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Promoting Early Literacy in Pediatric Practice: Twenty Years of Reach Out and Read

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KEY WORDS

early child development, prevention, Reach Out and Read, primary care, literacy

ABBREVIATION

ROR—Reach Out and Read

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abstract

Reach Out and Read (ROR) is the first pediatric, evidence-based strategy to prevent problems of early childhood development and learning. With a start in a single clinic in Boston City Hospital in 1989, doctors working in >4000 clinics and practices gave ~5.7 million new books to >3.5 million children in all 50 states in 2008. ROR also has become a model for a different way of thinking about parent education during primary care encounters, based less on telling and more on creating real-time learning experiences. ROR flourished because of (1) the growth of pediatric interest in child development, (2) local leadership of pediatric champions as well as nonmedical supporters, coordinators, and volunteers, (3) evidence of effectiveness, and (4) public financial support attributable to strong bipartisan support in Congress, led by Senator Edward Kennedy. Since ROR started, an increasing amount of research confirms the importance of reading aloud for the development of language and other emergent literacy skills, which in turn helps children get ready for school and leads to later success in reading. Future goals include continued growth until all low-income children are reached with pediatric advice and books, a national campaign led by physicians encouraging all parents to read to their children every day, additional evidence-based, parent information to increase the effectiveness of parents reading to children, quality-improvement efforts to achieve the full potential, and global expansion. *Pediatrics* 2009;124:000

INTRODUCTION

Reach Out and Read (ROR) is the first pediatric, evidence-based strategy to prevent problems of early childhood development and learning. With a start in a single clinic in Boston City Hospital in 1989, doctors trained in promoting early childhood literacy, working in >4000 clinics and practices, gave ~5.7 million new books to >3.5 million children in all 50 states in 2008. ROR also has become a model for a different way of thinking about parent education during primary care encounters, based less on telling and more on creating real-time learning experiences, including modeling developmentally appropriate "reading" strategies (eg, pointing, naming, and asking questions), and then giving parents a book to take home to implement the recommendation. The growth of ROR occurred through local leadership of pediatrician champions, as well as nonmedical supporters, coordinators, and volunteers working in >30 coalitions and initiatives nationally. This expansion was entirely through word of mouth among pediatricians nationally; there were no advertisements, requests for proposals, or mandates. The early-adopting physicians were passionate about the value of giving developmentally and culturally appropriate new books to children, and they created an effective movement to transform pe-

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diatric care for low-income children. The one exception to this grassroots dissemination was a successful citywide campaign launched by the Baltimore City Health Department[1] under the leadership of Josh Sharfstein, MD, who practiced ROR as a resident. ROR is now one of the limited, evidence-based, clinical preventive activities listed as a best practice in Bright Futures.

GROWTH OF CHILD DEVELOPMENT IN PEDIATRICS

The development and growth of ROR reflect the growing importance of child development in the practice of pediatrics. More than 50 years ago, a small but passionate group of pediatricians started the Section for Child Development within the American Academy of Pediatrics, as a means to enhance their and their colleagues' education. Subsequent important sentinel events include reframing of the scope of pediatric practice in a publication by Julius Richmond,[2] a description of the new morbidity by Haggerty et al,[3] and the influential report in 1978 from the Task Force on Pediatric Education[4] emphasizing the gap in the preparation of pediatricians to address problems in child behavior and development. In response, the William T. Grant Foundation supported residency training in child development, followed by funding from the Maternal and Child Health Bureau for training of fellows in addition to residents, which continues today. More recently, the Society of Developmental and Behavioral Pediatrics was formed and its journal was launched, board certification in developmental and behavioral pediatrics was implemented, and residency training requirements for training in child development and behavior were mandated.

ROR was able to prosper because of this growth and cultural change and is another child development milestone. This article presents the 20-year history of ROR, which has transformed pediatric primary care for low-income children by encouraging parents to read to their children and then giving them a book to take home at each pediatric visit from 6 months to 5 years of age. The article also reviews the growing body of data that highlight the importance of reading aloud to children generally and of ROR specifically.

HISTORY OF ROR

The American Academy of Pediatrics Health Supervision Guidelines, which were first published in 1987, were the first to support monitoring and promotion of children's development. None of the questions or suggestions for pediatricians involved parents reading aloud to their children. This is understandable, because there was no mention in the pediatric literature of the importance of parents reading to their children, although this had been recommended by experts in education, "The single most important activity for building the knowledge required for eventual success in reading is reading out loud to children."[5] This is an interesting pediatric blind spot, because it is likely that reading aloud has long been a special activity that pediatricians and their spouses enjoy with their own children.

