

Crisis in the Classroom



How Untreated Medical Problems Are Seen to Interfere With School Performance

A Survey of New York City Public School Leadership

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Children's Health Fund

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Executive Summary

As America focuses on improving educational outcomes, particularly for low-income children who lag in measures of academic performance, Children's Health Fund is exploring the presence and impact of "health-related barriers to learning" that may impede a child's performance in school.

While it might seem intuitive that a child who is free of health problems will be more likely to perform optimally in school, research has only recently begun to describe the relationship between health status and educational achievement.

To underscore the degree to which specific health concerns interfere with learning, Children's Health Fund (CHF) partnered with the New York City Council of School Supervisors & Administrators (CSA) to survey the principals and assistant principals at the 1,700 public elementary, middle, and high schools in NYC. The first of its kind in New York City, this survey fielded in May, 2013, revealed that school leaders perceive many health issues, including traditional medical problems, mental health/behavioral issues, and nutrition/fitness deficits as interfering with student learning.

The data analysis of survey responses focused on elementary and middle schools, because they represented the majority of respondents, and health issues in high schools differ from those in the earlier grades in several important respects. The analysis also compares perceived health challenges at lower poverty and higher poverty schools. Recognizing that New York City demographics align with the poverty demographics of many American cities, the findings can therefore be a valuable preliminary barometer for the presence and impact of health barriers to learning among urban students across the country.

The health issues identified by school leaders fall broadly into three categories: traditional medical issues such as asthma, contagious illness, and vision/hearing deficits; mental health/behavioral issues ranging from learning disability to substance abuse; and nutrition/fitness conditions and the obesity epidemic. While these categories can be fluid and overlapping, they provide a useful construct for understanding the health barriers that school leaders are seeing in their student population.

Among traditional medical issues, asthma was the primary concern, with 63% of school leaders identifying it as a moderate or serious barrier to learning for children with asthma. That finding is starker when comparing higher poverty schools (67%) and lower poverty schools (47%), representing a 20% differential in perceived impact. Vision problems were also a high concern for school leaders overall, and they were seen as interfering with students' learning to a more significant degree in higher poverty schools (60%) than lower (42%). Hearing problems and dental pain also registered as health-related barriers to learning with significant differences between higher and lower poverty schools. A number of issues that are closely related to medical status, including fatigue and hunger, were also frequently cited by school leaders. And in higher poverty schools 50% of principals were concerned that students' difficulties accessing health care interfered with the ability to learn to their full potential, compared with 26% in lower poverty schools.



Medical Conditions

Percent reporting as a barrier to learning

	All	Higher Poverty	Lower Poverty
MEDICAL CONDITIONS			
Asthma	63%	67%	47%
Vision problems	57%	60%	42%
Contagious illnesses	40%	39%	44%
Hearing problems	28%	31%	20%
Diabetes	18%	20%	11%
Non-food allergies	18%	19%	15%
Food allergies	18%	18%	16%
Dental pain	17%	20%	7%
CONDITIONS RELATED TO MEDICAL STATUS			
Fatigue/falling asleep in class*	56%	62%	35%
Hunger	53%	59%	29%
Problems getting health care	45%	50%	26%

*May be indicator of unmanaged asthma or other medical condition

Red – 20% or more differential between higher and lower poverty schools

Blue indicates a differential between higher and lower poverty schools of 10-19%

Black indicates a percentage differential of 9% or lower

School leaders also recognized the impact of numerous mental health and behavioral issues in the classroom, ranging from learning disabilities to bullying and eating disorders. Depression, anxiety and stress were cited as a moderate or severe health barrier to learning by 63% of elementary and middle school leaders overall; levels reported in higher poverty schools were 10% higher than in lower poverty ones

