

## Read, speak, sing: Promoting literacy in the physician's office



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### ABSTRACT

Low literacy is an important issue affecting the health of millions of Canadians. At its root, it is a paediatric problem. New evidence suggests that physicians can have a positive role in promoting literacy among their young patients. Physicians need to be aware of the scope of this problem, provide anticipatory guidance to families, and promote reading to babies and children in their practices. Recommendations and strategies are discussed.

**Key Words:** *Literacy; Reading*

### OBJECTIVES

The objectives of the present statement are to:

- Review the current status of literacy in Canada and its impact on health;
- Discuss current evidence-based research on how literacy develops;
- Review current evidence for the role of physicians in literacy promotion; and
- Provide practical resources to enable physicians to promote literacy in their practices.

### INTRODUCTION

Low literacy is a severe and pervasive problem in Canada, affecting nine million working-age adults (1). It has important health, social and economic consequences (2,3). New understanding of the neurobiology of learning indicates that literacy achievement is closely linked to language exposure in infants and toddlers. Parents and caregivers play a crucial role in shaping the early experiences that lay down the foundation for later reading skills (4).

Because of their early and frequent contact with families, physicians have a unique opportunity to support parents in this role by encouraging them to read daily with their babies and children (5). Preschoolers who are read to are significantly more likely to have the literacy skills required for early school success (6).

The present position statement, a revision of a previous Canadian Paediatric Society position statement (7), reviews the latest information regarding physicians' role in promoting

literacy. Peer-reviewed studies have shown that when physicians discuss literacy development with parents and provide them with tools such as children's books, they can have positive effects on families' attitudes toward reading, reading frequency and preschool language scores (8). Strategies and resources for incorporating literacy promotion into standard anticipatory guidance will be discussed.

### EVIDENCE

The present statement provides recommendations that are graded based on the available evidence (Appendix) (9). A search of the electronic literature was conducted using MEDLINE and PsychINFO databases for the period of 1995 to June 2006 for child (zero to 18 years of age) studies in English and French using the subject headings of reading, literacy and illiteracy.

### THE LITERACY LANDSCAPE IN CANADA

There is a crisis of low literacy in Canada. Alarming, 42% of Canadians 16 to 65 years of age do not have the minimum literacy skills for coping with everyday life and work in a knowledge-based economy and society (the skill level typically required for high school completion in Canada). Among that 42%, 15% struggle with any printed material. The results among certain groups are even more troubling. Low literacy skills are found among 80% of prison inmates, 60% of immigrants (compared with 37% of native-born Canadians) and 18% to 38% (depending on the region of the country) of youth aged 16 to 25 years. Among Aboriginal people 15 to 49 years of age, 17% have less than a grade 9 education. Because literacy skills are like muscles that are maintained and strengthened through regular use, average proficiency in prose literacy appears to decrease with age, leaving 80% of seniors with inadequate literacy skills (1).

Literacy influences health both directly and indirectly, and is closely related to nearly all the major determinants of health identified by Health Canada. Low literacy is, at its root, a paediatric problem. It becomes manifest in school when some children fail to learn to read and write at the same pace as their peers. It is estimated that 5% to 15% of schoolchildren have reading delays (10). Most children who have not mastered reading by the end of grade 3 will never catch up (11). This leads to school failure and early

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**Table 1**  
**Health consequences of low literacy**

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Direct effects of low literacy on health
Incorrect use of medications
Failure to comply with medical directions
Errors in administration of infant formula
Safety risks in the community, the workplace and at home
Indirect associations between low literacy and health
Higher rates of poverty
Higher than average rates of occupational injuries
Higher degrees of stress
Unhealthy lifestyle practices such as:
• smoking
• poor nutrition
• infrequent physical activity
• lack of seatbelt use or wearing of bicycle helmets
• less prevalence of breastfeeding (where applicable)
• less likely to ever have had a blood pressure check
• (among women) less likely to practice breast self-examination and to obtain pap smears
Limited access to and understanding of health information
Inappropriate use of medical services

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*Data from references 12 and 13*

school leaving, which in turn puts young adults at higher risk for poor outcomes. Promoting literacy is a key part of practicing preventive medicine (12) (Table 1).

