



HEALTH BARRIERS TO LEARNING: The Prevalence and Educational Consequences in Disadvantaged Children



A Review of the Literature

Contributions & Acknowledgements

This report was prepared by Children’s Health Fund (CHF). CHF’s mission is to deliver high-quality healthcare to America’s most disadvantaged children. We envision a future where all children in America get the care they need to be healthy and ready to reach their potential in learning and in life.

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EXECUTIVE SUMMARY

Maximizing the educational experience and success of every child in America must be a priority and a critical national goal. Vitally important for each child and family as a pathway out of poverty, the issue is also larger. If the nation is to remain economically stable, prosperous, innovative, and influential internationally over the coming decades, it is essential that children are healthy and well-educated, graduate from high school on time, and perform at their full potential. Unfortunately, many children are not ready even for kindergarten, and even less for the rigors of the educational demands later in life.

Poor educational attainment has its roots in early childhood. Many children are not adequately prepared to read at grade level in the early elementary years; they subsequently struggle to perform in middle school, and are unable to graduate from high school on time. There are many reasons for less than optimal academic performance, especially for children who live with persistent adversities or chronic stress. However, too often, among these reasons are health conditions that have been unrecognized or undermanaged.



These conditions, referred to in this report as “Health Barriers to Learning” (HBLs), include the following: uncontrolled asthma, uncorrected vision problems, unaddressed hearing loss, dental problems, persistent hunger, certain untreated mental health and behavioral problems, and effects of lead exposure. Left untreated or undermanaged, HBLs can adversely affect children’s ability to see, hear and pay attention in the classroom, their ability and motivation to learn, their attendance, their academic performance, and even their chances of graduating from high school. These particular

HBLs have been identified due to their prevalence, evidence of their link to learning, and availability of effective screening and treatment approaches.

A number of underlying factors contribute to the higher prevalence and impact of HBLs among economically disadvantaged children. Poor access to health care and quality schools, excessive absenteeism, and other social issues affect development, learning, and health. Among the most important factors are **Adverse Childhood Experiences**, or “**ACEs**.” Adverse Childhood Experiences are events during childhood that increase the short- and long-term risk of negative health and social outcomes. These experiences include the child suffering physical, psychological, or sexual abuse, and the presence of substance abuse, mental illness, domestic violence, or criminal behavior in the household. Though not HBLs themselves, they—and other severe psychosocial stressors—are relevant in the lives and health trajectories of children.

Nationally, nearly half of children (48%) in the US have experienced at least 1 ACE, with the rates being particularly high for black children (60%) and children in poverty (67%). A national survey of pediatricians showed that only about 1 in 3 pediatricians regularly ask about any ACE, thus missing opportunities to

connect children and families to the support they need. In addition to numerous health effects, ACEs are associated with impaired development of the brain, leading to long-term negative consequences on cognitive, language and academic abilities, and mental health. Negative educational outcomes include grade repetition, lower academic scores, disengagement with school, and attendance problems.

This report describes the Health Barriers to Learning and the supporting evidence base for their impact on academic success. It also describes the disproportionate prevalence of HBLs in disadvantaged children, the extent of unmet need for services for identification, management and treatment, and each HBL's impact on learning. Screening and management for each of these should be essential to supporting school and learning readiness. This report offers parents, practitioners and policymakers in the healthcare, education and children's services sectors recommendations to strengthen and integrate the safety net for children. A summary follows. For a detailed review, please refer to the full report.

1. UNCONTROLLED ASTHMA

Nationally, almost 1 in 10 children have asthma. However, rates are significantly higher among children living in poverty and disproportionately affect black children (13%) and Puerto Rican children (24%). Studies in low-income communities find rates close to 30%.

Children with well controlled asthma can live normal, active lives, but the consequences of poorly controlled asthma are Emergency Department visits, hospitalizations, missed school, disrupted sleep, asthma attacks, and frequent use of medications for quick relief. Nationally, children with asthma miss 13.8 million days of school. Studies find that children commonly experience asthma symptoms at night, which disturbs sleep and causes tiredness during the day. Studies have also found a link between uncontrolled asthma and poor school performance in children with severe and persistent asthma and in children from low-income families.

2. UNCORRECTED VISION PROBLEMS

Vision problems that affect children include myopia (inability to see distant objects), hyperopia (inability to see near objects), astigmatism (blurry vision at all distances), amblyopia (blurry vision caused by abnormal development of the connections between the brain and eye during early childhood), and strabismus (misalignment of the eyes).