In the 1980s, many parents in the primary care clinic at Boston City Hospital reported not reading to their young children and also not having children's books at home. They gave multiple reasons, including a lack of children's bookstores in the inner city, no experience (their parents did not read to them, especially those raised in other countries), the high cost of books, and reading not being a pleasurable experience for parents. This was despite research information on the importance of reading aloud for school readiness[5] and growing understanding and policy efforts to promote school readiness. Four years after a grant proposal for a program similar to ROR was turned down by the Robert Wood Johnson Foundation because it was not related to "health," Robert Needlman, MD, a child development fellow, had a similar idea, which we and our multidisciplinary colleagues developed and implemented in our clinics without grant support. Through a process of informed trial and error, we developed 3 key components, that is, (1) training pediatricians to give developmentally appropriate advice, (2) giving books at each visit from 6 month to 5 years of age, and (3) having volunteer readers in the waiting room to model reading aloud for the parents. The last part has been altered over time to include a literacy-rich waiting room, because volunteer readers are not always available. The distinction between a book-giveaway program ("take a book on the way out") and a clinical intervention with modeling and advice from the physician is emphasized to physicians receiving training in ROR. Although it is brief (30 seconds to 2 minutes), engaging a parent and child with a book is reported by pediatricians to be a pleasurable, important, teachable moment.

We discovered that giving books to children changed the whole pediatric visit experience for young children from one of fear to one of pleasurable anticipation. Similarly, pediatricians have told us that observing different capacities of children with books at different ages stimulates them to think in a more-developmental framework (eg, when do children recognize letters or hold a book right side up, how many objects or animals can they point to or name, and when do they do so?). Unlike advice to prevent injuries or to promote good nutrition, advice to parents to read to their children does not depend on parents remembering to do

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something; if a book is in the home, then children will initiate a request or demand that parents read to them. Even parents who are illiterate can and do point to and name pictures in books, thus creating the same language and positive emotional environment as literate parents.

Bulk purchasing of books decreases the price of books to approximately $2 per book; another $2 covers infrastructure costs. Because there are 10 pediatric visits between 6 months and 5 years of age, children start school with ≥10 books in their home, at a cost of $40. This amounts to approximately $8 per child per year, which compares favorably with many other early-childhood enrichment programs whose costs are significantly more (up to $2000–6000 per child per year). A key implementation strategy involved a decision that the ROR National Center would cover the costs of all books for 6 months and then local funding needed to share the cost of books. The hope was that, once pediatricians started giving out books, they would see the pleasure and value, would want to continue giving books as part of pediatric care, and therefore would be motivated to help raise public and private support locally.

The first study of ROR showed that, among mothers receiving welfare, there was actually an eightfold increase in the number of parents reporting reading aloud as a favorite activity.[6] This information and the acceptability of ROR in 2 community health centers led to further dissemination in Boston and then nationally. With the interest and support of First Lady Hillary Clinton, Senator Edward Kennedy championed approval of federal funds to set up the ROR National Center for further expansion through training and funds for books. Support from Senator Kennedy continued and, after the Clintons left office, First Lady Laura Bush expanded her support from Texas to the nation; the program also had bipartisan support in Congress. Of interest, Republican lawmakers' strong support was based on the focus of ROR on parents and their responsibility to their children and not out-of-home efforts to educate young children. The growth of ROR, as a public-private partnership, also has been supported by funding from 10 states.

RESEARCH FINDINGS

Overview

Findings from research since the inception of ROR in 1989 continue to demonstrate the program's effectiveness.[6–16] Similarly, a growing database continues to show the importance of reading aloud for the development of language and other emergent literacy skills,[17–20] which in turn helps children get ready for school[19,21] and leads to later success in reading.[22] The most complete and updated compilation of evidence regarding early literacy is the report of the National Literacy Panel published by the National Institute of Literacy in 2008.[23] Findings about selective aspects of reading aloud might have implications for future parental guidance and/or best practices.

