At the Intersection: Connecting Health and Education Data in School-Based Health Centers

National School-Based Health Center Billing and Reporting Project

School-Community Health Alliance of Michigan

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For more information about the National School-Based Health Center Billing and Reporting Project visit www.scha-mi.org or contact Michele Strasz, Executive Director, School-Community Health Alliance of Michigan, mstrasz@scha-mi.org.

Acknowledgments

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We offer special thanks, also, to the communities who participated in this study for their time and investment to help complete our work.

At the same time, communities nationwide are grappling with how to improve student success including reducing absenteeism and increasing graduation rates. School-based health centers are truly at the intersection of health and education. This report examines four case studies from diverse communities with school-based health centers to learn what health and education data is collected, and how it is used to make a case for expanding or sustaining the network of school-based health centers because it improves both health and educational outcomes for children and youth.

The School-Community Health Alliance of Michigan (SCHA-MI) has been at the center of the movement to create billing, reporting and data analytics available to the network of school-based and linked health centers for nearly ten years in Michigan. We are honored to have partnered with Terri Wright at the Center for School, Health, and Education at the American Public Health Association, and Janet Zimmerman, our evaluators to extend our learning across the country.

SCHA-MI hopes this publication will inform the on-going work of our peers across the country to continue to build the capacity to link health and education data at the national, state, and local levels. This data coupled with the passion we share to serve children and youth with high quality primary care has the potential to reshape how this country invests in school-based health services.

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The Kresge Foundation is a $3 billion private, national foundation that seeks to influence the quality of life for future generations through its support of nonprofit organizations working in its seven program areas: Arts and Culture, Community Development, Detroit, Education, the Environment, Health, and Human Services In 2012, the Board of Trustees approved 410 awards totaling $130.5 million; $150.3 million was paid out to grantees over the course of the year. For more information, visit kresge.org.

Introduction

School-based health centers (SBHCs) have been shown to not only improve access to primary physical and mental health care but utilization of these services. In particular, they play an essential role in reducing access barriers to health care among students who are medically underserved, low income and in high-risk situations. These students are also typically at risk for poor school performance, high absenteeism, and behaviors that can either push or pull them out of school, making them vulnerable to becoming a dropout statistic.

Originally designed and implemented to improve access to health care, SBHCs have attracted increasing attention in recent years for their potential to improve students' educational achievement. Because SBHCs help to keep students healthy and in school, SBHCs' impact on intermediate educational outcomes, such as attendance and grades, has gained increasing attention as policymakers and communities alike grapple with poor graduation rates and strategies for school reform. It intuitively makes sense that SBHCs should play a role in improving educational outcomes given the inherent interconnections between health and educational achievement. Beyond this, SBHCs are located in schools, where the primary purpose is to support learning and educational attainment.

While administrators, sponsors, and funders of SBHCs are pleased with the evidence that SBHCs improve children's and adolescents' access to and utilization of much needed physical and mental health care, they are increasingly interested in obtaining evidence on the value of SBHCs' in improving educational success. School-based health programs across the country are wrestling with the challenges of how to study the effects of SBHCs on students' educational outcomes given the fact that health and educational data are typically housed in separate, non-overlapping systems. Quite simply, the absence of linked data impedes the abilities of SBHCs to fully analyze and demonstrate the breadth of impact they can have on students' academic success.

At the core of understanding the role SBHCs play in improving academic success is a need for more comprehensive data bases that includes both SBHC health and education information. Through analyzing the interconnections between children's health and educational success – and the role SBHCs play in influencing both - health and educational professionals are better able to serve and support the school and the SBHC in achieving educational and health goals. In recent years, four communities have made progress in building linked health and educational information systems. Understanding how they did so – and just what it is they did – served as the impetus for this report.

At the Intersection: Connecting Health and Education Data in School-Based Health Centers captures the experiences of Cincinnati, East Baton Rouge, Miami-Dade County, and Seattle in linking complex data sets generated independently by school-based health centers and schools. The communities are at different points in a continuum of linking SBHC and educational data. Their experiences are captured in the following case studies, which were organized to answer several questions. Why did they link or attempt to link their data? What data have been linked? How are they linking these data? And how has the linked data been used? The report also captures some of the challenges they faced and lessons learned along the way.

The intent of this report is to provide information that can serve as a guide for other communities in their attempts to connect health and educational information of their students. As we all strive to better serve our communities and meet the enormous needs of the over one million children and adolescents who use SBHCs, it is clear that analyzing and documenting SBHCs' impact on academic success requires data that includes students' health and educational needs and outcomes. May the stories that follow inspire you to build the base of information in your own communities.

Background

This project was undertaken to encourage states (primarily health and education agencies), provider institutions, school districts, and schools to link SBHC encounter data with education and academic data by providing case studies of SBHCs that are successfully doing so, at one level or another. Health care reform requirements related to electronic health records provides a unique and powerful opportunity to move forward in developing a national data warehouse capable of telling (a) the full story of the complex factors that can derail health and educational success among vulnerable children and adolescents, and (b) the role SBHCs play in reducing these obstacles.

Hence, the goal for this project was to provide documentation on the methods, challenges, and value of linking SBHC health and education-related data. A series of case studies provide lessons learned from SBHCs and schools (or school districts) that have successfully linked or made progress towards linking the health and education-related data for students who used the SBHC. Specific objectives include the following:

1. To describe the reasons and methods for linking the data.
2. To describe the opportunities and challenges in developing and using the linked data and subsequent outcomes.
3. To describe applications and outcomes of the linked data – how it has been used and to what advantage.
4. To describe lessons learned and advice by the case study findings for other states, provider institutions, school districts, and schools.
5. To explore and substantiate the value of a national warehouse of linked data on the school-based health care population.

