



Evaluation Report:

MetroHealth School Health Program

Academic and Health Outcomes | 2017–2018

Matthew Linick, PhD
Executive Director, Research and Evaluation
Cleveland Metropolitan School District

Regina Giraldo-Garcia, PhD
Research Fellow
Center for Urban Education, Cleveland State University

Vanessa Maier, MD, MPH
Medical Director
School Health, MetroHealth Medical Center

Katie Davis, MSN, RN, PHNA-BC
Program Director
School Health, MetroHealth Medical Center



MetroHealth



RESEARCH & EVALUATION



EXECUTIVE SUMMARY

Although there is general agreement that healthier children are more likely to do well in school, and higher academic achievement corresponds to improved healthⁱ, there is still much to understand about the connection between education and health. As health systems struggle to improve population health, and school districts struggle to improve academic achievement, many are recognizing the benefits of collaborating to provide health care services in schoolsⁱⁱ. As each collaboration and population served is unique, there is increasing emphasis on evaluation to understand the aspects of such collaborations that have the most significant impact. The MetroHealth School Health Program, a collaboration between The MetroHealth System and Cleveland Metropolitan School District, currently serves 13 schools and offers full spectrum primary care, including annual physicals, immunizations, care for acute and chronic illnesses, sexual health services including contraception, and mental and behavioral health screenings and referrals, among other services. The Cleveland Metropolitan School District's Research and Evaluation Department conducted this evaluation to examine the relationship between program participation and student academic outcomes, including absences, attendance, disciplinary referral and grade point average.

History of School-Based Health Centers

School-Based Health Centers emerged in the 1970s in recognition of the increasing number of children and adolescents who needed care that was culturally sensitive, confidential, safe, accessible, and suited to their unique developmental needs. School-Based Health Centers operate in schools to increase access to medical evaluation, diagnosis, and treatment. Most School-Based Health Centers provide primary preventive care, including comprehensive health assessments, treatment of acute illness, screenings, immunizations, and counselingⁱⁱⁱ. Recent research has documented that the schools and districts with strong health partnerships experience improvements in attendance, academic performance, and increased access to health supports for their students^{iv}.

School-Based Health Centers and Academic Performance

There is significant research supporting the positive direct and indirect effects of having access to primary health care in schools on student academic performance. Some of the evidence indicates:

- Reduction in dropout rates, especially for students at higher risk for dropout^v
- Higher rates of school engagement by both students and parents^{vi}
- Improved attendance among children with asthma^{vii}
- Decreased their absenteeism and tardiness^{viii}
- Decline in school discipline referrals^{ix}
- Improved grade point average and grade promotion^x

Findings

Participation in the MetroHealth School Health Program was associated with decreased absenteeism, improved attendance and improved academic achievement. However, this association varied significantly by school. Students participating at Lincoln-West High School had 8 fewer absences than their non-participating peers, while participating students at Garret Morgan High School had 4 fewer absences than non-participating peers, differences that were statistically significant. In terms of disciplinary referrals, there were some schools in which MetroHealth School Health program participation was associated with increased incidents of disciplinary referrals. When comparing academic outcomes, the grade point average of MetroHealth School Health participants was higher than district average. Participating students at Lincoln-West High School had a grade point average that was 0.43 higher than non-participating peers, a difference that was statistically significant.

Conclusion and Recommendations

Participation in the MetroHealth School Health Program was associated with decreased absenteeism, improved attendance and improved academic achievement. However, this association varied significantly by school.

Based on these findings, it is recommended that program implementers carefully consider differences between the characteristics of participating students and schools in which the findings are significant and those for which there was no significant association. There may be many modifiable factors that contribute to program success, including enrollment, engagement of parents, teachers, and administration, school nursing support, scheduling, and coordination between the health care needs of the school community and health care services provided, among other factors.