Research on ROR

Studies evaluating ROR reported that parents who participated in ROR, compared with parents who did not, were more likely to report reading aloud as a favorite activity, increased centered literacy orientation, frequent reading aloud, and, most importantly, increased language development.[7–16] In one of the studies, with controlling for confounding variables, children in the ROR group scored 8.6 points higher in receptive language and 4.3 points higher in expressive language, compared with non–ROR groups.[12] These results also showed a dose-dependent effect (ie, higher language scores with more ROR visits). This finding is important, because the vocabulary of children entering first grade predicts their reading ability at the end of first grade and also subsequent reading comprehension.[24] The homes of children who participated in ROR demonstrated higher scores for directly observed child home literacy and Home Observation for Measurement of the Environment assessments, a widely used research measure of the home environment that is associated with early childhood development.[15] The findings are consistent; all studies showed positive responses to ROR. Unlike non–doctor-focused book-giveaway programs that do not have the evidence base of ROR, we think that the effectiveness of ROR is attributable in part to the trusting relationships that parents have with their child's doctor, although this has not been proved.

Research on Reading Aloud

Reading to a child can stimulate more verbal interaction between the child and the parent than can toy play or other adult-child interactions.[25] Books frequently contain more-sophisticated words than children typically encounter in spoken language,[26] and increased vocabulary contributes to subsequent reading ability. As a pleasurable activity, reading aloud promotes many learning benefits[27] and enhances exposure to words, sounds, letters, and stories.[28,29] The age at which parents begin reading to their children is correlated with children's language development; children who are read to from an early age tend to have higher scores on later language measures.[30,31] Positive effects continue to be observable in the elementary school years.[19,25]

To ensure maximal benefits of reading aloud, parents need to go beyond the typical situation in which the parent

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reads and the child listens to a dialogue that includes parents asking questions, providing feedback, and letting the child become the narrator of the story.[32,33] Interactive reading, including asking children to point, to touch, or to show during book reading or asking children questions about the text,[21] promotes early learning. Children whose parents received intensive training in this technique (called dialogic reading) demonstrated better expressive language skills and other preliteracy skills, compared with children whose parents did not use the technique. The differences between the groups remained even 9 months after the training.[33] These findings are consistent with the understanding of brain development emphasizing how early experiences are translated into neuronal connections and other neurophysiologic changes.[34]

To read words, children need to know the rules for translating letters into meaningful sounds.[35,36] Children learn about phonemes or sounds by learning to name letters and by recognizing which phoneme is critical in naming an object.[37] Children need to know at least some alphabet letters to learn letter-sound relationships and to recognize words that start with the same phoneme.[37–39] Unfortunately, children from lower-income families know fewer letters than do their middle-class peers.[40] Many alphabet books contain the letter names accompanied by objects whose names begin with the critical sound, such as the letter D shown with pictures of a dog, a deer, and a doctor. When parents stress the initial sounds in these words while reading with their children, they are teaching awareness of initial phonemes or shared phonemes across words.[37,41] Rhyming words promote awareness of terminal sounds because of differences in 1 sound between 2 words.[42]

THE FUTURE

Because the idea of pediatricians going beyond their traditional biomedical approach to include child development has proved to be so powerful, the future presents many opportunities for ROR. First, continued expansion needs to occur until physicians provide all families that are at risk because of low income or low maternal education with encouragement to read daily and with a book to take home at each preventive health care visit. ROR is cost-effective and, given its low cost, it should be a first-line, community-based strategy to promote school readiness; all children should grow up with books in their home and parents who read to them. Presently, ROR reaches ~25% of low-income children.

Second, all parents need to know that it is important to read to their children, and they should be encouraged to do so every day. A national survey showed that only 48% of US parents (36% of low-income parents and 59% of upper-income parents) read to their young child every day.[43] Further expansion of ROR and a national campaign by pediatricians emphasizing the importance of parents reading aloud should help achieve this goal of parents reading to their children every day. The campaign will consist minimally of parent education materials in all pediatric offices, coupled with a national media campaign. Although parent education materials will be given in all practices, books will continue to be given only by doctors serving low-income children.

The growing evidence of the building blocks of reading and effective strategies to promote children's literacy presented earlier provides opportunities that can be incorporated into pediatric advice for parents. Although reading to children for mutual enjoyment remains most important, this nonprescriptive approach can be balanced with selective evidence-based advice for parents of 2- to 5-year-old children. Parents need to know the importance of sounds as they relate to letters and to know that rhyming books enhance phonetic learning. Special examples for young children include Mother Goose rhymes such as "Hickory, dickory, dock! The mouse ran up the clock." Books with letters and letter/sound recognition can be emphasized for parents of 4- and 5-year-old children. Although the effectiveness of dialogic reading was based on intensive training of parents, suggestions for general interactive reading (eg, pointing, naming, and questioning by parents) can be developed and given through video, audio, or other methods associated with a visit to the doctor. Recent results from a meta-analysis showed a greater impact of dialogic reading with younger children (2–3 vs 4–5 years of age). Because this style of reading is less common and self-evident for lower-income parents, it is possible that younger low-income children may receive greater benefit from this approach, compared with their well-to-do peers.[44]