Mental Health and Behavioral Conditions

Percent reporting as a barrier to learning

	All	Higher Poverty	Lower Poverty
Learning disability	87%	88%	81%
Disruptive behaviors	86%	88%	76%
Depression, anxiety, stress	63%	65%	55%
Bullying	48%	50%	39%
Self-injurious behaviors	28%	30%	24%
Substance abuse	23%	24%	20%
Eating disorders	18%	20%	10%
Pregnancy	12%	14%	6%

Red – 20% or more differential between higher and lower poverty schools

Blue indicates a differential between higher and lower poverty schools of 10-19%

Black indicates a percentage differential of 9% or lower



Poor nutrition, lack of exercise and the consequences of obesity or overweight were also perceived by school leaders as health barriers to learning, and with notable differences between higher poverty and lower poverty schools.

Diet- and Exercise-Related Conditions

Percent reporting as a barrier to learning

	All	Higher Poverty	Lower Poverty
Poor diet	55%	60%	38%
Lack of exercise/physical activity	41%	44%	28%
Obesity or overweight students	36%	38%	27%

Red – 20% or more differential between higher and lower poverty schools

Blue indicates a differential between higher and lower poverty schools of 10-19%

Black indicates a percentage differential of 9% or lower

The survey also asked school leaders what resources could help them to better address health issues at school. While 98% reported that their school had a full-time school nurse, more than 60% indicated that they needed more linkages for services from outside organizations, staff training, and resources to promote family involvement. In higher poverty schools, 38% said they needed help following up with children who failed vision screening. Nearly two-thirds of school leaders reported that no mental health services were available at their school.

While much more research needs to be done to illuminate the scale and impact of health barriers to learning, the results of this seminal survey demonstrate strong concern among school leadership that unmet health care needs are interfering with student learning. These results also strongly suggest that this is an important opportunity for cross-sector collaboration. Increasing collaboration between the health and education communities and the engagement and empowerment of parents can help ensure that children are given every opportunity to meet their full potential. Many of the medical problems identified by survey respondents are readily identifiable and treatable. A first step is to increase and improve comprehensive screening for medical, mental health and behavioral conditions in diverse settings including clinical pediatric care and schools. This should be a national priority, especially directed toward the most economically disadvantaged children.