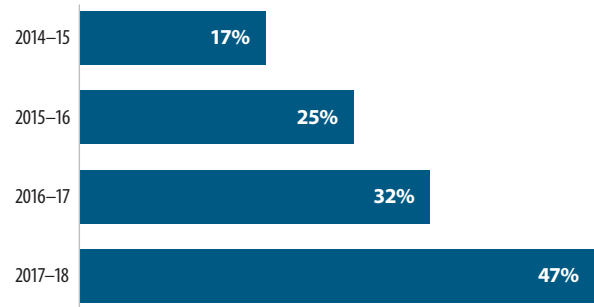
METROHEALTH SCHOOL HEALTH PROGRAM

Recognizing a decline in the number of pediatric primary care visits, an increase in utilization of the emergency room and stagnating academic achievement, leaders of The MetroHealth System and the Cleveland Metropolitan School District (CMSD) understood that an innovative delivery option would be required to meet the health care needs of students. In the fall of 2013, with support from local and regional funders, they collaborated to open the first School-Based Health Center within CMSD.

The MetroHealth School Health Program provides all the services that are typically provided in a pediatric primary care office, including physical exams, point of care testing such as strep throat tests and urinalysis, blood work testing including lead, glucose and cholesterol testing, mental health assessment and referrals, sexual health testing and contraception, including long acting reversible contraception, and evaluation and treatment of acute and chronic illness including administration of medication and provision of prescription medication and specialty referrals as indicated.

To participate in the program, students must complete a onetime consent, signed by a parent/ guardian. Once consent is obtained, students remain in the program until they are no longer enrolled in the district, although they can be withdrawn at any time by a parent/guardian writing a letter to MetroHealth.

MetroHealth School Health Enrollment



Improving School Attendance: Partnering with School Nurses to Keep Kids in School

When a child gets sick at school, sometimes the only thing staff can do is call a parent and send them home. Unfortunately, this means children miss school and parents miss work, often for minor illnesses or injuries. Luckily, all schools in the Cleveland Metropolitan School District are staffed with a school nurse. School nurses play a critical role in keeping kids in school. When a child gets sick, staff can send them to the school nurse. If the nurse recognizes a minor illness, nursing care and reassurance will often allow the child to rejoin class. When a child has an illness such as allergies, asthma, epilepsy, diabetes or ADHD, the nurse works closely with the child's doctor on a plan to keep them healthy. This way, if a child has a critical event in school, like an asthma attack, anaphylaxis, low blood sugar or a seizure, school nurses know exactly what to do. With a doctor's orders, school nurses can administer medications to keep children healthy and in school. But sometimes, nurses don't have orders from the doctor. This can happen for many reasons. Some children have not seen a doctor in a while, or haven't been able to establish with a doctor. Some children don't know they have

an illness that is interfering with their ability to learn. This is where the MetroHealth School Health Program can help. By working closely with the school nurse, MetroHealth providers can speak with parents over the phone and come directly to school to see children. They can complete examinations and any necessary testing, make a diagnosis, order any needed medications and develop a plan with the nurse and the family. Then they can all work together to keep the child healthy and in school. "Metro has helped with so many children in my school who have asthma," says Beverly Scott, School Nurse at Mound STEM Elementary School. "I can now get the medication consents completed which leads to students missing less school, because I have medication here in school for them." "School health has been a life saver for me," says the parent of a child at Harvey Rice Elementary School. "I work full time and go to school. Without School Health, my child would not be able to receive the health care he needs. School Health has given me the ability to continue to work and go to school without having to take time off or have my child miss school."

The MetroHealth School Health Program works closely with the school nurse to schedule appointments and coordinate care. They also review student academic schedules to ensure that students do not miss core class time for a medical appointment. Parents or guardians receive updates on the child’s care over the phone, through a paper after visit summary of the child’s appointment, or via MyChart, an on-line access platform that allows parents and students to view their medical record and send questions to health care providers.