During the 2011 state directors meeting of the National Assembly on School-Based Health Care, the topic of capturing the social-emotional dimensions of SBHC users was discussed as an important element of the clinical encounter. Several state directors indicated that their members were already moving in this direction by linking SBHC user data with education-related data. They also indicated that they would be willing to engage in further discussions about the details of their experiences.

Throughout the ensuing months, the executive director of the state school-based health care association for Michigan, School-Community Health Alliance of Michigan (SCHA-MI), agreed to support a process funded by the Kresge Foundation whereby the experiences of communities that have linked their SBHC and education-related data could be documented and shared broadly with the SBHC community and leadership and state and national policy-makers and agencies. As a result, a plan was developed and funded to pursue this project to learn more about the activities and experiences in four communities, Cincinnati, East Baton Rouge, Miami-Dade County, and Seattle.

Methods

Early in 2012, the four communities participated in an introductory conference call that provided background information on the project and expectations for participation. The communities also confirmed their intention to attend the 2012 annual meeting of the National Assembly on School-Based Health Care in Albuquerque, New Mexico during which time they could be interviewed.

Officials from three of the four communities participated in a series of semi-structured face-to-face interviews in June 2012 to gather information on the methods, challenges, value, and lessons learned from linking SBHC and education-related data. The complexity of the Seattle experience necessitated a face-to-face interview in Seattle in July 2012. For three communities, the key person involved in facilitating or overseeing the data linkage was interviewed. In the remaining case, key informants included the lead staff from a school-based program, the local public health department, local office of education, and a researcher who had utilized the linked data to conduct research on the impact of SBHCs on academic outcomes. With the interview participants' permission, the interviews were recorded and then transcribed. The interview guide was developed with the input and feedback of SCHA-MI's executive director. The interviews took an average of 90 minutes to complete.

Drafts of the case studies were prepared utilizing the transcriptions from the interviews, supplementary materials provided by the communities, and online reviews of historical and contextual information related to the data linkages. The draft studies were reviewed by the community site contacts and key stakeholders whose views they believed were important in ensuring that the case studies were accurate and thorough. Additionally, each community engaged in follow-up conversations to discuss their feedback on the drafts and any remaining questions about the data linkage. Following these discussions, the case studies were finalized according to the communities' review and approval.

As mentioned earlier, each community is at a different point along the continuum of having "linked SBHC and education-related" data. Each experience is unique and nuanced within the context of that respective community. Nevertheless, each experience helps to shed light on potential next steps for other communities.

Case Studies

Cincinnati

Introduction and Background: Paving the Way for Linking Health and Academic Data

In 1930, the Cincinnati Health Department (CHD) and the Board of Education started its school nurse program in Cincinnati Public Schools (CPS). In its earliest years, the program included one physician and eight nurses who were responsible for serving all of Cincinnati's schools. An important point in the expansion of services occurred in the early 1970s, when the nurses began to conduct school-based behavioral health assessments. The early 1980s represented another period of growth, marked by locating a public health nurse, employed by the CHD, first in high poverty schools, and ultimately, in all elementary schools.

With widespread poverty and significant unmet needs for health care among Cincinnati school children, the Health Foundation of Greater Cincinnati (HFGC) and other private sector sources augmented the school nurse program by supporting the start-up and expansion of school-based health centers (SBHCs) in CPS. SBHC staff include, at a minimum, a nurse practitioner or physician. CPS partnered with Cincinnati Children's Hospital Medical Center to open the first three SBHCs, funded by HFGC. In 1999, Neighborhood Health Care, Inc., a Federally Qualified Health Center (FQHC), opened the fourth center. Currently, there are 17 SBHCs serving the K-12 population, with other FQHCs, CHD and Mercy Health as partners.

In 2005, a collaborative partnership of the CHD, FQHCs, Cincinnati Children's Hospital, and the HFGC launched Growing Well, via a planning grant from the HFGC to serve two purposes: (a) design an infrastructure and process for meeting the broad health care needs of students within CPS and (b) determine how their services would be integrated within the schools and the Community Learning Center Initiative. Growing Well aims to create an integrated, coordinated and sustainable system of providers that ensures access to quality health and wellness services for students and their families. Growing Well includes representatives from 30 organizations, including CPS, local hospitals, neighborhood clinics, the CHD, Children's Hospital, University of Cincinnati, the Academy of Medicine, Jobs & Family Service, Legal Aid, YMCA and community health and mental health providers. As a result of Growing Well's development, school-based health care in Cincinnati is embedded in the comprehensive model of Community Learning Centers (CLC), initiated in Cincinnati in 2001.

The CLC model has had a major impact on the expansion of SBHCs and in establishing a community-wide culture of collaboration on issues facing children. CLCs serve as hubs for community services, providing access for students, families and community to health, safety and social services, as well as recreational, educational and cultural opportunities. Resource Coordinators assist in enrollment in services and coordination of activities. According to

independent evaluations, CLCs helped to achieve several outcomes:

- An increasing community-wide belief that health and educational systems needed to work in tandem if students were to succeed in school and learning.
- The growth of partnership networks comprised of providers in all areas of need to improve district wide capacity and equitable access to quality services. Networks include, for example, Growing Well (primary care and oral health), MindPeace (mental health), Adopt-A-Class Foundation (business mentors), College Access, Leave No Child Inside (Nature and Environmental) and Alliance for Leadership and Interconnection (green built environments and curriculum).
- The development of cross-sectorial leadership that weaves together the work of leaders from partner organizations to operate as a collaborative team in providing coordination and integration of interdisciplinary resources.
- The increased use of on-site Resource Coordinators to develop, integrate and manage the community partnerships.

