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Health barriers to learning and the education opportunity gap

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Education is a critical pathway by which children can rise out of the cycle of poverty. Billions of dollars are invested annually in America's public schools and considerable improvement has been made in academic achievement and educational attainment. However, certain school-aged cohorts — entire communities of youth — have been left behind. An under-appreciated fact is that these same youth are disproportionately affected by a constellation of health problems that subvert their motivation and impair their ability to learn.

Scientists and stakeholders agree that students must be healthy to be ready to learn.¹ If a child needs but doesn't have eyeglasses, can't sleep because of poorly controlled asthma, feels unsafe at school, is hungry or cannot focus attention, motivation and ability to learn are greatly limited. In communities with high rates of poverty, these conditions are endemic.

Evidence from fields ranging from molecular biology and neuroscience to child development and epidemiology demonstrates that specific health problems influence motivation and ability to learn, and have powerful effects on academic performance and upward social mobility.

KEY TAKEAWAYS

Health barriers to learning affect millions of American youth, disproportionately affecting low-income and minority youth.

School health is not a panacea for improving academic achievement among America's most vulnerable children, but it is an underutilized and highly promising strategy to help children break out of the cycle of poverty by increasing access to educational opportunity.

The rising healthcare costs that threaten America's economic security, and low levels of fitness and high levels of obesity that threaten America's military readiness, are additional rationales for schools to address health.

As one of the anchor social institutions in our society, schools can play a central role in identifying and addressing many unmet health needs of youth and expedite connection to community health services or school-based clinics. Some states, districts and individual schools have begun to implement strategic and evidence-based school health policies and practices that increase the odds for successful teaching and learning. But the prevalence of preventable health barriers to learning remains high.

A brief history of school health in America

Horace Mann, America's father of public education, recognized health as a prerequisite to the cultivation of intellect.² As early as 1850, the Shattuck report described how school-based programs could prevent disease and promote health.³ By the early 20th century, some cities and states began compulsory screening in schools for both communicable diseases and vision.⁴ School nurses were employed to reduce contagious diseases and refer students with more complex problems. In 1911, the National Education Association and the American Medical Association formed the Joint Committee on Health Problems.⁵ Most states enacted laws requiring health and physical education,⁶ and a variety of health services were provided directly in schools.⁷

The mid-20th century saw referral replace direct diagnosis and treatment.⁸ The National School Lunch Program was established in 1946,⁹ and approximately 30 years later the National School Breakfast Program became a permanent part of the nation's "safety net" initiative.¹⁰ The late 20th century saw a decline in communicable diseases and a rise in chronic conditions. Great Society Program legislation in the 1960s and 1970s included Head Start, the Community Health Center Program and Title I of the Elementary and Secondary Education Act, which tripled the number of school nurses.¹¹ The new profession of school nurse practitioner was introduced.¹² By the 1990s, school health education programs addressed alcohol, tobacco and drug use, HIV infection, and violence, and school-based clinics began to proliferate.

In the late 1980s the U.S. Centers for Disease Control and Prevention (CDC) created the Division of Adolescent and School Health (DASH), substantially increasing funding, resources and technical assistance for state education agencies to implement school health programs. In the 1990s, the CDC established three ongoing surveillance systems. The Youth Risk Behavior Surveillance System (YRBS) tracks behaviors that contribute to health, injury and disease. The School Health Policies and Practices Study and School Health Profiles track school health policies and practices.

Three pieces of 21st century legislation had substantive effects on school health. The Physical Education for Progress Act (PEP) of 2000 provided federal grants to initiate, expand or improve physical education programs. The No Child Left Behind Act of 2001 emphasized foundational academics and de-emphasized health and physical education. With bipartisan support, the Healthy Hunger-Free Kids Act of 2010 made significant changes to school health requirements, including updating for the first time in 15 years the nutrition guidelines for school foods and beverages served in the National School Lunch and School Breakfast Programs, requiring the USDA to develop nutrition standards for foods and beverages outside of school meal programs, expanding afterschool meals and strengthening school wellness policy requirements.¹³

Advances in the neuroscience of brain development, demonstrating lifelong consequences of children's early learning experience,¹⁴ have led to expansion of high-quality preschool programs and also influenced general pediatric health care around screening and guidance for school readiness.¹⁵ The Bright Futures guidelines, first published in 1994 by the federal Bureau of Maternal and Child Health and American Academy of Pediatrics, contains evidence-based health, development and psychosocial clinical screening guidelines for children which have become the standard of care for pediatricians.^{16,17} However, almost nine million children did not see a health care provider for preventive medical care in the past 12 months, and thus do not benefit from these screenings.¹⁸

In 2013, Children's Health Fund began implementing Healthy and Ready to Learn, a collaborative initiative involving school administrators, teachers, parents, mental health providers, community health care providers, and school-based health coordinators specifically focused on identifying and addressing health barriers to learning in Title I schools.¹⁹ Concurrently, the CDC has supported the Association for Supervision and Curriculum Development to disseminate and implement Whole School, Whole Community, Whole Child as a model incorporating student health.²⁰

Why is school health important for school reform?