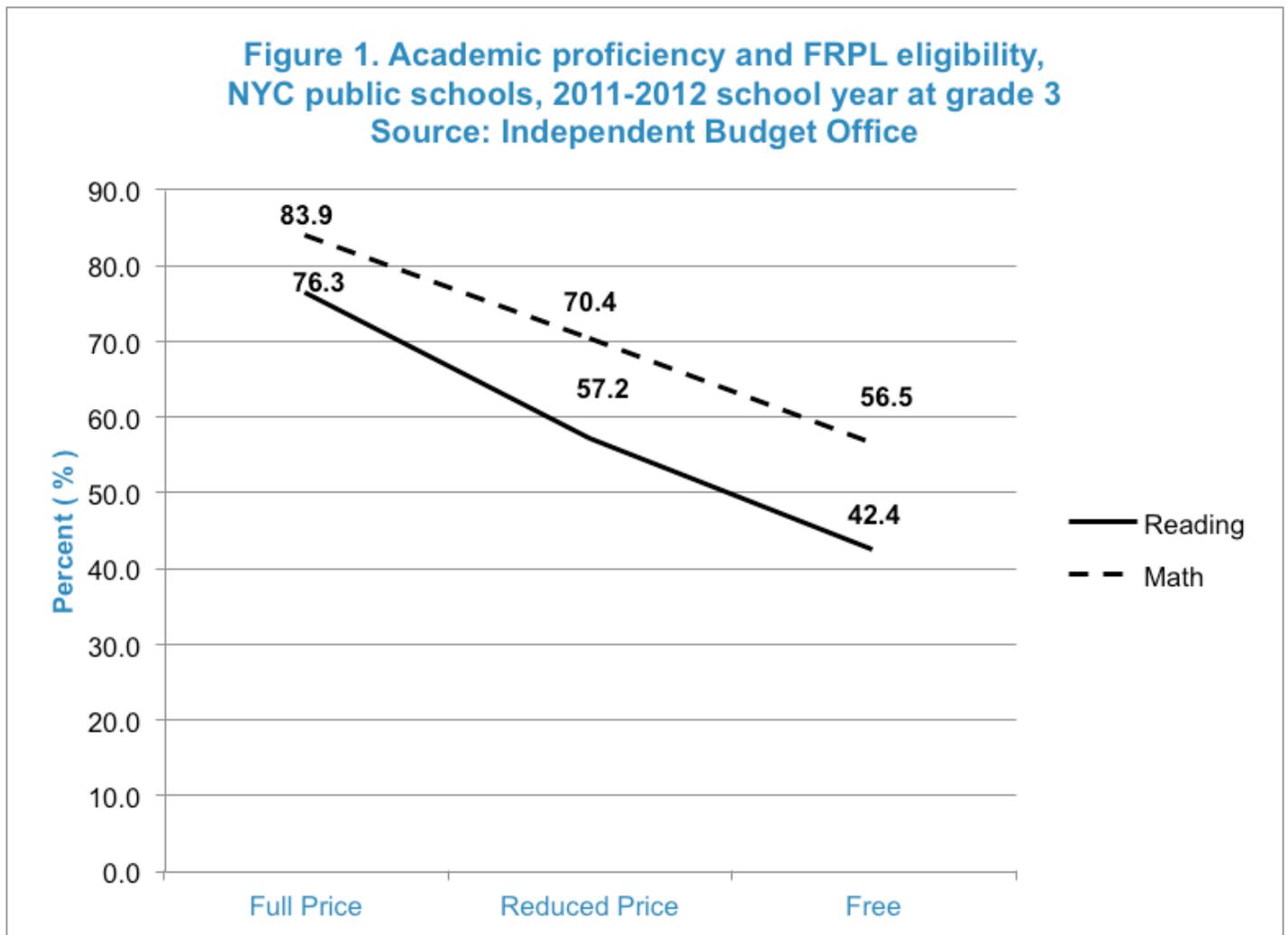


Introduction

Children who grow up in low-income families and neighborhoods are at increased risk for health-related problems. Compared to their more affluent counterparts, children raised with limited financial and other resources experience higher rates of acute and chronic health conditions. This includes significantly higher rates of moderate or severe asthma, vision and hearing problems, attention deficit disorder, and behavioral problems. Exacerbating the problem, these children frequently face barriers in simply getting to a doctor or other provider, and such health care access issues are associated with worse health outcomes [1].

Children in low socioeconomic circumstances also experience stark educational disparities. Children in high-poverty communities perform worse in school academically and behaviorally, and are more likely to drop out of high school than children growing up in more affluent areas [2]. In New York City, for example, there is a steep decline in the percentage of elementary school students meeting or exceeding proficiency levels for reading and math based on student poverty status, as indicated by eligibility for United States Department of Agriculture (USDA) subsidized free and reduced price lunch. Children are eligible for USDA “free” lunch if their family income is below 130% of the federal poverty level (FPL); for “reduced” lunch if income is below 185% FPL [3].

Figure 1 below shows the percentage of children meeting proficiency levels on standardized tests relative to the percentage of children in their school who are eligible for free or reduced price lunch (FRPL).



While it might seem intuitive that a child who is free of health problems will be more likely to perform optimally in school, research has only recently begun to describe the relationship between health status and educational achievement. Moreover, this association is most profoundly illustrated by — and most harmfully impacts — low-income children, because they face disparities in both health outcomes and academic performance [4]. There is a growing body of evidence supporting the link between health and educational outcomes [5-7].