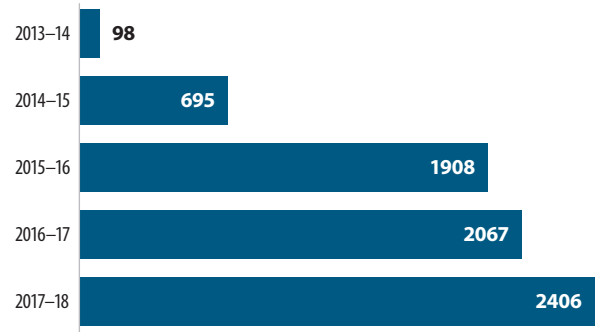
During its first year, the MetroHealth School Health Program provided primary care services to children in 98 provider visits. Through an emphasis on population health and care coordination, the program has grown dramatically in the past 5 years, completing over 2,400 visits in the 2017-2018 school year. The program currently serves 13 Cleveland Metropolitan School District schools, including Miles Park, John Adams High School, Luis Muñoz Marín, Mound STEM, Fullerton, Buhner Dual Language, Willow, Lincoln-West High School, Anton Grdina, Walton, Harvey Rice, Garrett Morgan High School, and Scranton.

HEALTH OUTCOMES

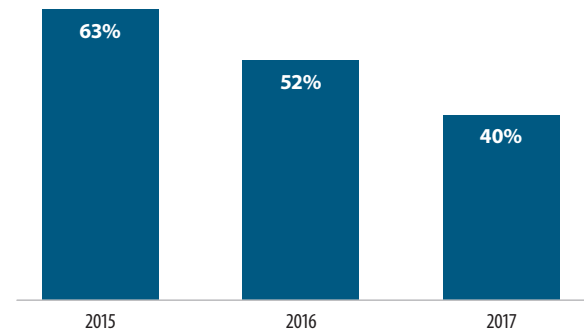
As the MetroHealth School Health Program has grown, it has remained focused on its initial goal to improve primary care access and reduce unnecessary emergency room utilization. Through care coordination and an emphasis on population health, the program has documented an increase in primary care utilization and a decrease in emergency room utilization per 100 users of the program.

As part of a collaboration with the National School-Based Health Alliance, the MetroHealth School Health Program provides annual quality data to the School Health Services National Quality Initiative. Using comparative data, the MetroHealth School Health Program exceeds national and state benchmarks for preventive services completion, including adolescent preventive visit and immunization completion.

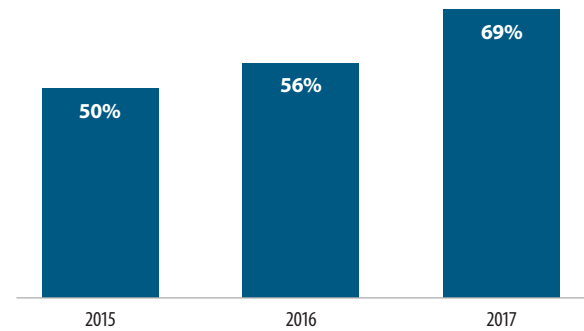
MetroHealth School Health Visit Volumes



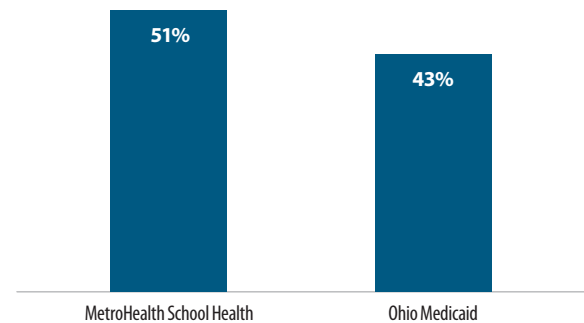
ED Visit Per 100 School Health Users



Primary Care Visit Per 100 School Health Users



Annual Preventive Visit Completion Age 12-21



EDUCATIONAL OUTCOMES

The purpose of this evaluation was to examine the relationship between program participation and student academic outcomes. Specifically, the evaluation aimed to determine: the relationship between program participation and absences, attendance, disciplinary referrals, and grade point average. See summary tables (1-4) in the appendix.

This evaluation employed a quantitative approach, using a retrospective (ex-post) evaluation design. Two sources of data were used for the analysis: a) MetroHealth School Health Program records on student participation in the program throughout the extent of a school year; and b) student academic performance records from CMSD at the end of the school year including number of absences, attendance, disciplinary referrals and grade point average.

