

# Growing Healthy Readers: The Health Determinants of Early School Success

By Becky Miles-Polka

We tend to think of reading as a simple process of learning language, letters and sounds, an easy and natural part of growing up. Yet reading is complex; it relies on a child's ability to focus attention, sit still, recognize sounds and symbols, hold images and associations in memory, follow directions and process meaning from spoken and written words. Reading relies on the development of the whole child — including the closely entwined aspects of a child's physical, social and emotional, as well as cognitive health.

Good health is much more than the absence of disease. A child's capacities begin to develop before birth and continue to develop rapidly, fueling and shaping readiness to take on the tasks of learning and schooling. Children's brains and bones, energy levels and mobility change and mature through the early years of life. This rapid development, including the wiring of the brain, arises from the integration of a child's physical, social and emotional health. Relationships with consistent and caring adults nurture and influence each of these connected aspects of healthy development, which is directly linked to a child's learning capacity and progress. If children are to be able to read proficiently by the end of third grade, they need to be healthy and developing language, literacy and reading skills at an appropriate pace.

Each child develops at a unique pace, and is more advanced in some areas than others at any given time. Beyond individual differences, however, income and racial disparities create profound differences in children's readiness for and success in reading. According to the 2011 National Assessment of Educational Progress (NAEP), low-income students' reading achievement significantly trails that of their more affluent peers: 83 percent of all low-income fourth graders score below proficient compared to 67 percent of all fourth-grade children. Half of all fourth graders from low-income families score below the "basic" reading level compared to one-third of all fourth graders.<sup>1</sup>

For children of color from low-income families, the reading gap is even greater<sup>2</sup> (Annie E Casey Foundation, 2010). These young children face substantial disparities in their health conditions, access to health insurance and quality of care compared to their white peers from higher-income families. Achieving equity in children's health will go a long way toward closing the gap in children's academic success.<sup>3</sup>

The Campaign for Grade-Level Reading recognizes the important interconnections of health and learning, known as the health determinants of early school success. Children from low-income families have more frequent challenges that affect their health and well-being than more affluent children. The GLR Campaign has identified five Children's Health and Learning Priorities: health-related issues with a demonstrated relationship to

one or more of the GLR Campaign's community solutions. They include prenatal care and infant development; comprehensive screenings, follow-up and early intervention; oral health; asthma management; and nutrition and physical activity. The GLR Campaign has developed materials to help community stakeholders incorporate strategies that can strengthen positive impact on children's health and learning. *Growing Healthy Readers: Taking Action to Support the Health Determinants of Early School Success* is a set of seven guides to assist coalitions in incorporating the Children's Health and Learning Priorities into Community Solutions Action Plans (CSAPs) to achieve progress in the GLR Campaign's community solutions areas of school readiness, attendance and summer learning and to improve grade-level reading.

### **Why should communities address healthy births and early infancy?**

Children who are born on time (after the 37th week of pregnancy) and at a healthy weight (about 5.5 pounds or greater) are described as "born healthy." They are more likely to survive the first year of life. "The basic architecture of the brain is constructed through an ongoing process that begins before birth and continues into adulthood. Careful and continuous monitoring of children's development, beginning before birth and continuing through early childhood, is necessary to ensure that children can reach their full potential. Fully meeting this goal requires prenatal care for all pregnant women and sustained access to a consistent source of primary health care for all children."<sup>4</sup>

The infant mortality rate (the percentage of infants who die before age 1) is an indicator of how a community mobilizes to support its most vulnerable children and families. Non-Hispanic black and American Indian or Alaskan Native babies continue to have significantly higher infant mortality rates than those of other racial and ethnic groups.

Pregnancy is a time when low-income prospective mothers are both reachable and open to learning. By strengthening prenatal care and family supports in a baby's first few months of life, community leaders can contribute to physical and mental health for mothers and babies as well as babies' optimal brain development and increased capacity for learning.