With increasing consensus, researchers, health providers, educators, and policymakers are recognizing that unmanaged medical and psychosocial issues are likely to interfere with optimal brain growth (especially in infancy and early childhood), cognitive development, and academic achievement [8]. Most of these “health related barriers” can be effectively prevented, identified, managed, and/or treated when children have access to quality health care services, ensuring that children have the greatest likelihood of fulfilling their potential in school and life.

The NYC School Leadership Survey

In order to get more information about the perspectives of NYC Public School leadership on the degree to which health problems may interfere with student learning, Children’s Health Fund (CHF) partnered with the NYC Council of School Supervisors & Administrators (CSA) to survey the City’s principals and assistant principals. New York City has the largest public school system in the United States with more than one million children enrolled in the City’s non-charter public elementary, middle, and high schools as of December 31, 2012 [9]. As in most large urban school systems, a high proportion of NYC public school students are from low-income families and members of minority racial-ethnic groups [10].

The NYC School Leadership Survey was designed to determine the degree to which leaders in NYC public schools are identifying and challenged by health barriers that affect their students’ learning. The survey format and content were developed by a working group comprised of CHF medical and research professionals working with CSA administrators and members/school leadership representing schools in Manhattan, Brooklyn, the Bronx, and Queens.

The survey included four sections. The first section asked respondents to rate the degree to which 22 health, mental health, and developmental conditions listed were a problem in their school; the second section listed the same conditions but asked respondents to rate the degree to which the issue posed a barrier to learning for affected children; the third section asked respondents to indicate which of 13 potential resources could help them to better address student health issues in school; and the fourth section elicited additional information, including the student body demographics and the extent of on-site health and mental health providers or services. The survey was also designed to explore whether schools that serve a higher proportion of children from poor and low-income families report a greater number and/or impact of health barriers to learning.

In May 2013, CSA invited one administrative representative (principal or assistant principal) from each of the 1,700 public elementary, middle, and high schools in NYC to participate in this survey. CSA also sent multiple email reminders to each principal and assistant principal at intervals shortly before and during the three week active survey period.



Methods

Data analyses focused on these survey items: (1) “Do you consider [health issue] to be a problem in your school?” (2) “For students that have [health issue], do you think this problem impacts their ability to learn?” and (3) “What kinds of resources do you need to address the health problems in your school?” In the analysis, we included only respondents from elementary and middle schools because they represented the majority of respondents (77%) and because health issues in high schools differ from those in the earlier grades in several important respects [11, 12]. We also conducted analyses to determine whether there were differences in responses based on the proportion of students who are from poor and low income families. School poverty characteristics were based on whether the percent of students found to be USDA eligible for free or reduced price lunch (FRPL) was greater or less than the citywide average of 69% [13].

For additional details about the survey and our methodology, see Appendix A.

Results

A total of 821 respondents began the survey. Of these, 626 completed the survey for a response rate of 37%. This is higher than typical for a Survey Monkey survey [14]. Respondents were relatively evenly divided between principals (52%) and assistant principals (48%) representing 340 elementary schools, 121 middle schools, and 161 high schools (with 4 schools unspecified by the respondent) in the New York City public school system. Including only respondents from elementary and middle schools for which FRPL data were available resulted in a final analytic sample of 408 completed surveys on which the following analyses are based.

Health Issues and Health Barriers to Learning

For the 408 respondents in the analytic sample, 18 of the 22 health conditions were considered to be a moderate or serious issue within their school by at least 10% of respondents. All 22 were considered health barriers to learning by more than 10% of respondents. The health conditions for which there was overlap (in terms of highest frequencies of report as a problem in the school and as a barrier to learning) were learning disability; disruptive behavior; asthma; poor diet; depression, anxiety, or stress; problems accessing health care; hunger; and vision problems. These data are summarized in table 1.