Program Participation and School Absence and Attendance

On average, students participating in the program were absent 1.16 days fewer than the average student in the district, a difference that was statistically significant. When accounting for building level differences, the number was statistically significant only for high school students; with 1.26 fewer absences during the school year, when compared to high school students that did not participate in the program. Looking only at students who participate in the program compared to students who do not participate in the program at the elementary school level, no statistically significant difference was noted in attendance. However, looking at a select group of elementary schools with higher program engagement (Buhrer, Fullerton, Mound, Scranton, Miles Park) participants did have fewer absences during the school year when compared to their classmates who did not participate in the program. At Buhrer elementary school, students who participated in the program had 1.54 fewer absences than their classmates who did not participate. This difference was statistically significant. When looking at students at high school buildings that participated (e.g. John Adams, Lincoln-West, and Garret Morgan), in general, there is a statistically significant difference in the average number of absences between them and non-participating students at their schools. Students from Lincoln-West and Garret Morgan that participated in the program had on average a statistically significant lower number of absences when compared to non-participating students at the same school. Program participants at Lincoln-West had 8 fewer absences than their non-participating peers, while participating students at Garret Morgan had 4 fewer absences than their counterparts.

Absences (Days): Lincoln-West High School



**Statistically Significant*

Attendance (%): Lincoln-West High School



**Statistically Significant*

Grade Point Average: Lincoln-West High School



**Statistically Significant*



Care Coordination for Asthma: Helping Kids Breathe Better to Succeed in School and Life

When a student with asthma comes to Beverly Scott's office coughing, she knows just what to do. With her stethoscope, she listens to the child's lungs and hears wheezing. Just as she suspected, this child is having an asthma attack. In many schools across the country, this scenario would require the child leave school for treatment, delaying care and resulting in missed school for the child, and missed work for parents. Luckily, nurse Beverly is ready. She goes to the medicine cabinet to get a rescue inhaler.

Asthma is the most common illness of childhood^{xi} and it can have significant consequences, particularly for low income and minority children. Puerto Rican Americans have rates of asthma twice the national average, and black children are four times as likely to die of asthma than white children^{xii}. The causes of these disparities are complex. But School Nurses and School-Based Health Centers are playing a critical role in addressing them^{xiii}.

Nurse Beverly provides instruction on proper inhaler technique, and this child knows how to use her inhaler to get the medication correctly. But when Nurse Beverly checks again, the child is still wheezing. "Let's have the doctor look at you." Nurse Beverly takes the child down the hall to the MetroHealth School Health Program. Waiting for them in the clinic, is medical assistant Carolina DeJesus. While Carolina uses a Peak Flow Meter to assess the child's asthma, pediatrician Dr. Cheryl Marrow-White picks up the phone and calls her mother. "Yes, she is OK, but I think she will need more medicine. Any chance there could be mold in the home?"

The School Health program is a place where students feel safe and they find people who care for their wellbeing as well as their future

Asthma management can be complicated. Asthma attacks can have many triggers, including colds or viruses, pollen, grass, cigarette smoke or industrial toxins. Sometimes trauma, stress or worries can cause an asthma attack. The home environment is very important, and exposure to mold, dust, or pests like rodents or cockroaches can worsen asthma. In Cleveland, where housing is older, these problems are common. Getting a landlord to address asthma triggers can sometimes be a struggle. That is why the MetroHealth School Health Program works directly with a



lawyer through a Medical Legal Partnership, a collaboration between MetroHealth and the Legal Aid Society of Cleveland. After speaking with families and getting needed documentation from the doctor, sometimes a letter from the lawyer is all that is needed to have the landlord to make any necessary repairs. However, some cases are more complicated and require more aggressive legal action. That is why a Medical Legal Partnership can be very important to help families manage home triggers for asthma^{xiv}.

Dr. Cheryl Marrow-White enters the room with the child's favorite book "I hear your asthma is acting up. Can I take a listen to your lungs?" After listening to her lungs and speaking with the child's mother again, the doctor places orders for a new medication. Carolina retrieves it from the medication box and brings it to the child. Soon the child is feeling well enough to return to class.

"The School Health Program is a place where students feel safe and they find people who care for their wellbeing as well as their future," says Carolina. "The program extends help and attention to parents, guardians and siblings, providing them with access to care, connecting families with social workers that help the families to obtain medical insurance if needed, scheduling appointments. The School Health Program is made up of a team that goes above and beyond. This is why I take pride in this program and in all the work I do every day."