### **What do we mean by comprehensive screening, early intervention and follow-up and why is it important for communities to address these issues?**

Infants, toddlers, preschoolers and children in the earliest grades with unaddressed developmental, vision, hearing or lead-poisoning concerns are among those least likely to read proficiently by the end of third grade. Screenings identify children who need follow-up and are likely to benefit from intervention, services and supports to assist their development. Developmental vision, hearing and lead screenings along with social-emotional development are critical because concerns in these areas can affect learning and a child's ability to read proficiently by the end of third grade. An important part of ensuring that every child enters school ready to learn and becomes a good reader is to identify concerns early, and then address them early, when interventions can be most effective.

Developmental screenings help identify any concerns regarding cognition and understanding, communication, fine and gross motor skills, social and emotional behavior, and problem-solving and self-help.

Uncorrected vision difficulties can sabotage academic success. An estimated 20 percent of school-age children have a vision problem most often nearsightedness, which makes it difficult to see at a distance, or farsightedness, which makes it difficult to read a printed page.

Although they are much less common than vision issues, uncorrected hearing impairments in young children are linked with lifelong speech and language deficits, poor academic performance, social challenges and emotional difficulties. For a child born with a hearing loss, effective intervention within the first six months of life significantly improves future prospects. Many states require a hearing test soon after birth, but rescreening is indicated, especially if a child does not seem to be responding to sounds.

Lead is toxic to the brain and can cause serious, and often irreversible, cognitive impairment in children, with the greatest risks to the youngest children. High levels of lead in a child's blood often result in later academic failure and behavior issues.

Children's social and emotional development has a strong correlation to academic success. Children who are rated by their parents as having higher levels of emotional regulation score higher on assessments of math and literacy.

Healthy social-emotional development can be seen in children's growing ability to form positive relationships; express and manage a range of feelings; get along with adults and peers; and experience well-being, curiosity and deep involvement in learning. Behaviors that reflect social-emotional skills include:

- An infant's loud babbling to get a parent's attention
- A toddler's happy exploration of pots and pans in a kitchen cupboard
- A preschooler's offer to help a friend build a block tower
- A kindergarten child's persistence in completing a challenging puzzle
- A first grader's cooperation with peers and the teacher during a group project

From birth on, young children's healthy social-emotional growth requires consistent support from caring, responsive adults. Young children need adults to help them practice using social-emotional skills in play with other children and in independent activities. Healthy social-emotional development fuels children's learning; sense of well-being; positive relationships with adults and peers; and ability to meet challenges and to learn from others (parents, teachers, peers) and on their own.<sup>5 6</sup>

Children with lags in social-emotional development often show distress and disruptive behavior that interfere with learning.<sup>7</sup> Research has shown that behavior problems are common in young children.<sup>8</sup> Rates of behavior difficulties range from 9 to 14 percent

among all young children and approach 30 percent among poor children. Failure to prevent or treat troubling behavior at an early age places children at high risk of mental health issues that impede their learning and school success.<sup>9 10 11</sup>

### **How does oral health contribute to early school success?**

Oral health problems are the single most common chronic disease of early childhood, and are five times more common than asthma. Results from the 2009-2010 National Health and Nutrition Examination Survey estimated 25 percent of 3- to 5-year-olds and of 6- to 9-year-olds living in poverty had untreated dental caries.

Tooth decay causes children pain, loss of sleep, reduced concentration and attention span, and absence from school or preschool. Children from low-income families and children of color are most vulnerable and are at much higher risk of missing school.

Significant disparities persist in children's oral health conditions: In 2012 37 percent of African-American children and 41 percent of Hispanic children had untreated tooth decay, compared with 25 percent of white children according to former Surgeon General David Satcher

Only 40 percent of children from low-income families have an annual dental visit. In far too many states and communities, the dearth of dentists who accept Medicaid enrolled children severely limits children's access to oral health care. In 2009, only 44 percent of Medicaid-enrolled children nationwide received dental services.<sup>12</sup>

### **Why is asthma of such concern?**

Asthma is a chronic disease that affects the lungs. Asthma attacks cause inflammation and narrowing of the airways in the lungs leading to wheezing, coughing and shortness of breath. Asthma is widely recognized as one of the most common chronic diseases in children. Many children develop asthma before the age of 5. It is the most significant health-related cause of school absence among children each year.