Table 1

Health issues and health barriers to learning within NYC public schools as reported by principals and assistant principals

Health Issue	Percent reporting as barrier to learning	Percent reporting as problem in school
Learning disability	87%	75%
Disruptive behaviors (e.g., hyperactivity, attention deficit disorders, oppositional behavior etc.)	86%	74%
Depression, anxiety or stress	63%	39%
Asthma	63%	71%
Vision problems	57%	36%



Table 1 (continued)		
Fatigue / falling asleep in class	56%	26%
Poor diet (e.g., sugary drinks, unhealthy foods etc.)	55%	59%
Hunger (e.g., coming to school without eating breakfast)	53%	37%
Bullying	48%	32%
Problems with getting healthcare (e.g. no insurance, no regular doctor etc.)	45%	38%
Lack of exercise or physical activity	41%	41%
Contagious illnesses (e.g., flu, strep throat, stomach viruses etc.)	40%	32%
Obesity or overweight students	36%	42%
Self-injurious behaviors (e.g., cutting etc.)	28%	13%
Hearing problems	28%	7%
Substance abuse (e.g., drugs, alcohol, tobacco etc.)	23%	9%
Diabetes	18%	10%
Non-food allergies	18%	17%
Food allergies	18%	28%
Eating disorders	18%	8%
Dental pain	17%	11%
Pregnancy	12%	3%

Many of the health issues were reported as problems by significantly more respondents from higher compared to lower poverty schools. These data are summarized in table 2.

Table 2

Health issues as problems by school poverty status

Health Issue	Higher poverty schools		Lower poverty schools	
	percent	number	percent	number
Learning Disability*	78%	246	65%	56
Disruptive behaviors (e.g., hyperactivity, attention deficit disorders, oppositional behavior etc.)*	77%	243	64%	56
Asthma*	75%	238	57%	49
Poor diet (e.g., sugary drinks, unhealthy foods etc.)*	64%	200	42%	36



Table 2 (continued)				
Obesity or overweight students*	47%	148	25%	22
Lack of exercise or physical activity*	45%	144	25%	22
Hunger*	43%	137	15%	13
Problems Accessing Care*	43%	135	21%	18
Depression/Anxiety/Stress*	42%	133	26%	23
Vision problems*	40%	126	20%	17
Bullying*	35%	111	19%	16
Contagious illnesses (e.g., flu, strep throat, stomach viruses etc.)	30%	95	38%	33
Fatigue / falling asleep in class*	28%	90	16%	14
Food allergies*	25%	80	40%	34
Non-food allergies	17%	53	17%	15
Self-injurious behaviors (e.g., cutting etc.)	14%	45	8%	7
Dental pain	13%	40	6%	5
Diabetes	11%	35	6%	5
Substance abuse (e.g., drugs, alcohol, tobacco etc.)*	11%	34	3%	3
Eating disorders*	10%	31	2%	2
Hearing problems	8%	25	3%	3
Pregnancy**	3%	11	0%	0

*Significant difference between lower poverty and higher poverty schools ($p < 0.05$)

** Number of responses too small to test for significant differences

Many of the health issues were also reported as barriers to learning by significantly more respondents from higher poverty schools. These were: disruptive behavior; asthma; fatigue; vision problems; poor diet; hunger; problems accessing care; lack of exercise; and dental pain. These data are summarized in table 3.

Table 3

Health barriers to learning as reported by school poverty status

Health Issue	Higher poverty schools		Lower poverty schools	
	percent	number	percent	number
Learning Disabilities	88%	265	81%	62
Disruptive behaviors (e.g., hyperactivity, attention deficit disorders, oppositional behavior etc.)*	88%	264	76%	62