The evidence for ROR is substantial, but ROR can be fully effective only when it is practiced according to standards. Quality-improvement efforts that ensure that every child receives a book at every well-child visit and that the doctor provides advice are being implemented in Florida and Massachusetts. Ultimately, strategies developed by individual practices will be available on the ROR Web site, so that other sites can take advantage of this information.

The importance of early childhood development and emergent literacy goes beyond the United States. ROR is presently in ~8 countries, including several in the developing world. Although promoting early literacy in these sites is important in its own right, possible added value of ROR in these countries

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might be demonstrated by showing that giving books at the same time as immunizations helps maintain immunization rates in the second year of life and/or giving books at monthly HIV follow-up visits promotes adherence.

CONCLUSIONS

The growth of ROR represents a physician-driven transformation of primary care that benefits low-income children. It is hoped that, in 10 years, as ROR reaches its 30th anniversary, giving books to all high-risk children and giving evidence-based and developmentally appropriate reading advice to all parents will be fully integrated as part of pediatric primary care. At that point, ROR may cease to exist as a separate program. After all, we do not have Reach Out and Immunize or Reach Out and Auscultate.

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REFERENCES

1. Schnitzer MI, Kaplin DB, Keane VA, Zuckerman B, Sharfstein JM. Giving literacy a shot in the arm. *Public Health Rep.* 2008;123(4):523–525
2. Richmond JB. Child development: a basic science for pediatrics. *Pediatrics.* 1967;39(5):649–658
3. Haggerty RJ, Roughman KJ, Pless IB, eds. *Child Health and the Community.* New York, NY: Wiley; 1975
4. American Academy of Pediatrics, Task Force on Pediatric Education. *The Future of Pediatric Education.* Evanston, IL: American Academy of Pediatrics; 1978
5. Anderson RC, Hiebert EH, Scott JA, Wilkinson IAG. *Becoming a Nation of Readers: The Report of the Commission on Reading.* Champaign, IL: Center for the Study of Reading, University of Illinois; 1985
6. Needlman R, Fried LE, Morley DS, Taylor S, Zuckerman B. Clinic-based intervention to promote literacy: a pilot study. *Am J Dis Child.* 1991;145(8):881–884
7. High P, Hopmann M, LaGasse L, Linn H. Evaluation of a clinic-based program to promote book sharing and bedtime routines among low-income urban families with young children. *Arch Pediatr Adolesc Med.* 1998;152(5):459–465
8. 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(5):993–997
9. High PC, LaGasse L, Becker S, Ahlgren I, Gardner A. Literacy promotion in primary care pediatrics: can we make a difference? *Pediatrics.* 2000;105(4):927–934
10. Sanders LM, Gershon TD, Huffman LC, Mendoza FS. Prescribing books for immigrant children: a pilot study to promote emergent literacy among the children of Hispanic immigrants. *Arch Pediatr Adolesc Med.* 2000;154(8):771–777
11. Jones VF, Franco SM, Metcalf SC, Popp R, Staggs S, Thomas AE. The value of book distribution in a clinic-based literacy intervention program. *Clin Pediatr (Phila).* 2000;39(9):535–541
12. 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(1):130–134
13. 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(3):171–177
14. 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
15. Weitzman CC, Roy L, Walls T, Tomlin R. More evidence for Reach Out and Read: a home-based study. *Pediatrics.* 2004;113(5):1248–1253
16. Needlman R, Toker KH, Dreyer BP, Klass P, Mendelsohn AL. Effectiveness of a primary care intervention to support reading aloud: a multicenter evaluation. *Ambul Pediatr.* 2005;5(4):209–215
17. Adams MJ. *Beginning to Read.* Cambridge, MA: MIT Press; 1990
18. Sénéchal M, LeFevre J. Parental involvement in the development of children's reading skill: a five-year longitudinal study. *Child Dev.* 2002;73(2):445–460
19. Snow CE, Burns S, Griffin P, eds. *Preventing Reading Difficulties in Young Children.* Washington, DC: National Academy Press; 1998
20. Storch SA, Whitehurst GJ. The role of family and home in the developmental course of literacy in children from low-income backgrounds. In: Britto PR, Brooks-Gunn J, eds. *New Directions in Child Development: The Role of Family Literacy Environment in Promoting Young Children's Emerging Literacy Skills.* San Francisco, CA: Jossey-Bass/Pfeiffer; 2001:53–71
21. Ezell HK, Justice LM. *Shared Storybook Reading.* Baltimore, MD: Brooks Publishing; 2005
22. National Institute of Child Health and Human Development Early Child Care Research Network. Pathways to reading: the role of oral language in the transition to reading. *Dev Psychol.* 2005;41(2):428–442
23. National Institute for Literacy. *Developing Early Literacy: Report of the National Early Literacy Panel.* Washington, DC: National Institute for Literacy; 2008.
24. Graves B, Juel C, Graves M, Calfee R. *Teaching Reading in the 21st Century.* Boston, MA: Allyn & Bacon; 2006
25. Vivas E. Effects of story reading on language. *Lang Learn.* 1996;46(2):189–216
26. Sénéchal M, LeFevre JA, Hudson E, Lawson EP. Knowledge of storybooks as a predictor of young children's vocabulary. *J Educ Psychol.* 1996;88(3):520–536
27. Karrass J, VanDeventer MC, Braungart-Rieker JM. Predicting shared parent-child book reading in infancy. *J Fam Psychol.* 2003;17(1):134–146
28. De Jong PF, Leseman PPM. Lasting effects of home literacy on reading achievement in school. *J Sch Psychol.* 2001;39(5):389–414
29. Isbell R, Sobol J, Lindauer L, Lowrance A. The effects of storytelling and story reading on