Not only is promoting literacy good medicine, it also makes economic sense. Literacy problems cost Canada 10 billion dollars per year (13). People with low literacy skills are twice as likely to be unemployed, and up to 50% of adults with low literacy levels live in low-income households. A 2004 Statistics Canada report (14) states that a 1% rise in literacy scores relative to the international average would be associated with an eventual 2.5% relative rise in labour productivity and a 1.5% rise in gross domestic product per person. Low literacy is an issue Canadians cannot afford to ignore.

#### LITERACY AND LANGUAGE DEVELOPMENT

At birth, a baby's brain contains 100 billion neurons. Shortly after birth, the brain produces trillions more connections between neurons than it ultimately uses. Synapses that are stimulated by frequent use during the early years are preserved, and those that are seldom used are eliminated by a process called pruning. Early experiences, especially everyday interactions with parents, shape the brain architecture that supports learning later in life (4).

Early language skills, which are the foundation for later reading ability, are based primarily on language exposure. Children with greater exposure to language have larger expressive vocabularies. Both language exposure and rate of expressive language development vary by socioeconomic status, with economically advantaged children being

exposed to and saying more than twice the number of words as children from poor families at three years of age (15).

Not only is the amount of language exposure important, but so is the quality. Of all parent-child activities, the richest language exposure occurs during reading, especially when dialogic reading (when the parent uses questions to encourage the child to participate beyond being a passive listener) occurs (16,17). Children's books are essential tools for providing caregivers with developmentally appropriate language to use with children and for facilitating baby talk, the exaggerated, sing-song speech that babies prefer. In 1985, the National Commission on Reading concluded that "reading aloud by parents is the single most important activity for building the knowledge required for eventual success in reading" (10).

Book exposure among infants and toddlers promotes the development of early literacy skills, including book orientation, narrative structure, listening ability, attention span, page turning and print recognition. It is speculated that a love of books develops when children associate reading with the cozy comfort of their parent's attention and warm lap.

#### NEW INFORMATION: FURTHER EVIDENCE FOR THE ROLE OF PHYSICIANS

Since the publication of the original edition of the present position statement in 2002 (7), the evidence supporting the role of physicians in literacy promotion has been further confirmed and expanded. The bulk of the research has focused on the Reach Out and Read (ROR) (18) model for clinic-based literacy intervention, a United States-based program serving 2.5 million children annually at 3000 clinics and health centres. Its three components are anticipatory guidance regarding literacy development by paediatric providers at each well-child visit; the provision of a new, developmentally appropriate book at each visit; and literacy-rich waiting rooms including volunteers who demonstrate book sharing. ROR has been studied in more than a dozen peer-reviewed articles (8).

Current literature suggests the following:

- Parents want information from physicians about learning (19). Nearly one-half of parents who do not read daily believe it would be helpful to discuss literacy with their paediatrician (20). (Level of Evidence III)
- Parents receiving the ROR intervention are four to 10 times more likely to read frequently (at least three days/week) to their children. The effect is greatest among the poorest families, suggesting the intervention is most beneficial to those who need it the most (8,21-24). (Level of Evidence II-1)
- Parents often place more importance on reading to their children when a book is given by a paediatrician (19). (Level III). The distribution of books enhances the effectiveness of literacy intervention beyond what is achieved by anticipatory guidance alone (24). (Level II-2)