Table 3 (continued)				
Asthma*	67%	200	47%	36
Depression/Anxiety/Stress	65%	185	55%	41
Fatigue / falling asleep in class*	62%	180	35%	25
Vision problems*	60%	174	42%	30
Poor diet (e.g., sugary drinks, unhealthy foods, etc.)*	60%	174	38%	29
Hunger*	59%	167	29%	21
Problems Accessing Care*	50%	143	26%	19
Bullying	50%	143	39%	30
Lack of exercise or physical activity*	44%	129	28%	21
Contagious illnesses (e.g., flu, strep throat, stomach viruses etc.)	39%	112	44%	33
Obesity or overweight students	38%	112	27%	21
Hearing problems	31%	84	20%	14
Self-injurious behaviors (e.g., cutting)	30%	79	24%	17
Substance abuse (e.g., drugs, alcohol, tobacco etc.)	24%	62	20%	14
Diabetes	20%	55	11%	8
Dental pain*	20%	54	7%	5
Eating disorders	20%	52	10%	7
Non-food allergies	19%	52	15%	11
Food allergies	18%	52	16%	12
Pregnancy	14%	36	6%	4

*Significant difference between <70% FRPL and ≥70% FRPL (p<0.05).

Resources Needed

Nearly all respondents (98%) reported that their school had a nurse who is physically present at the school five days a week. Nonetheless, among all respondents, nearly two-thirds, 64%, identified linkages with organizations that can provide services and resources at the school as a needed resource. Other resources identified by more than half of respondents were services to promote family involvement (63%), consultation to train and assist school staff in managing difficult behavior (62%), and mental health services (62%).

The need for additional mental health service was dramatic. Respondents from only 17% of schools reported that mental health services were available and adequate to meet their schools' needs. Another 19% reported that they had mental health services at their school but that these were not adequate to meet their needs. Nearly two-thirds, 64%, reported that no mental health services were available at their school.



The need for more resources was especially notable in schools that serve a higher proportion of low-income students. Significantly more respondents from higher-poverty schools reported the need for: resources to promote family involvement with the school (66% in higher poverty schools versus 49% in lower poverty schools), mental health services (65% versus 49%), a pediatric clinic in the school (school-based health center; 43% versus 26%), and help following up with children who fail vision screening (38% versus 25%). These results are summarized in table 4 below.

Table 4

Type of resource needed as reported for higher compared to lower poverty schools

Types of resources needed to address the health problems	Higher poverty schools		Lower poverty schools	
	percent	number	percent	number
Links with organizations that can provide services and resources at school	67%	213	57%	50
Resources to promote family involvement*	66%	212	49%	43
Consultation services to train and assist staff in managing difficult behaviors	61%	194	67%	59
Mental health services*	65%	209	49%	43
Training for school staff	51%	162	51%	45
School-based health center*	43%	138	26%	23
Resources to support vision screening or follow-up services*	38%	123	25%	22
Health education for students	33%	104	31%	27
Access to info on whether student has access to health care	26%	83	24%	21
Support with managing asthma in school	25%	79	24%	21
Assistance with obtaining info on students' health problems	25%	81	22%	19
Resources to support hearing screening or follow-up services	20%	63	16%	14
School-based health professionals	15%	47	13%	11

*Significant difference between <70% FRPL and ≥70% FRPL (p<0.05).



Discussion

This survey, the first of its kind in New York City, revealed that school leaders identify many health issues, including traditional medical and mental health/psychosocial problems, as interfering with student learning. It also indicated that the intensity of concern about these barriers—and concern about the additional services needed to address them—is significantly greater among schools that serve more low-income students. Thus, low-income children may be at heightened risk for health challenges that interfere with early development and school success; at the same time, their schools in particular may be least likely to have the resources or capacity to address these health challenges.

Many of the problems identified by survey respondents are readily identifiable and treatable. Vision problems (rated by 57% of respondents as a health barrier to learning), hearing problems (rated by 28% of respondents as a health barrier to learning), and dental pain (rated by 17% of respondents as a health barrier to learning) are all relatively straightforward to identify and treat with comprehensive screening and follow-up in primary pediatric care settings. Many of the other conditions cited as health barriers to learning by the survey respondents are typically manageable, including asthma, contagious diseases, obesity, diabetes, and allergies.