Respiratory infections, allergens such as mold, pollens and furry animals, and irritants such as tobacco smoke, some cleaning products, stress and physical activity can trigger asthma symptoms.

Uncontrolled asthma symptoms pose significant risks to children's health and learning. Minority children from low-income urban households have disproportionately high rates of asthma. Children with severe asthma experience considerably more sleep problems than other children, with more fatigue during waking hours. Fatigue from disturbed sleep can lead to less energy for learning.

Asthma is the leading medical cause of school absence, leading to 14 million missed school days annually, according to the Asthma and Allergy Foundation of America. It is also the third leading cause of hospitalization for children under the age of 15. In 2010, 7

million children in the United States had asthma. Black children are twice as likely to have asthma as white children. Boys are 45 percent more likely than girls to have ever been diagnosed with asthma. Black youth, especially those from poor families, are disproportionately affected.<sup>13</sup>

### **How do nutrition and physical activity impact learning?**

There is abundant evidence linking nutrition to learning and to the challenges facing children from low-income families. In 2012, more than 47 million Americans lived in households that had difficulty putting food on the table.<sup>14</sup> Children who suffer from poor nutrition during the brain's most formative years score much lower on tests of vocabulary, reading comprehension and general knowledge than those who are adequately nourished.<sup>15</sup> Iron deficiency anemia leads to a shortened attention span, irritability, fatigue and difficulty concentrating. Anemic children tend to do poorly on vocabulary, reading and other tests.<sup>16</sup>

Children who skip breakfast are less able to differentiate among visual images, show increased errors and have slower memory recall.<sup>17</sup> Low-income children tend to gain weight during the summer months, because they lack access to healthy food and opportunities for physical activity.

Engaging in physical activity supports key aspects of brain functioning that are critical to learning.<sup>18 19</sup> For young children (from birth through age 5), physical activity enhances motor skills, social skills and brain development, all critical components of school readiness.<sup>20</sup> Children learn through play, developing cognitive skills as they interact with their indoor and outdoor environments and social-emotional skills through play with peers.<sup>21</sup>

For school-age children, physical activity and improved academic performance are strongly connected. Children who perform better on physical fitness tests are more likely to earn higher reading and math scores.<sup>22</sup> Children who participate in organized sports report higher achievement in school.<sup>23</sup>

The evidence is clear; children in low-income families have significant health disparities and are less likely to be successful in school. Given this strong evidence, the Campaign for Grade-Level Reading recognizes that it cannot move the needle on third-grade reading without addressing the important health issues that impact children's development and ultimately how well they learn and succeed in school.

As community coalitions continue to address school readiness, attendance and summer learning, the integration of health strategies will be key to achieving progress on reading proficiency. The GLR Campaign will continue to work with national partners and local leaders to help develop specific solutions targeted to the needs in communities. Understanding the health concerns that affect children's learning, as well as effective practices for addressing them, will enable communities to move forward on third-grade reading gains.

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<sup>1</sup> The Nation's Report Card," available at [http://nationsreportcard.gov/reading\\_2011/nat\\_g4.asp?subtab\\_id=Tab\\_5&tab\\_id=tab2#chart](http://nationsreportcard.gov/reading_2011/nat_g4.asp?subtab_id=Tab_5&tab_id=tab2#chart).

<sup>2</sup> Annie E. Casey Foundation, *EARLY WARNING! Why Reading By The End of Third Grade Matters*, (Baltimore: Annie E. Casey Foundation, 2010).

<sup>3</sup> Basch, C.E. "Healthier Students Are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap," *Equity Matters, Research Review No. 6* (New York: The Campaign for Educational Equity, 2010): 12–18.

<sup>4</sup> The Science of Early Childhood Development, National Scientific Council on the Developing Child (2007), available at [www.developingchild.net](http://www.developingchild.net).

<sup>5</sup> Denham, S. A. (2006). Social-Emotional Competence as Support for School Readiness: What Is It and How Do We Assess it? *Early Education and Development*, 17(1), 57-89.