Similarly, students participating in high schools such as John Adams, Lincoln-West, and Garret Morgan had average attendance rates that were 2.75, 7.22 and 3.44, respectively, statistically significant percentage points higher than non-participants. Only students at Miles Park, from the group of elementary schools, showed significant differences in school attendance with approximately two more days attended by students that participated in the program.

Program Participation and School Disciplinary Referrals

In terms of school disciplinary actions or referrals (incidents and suspensions), the results of the analysis indicate that disciplinary referrals are higher for program participants when compared to non-participant students. Program participation shows a statistically significant relationship to disciplinary referrals for one elementary school (Miles Park) and one high school (Lincoln-West) in the school district.

Program Participation and Grade Point Average

On average, students participating in the program had a grade point average that was 0.24 points higher than the average student in the district, a difference that was statistically significant. Participating students at Lincoln-West High School had a grade point average that was 0.43 higher than non-participating peers, a difference that was also statistically significant.

CONCLUSIONS AND RECOMENDATIONS

Participation in the MetroHealth School Health Program was associated with decreased absenteeism, improved attendance and improved academic achievement. However, this association varied significantly by school.

This evaluation found that students from a subset of schools that participated in the MetroHealth School Health Program had significantly lower number of absences. This finding is statistically significant and implies that participating students may be projected to have at least one fewer absence per quarter in comparison to their peers in the same schools who do not participate in the program.

In terms of disciplinary referrals, there were some schools in which MetroHealth School Health program participation was associated with increased incidents of disciplinary referrals. It may be that a disciplinary referral increased the likelihood of referral to the program, although this could not be determined from this analysis.

On average, students participating in the program had a grade point average that was 0.24 points higher than the average student in the district, a difference that was statistically significant. Participating students at Lincoln-West High School had a grade point average that was 0.43 higher than non-participating peers, a difference that was also statistically significant.

Based on these findings, it is recommended that program implementers carefully consider differences between the characteristics of participating students and schools in which the findings are significant, and those for which there was no significant association. There may be modifiable factors that contribute to program success, including enrollment, engagement of parents, teachers and administration, school nursing support, scheduling, and coordination between the health care needs of the school community and health care services provided, among other factors.

REFERENCES

- i Health Policy Institute of Ohio January 2017 *Health Policy Brief: Connection Between Education and Health* https://www.healthpolicyohio.org/wp-content/uploads/2018/01/PolicyBrief_EducationandHealth.pdf
- ii Health Policy Institute of Ohio July 2017 *Health Policy Brief: Connection Between Education and Health: Health Services in Schools* https://www.healthpolicyohio.org/wp-content/uploads/2018/08/PolicyBrief_EducationAndHealth_No.2-8.6.2018.pdf
- iii National Assembly on School-Based Health Care, 2005. School-Based Health Centers and Academic Performance: What is the Intersection? April 2004 Meeting Proceedings.
- iv Blank, M. J. (2015). Building Sustainable Health and Education Partnerships: Stories from Local Communities. *Journal of School Health*, 85(11), 810-816.
- v Kerns, S. E., Pullmann, M. D., Walker, S. C., Lyon, A. R., Cosgrove, T. J., & Bruns, E. J. (2011). Adolescent use of school-based health centers and high school dropout. *Archives of pediatrics & adolescent medicine*, 165(7), 617-623.
- vi <http://education.ohio.gov/getattachment/Administrators/School-Based-Health-Care-Support-Toolkit/Ohio-toolkit-National-examples.pdf.aspx?lang=en-US>
- vii Webber MP, Carpiniello KE, Oruwariye T, Lo Y, Burton WB, Appel DK. Burden of Asthma in Inner-City Elementary Schoolchildren: Do School-Based Health Centers Make a Difference? *Archives of pediatrics & adolescent medicine*. Feb 2003; 157(2):125-129.
- viii Gall G, Pagano ME, Desmond MS, Perrin JM, Murphy JM. Utility of Psychosocial Screening at a School-Based Health Center. *Journal of School Health*. Sep 2000;70(7):292- 298.
- ix Dallas Youth and Family Centers Program: Hall L. Final Report — Youth and Family Centers Program 2000–2001 Dallas, TX: Dallas Independent Schools District;2001.
- x Strolin-Goltzman, J., Sisselman, A., Melekis, K., & Auerbach, C. (2014). Understanding the Relationship between School-Based Health Center Use, School Connection, and Academic Performance. *Health & Social Work*, 39(2), 83-91.
- xi Center for Disease Control and Prevention, Asthma Data Statistics and Surveillance <https://www.cdc.gov/asthma/asthmaadata.htm>
- xii Hughes HK, Matsui EC, Tschudy MM, Pollack CE, Keet CA. Pediatric Asthma Health Disparities: Race, Hardship, Housing, and Asthma in a National Survey. *Acad Pediatrics*. 2017;17(2):127-134.
- xiii Guo, JJ, Wade, TJ, School-Based Health Centers: Cost Benefit Analysis and Impact on Health Disparities *Am J Pub Health* 2010; 100(9) 1617-23
- xiv Beck A, Klein M Identifying and Treating a Substandard Housing Cluster Using a Medical Legal Partnership *Pediatrics* 2012 130(5) 831-838