"Growing Well promotes optimal health for optimal learning. To achieve this goal, Growing Well is developing infrastructure for school health using a "braided" model of services. This model is built not on mandates of services but rather on creating a system for health services that will achieve increased utilization by decreasing barriers to care (transportation, insurance, appointment waiting lists, missed appointments, culturally competent services). This model takes existing services delivered independently and braids these services together into a system of care."

Source: Growing Well Cincinnati's private communication.

CLCs, just over half of which include SBHCs, have had a significant impact on student academics over the years. For example,

- Cincinnati Public Schools have become the first urban district in Ohio to receive an "effective" rating, the highest performing urban district in Ohio (from 2009-10 to present).
- High school graduation rates increased from 51 percent in 2000 to 83 percent in 2009.
- Enrollment surpassed projections including the return of middle class families to neighborhood schools.
- The conditions for learning improved through hundreds of community partnerships, which brought millions of dollars in additional resources to the city, the students and their families.
- Through the combined support and leadership of the CPS superintendent and school board, a leader of the CLC movement, CHD and Board of Health, HFGC, and community/health/educational leaders, the stage was set for linking health and academic data in the district.

What SBHC and Academic Data are Linked?

SBHCs and the school nurse program differ in several ways. Most notably, SBHCs require provision of services by a nurse practitioner or physician. SBHC services provided by the nurse practitioner or physician are not linked with academic data because they are not agents of CPS. Instead, they are partners with CPS and as such do not have access to PowerSchool, the web-based, secure information system maintained by CPS on students' academic performance.

A subset of SBHC data are linked with individual students' academic data if the SBHC provider has access to PowerSchool. Specifically, SBHC services provided by school nurses and school health aides (SHAs), who are legal agents of CPS, have access to PowerSchool. Information related to the services they provide are entered and linked with individual students' academic data. At this time, the only SBHC data PowerSchool included at the individual level (other than that provided by the school nurse and SHA services) is enrollment in the SBHC and establishment as a patient (at least one visit). Academic data includes students' complete school records – demographic data, attendance, disciplinary actions, GPA, class grades, and test scores. These data are linked with individual students' academic data via the student's identification number. SBHC visits that are not entered into PowerSchool include mental health visits, medical care provided by the nurse practitioner or physician, details on how many visits,

whether the student has had a physical (within the past year), individual diagnoses at visits, and lab reports. SBHC data, however, can be analyzed in aggregate and for subgroups of students. Because student-level SBHC data are available via electronic health records, it is primed to be linked with students' academic records in PowerSchool.

Data acquired by the school nurse or SHA are linked at the student-level with academic data including demographics, visits with the school nurse, screenings (dental, hearing, vision, immunizations and BMI with needed referrals, completed or incomplete), and health issues and conditions identified by the school nurse. Information provided by parents on a student health form, included in the student enrollment packet, is linked with students' academic records as well. This information identifies the presence of their children's chronic conditions including asthma, food allergies, seizure disorders, diabetes, sickle cell, ADD/ADHD, behavioral conditions, and dental problems. Because school nurses have only recently been located in some of the high schools, the linked data reflects predominantly elementary and, to a lesser degree, middle school students. However, the recent addition of school nurses and/or school health aides as part of three newly established high school SBHCs allows SBHC services provided by the nurses and school health aides to be linked with students' academic data.

How Are the Data Linked?

PowerSchool is a widely used web-based student information system, supporting 10 million students in all 50 states and over 65 countries. PowerSchool enables educators to make data-driven decisions that impact student performance while creating a collaborative environment for parents, teachers and students to work together.

Although the process of school nurses and SHAs entering data electronically began in 2004, it was not until 2009, when CPS switched to PowerSchool, that the electronic database became easily usable and well positioned to produce analytic reports and real-time data and statistics. The health component of PowerSchool currently includes about 19,000 records, a subset of the school population of 32,000, due largely to the fact that most high schools do not have school nurses (or SHAs), and thus are under-represented in the database. CPS has an agreement with CHD to further develop linked data.

School nurses enter selected data directly into the PowerSchool database (e.g., immunizations, visits, asthma) as they have been doing for several years. It is linked via students' identification numbers to academic data but partitioned and blocked from the academic data for non-authorized users such as school staff unless consent is obtained.

Because students' health data, as previously described, are entered into the students' records, they are portable – if a student starts at one elementary school and moves to another mid-year or in/out of the district, all of the health data moves with the child's academic record and is fully available at the new school immediately. Data are also retained over time for all children; if a student drops out of school or moves out of the district and returns, for example, his or her data are re-activated. The data never gets lost from the student's record and current school. Data are available both historically and in current time, resulting in an additive, longitudinal database. The intention is to build this base of information for the entire population of students.

Challenges

Restrictions on access to the data. Federal regulations to protect student privacy and confidentiality limit sharing of data between health and educational professions: employees of the school district are unable to access health data under the Health Insurance Portability and Accountability Act (HIPAA), and health-related staff or contractors are unable to access academic data under the Family Educational Rights and Privacy Act (FERPA). Although PowerSchool contains an increasingly comprehensive base of data, only subsets of the data are available to health and to school staff, as described earlier. Alert icons are available on school staff desktops for student safety on vital health concerns such as asthma, allergies, and diabetes.