<sup>6</sup> Fantuzzo, J., Bulotsky-Shearer, R., McDermott, P., McWayne, C., Frye, D., & Perlman, S. (2007). Dimensions of Social-Emotional Classroom Behavior: Investigation of Dimensions of Social-Emotional Classroom Behavior and School Readiness for Low-Income Urban Preschool Children. *School Psychology Review*, 36, 44-62.

<sup>7</sup> Ladd, G. W., Herald, S. L., & Kochel, K. P. (2006). School Readiness: Are there Social Prerequisites? *Early Education and Development*, 17(1), 115-150.

<sup>8</sup> Huaqing Qi, C., & Kaiser, A. P. (2003). Behavior Problems of Preschool Children From Low-Income Families. *Topics in Early Childhood Special Education*, 23(4), 188-216. doi: 10.1177/02711214030230040201

<sup>9</sup> Blandon, A. Y., Calkins, S. D., Grimm, K. J., Keane, S. P., & O'Brien, M. (2010). Testing a developmental cascade model of emotional and social competence and early peer acceptance. *Dev Psychopathol.*, 22(4), 737-748.

<sup>10</sup> Izard, C. E., King, K. A., Trentacosta, C. J., Morgan, J. K., Laurenceau, J., Krauthamer-Ewing, E. S., & Finlon, K. J. (2008). Accelerating the Development of Emotion Competence in Head Start Children: Effects on Adaptive and Maladaptive Behavior. *Development and Psychopathology*, 20(1), 369-397

<sup>11</sup> Ursache, A., Blair, C., & Raver, C. C. (2012). The Promotion of Self-Regulation as a Means of Enhancing School Readiness and Early Achievement in Children at Risk for School Failure. *Child Development Perspectives*, 6(2), 122-128. doi: 10.1111/j.1750-8606.2011.00209.x

<sup>12</sup> The Pew Center on States, *The State of Children's Dental Health: Making Coverage Matter*, 2011

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<sup>13</sup> Basch, C.E. "Healthier Students Are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap," *Equity Matters, Research Review No. 6* (New York: The Campaign for Educational Equity, 2010): 12–18.

<sup>14</sup> The United States Department of Agriculture (USDA) website includes links to programs that provide a nutrition safety net for children, see [www.fns.usda.gov/child-nutrition-programs](http://www.fns.usda.gov/child-nutrition-programs)

<sup>15</sup> Brown L. and Pollitt E., "Malnutrition, Poverty, and Intellectual Development," *Scientific American* 74, no. 2 (1996): 38–43

<sup>16</sup> Parker, L. *The Relationship Between Nutrition and Learning: A School Employee's Guide to Information and Action* (Washington: National Education Association, 1989).

<sup>17</sup> The Food Research and Action Research Council (FRAC): [www.frac.org](http://www.frac.org)

<sup>18</sup> Ratey, John. (2008). *SPARK: The Revolutionary New Science of Exercise and the Brain*. Little, Brown and Company.

<sup>19</sup> Rosewater, Ann. (2009). *Learning to Play, Playing to Learn: Organized Sports and Educational Outcomes*. [www.californiaafterschool.org/articles/edu.pdf](http://www.californiaafterschool.org/articles/edu.pdf)

<sup>20</sup> Nemours, Best Practices for Physical Activity: A Guide to Help Children Grow Up Healthy: [www.nemours.org/content/dam/nemours/wwwv2/filebox/service/healthy-living/growuphealthy/pa\\_guide2013.pdf](http://www.nemours.org/content/dam/nemours/wwwv2/filebox/service/healthy-living/growuphealthy/pa_guide2013.pdf)

<sup>21</sup> National Research Council, Preventing Childhood Obesity, 2nd edition: <http://nrckids.org/default/assets/File/PreventingChildhoodObesity2nd.pdf>

<sup>22</sup> Robert Wood Johnson Foundation resources on Physical Activity and academic performance: <http://rwjf.org/en/search-results.html?u=&k=physical+activity+academic+performance>

<sup>23</sup> Rosewater, Ann. (2009). *Learning to Play, Playing to Learn: Organized Sports and Educational Outcomes*. [www.californiaafterschool.org/articles/edu.pdf](http://www.californiaafterschool.org/articles/edu.pdf)