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the oral language complexity and story comprehension of young children. *Early Child Educ J.* 2004;32(3):157–163

30. Debaryshe BD. Joint picture-book reading correlates of early oral language skill. *J Child Lang.* 1993;20(2):455–461
31. Payne A, Whitehurst GJ, Angell AL. The role of home literacy environment in the development of language ability in preschool children from low-income families. *Early Child Res Q.* 1994;9(3–4):427–440
32. 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(2):235–243
33. Whitehurst GJ, Falco FL, Lonigan CJ, et al. Accelerating language development through picture book reading. *Dev Psychol.* 1988;24(4):552–559
34. Shonkoff JP, Phillips DA, eds. *From Neurons to Neighborhoods: The Science of Early Childhood Development.* Washington, DC: National Academy Press; 2000
35. Whitehurst GJ, Lonigan CJ. Child development and emergent literacy. *Child Dev.* 1998;69(3):848–872
36. Lonigan CJ. Conceptualizing phonological processing skills in prereaders. In: Dickinson DK, Neuman SB. *Handbook of Early Literacy Research.* New York, NY: Guilford Press; 2006;2:77–100
37. Ehri LC, Roberts T. The roots of learning to read and write: acquisition of letters and phonemic awareness. In: Dickinson DK, Neuman SB. *Handbook of Early Literacy Research.* New York, NY: Guilford Press; 2006; 2:113–134
38. McGee LM, Richgels DJ. *Designing Early Literacy Programs: Strategies for At-Risk Preschool and Kindergarten Children.* New York, NY: Guilford Press; 2003
39. US Department of Health and Human Services. *Strengthening Head Start: What the Evidence Shows.* Washington, DC: US Department of Health and Human Services; 2003. Available at: http://aspe.hhs.gov/hsp/StrengthenHeadStart03/index.htm. Accessed September 6, 2007
40. Worden P, Boettcher W. Young children's acquisition of alphabet knowledge. *J Read Behav.* 1990;22(3):277–295
41. Byrne B, Fielding-Barnsley R. Evaluation of a program to teach phonemic awareness to young children. *J Educ Psychol.* 1991;83(4):451–455
42. Silvén M, Niemi P, Voeten MJM. Do maternal interaction and early language predict phonological awareness in 3- to 4-year-olds? *Cogn Dev.* 2002;17(1):1133–1155
43. Russ S, Perez V, Garro N, et al. *Reading Across the Nation: A Chartbook* (2007): Reach Out and Read National Center, Boston, MA. Available at: www.reachoutandread.org/downloads/RORChartbook.pdf. Accessed June 22, 2009
44. Mol SE, Bus AG, de Jong MT, Smeets DJH. Added value of dialogic parent-child book readings: a meta-analysis. *Early Educ Dev.* 2008;19(1):7–26

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