Now more than ever, educational policymakers are under pressure to improve academic achievement and reduce achievement disparities. Addressing health barriers to learning is necessary for effective and efficient school reform.

American law guarantees all children a sound basic education. The 19 percent of all public high school students who don't graduate on time²¹ are much more likely to have health barriers to learning. These youth are less likely to find employment and more likely to have a lower quality of life with respect to housing, health care, food and a safe environment. Not graduating on time from high school is more common among blacks (32 percent) and Hispanics (24 percent).²²

Evidence from fields ranging from molecular biology and neuroscience to child development and epidemiology demonstrates that specific health problems influence motivation and ability to learn, and have powerful effects on academic performance and upward social mobility. Health barriers to learning jeopardize other investments in school reform.

Despite the interest of current and past presidents, governmental agencies, non-governmental organizations, private and corporate foundations, product developers and service providers, health barriers to learning continue to plague tens of millions of American youth. Implementation of evidence-based standards, provision of incentives, creation of connections between the health and school sectors and adoption of accountability metrics are needed, especially for students in Title I schools.

The rising healthcare costs that threaten America's economic security,²³ and low levels of fitness and high levels of obesity that threaten America's military readiness,²⁴ are additional rationales for states to address student health. Schools are positioned to assist in part because key resources and structures such as health clinics, nurse staff, health instruction, food services and physical education programs are already in place inside the walls of many schools, and in these cases, the implementation of healthy interventions simply requires modifications to practices and structures already in place. More than any other public institution, schools are in frequent contact with students, and have some influence over their health and health behaviors.

Key trends

Employment in the 21st century. Advances in technology have resulted in the elimination of millions of jobs. In the future, more jobs will require high levels of literacy, numeracy and technological skill. "Non-cognitive" skills such as tenacity, effective communication and regulating responses to emotion are also important.^{25, 26}

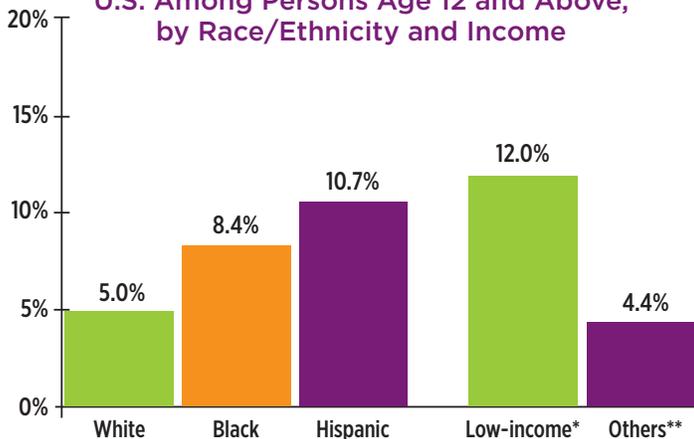
Scientific discoveries linking health and education. Research clearly demonstrates the prevalence and impact of specific health problems. Causal pathways through which children's ability to succeed in school is undermined²⁸ include sensory perception (vision, hearing), cognition (memory, focusing attention, solving problems), school connectedness (extent to which students feel peers and adults care about them), absenteeism and dropout. Since multiple health problems affect each pathway, effective programs must focus on multiple health barriers to learning.

Poverty, health and educational disparities. Youth under 18 comprise 23 percent of the U.S. population but 33 percent of people living in poverty.²⁹ Compared with whites, black and Hispanic children are more likely to live in poverty and in low-income families,³⁰ and the proportion of adolescents living in poor and near-poor families has increased from 35 percent in 2007 to 41 percent in 2013.³¹ For the first time in American history, nearly half (48 percent) of youth — primarily black and Hispanic — attending public schools live in poverty or low-income families.³² This same population of youth is less likely to read at grade level by fourth grade,³³ to graduate from high school,³⁴ to attend and graduate from college³⁵ and much more likely to perpetuate intergenerational poverty. Health barriers to learning affect a substantial proportion of American youth, disproportionately affecting low-income and minority youth.