To protect student information, school nurses generate health reports for SBHCs (such as detailed asthma reports for consented students) but the SBHCs cannot access a report that would allow comparison of a student's health profile with his or her academic profile. Similarly, when the principal or teacher at a given school pulls up information on a student, the data system will show a health alert icon such as for asthma (provided by the parent via school forms on school entry), but a firewall prevents the principal from looking at that student's health record. Although the database can conduct analyses of GPA or average attendance based on specific health issues facing students, HIPAA and FERPA restrict health and education professionals from having access to individual student data needed to conduct these analyses, unless data are de-identified or parental permission is obtained.

Sensitivity of including mental health data for individual students in a linkable system. Because of the often highly sensitive nature of mental health data, it has been difficult to secure universal support among the mental health providers for linking student-level mental health data with their academic records.

Because high schools historically have not had school nurses, integrating their health data with school records is largely limited to health issues identified during their younger years. While this is not an inherent challenge to integrating health data into school records, it limits the opportunities to analyze real-time data longitudinally and for students 9-12. Nevertheless, although most high school students do not have health data entered while they are high school students, health records of asthma, or diabetes obtained while they were elementary or middle school, for example, remain in their school record remain throughout their tenure with the school system.

Lost city funding for school nurses at the Cincinnati Health Department. In 2010, the Cincinnati City Council included four council members who sought to eliminate the $2 million program for school nurses from the City General Fund budget. Community and civic leaders aligned in partnership to advocate and maintain school health services, contributing, ultimately, to the electoral defeat of those four council members, election of four new council members who were supportive of school-based health care, and the restoration of $650k in funding. In addition, the Health Foundation of Greater Cincinnati provided leadership and immediate financial resources to restore safety net services; led a planning effort to enhance school-based health services; and developed a sustainable long-term model to ensure health and academic success of Cincinnati children. The community-based School Health Steering committee was formed to sustain health services for children in the long–run. While the funding cut did not directly affect the impetus behind integrating health data into academic school records, it pushed the database development lower on the agenda given the substantial time and resources required to respond to and manage the funding crisis.

The cuts in spending required an alternate model of school based health services. Chief among them was the

development of new SBHCs, where services can be billed for and are less vulnerable to decisions made by the city council. While funding for school nurses only provided support for 26 nurses, SBHCs were able to expand from 10 to 17 (and to 20 by August 2013). The funding crisis also helped to strengthen the will and voice of community-wide advocates to implement a sustainable plan for restoring the lost health services, including nursing services. One of the topics of explicit discussion with the city council has been the development of a comprehensive academic database, to include health-related data. The city council members are supportive of the plan to expand the ability of the school district to analyze and account for changes over time in the city's investments in school-based health care.

What has been the Impact of Integrating Student Health Data with Academic Data?

Linking aggregate health and academic data provides real time data needed to inform decision-making around policy, practice, services, and supports advocacy for school-based health care. Within the restrictions of FERPA and HIPAA, users can create pre-designed reports of data to allow analyses to be auto-generated at any time. Examples of real-time analyses include the following:

- Comparison of health outcomes by school to target unmet need and identify resources
- Immunization compliance reports to identify and increase compliance for missing immunizations
- Analyses of trends in BMI measurements over time
- Assessing the relationship between BMI measurements for preschoolers and kindergartners to results of the Kindergarten Readiness Assessment Level (KRA-L) and subsequent academic outcomes in third grade
- Identifying students with missing health records that may impact health and academics to follow up with parents who did not complete a student health form or to add clinical data that has not yet been added
- Analysis of how well the health partners perform in the selected schools.

Ultimately, the goal is to use the database to analyze the relationship between health, school attendance and academic outcomes in students K-12 to identify needs, outcomes, and strategies for optimally meeting the physical, academic and long-term developmental needs.

What is the Ongoing Work that Utilizes or Expands Linked Health and Academic Data?

To add SBHC and behavioral health data to the linked data. At present, SBHC staff can receive reports on student health needs through the school nurse or health assistant but cannot access PowerSchool. As has been mentioned, health data from SBHC visits (asthma management and control scores, for example) and data from mental health providers are not yet included in the PowerSchool health database. A next step of fully linked data system is to identify and implement HIPAA/FERPA agreements needed to integrate SBHC data and hopefully in the future behavioral health data, into protected PowerSchool linkages. Mental health prevention services data is being added to the Partner Dashboard this year as a first step.

To enable authorized users to access students' data online. Parents can request a copy of their student's health report, or the SBHC can access it, but systems are not yet in place to enable authorized users to access students' health records electronically.

To include social indicators in the database. Future plans likely will include adding social risk factors to the PowerSchool data system, such as whether the child has a home, ate dinner last night, or has electricity and other utilities. Many of those data are being gathered already by social behavioral risk assessment in SBHCs, as well as through school nurses. The intention is to formalize the process of identifying, documenting, and integrating these risk indicators into PowerSchool without creating stigma.

To require all SBHCs and partners, whether sponsored by the health department or a federally qualified health center, to collect and report a common set of data on all students. Of interest is including the core data set that all the students' health providers collect and integrate into students' academic school records.

To create the opportunity for the Cincinnati Health Department to access and analyze the full database in accordance with HIPAA and FERPA. Since the academic and health data are currently linked as part of the student data, analysis of health by school, poverty rate, community, chronic illness rate, and available services has been used in selecting sites for new health centers. With the expansion of services into the high schools, health data is now being added for high school students. The next step is using de-identified student data to look at health center utilization impact on student outcomes including academic progress, absenteeism, and discipline referrals.