APPENDICES

TABLE 1. Summary of the Effect of Participation in SHP on School Absence			
	Mean # of Absences		Mean Diff.
	SHP: Non-Participation	SHP: Participation	
All CMSD Students	13.22	12.06	1.16*
All K–8	13.56	12.94	0.61
K–8 Intense	12.52	12.21	0.30
All High Schools	12.44	11.18	1.26*
K–8 Intense			
Buhrer Dual Language Academy	7.46	5.91	1.54*
Fullerton	19.10	18.58	0.51
Mound	15.02	14.26	0.76
Scranton	10.44	9.92	0.51
Miles Park	14.21	12.11	2.09
High School (Within School)			
John Adams	19.17	17.17	2.00
Lincoln-West	15.97	7.87	8.00*
Garrett Morgan	16.20	12.08	4.12*

** Statistically Significant*

TABLE 2. Summary of the Effect of Participation in SHP on School Attendance			
	Mean Attendance Rate		Mean Diff.
	SHP: Non-Participation	SHP: Participation	
All CMSD Students	90.61	91.61	0.99*
All K–8	90.46	91.10	0.64
K–8 Intense	91.25	91.58	0.32
All High Schools	90.95	92.11	1.16*
K–8 Intense			
Buhrer Dual Language Academy	94.76	96.01	1.25
Fullerton	86.70	86.55	-0.15
Mound	89.32	90.09	0.76
Scranton	92.95	93.38	0.42
Miles Park	89.98	91.95	1.96*
High School (Within School)			
John Adams	85.75	88.50	2.75*
Lincoln-West	86.96	94.18	7.22*
Garrett Morgan	87.96	91.41	3.44*

** Statistically Significant*

TABLE 3. Summary of the Effect of Participation in SHP on School Discipline

	Mean Incidents		Mean Diff.
	SHP: Non-Participation	SHP: Participation	
All CMSD Students	0.25	0.25	0.00
All K-8	0.27	0.22	-0.05
All High Schools	0.21	0.28	0.07*
K-8 Intense			
Buhrer Dual Language Academy	0.04	0.1	0.05
Fullerton	0.17	0.07	-0.09
Mound	0.10	0.06	-0.04
Scranton	0.09	0.09	0.00
Miles Park	0.38	0.71	0.32*
High School (Within School)			
John Adams	0.19	0.15	-0.04
Lincoln-West	0.20	0.35	0.15*
Garrett Morgan	0.16	0.23	0.06

** Statistically Significant*

TABLE 4. Summary of the Effect of Participation in SHP on Grade Point Average (GPA)

	Mean GPA		Mean Diff.
	SHP: Non-Participation	SHP: Participation	
All High Schools	2.36	2.60	0.24*
High School (Within School)			
John Adams	1.79	2.21	0.41
Lincoln-West	2.49	2.90	0.43*
Garrett Morgan	2.11	2.22	0.10

** Statistically Significant*