**Table 2**  
**Developmental milestones of early literacy\***

Age	Motor function	Cognitive/social ability	Interaction with parents
6 to 12 months	Reaches for book.	Looks at pictures, vocalizes,	Parent holds child comfortably,
	Brings book to mouth.	pats picture.	face-to-face gaze.
	Sits in lap.	Prefers photographs of faces.	Parent follows baby's cues
	Holds head up steadily.		for 'more' and 'stop'.
12 to 18 months	Holds book with help.	No longer mouths right away.	Child gets upset if parent won't
	Turns pages, several at a time.	Points at pictures with one finger.	give up control of book.
	Sits without support.	May label a particular picture with a	Child may bring book to read.
	Able to carry book.	specific sound.	If parent insists that the child listen,
18 to 36 months	Turns one page at a time.	Names familiar pictures.	Parent asks "What's that?" and gives
	Carries books around house.	Attention varies highly.	the child time to answer.
		Asks for the same story over	Parent relates book to child's
		and over.	experiences.
3 years and older	Holds book without help.	Describes simple actions.	Parent asks questions like "What's
	Turns normal thickness pages	Can retell familiar story.	happening?"
	one at a time.	Plays at reading, moving finger	Parent validates child's responses
		from left to right, top to bottom.	and elaborates on them.
	'Writes' name (linear scribble).	Parent does not drill child, but shows	pleasure when child supplies word.

\*Adapted from reference 7

- Preschoolers receiving the intervention have higher receptive (23,26-28) and expressive (26,27) language scores on standardized tests. (Level II-1)
- There is a dose-response relationship between exposure to a literacy promotion intervention and desired literacy-related behaviours (29). (Level II-2)
- Parents rate physicians who demonstrate reading aloud and give books as more 'helpful' (25). (Level II-2)

The current studies available are not immune to methodological issues. None are properly randomized trials, and studies that relied on parent self-reporting were open to possible selection bias and interviewer bias (8). The studies looked mainly at low-income American families in largely Spanish-speaking populations. The applicability to Canadian families is unknown.

As well, the ultimate research question ("Does literacy promotion by health care providers prevent elementary school reading problems?") has yet to be answered either by case-control or longitudinal studies or by randomized controlled trials. Nonetheless, the currently available findings suggest that literacy interventions by paediatricians have positive results that are linked, in theory, to the ultimate goal of literacy promotion and school success (8).

## RECOMMENDATIONS

Physicians and health care professionals are encouraged to promote literacy by:

- Addressing low literacy as a child health problem beginning at birth and continuing through adulthood. (Grade B)
- Inquiring about family literacy orientation at regular health care visits. Questions could include the frequency of book sharing, access to children's books in the home, use of books in children's routines and caregivers' literacy levels. (Grade I)
- Including literacy promotion in their routine clinical practice. Interventions should include: anticipatory guidance regarding literacy development (Tables 2 and 3); provision of tools such as developmentally appropriate books (Table 4), if possible, or library card applications and a prescription to read a fun book; and referral to adult literacy services as required. (Grade B)
- Encouraging parents and all child care providers to look at books daily with their children beginning at birth and to create and maintain a literacy-rich environment for their children both at home and in all

**Table 3**  
**Examination room techniques**

- Bring the book in early in the examination; do not save it for the end of the visit.
- Hand the book to the child right away; observe how the child handles it, listen for language, and watch the parent-child interaction.
- Listen for words elicited by the books and pictures; books allow for a wider range of vocabulary from young children.
- Compliment the parent on the child's interest in the book, the child's ability to handle the book and turn pages, and the child's potential as a future reader.
- Inquire about favourite books, and use of books in child's routines.
- Help parents see that their child's interest in books is related to language development and intelligence.
- Model reading aloud for parents (30 s to 60 s) and discuss what you are doing and why.
- Incorporate the book and discussion of reading into established exam room routines like the physical examination or as a distraction during procedures (eg, immunizations).