In some underserved communities, 22% to 30% of children fail vision screening. Nationally, only 67% of children had their vision tested according to the timeframe set out by clinical guidelines and about 18% of 12 to 17 year olds have impaired vision due to uncorrected refractive error. Uncorrected vision problems and low rates of timely vision screening are disproportionately high among children from poor families, black children, Hispanic children, uninsured children, and children on public insurance.

About 80% of learning occurs through visual tasks such as reading, writing and using computers. Studies find that uncorrected vision problems impede a child's ability to read. They conclude that severe uncorrected hyperopia impedes reading performance, providing glasses to correct myopia improves school performance, uncorrected astigmatism results in a slow reading rate, and amblyopia adversely affects reading and the motor skills needed in practical, daily tasks.

3. UNADDRESSED HEARING PROBLEMS

Hearing loss can be permanent, fluctuating, or a combination of both and can affect one or both ears. Some children are born with hearing loss while others develop hearing loss later in childhood. Recurrent ear infections and high frequencies such as loud music from headphones can also impair hearing.

Between 1 and 6 out of every 1,000 babies born in the US each year have some degree of permanent hearing loss. In recent years, 95% of newborns receive hearing screening; however, poor children are disproportionately lost to follow-up, and newborn screening will miss children who develop hearing loss later. Thus, an estimated 9 to 10 children out of every 1000 will have permanent hearing loss by school age. Clinical guidelines recommend hearing screening during the school years; however, the consistency and enforcement of screening vary across states.

Hearing loss can impact a child's educational trajectory. In a typical classroom, often noisy with poor acoustics, even minimal or fluctuating hearing loss interferes with a child's ability to understand speech. Hearing loss, even in one ear, can significantly increase the likelihood a child will require special support or repeat a grade. Minimal hearing loss places children at over 4 times the risk of speech and language deficits compared with their peers who have normal hearing, and children with hearing loss are at higher risk of social emotional issues and behavior problems. For children in poverty, hearing loss is more likely to remain undetected or be identified late.

4. DENTAL PAIN

Dental caries, commonly known as dental cavities or dental decay, are bacterial infections that destroy the tooth's enamel and the underlying layer of dentin. If the cavities are not treated, they will continue to grow, leading to pain and infection, which in turn can result in problems with eating, speaking and learning, and other health effects. In rare instances, the spread of bacteria can lead to serious and even fatal systemic infections.

Caries are common, experienced by about 1 in 4 of 2 to 5 year olds (23%), and more than half of 6 to 8 year olds (56%). Many children go without treatment; nationally, about 22% of children aged 6 to 9 have untreated caries, with rates particularly high in black children (32%), Mexican American children (29%) and children living in poverty (27%). Clinical guidelines state that a child should see a dentist every 6 months for evaluation, treatment, and to receive dental sealants and fluoride for preventing and controlling tooth decay. However, national data show that just 44% of children received dental services and only 14% received recommended preventive care (topical fluoride, sealants) in the past year.

The impact of untreated caries goes far beyond oral health. Children with untreated caries and associated toothaches have trouble sleeping and eating, increased school absences, difficulty paying attention in school, difficulty keeping up with peers academically and completing homework, and lower standardized test scores. Moreover, they are more likely to report feeling worthless, shy, and unhappy and are less likely to appear friendly.

5. PERSISTENT HUNGER

Families experience food insecurity when they are unable to acquire enough food for one or more members due to lack of money and other resources. Food insecurity can lead to persistent hunger, and may cause families to choose quantity over quality, leading to nutritional deficiencies such as iron deficiency. Also, the stress and anxiety that families experience may negatively affect children's well-being.

Nationally, children in 3 million households experience food insecurity (i.e. about 8% of households with children). Of these, an estimated 274,000 households experience food insecurity so severe that children were hungry, skipped a meal, or did not eat for a whole day or more. Rates of food insecurity in households with children are even higher in households that are single female-headed (15%), black (11%), Hispanic (12%), and poor (21%).

Food insecurity and hunger can cause behavioral and cognitive impairments in children. Food insecurity negatively affects the emotional state, interactive abilities and social skills of the child. Research on the impact of hunger and food insecurity on academic performance is mixed. Studies find that food insecurity is linked to lower levels of school engagement and a greater risk of being placed in special education. Studies on reading and math scores reach different conclusions, with some studies finding links to performance.

6. CERTAIN MENTAL HEALTH AND BEHAVIORAL PROBLEMS

Childhood mental disorders are serious changes in the ways children typically learn, behave, or manage their emotions. Externalizing disorders manifest in a child's outward behavior and include ADHD (characterized by levels of inattention, hyperactivity, impulsivity, or a combination of these, that are inappropriate for child's stage of development and impair their ability to function), Oppositional Defiant Disorder (persistent pattern of developmentally inappropriate, negative, aggressive, and defiant behavior) and Conduct Disorder (behaviors that consistently ignore the basic rights of others and violate social norms and rules). Internalizing disorders, such as anxiety and depression, affect the child's internal psychological environment more than the external world.

