who may feel uncomfortable reading aloud, who may not be inclined to look to the printed word for entertainment and edification. Some non-English speaking parents may be literate in their native language, while others may not be.

In many medical settings, patients or parents are not asked formally about their level of comfort with the written word, because practitioners feel the question would be intrusive or because they feel they can generally tell who is literate and who is not. In fact, inadequate literacy skills are extremely common among adults in the United States. In the 2003 National Assessment of Adult Literacy, 14% of US adults were found to have below basic prose literacy skills with another 29% at a basic level [33].

Poor parental literacy skills are a risk factor that can affect children's health and development in many ways [45]. How can there be what educators call "the intergenerational transfer of literacy," if there is limited literacy to transfer? Low parental literacy increases the likelihood that children will grow up in a print-poor environment, because a parent with limited skills is unlikely to use print to receive or to transmit information [46]. It may mean that the parent has had a difficult experience in school and is less likely to be comfortable in the school environment, which eventually may translate into the parent's unwillingness to connect with the child's teachers and participate in

parent-teacher conferences, and to inability to understand materials sent home by the school. If the child struggles in school, a parent with poor literacy skills may be less likely or less able to advocate for the child and obtain help, interventions, or explanations. Significantly, the parent is not easily able to help the child with homework assignments, especially as those assignments get more complicated [47]. Finally, poor parental health literacy is a risk factor for children's health. Parents who cannot read print easily may struggle with prescriptions, asthma action plans, and with medical handouts [48].

What should primary care providers do to identify these parents whose children may be most at risk for reading problems and school issues? In one study [49], asking about the number of children's books in the home was a useful indicator for parent health literacy. A Chicago clinic has increased literacy referrals by asking a nonjudgmental question about whether the parent is interested in improving his or her reading ability (M. Glusman, personal communication, 2009). Asking all parents some basic screening question about literacy skills or about the home environment might help physicians identify more families where this risk factor is an issue, and might make it more possible to intervene. Parents need to know that help is available if they want to improve their own reading skills. ROR sites need to refer parents to adult or family literacy programs. Site coordinators are encouraged to form links with local literacy programs, networks, and coalitions.

When the provider knows or suspects that a parent is not necessarily comfortable with the written word, it is still possible to offer anticipatory guidance and a book for the child. Choose books with few words on the page or wordless books. Encourage the parent to look at books with the child and talk with the child about the pictures and the story the pictures tell. The parent can name objects and respond to the child's communications. The basic advice holds; the child will form positive associations with books and reading because of the connection with the parent's voice and the parent's attention.

REACH OUT AND READ: NATIONAL CENTER, COALITIONS, AND SITES

The Reach Out and Read National Center is a 501(c)3, a national nonprofit organization that supports and promotes the ROR model of early literacy promotion through primary care. The National Center maintains connections directly with individual sites and helps 34 state and city coalitions with training, fund-raising, book ordering, and other logistics. Every coalition has a coalition leader and a medical director, and each has resources for training, program support, and fundraising. Each ROR site has an on-site coordinator who is in charge of program logistics including book ordering and stocking, and reporting on the site's activities. All programs should have on-site medical directors, providers who take responsibility for medical leadership and provider training. The National Center and the coalitions foster dialogue through newsletters, on-line discussion forums, conference calls, continuing education, medical meetings, and conferences.

STARTING AN ROR PROGRAM

ROR targets its message and book funding to pediatric primary care practices that see children at social and economic risk. This article suggests some of the reasons why the provider's guidance to parents and the accompanying books given to the child may be particularly critical in the lives of children who are growing up with limited resources, often in print-poor environments [50]. ROR messages and strategies, however, are important for all families, regardless of income level and education. ROR recognizes the importance of reading to young children, and details developmentally appropriate techniques that help parents enjoy books with babies, toddlers, and preschoolers. ROR supports the vital and glorious role that books can play in the lives of children and families.

Practitioners who would like to incorporate ROR into clinical practice can contact a local ROR coalition or the National Center to discuss the possibility of starting a program. The National Center can help make connections to state or city-wide coalitions. ROR advocates for incorporating literacy promotion into standard pediatric primary care, and for understanding language and literacy development as an intrinsic part of the pediatrician's goal in helping children grow. When pediatricians and family physicians and nurse practitioners become literacy advocates, literacy becomes part of children's health, and books are part of every healthy childhood.

BOOKS IN CHILDREN'S LIVES

The ROR intervention relies on the primary care provider, the relationship between the provider and the family, and the power of the book. The advice that providers give parents is practical, modeled and rehearsed in the examination room. The child goes home with a book that can be incorporated into parent-child interactions and routines. Anecdotally, providers hear from parents who report that children ask to have the book read over and over or that children expect to hear the book read before going to sleep.

Giving early literacy guidance at the primary care visit, accompanied by an age-appropriate children's book, is a way to modify the home environment, stimulate and enrich the child's language, foster positive parent-child interactions, promote attachment, develop routines and strategies for daily life with a small child, and ultimately promote school readiness and literacy.

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