While the conditions perceived as barriers to learning are amenable to prevention, management, or treatment, respondents acknowledge that schools need external support to ensure the right interventions are put in place. While virtually all of the school leaders surveyed indicated they have a full-time nurse on-site, many schools—especially those serving more low-income students—felt this was not sufficient to manage student health care needs during the school day. The most frequently endorsed additional resource for the schools was linkages with health care providers, indicating a deep need and desire to enhance coordination between the education and health sectors.

Research has only recently begun to describe the relationship between health status and educational achievement for children. But educational leaders, this study suggests, are seeing linkages between the two on a daily basis. To help children achieve success in school and in life, it is critical to expand the nation's understanding of how health/education interactions can improve wellbeing—rather than exacerbate persistent disparities. This area of study and action is a task not just for educators, but for researchers, health care providers, policymakers, parents, and society as a whole.

Recommendations

1. Support More Research

This study is limited to school administrators' perceptions of student health problems, and how these problems affect learning. Further research is needed to understand deeper causes, effects, and strategies. Key questions for further exploration include:

Perspectives of Non-Administrators. What are teacher, parent, and health provider perceptions of health-related barriers to learning, and how do they differ from those of school administrators?

Perception vs. Reality. To what extent do perceptions of those who care for children accurately reflect students' actual health and educational status?



Efficacy of School- and Community-Based Intervention. How have on-the-ground health interventions impacted educational outcomes, and what opportunities exist for replication or scale-up?

Impact of Government. How have federal, state, and local investments and policies impacted health-related barriers to learning to date, and what opportunities exist for expanding successful government-led efforts?

2. Develop Health-Related Barriers to Learning Index (HRBLI)

Clarify the health conditions most likely to interfere with development or learning that warrant health providers' extra attention and focus. Health providers should prioritize those pediatric screenings that increase the likelihood of appropriate prevention, management, or treatment to ensure optimal developmental and academic functioning.

3. Create and Incentivize National Standards for School-Entry Health Screening

Create minimum standards for school entry criteria to be used across the country to screen kids for health issues. Beyond immunizations, it is important to certify that the health and medical issues that might affect learning have been screened for and remediated or managed prior to a child entering the learning environment. In addition, screening requirements can be a valuable way to incentivize family engagement with a medical home.

4. Develop Protocols to Ensure That Identified Critical Health Issues are Appropriately Managed

Expand use of school-based health centers, electronic health records and dynamic relationships between primary health care providers and school officials.

Improve information sharing and reduce barriers to appropriate coordination. To improve coordination between the health and education sectors, it is critical to identify perceived challenges around privacy laws in both sectors; compare these challenges to existing legal restrictions and flexibilities; outline appropriate guidelines for information sharing and coordination; and highlight promising health information communication and technology approaches.

5. Raise Awareness Among Relevant Constituencies

Outreach and programming should target, empower, and bring together the following:

Educators – schools should train and equip principals, teachers, school nurses and parents to identify and address the most important health concerns impacting school performance. This includes enabling proper referrals to and coordination with health and other social service providers.

Health Care Providers – pediatric health professionals should emphasize critical screenings and interventions with relevance to development and educational success, collaborate and coordinate with schools and parents, and advocate for improved policies and programs to support children's wellbeing.



Policymakers – federal and state education and health policymakers should learn about and continue collaborating on the health/education linkage, promote promising research and evidence-based interventions, and advance policies that support children’s best possible prospects in school and life.