What are the Key Elements of Success?

The integrated health and academic data system reflects the leadership and advocacy of several key individuals and groups in Cincinnati. Pivotal forces include the following:

- The Cincinnati School District superintendent has been a long-standing leader and advocate for supporting students' learning and academic achievement through school-based health care. The superintendent has played a major role in bringing together the health, educational, and other community groups in collaborative work to advance students' health as a mean of influencing academic success. She also is a strong advocate of data-based decision-making; it was the superintendent herself, for example, who selected the software used to link health data with school records.
- The Board of Education includes members who are actively engaged in developing cross-sectorial approaches to identifying and meeting both the health and the educational needs of students in Cincinnati. The CPS Board of Education has been a driving force and leading advocate building bridges between the health and educational communities, for example. Partnership between Community Learning Centers and school-based health centers was key to the success in drawing support for including health data in academic school records.
- The Director of the Cincinnati Community Learning Center Institute has played a vital role in supporting school nurses and school-based health care, establishing Community Learning Centers in Cincinnati, and advocating for data systems that include health and academic data. Among other things, the director helped establish Growing Well; helped to achieve buy-in from community partners in supporting and submitting data to the health/academic database; and played a key role in successfully advocating for the expansion of SBHCs.
- A history of strong and collaborative relationships and partnerships between school health professionals (the Cincinnati Health Department - Board of Health, SBHCs and school nurses), their partners (Cincinnati Children's Hospital, medical providers, MindPeace, behavioral health, dental, vision professionals), and Cincinnati Public Schools. This broad-based city-wide support has helped to sustain an ongoing collective

commitment to "leverage public school facilities to become hubs of educational, recreational, cultural, health and civic partnerships, which optimize the conditions for learning and catalyze the revitalization of the community." These partnerships evolved into integrated primary and preventive care health network in CPS schools. Partners including community health centers, Deaconess Foundation and Mercy Health are providing funding or services to establish self-sustaining health centers. Optometry services were added for the district in partnership with OneSight Foundation (OneSight Vision Center at Oyler). The newest addition is the Children's Oral Health Network, which is developing a self-sustainable model of oral health treatment services onsite in two schools.

SOURCES

Marilyn Crumpton, M.D., MPH, Medical Director, Division of School & Adolescent Health, Cincinnati Health Department, including school nurse program and the city's school-based health centers.
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Cincinnati Public Schools: Ohio's Top-Performing Urban School District. CPS Community Learning Centers.
http://www.cps-k12.org/about-cps/board-of-education See Board Policy 7500
Community Learning Center Institute: About CLCI

Coalition of Community Schools: http://www.gcfdn.org/Portals/0/Uploads/Documents/Public/HealthPath%20Documents/011_SBHC_MCrumpton.pdf and http://www.communityschools.org/assets/1/AssetManager/Ohio%20Olyer%20FINAL.pdf#xml=http://pr-dtsearch001.americaneagle.com/service/search.asp?cmd=pd-fhits&DocId=1352&Index=F%3a%5cdtSearch%5ccommunityschools&HitCount=9&hits=1+9+12+19+1a+1b+140+162+299+&hc=2165&req=growing+well+cincinnati

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East Baton Rouge

Introduction & Background: Why Academic Data are Linked with Mental Health Data from School-Based Health Centers in East Baton Rouge

School-based health centers (SBHCs) in East Baton Rouge, LA (EBR) have received widespread support from policymakers and the public in Louisiana for decades, including awards of state funding dating back to the mid-1990s. Beyond the impact SBHCs have on promoting health, advocates have brought growing attention to the role SBHCs play in keeping students in school and ready to learn. The current lieutenant governor, a Republican and staunch supporter of SBHCs, has provided a sustained voice to challenge the Office of Public Health, Adolescent and School Health Program, in Louisiana to gather data – hard evidence – that demonstrates SBHCs' impact on academic success and improving students' grades.

In turn, the Louisiana Office of Public Health, as a part of its policy and procedures for continuous quality improvement, requires that SBHCs provide evidence of psychosocial treatment plans and/or referrals for academic service for students showing poor school performance to help them succeed academically. Also, the business community called upon SBHCs to promote conditions favorable to students' academic success. Many Louisiana communities suffer from low rates of high school graduation, reducing workforce preparedness thereby mobilizing the business community, among others, to advocate for strategies, including SBHCs, to help students succeed in school.

Established in 1987 with a grant from the Robert Wood Johnson Foundation, Health Centers in Schools (HCS) is a 501(c)3 non-profit organization that provides school-based health care to 45,000 children and youth in EBR Parish Public Schools and the EBR Recovery School District schools (schools taken over by the state). Of the students served by HCS, 80 percent live at or below the federal poverty level and have Medicaid or LACHIP; another 10 percent are uninsured. HCS contracts with the Louisiana Office of Public Health, East Baton Rouge Parish School System, Recovery School District, charter schools, and others to provide health care in SBHCs. In 2004, HCS became the school nurse and school-based health center program for East Baton Rouge (EBR) Parish.

SBHCs in East Baton Rouge link some SBHC data with academic outcomes to explore the connection between meeting students' health needs – specifically their mental health needs – and their academic success. Spurred by the Department of Public Health's mandate for documentation of psychosocial treatment plans for students showing poor academic performance, HCS sought to link academic outcomes for SBHC users who received mental

health therapy. Helping students develop psychosocial strengths and abilities to manage the challenges they face in and outside of school has been a priority of HCS for some time. In addition to primary care, a designated social worker at each SBHC, employed by HCS, provides behavior counseling and other mental health services. HCS also manages the traditional school nurse program at schools without health centers.