*Modified from reference 30*

other child care settings (eg, daycare, preschool). For caregivers with low literacy skills or who speak a non-local language, singing, storytelling and talking about pictures in their native language should be encouraged. (Grade B)

- Encouraging families to get a library card and visit the library regularly. (Grade I)
- Ensuring that clinic waiting areas encourage literacy. Culturally and age-appropriate reading materials, posters, information on literacy resources, and volunteer readers are ways to accomplish this. Infection control policies, such as the removal of visibly soiled books or cleaning book covers after use, should be considered. (Grade I)

Physicians and health care professionals should advocate for:

- The inclusion of anticipatory guidance regarding the importance of reading to children in standard health maintenance guidelines. (Grade B)
- Training in literacy development and promotion for paediatric and family medicine residents through education governing bodies such as the Royal College of Physicians and Surgeons of Canada and university postgraduate medical education departments. (Grade I)
- Alliances between physicians and literacy promotion organizations, such as the National Literacy Secretariat ([www.hrsdc.gc.ca/en/hip/lld/nls/About/aboutus.shtml](http://www.hrsdc.gc.ca/en/hip/lld/nls/About/aboutus.shtml)), ABC Canada (<http://www.abc-canada.org/>), and the

**Table 4**  
**What children like in books**

- Infants 0 to 12 months:
  - Board books with photos of other babies
  - Brightly coloured board books to touch and taste
  - Books with photos of familiar objects like balls and bottles
  - Small books sized for small hands
- Younger toddlers 12 to 24 months:
  - Sturdy board books they can handle and carry
  - Books with photos of children doing familiar things like sleeping, eating or playing
  - Goodnight books for bedtime
  - Books about saying goodbye and hello
  - Books with only a few words on each page
  - Books with simple rhymes or predictable texts
- Older toddlers 24 to 36 months:
  - Board books and books with paper pages
  - Rhymes, rhythms, repetitious text that they can memorize
  - Books about children, families, making friends, food, or animals
  - Word books
- Preschoolers 2 to 5 years:
  - Books that tell stories
  - Books with simple texts they can memorize or read
  - Books about kids that look and live like them
  - Books about going to school, making friends, going to the doctor
  - Counting books, alphabet books, vocabulary books

*Modified from reference 30*

Canadian Language and Literacy Research Network (<http://www.cllrnet.ca/index.php>) to develop a national literacy promotion strategy. Physicians should work with childcare providers and literacy specialists at the community level to promote literacy locally. Contacting the local library to obtain library card applications is an appropriate first step. (Grade I)

- An inventory, compiled by the Canadian Paediatric Society, of literacy resources available to physicians nationally and locally. (Grade I)
- Government and private sector funding for the purchase of children's books to be given out at well-child visits. (Grade B)
- The appropriate allocation of funding for quality research in the prevention of low literacy. (Grade I)

**ACKNOWLEDGEMENT:** This position statement was reviewed by the Canadian Paediatric Society's Public Education Subcommittee and the Community Paediatrics Committee.

**APPENDIX**  
**Levels of evidence and strength of recommendations\***

Level of evidence	Description
I	Evidence obtained from at least one properly randomized controlled trial.
II-1	Evidence obtained from well-designed controlled trial without randomization.
II-2	Evidence obtained from well-designed cohort or case-controlled analytical studies, preferably from more than one centre or research group.
II-3	Evidence obtained from comparisons between times and places, with or without the intervention. Dramatic results in uncontrolled experiments could also be included in this category.
III	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.
Grade	Description
A	There is good evidence to recommend the clinical preventive action.
B	There is fair evidence to recommend the clinical preventive action.
C	The existing evidence is conflicting and does not allow a recommendation to be made for or against use of the clinical preventive action; however, other factors may influence decision-making.
D	There is fair evidence to recommend against the clinical preventive action.
E	There is good evidence to recommend against the clinical preventive action.
I	There is insufficient evidence to make a recommendation; however, other factors may influence decision-making.

*\*Data from reference 9. Note: The task force recognizes that, in many cases, patient-specific factors must be considered and discussed, such as the value the patient places on the clinical preventive action, its possible positive and negative outcomes and the context or personal circumstances of the patient (medical and other). In certain circumstances where the evidence is complex, conflicting or insufficient, a more detailed discussion may be required*

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The recommendations in this statement do not indicate an exclusive course of treatment or procedure to be followed. Variations, taking into account individual circumstances, may be appropriate. Internet addresses are current at time of publication.