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Appendix: The NYC School Leadership Survey

Survey Details

The four sets of items in the NYC School Leadership Survey were:

1. Respondents were asked to rate the degree to which each of the 22 listed issues was a problem in their school, using a 4-point Likert scale from “not a problem” to “serious problem” with the opportunity to indicate “don’t know if this is a problem.” For mental health problems, a distinction was made between externalizing symptoms (disruptive behavior and attention deficits) and internalizing symptoms (depression, anxiety, and stress).
2. From the same list of 22 issues as item set 1, respondents were asked to rate the degree to which each posed a barrier to learning for affected children. This question set also used a 4-point Likert scale, ranging from “no impact on learning” to “major impact on learning”, with an option for “not applicable.”
3. Respondents were asked to review a drop-down list of 13 potential resources that could help them to better address student health issues in school and select the top five resources that they thought would be most helpful to them. There was also an open-ended option in which the respondent could specify needed resources that were not included in the list.
4. Respondents were asked for information about their school including the percentage of children identified as United States Department of Agriculture (USDA) eligible for free or reduced price for lunch (FRPL); community school district (indicating the neighborhood served); school population (elementary, middle, or high school); how many days per week a school nurse was on-site; and availability of mental health services at the school. Respondents had the option of identifying their school by its unique Department of Education number (DBN) or keeping their responses anonymous.

There were no incentives for participating or sanctions for not participating in the survey. This study was approved by the Western IRB.



Methods

As is typical for analysis of survey data using a Likert scale, the two responses that endorsed the health issue as a moderate or serious problem in the school or barrier to learning were aggregated as a positive response [a]. Descriptive statistics were used throughout. Analyses focused on frequencies of positive responses, and Pearson Chi Square tests to determine significance of differences based on higher/lower school poverty status with $p < 0.05$ the standard for establishing significant differences. All analyses were completed using SAS V 9.3 statistical software.

To validate 70% FRPL as the cut score to distinguish between higher and lower poverty schools, we conducted sensitivity analyses on the group of respondents with 70% or higher FRPL rates to test whether, statistically speaking, this comprised a homogeneous group. There were no statistically significant differences among the three FRPL groups: 70% to 79%; 80% to 89%; and 90% and above. We referenced the NYC Independent Budget Office report to ascertain the characteristics of students represented in the FRPL percentage and found that a strong majority of these children were categorized as “USDA free” with family incomes at or below 130% of poverty [b]. We therefore considered this analytic method to be sensitive to the representation of children in poverty in the schools. This was further validated with reference to the median household incomes of the communities in which the higher poverty schools were located (ascertained through their reported community school district).

The analytic sample of 408 respondents was characterized as follows: “higher poverty” (320 schools, 78.4% of the analytic sample) versus “lower poverty” (88 schools, 21.5% of the sample). We considered the latter schools to be “lower poverty” rather than “low poverty” because in the analytic sample, only 7% of school officials reported less than 20% FRPL.

Limitations of the Study

Analysis of the characteristics of the schools represented by the respondents revealed a strong over-representation of leadership from higher poverty schools. These principals and assistant principals also reported a significantly higher degree of concern about health issues than did their counterparts from lower poverty schools. This suggests that a motivation to participate in the survey may have been related to the respondents’ degree of concern about the issue addressed as a problem in the school and its role as health barriers to learning. This may have influenced the survey results.

Because of the over-representation of children in low-income families in the NYC public schools and in the analytic sample, caution must be exercised in generalizing these findings to diverse public school systems. For a more general understanding of health barriers to learning in schools, a respondent sample representing more socioeconomically diverse students would be necessary.

As is typical for survey research, the responses represented the impression or perception of the respondent. All percentages reported should be understood as representing the percent of schools in the analytic sample, not of students within those schools.

References

a. Boon HN Jr., Boon DA. Analyzing Likert data. (2012). *Journal of Extension*. 50(2): Article # 2TOT2. Available at: http://www.joe.org/joe/2012april/pdf/JOE_v50_2tt2.pdf. Accessed September 30, 2013.

b. New York City Independent Budget Office. (2013). New York City Public School indicators: Demographics, resources, outcomes. Available: <http://www.ibo.nyc.ny.us/iboreports/2013educationindicatorsreport.pdf>. Accessed September 30, 2013.