What SBHC and Academic Data are Linked? How Are the Data Linked?

Since 2009-2010, HCS has linked SBHC encounter data for mental health visits with students' academic standing. "Academic standing," defined as students' grade point average (GPA), is entered into the students' SBHC record prior to and after their therapy at the end of the school year for all students who received a mental health diagnosis and treatment with mental health social workers. Exceptions include students for whom mental health and academic outcomes were unavailable at the end of the school year, either because they dropped out of school, moved to a different school, were expelled, or did not complete therapy. Because the data are not tracked over time, it is not known whether any observed changes in grades in one year extend in future years.

At present, these data are manually linked on paper by the social workers. As HCS moves toward full implementation of electronic health records, the links between SBHC data and academic data likely will be based on students' unique school identification number. HCS's Annual Reports identifies the percent of students who received mental health therapy who showed academic improvements of 0.2 points or better in their GPA. The final page of this study presents an overview of all SBHC encounters with students enrolled in East Baton Rouge schools.

What are the Opportunities and Challenges in Linking SBHC and Academic Data?

Opportunities. As a part of the Louisiana Office of Public Health's (LOPH) policies and procedures for continuous quality improvement in SBHCs, the state mandates that SBHCs track academic standing for all students who receive mental health therapy from the SBHC and are at risk for poor academic performance. To satisfy this mandate (and because of their own interests in improving academic outcomes for EBR students), the EBR school system issued a business agreement with HCS, attached to their contract, that allows SBHC staff to access and extract academic data from students' education records for those students who receive mental health therapy from a SBHC in EBR. This relationship overcomes one of the most fundamental and pressing barriers to linking data – FERPA's restrictions on access

Some Facts about School-Based Health Centers (SBHCs) in East Baton Rouge

1. In 2011-12, SBHCs in EBR had about 100,000 encounters, up by 20,000 from the year before
2. East Baton Rouge's (EBR) SBHC enrollment averages between 88% and 92% of students enrolled in the school.
3. Eight of EBR's 90 schools have SBHCs. Nine additional schools have full-time school nurses, who will be joined by social workers in 2012-13. Between16-20 schools will have a full-time nurse/social worker team.
4. All Health Centers for Schools (HCS) health centers are staffed with a clinic coordinator who provides administrative support, a registered nurse, a nurse practitioner, and a mental health therapist. HCS professionals provide primary preventive care, immunizations, chronic disease care, mental health counseling, and vision and hearing screening. Some schools have a nurse on site full-time, while other schools have rotating nurses who travel to several schools each day. Registered nurses work with school health assistants (SHAs) across the parish.
5. Using AMA GAPS, HCS assesses middle and high school students who had at least three visits to the SBHC. HCS also adapted the AAP's Bright Futures to create a risk assessment for elementary-level students. Findings are integrated into students' medical records. Every time students visit, someone in the clinic is addressing those risk factors.
6. Beyond encounter-data, students' medical records also track in-school and out-of school referrals and follow-up on those referrals, as required by state standards. As available, the medical chart also includes whether students completed their referral and the services they received.

to academic data by health practitioners. To analyze the relationship between mental health therapy and student grades, for example, the HCS social workers pull students' nine-week academic reports from the EBR cumulative folder (student education folders).

Health Centers in Schools has become a wholly-owned subsidiary (February 2012) of Our Lady of the Lake Regional Medical Center (known in Baton Rouge as "The Lake" or OLOLRMC). The Lake and its parent company, the Franciscan Missionaries of Our Lady, have a long-standing commitment to children in this region and Louisiana. The Pediatric Residency Program has been revived at the Lake (the first class of residents graduate from the program in June 2013). Residents rotate through Community Medicine in the school nurse program for community linkage and the SBHCs for risk assessment training in Year 1. In Year 2, the Medical Director of Health Centers in Schools trains residents on adolescent medicine while completing their rotation in SBHCs emphasizing the importance of comprehensive risk assessments for all adolescent clients.

The three-way partnership (HCS, OLOLRMC, and the East Baton Rouge Parish School System) provides the increased funding to support school nurse staff, electronic health record systems for SBHCs and school nurses, and creates a seamless system-of-care for all children and youth with chronic disease who are seen by OLOLRMC pediatric sub-specialists. The hospital and all Lake Physician groups have altered their registration forms to collect the name of the school that the child attends, making it easy for medical providers to communicate with HCS staff — both school-based health centers and school nurses. The expansion of the partnership to include OLOLRMC has opened many opportunities to access additional resources, partner with a broader array of service providers, and improve the overall health of the children and youth in Baton Rouge, LA.

Challenges. The quality and reliability of school data are beyond the control of HCS. Absentee data in school systems, for example, "are often confusing to understand," as the HCS interviewee describes – the schools do not measure attendance in standardized ways, yielding inconsistent measurements.

Also, while local business leaders recognize the potential role of SBHCs to support learning, "corporate America is

"Citizens are turning to public education asking that they 'fix the problem'—Safe and Drug Free School programs, bullying, and so on. The focus of public education is to educate children—the community must own the responsibility of taking on social issues—that means everyone—elected officials, philanthropic organizations, community leaders, the faith community, health care providers, and non-profit organizations must see themselves as part of the solution. The public education system, by law, must educate all children —many of the children in public systems most likely could not attend a private or parochial school—they require a high level of medical or mental health care. Public systems across the U.S. are accepting children on ventilators, children with chronic disease — asthma, diabetes, seizure disorders, hypersensitivity to a variety of allergens, and so on. School-based health centers assist students who need a high level of medical and/or mental health care to enter school and achieve academically. The thing that makes U.S. public education different from the rest of the world is that our country mandates that we educate everyone! With the help of more intense medical and mental health provision of services on school campuses, we are helping each community to ensure that children are healthy, so that they can stay in school and learn."