Attention-Deficit/Hyperactivity Disorder (ADHD) is the most common mental health problem in children, with about 10% of school-aged children diagnosed at some point in their lives. Other issues include behavioral problems (4%), anxiety (5%), and depression (4%). Prevalence varies by race and ethnicity groups, with ADHD being most commonly diagnosed in black (11%) and white children (12%), compared with Hispanic children (6%). Behavioral disorders are most commonly diagnosed in black children (6%), compared with white children and Hispanic children (about 4% each). An important caveat to these prevalence estimates is concern about the inaccuracy in the diagnosis of mental health problems due to racial bias. The impact of childhood mental disorders on vulnerable children is magnified by poor access to services; children who are from poor families, uninsured or whose parents have low levels of education tend to have less access to the mental health care they need.

Several studies conclude that externalizing disorders are strongly associated with failure to graduate from high school. In particular, studies find that ADHD negatively impacts learning, and is associated with grade retention, suspensions, placement in special education, failure to complete high school, and low reading and math test scores.

7. EFFECTS OF LEAD EXPOSURE

For most children in the US, the main source of exposure to lead is deteriorating lead-based paint in older, poorly maintained homes. However, other sources include imported products contaminated with lead and remnants from its previous use as an additive in gasoline and plumbing. Children are more vulnerable to lead poisoning than adults, and even low lead exposure levels can affect a child's mental and physical growth and ability to thrive.

Given that no safe blood lead level has been identified, the primary health strategy is to prevent exposures before they occur. However, nationwide, an estimated 1.1 million low-income homes with children under the age of 6 still contain lead-based paint hazards. Higher mean blood lead levels are found in children living in homes built before 1978, and particularly in those who are also living in poverty.

Lead exposure has persistent, adverse effects on learning, notably on IQ, academic performance, and behavior. Increases in blood lead levels are associated with corresponding decreases in IQ and are associated with decreased academic scores in kindergarten and elementary school. Finally, lead exposure is linked to behavioral problems in children, including ADHD as well as destructive and aggressive behaviors.

CONCLUSIONS & RECOMMENDATIONS

The prevalence of Health Barriers to Learning is higher in children of color or in poverty, and these same children bear more burden of disease—in part due to their poor access to healthcare services. To empower at-risk communities and to keep children healthy and ready to learn, the healthcare and education sectors, parents, and other community agencies need to work together to create an integrated safety net. Children’s Health Fund makes the following recommendations to increase the identification, management, and treatment of HBLs for all children, with a focus on those living in poverty.



Healthcare Sector

All children should have an affordable, accessible medical home. Clinicians should:

- Prioritize annual, age-appropriate, systematic screening and management of the Health Barriers to Learning;
- Ensure effective communication of the results, importance to educational success, and relevant management considerations to schools and parents; and
- Promote the utilization of tools and inter-agency, cross-sector communication systems to consistently identify and track HBLs.

Education Sector

Schools should be supported as points of influence and access for annual screening and referral for Health Barriers to Learning, to ensure children who haven’t been engaged with a medical home are screened and connected to health care. School systems/educational professionals should:

- Ensure teachers and other school personnel receive adequate training on the importance of Health Barriers to Learning and relevant school/classroom support to mitigate any potential effects on children’s educational success; and
- Require annual screening for age-appropriate Health Barriers to Learning, either onsite, or in collaboration with children’s primary care providers.

Family Service Agencies and Organizations

Children with documentable HBLs may need medical attention, health services, and social services that are relevant to their status and critical to meet their needs and coordinate care and intervention. Court and family service agencies should:

- Receive appropriate training on the relevance of HBLs to children in their care; and
- Ensure HBLs are appropriately addressed in their decision-making and care plans.

Parents and Caretakers

Public awareness campaigns and aligned messaging from the medical and educational sectors are ways to engage and empower parents to become informed advocates for their children. Parents should:

- Proactively request screening of their children for HBLs; and
- Ensure communication between their child's clinical team and school on any HBLs.

Policymakers

Resources and systems need to be in place to support services for screening, treatment, and mitigation of HBLs. Policymakers should:

- Ensure coverage of services such as case management and health education in the clinical environment.
- Make provisions to cover screening and referral of HBLs in schools and other settings.
- Ensure that as regulatory guidance for states and school districts is developed, the identification and amelioration of HBLs are encouraged and incentivized as a priority within Title I and other categorical funding streams in federal education legislation.