High Prevalence of Health Barriers²⁷

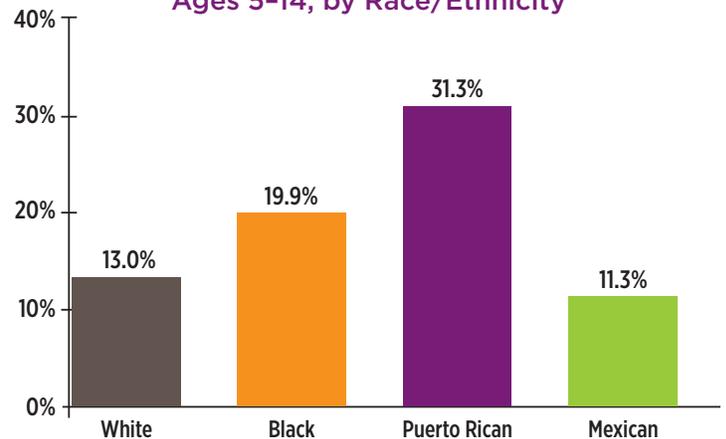
- ◆ Visual problems: 20% of low-income youth.
- ◆ Asthma: 13% of youth under 18.
- ◆ Teen pregnancy: 6% of 15- to 19-year-olds annually.
- ◆ Violence: 20% bullied at high school annually.
- ◆ Physical activity: 2 in 3 don't get enough.
- ◆ Breakfast: 14% of high school students skip it everyday.
- ◆ ADHD: 12.2% of 12- to 17-year-olds diagnosed.
- ◆ Untreated dental caries: 23% of 2- to 11-year-olds.

Rates of Uncorrected Visual Impairment in U.S. Among Persons Age 12 and Above, by Race/Ethnicity and Income



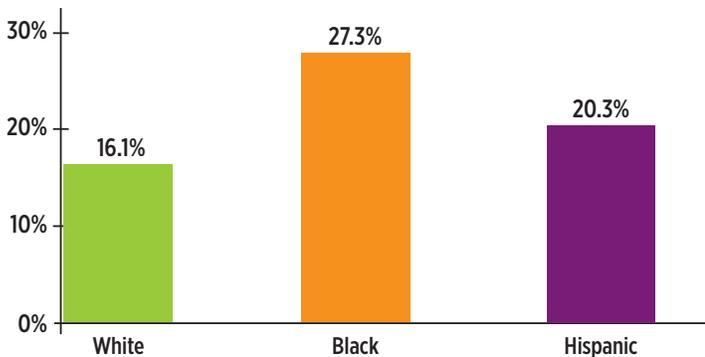
*Income below poverty level; **Income >2X poverty level
Source: NHANES 1999-2002

Lifetime Asthma Prevalence for Youth in U.S., Ages 5-14, by Race/Ethnicity



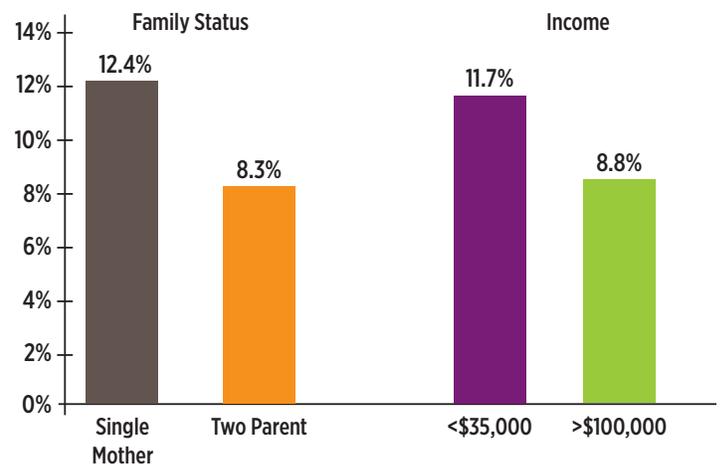
Source: 2013 National Health Interview Survey (NHIS) Data

Percentage of Female High School Students in U.S. Who Did Not Participate in Physical Activity,* by Race/Ethnicity