Source: Health Centers in Schools

not yet at the table." As the interviewee describes, "Fortune 500 companies need to come look at (SBHCs) from a different point of view. I'm ready to take some of the data points we have to talk with people – to say, look, it's going to take more than the public school systems – it takes a community" to help students prosper and stay in school through graduation. "It also takes corporate America to help institutionalize these programs – to protect them from the cycles of political change" that threaten the sustainability and expansion of impact SBHCs.

What is the Impact of Linking SBHC with Academic Data?

Evidence suggests that SBHC's positively impact academic outcomes. Analyses of the relationship between mental health therapy and students' grades, conducted by the SBHCs' social workers, show that the grades of just under one-third (30 percent) of students who receive mental health therapy improve by the end of the school year. HCS believes that their ongoing work to standardize clinical protocols in mental health care has also contributed to improvements in students' clinical and academic outcomes across schools and SBHC sites.

A precedent is set to link other SBHC data with academic data. This initial work to link students' use of mental health services from SBHCs with academic data has paved the way to link other SBHC services with academic outcomes and school records, an incremental process made easier as SBHCs adopt electronic health records.

Support for SBHCs from teachers and principals. As the CEO of HCS noted, "anything we can do to keep the child in school they are happy with. Teachers and principals are enthusiastic about SBHC services and care." SBHCs need additional mechanisms to gather evidence on the range of ways SBHCs impact academic achievement and students' academic success. As the CEO indicates, schools, businesses, community members, and policy makers are primed and ready for these kinds of analyses. The introduction to EBR of a new superintendent, a firm believer in SBHCs and the expansive role they play in improving students' well-being and success, provides an additional source of support for developing more comprehensive linked data systems.

What are the Key Elements of Success and Lessons Learned?

- Just get started linking data, however incrementally or small. Get a foot in the door to show the value of linking data helps to pave the way for more.
- View linking data as an opportunity to inform others about what SBHCs are doing and to inform the field about the impact of our work on academic achievement. Do not view data collection, linking, and analysis as another chore. How do we know what is going on in the SBHCs and what difference they are making? Just look at the data.
- Tell and share the stories of how SBHCs matter for students. The hook for SBHCs is in telling stories; data then backs them up as issues for students overall, not only for individuals. There is power in stories – but you have to have the data to back them up.
- Take action on what the data reveal. The CEO of HCS provides the following example of programmatic and operational changes, based on findings from risk assessments of students' needs and SBHC chart reviews: "We are going to change what school nurses do this coming year – they won't be working like a school nurse – they will be tied into primary care and mental health. Our goal is to put nurses and social workers on campuses together as a team. We will have support staff that we currently call a school health

assistant – they will become care coordinators who will do nothing but manage the hearing and vision screening because that can be done by a trained lay person – they'll be responsible for follow-up. We now have tracked our vision failures to see how many parents were noncompliant with getting their child an eye exam either by the mobile optometrist or by someone in the community – it's significant. We're about to launch a public information session on why vision is so important. The data are telling me that parents don't understand – there's a real disconnect. All the parents need to do is complete a consent form or make an appointment to see a provider of their choice. We've removed the barriers – the unit now comes to the school."

> "Every year we chip away at this. Every year we get a little more sophisticated in what we're doing based on what we're learning."
>
> Source: Health Centers for Schools

- Build partnerships to improve access, continuity of care, and collaboration in serving students. A leading example of the benefits of strong community partnerships is HCS's partnership and business relationship with the local pediatric hospital. The hospital, students, and HCS have all benefited from HCS's ease of access to specialists and subspecialists and the increasing seamlessness and continuity of care that this relationship affords, particularly as all patient charts are fully converted into EHRs. EHRs enable HCS to "be the eyes and the ears and doing some of the work of the physicians when Johnny is not in school or how Johnny looks in school. For example, Johnny goes in the emergency room or the hospital for asthma – that's the trigger – he gets on the radar screen. With parent consent, the respiratory therapist in the hospital will send HCS the asthma action plan and all of the forms we need to administer the medication and prepare the health plan that needs to be in place for this student. Wherever that child is, the hospital nurse asks parents of every child age 4 – 18 which school their child goes to. They then will link back with HCS so HCS has information about that students' intake findings, diagnosis, and patient care plan. On the backend side, HCR will monitor that action plan and try to prevent an emergency room visit or hospitalization from the exacerbation of asthma….We track these kids. Unless they leave the school system, we follow them."