* Did not participate in 60 or more minutes of any kind of physical activity that increased their heart rate and made them breathe hard some of the time on at least 1 day during the 7 days before the survey
Source: CDC, National Youth Risk Behavior Survey, 2013

Prevalence of ADHD Among 3- to 17-Year-Olds in U.S. by Family Status and Income



Source: 2012 National Health Interview Survey (NHIS) Data

Expanding activities and resources for school health. Every state and large city’s education and health departments engage in some aspects of school health. Many federal agencies provide school health funding or services (e.g., CDC, U.S. Department of Agriculture, U.S. Environmental Protection Agency), as do hundreds of non-governmental organizations, professional associations, and private and corporate foundations. In most cases, resources focus on a particular health issue. The U.S. Department of Education invests comparatively few resources for school health.

Current status of school health policies and programs. In many schools and districts, wellness committees have been instrumental in improving school health policies and programs.³⁶ Participation in the nation’s School Breakfast Program has increased.³⁷ And, while bullying and other forms of aggression and violence continue to be pervasive in high schools, social-emotional learning programs are becoming more prevalent. On the downside, physical education and physical activity programs have often been undercut by pressure to devote more time to instruction. This is despite compelling evidence that time devoted for physical activity fosters learning and improves statewide tests scores.³⁸ Vision screening is ubiquitous in elementary schools, but with limited frequency and follow up. School-based health centers, while expanding, are still present in only a small portion of schools. School nurses are present in many schools, but often responsible for multiple sites and with a student-to-nurse ratio greater than the 750:1 recommended.³⁹ Mental health services are generally inadequate.⁴⁰

Chronic absenteeism. There is increasing awareness that “chronic absenteeism” (missing more than 10 percent of school days per year) is associated with lower academic performance. Many factors contribute to chronic absenteeism, especially in impoverished communities, but unaddressed health and behavioral health issues play a role. Improved tracking and understanding of chronic absenteeism and interventions that improve attendance are warranted.⁴¹

Accountability and metrics are lacking. Accountability for school health is limited, though a large amount of data is often collected.⁴² The Chicago Public Schools, for one, have integrated health metrics into their accountability structure, requiring health goals in annual school improvement plans and including a “health grade” on each school’s report card.⁴³ The Healthy Schools Campaign has advocated for inclusion of health criteria as part of the school evaluation process.⁴⁴ However, there is no national standard for the existence, timing or content of required student physical exam forms. Furthermore, data about children’s health and educational lives are typically stored in separate silos, with no mechanism for linking the two. The concept of early warning systems for identification and early intervention with children showing difficulties with course performance, attendance or behavior is not new,⁴⁵ but none could be identified that included a strategic set of health barriers to learning. Despite attendance being a strong predictor of school success, most school leaders cannot identify why students are absent. The three CDC surveillance systems mentioned earlier do allow comparisons across states, but are not intended for tracking progress or as accountability metrics at the school or school district level.

Political momentum for school health. The increasing number of school-age youth who are poor results in greater demands on teachers and school support staff. While the provision of primary health care through or connected with schools has increased in the past 20 years, it represents only a small portion of health care for youth.⁴⁶ States can play an influential role in streamlining funding for health care services in schools, school-linked services and school-based case management to connect children to appropriate community medical providers. However, the current reimbursement structure does not encourage these services.⁴⁷

Legislation to increase equal access to educational opportunity has been on the rise. Supplemental investments in schools with the lowest levels of performance on national assessments and the lowest local property tax base can help equalize opportunities for learning. Litigation to assure equal access to educational opportunity has been brought in almost every state⁴⁸ and can be an effective way to garner the necessary resources for addressing health barriers to learning in the nation’s Title I schools.

What do policymakers need to know? Next steps

Though shaped by federal funding, guidance, and performance benchmarks, the setting of goals and strategies to attain them is necessarily driven by local decision making. The nature and extent of health needs, the resources available to address them, and the level of commitment and involvement by educators and other stakeholders will vary. Schools alone cannot close the gaps in education or eliminate health disparities. Families, communities, health care systems, legislators and the media each have essential roles. There is a growing unanimity of support for program models that encourage transcendence beyond rigid health and education sectors to accommodate models that are student-centric. A noteworthy aspect of this trend is a robust commitment to parent engagement as a critical component of strategic collaboration efforts.

There are already many evidence-based approaches with which local communities can address their priorities and shape policies and programs. Mission-focused, leadership-driven incentives, standards and accountability are critically important. Sound policy can support school health in many ways: incorporating health goals in school improvement plans; establishing school health committees; professional development for teachers and staff; high-quality social-emotional curricula; screening and follow up to identify and address health barriers to learning; direct provision of physical and mental health services; referral and follow up for students with unmet health care needs; daily opportunities for physical activity; universal breakfast programs designed to increase participation; and efforts to create a safe and supportive school climate. The role of the school need not include comprehensive provision of health care. Enhanced coordination and deep partnerships with community-based providers and resources can accomplish many of the same ends.

If created, national minimum standards would provide an incentive for schools to have proof of screening, identification and management of health barriers to learning for their students — whether done in the school or by community providers.

Professional preparation programs have largely been inattentive to school health issues. Changes to accreditation policies may be the most expeditious way to prepare school personnel to take a role in reducing health barriers to learning.

Establish priorities strategically. Criteria for establishing priorities include: prevalence of health problems; evidence of causal effects on educational outcomes; and feasibility of implementing proven or promising school-based programs and policies to address those health problems. Nationally, eight health barriers to learning warrant consideration as strategic priorities: (1) vision problems, (2) asthma, (3) teen pregnancy, (4) aggression and violence, (5) lack of physical activity, (6) hunger, or lack of breakfast, (7) inattention and hyperactivity, and (8) dental problems. Mental and emotional/behavioral health and severe social stress should be addressed thematically since they are causes or consequences of each health issue. Other health problems affecting youth are also important, and the particular problems deemed most important in a given school or school district will vary.

Use evidence-based approaches. There are proven or promising approaches to addressing each health barrier listed above. The approaches differ with respect to level of time, resources and commitment required for implementation. Policymakers can consult existing registries of evidence-based programs, existing standards and guidelines, as well as toolkits and associated resources to identify them.⁴⁹

Invest resources for effective coordination. While different sectors provide funding (e.g., agriculture, education, justice), each tending to address individual health priorities, school-wide efforts should be conceptualized within the context of a larger school health mission. Effective coordination implies that all school health policies, programs and services be collectively aimed at addressing a set of priorities, with the goal of helping youth succeed in school. It is unrealistic to expect this kind of coordination to occur without investment for dedicated personnel. Tennessee is, at this time, the only state investing in a school health coordinator in every school district; the investment has resulted in improved programming and more than \$140 million in grant funds to its schools.

Final thought

Effective teachers and support staff, rigorous curriculum and high standards assessed with authentic, reliable and valid measures are essential to improved learning. But students must also be motivated and able to learn. School health is not a panacea for improving academic achievement among America's most vulnerable children, but it is an underutilized and highly promising strategy to help children break out of the cycle of poverty. By addressing the significant and crippling impact of health barriers to learning, millions of children will be better prepared, more competitive and able to successfully partake of the opportunities afforded by a 21st century economy.

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- 45 Ruth Curran Neild, Robert Balfanz and Liza Herzog, "An Early Warning System," *Educational Leadership*, vol. 65, no. 2 (2007), 28-33.
- 46 According to the National School-Based Health Alliance, which conducts a census of school-based health centers, there are 1,930 centers and programs connected with schools nationwide, http://www.sbh4all.org/wp-content/uploads/2015/02/CensusReport_2010-11CensusReport_7.13.pdf (accessed July 2015).
- 47 Campaign for Educational Equity at Teachers College, *Supporting Learning through Better Health: A Strategy to Ensure Adequate and Stable Funding for School-Based Health Centers in New York State*, (New York: Columbia University, 2015), http://equitycampaign.org/i/a/document/35754_SBHC.pdf (accessed July 2015).
- 48 For state-by-state developments in education finance litigation, see National Education Access Network (based at Teachers College, Columbia University) website: http://www.schoolfunding.info/states/state_by_state.php3 (accessed July 2015).
- 49 Examples of resources are:
- a) Division of Adolescent and School Health at the Centers for Disease Control and Prevention:
 - 1) <http://www.cdc.gov/healthyyouth/sher/standards>.
 - 2) <http://www.cdc.gov/healthyyouth>.
 - 3) <http://www.cdc.gov/healthyyouth/CSHP>.
 - b) Association for Supervision and Curriculum Department's (ASCD) Whole School Whole Child Model: <http://www.ascd.org/programs/learning-and-health/wsc-model.aspx>.
 - c) "Health, Mental Health and Safety Guidelines for Schools" developed by more than 300 health, education and safety professionals from more than 30 different national organizations as well as by parents and other supporters: www.nationalguidelines.org.

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