Sources:

Interviews:
Sue Catchings, Chief Executive Officer, Health Centers in Schools
Sheryl H. Miller, Associate Director, Mental Health, Health Centers in Schools

Materials provided by Sue Catchings on the Health Centers in Schools website

Attachment 1: 2010-2012 Encounters with Students in East Baton Rouge Parish, Health Centers in Schools

School Years:	2010-11		2011-12	
Type of Encounter	Total within group	TOTALS	Total within group	TOTALS
Vision screenings provided		23,729		23,311
Students who failed screening	3,518		3,350	
Students who received dilated eye exams		1,580		2,031
Students who needed glasses	1,307		2,018	
Students who received glasses	1,307		2,018	
Students who saw mobile provider			2,052	
Received glasses from mobile provider			1,189	
Students who saw community provider			1,051	
Received glasses from community provider			829	
Parents contacted by phone			1,022	
Parents contacted by letter			4,797	
No resolution of Vision Failure			247	
Hearing screenings provided		21,640		20,335
Students who failed screening	252		361	
School Staff trained in CPR:		n/a		91
Elementary			62	
Middle			15	
High School			14	
School-based health center visits		18,785		22,522
Medical Doctor encounters	528		691	
Registered Nurse encounters/ Immunizations	5,141		8,340	
Nurse Practitioner encounters	6,470		5,856	
Mental health encounters	6,604		7,597	
Psychiatrist encounters	42		38	
ACADEMIC IMPACT/ IMPROVED QUALITY OF LIFE				
Students on treatment plans	522		504	
Students who completed therapy	448		435	
Students with academic improvement	72% = 322		68% = 295	
Students with improved coping skills (showed no academic improvement at the time)	28% = 126		37% = 159	
National Standards of Care in Prevention				
Students with 3 or more visits to health center	**2237***		**2536***	
Comprehensive risk assessments	**74% = 1657**		**79% = 1996**	**MET NATIONAL STANDARD**
Comprehensive physicals	30% = 623		40% = 815	
School Nurse encounters		19,871		24,676
Initial Health Assessment & Health Plans developed		7,500		6,043
School Health Assistant encounters		2,628		4,559
Dental Care		3,666		3,380
School-based mobile dentistry	2,940		2,684	
Give Kids A Smile Day	726		490	
School-based Dental Sealant Program			206	
School-based Seasonal Flu Immunization		7,548		7,601
TOTAL		**106,947**		**114,549**

Source: Health Care in Schools Annual Report: 2011-2012, page 16.

*All 11 school-based health centers included.

Rev. 07-12-2012

Attachment 2: Excerpt from the Continuous Quality Improvement Monitoring Review Policy for School-Based Health Centers in Louisiana

Louisiana Department of Health and Hospitals, Office of Public Health
Adolescent School Health Program, School-Based Health Centers

OPH/ASHP CONTINUOUS QUALITY IMPROVEMENT MONITORING REVIEW POLICY

Original Policy Effective Date: October 5, 1999
Revised: July 2012

PSYCHOSOCIAL REVIEWER (Core team member and peer psychosocial reviewer)			
Poor School Performance	All patients with the ICD-9 codes 309.23, 313.83, V40.0, and V62.3	10	Documentation in the charts of referral and medical screening and evidence that social worker and appropriate school personnel have talked. Appropriate charts have evidence of treatment plan in progress and/or referral for academic service.

Miami-Dade County

Introduction and Background: Paving the Way for Linking Health and Academic Data

In the late 1980s, recognizing that the needs of children in Miami-Dade County, FL far exceeded the resources and support systems available, a cadre of committed individuals spearheaded a drive to address the problem. Using a Florida statute that allowed for such an initiative, the group generated a two-part referendum in 1988. Voters overwhelmingly recognized the need to help area children, but declined to fund the remedy through tax revenues.

A decade later, retired Miami Herald Publisher David Lawrence Jr. began a new initiative. Given this second opportunity and with a better funded campaign, in 2002, Miami-Dade voters approved by a 2-1 margin an independent special district, a dedicated funding source for children: "The Children's Trust." The latter emphasized a commitment to all Miami-Dade children, while still clearly recognizing that some children are more at risk and therefore need more help — a key difference. A "sunset provision" required that the initiative be returned within five years for voter approval.

Despite the difficult economic climate, Miami-Dade voters decided in overwhelming numbers — 86 percent — to reauthorize The Children's Trust in August, 2008.[1]

The Children's Trust staff and a 33-member community-based board share responsibility for funding allocations decisions for children's health programs and services. These services include investments in school-based health centers (SBHCs), which collectively received roughly $13 million in Trust funds in 2011. Four main goals guide the current and future work by The Children's Trust: children are healthy physically and emotionally; supported by safe, nurturing families and communities; ready to succeed when entering school; and succeeding in school and society.

Health Choice Network (HCN), funded by The Children's Trust, collects and analyzes data for the county's SBHCs. HCN also serves as a centralized source for other services for Federally Qualified Health Centers (FQHCs), including credentialing, financial services, purchasing, information technology, and electronic health records. HCN coordinates HealthConnect in Our Schools (Health Connect), a multi-million dollar initiative launched by The Children's Trust and its partners in August 2006 to provide school children with access to quality health care services, including a medical home and behavioral health services through a health team in every school. Health teams, each of which serves at least two schools, are comprised of nurses, nurse practitioners, social workers and health aides. The program has recently expanded to serve more of the K-12 schools in Miami-Dade County. Prior

[1]This introduction draws from The Children's Trust. Investing in their Future. A Brief History

to this initiative, nearly 90 percent of Miami-Dade's 335 schools did not have a school nurse or clinic. Miami-Dade Public Schools and Miami-Dade County Health Department serve as important sources of funding and support for the initiative.

What SBHC and Academic Data are Linked?

Over the last three years, SBHC clinical data including, school nurses data, encounter data, and results from mandatory screening for vision and BMI have been linked together via students' school identification numbers. Additionally, the Dade County School District feeds students' state standardized test scores and their screening, demographic and attendance data to HCN. However, although these data are available to be linked with health data from the school data system, ISIS, these data have not yet been linked because of limitations in the staff time needed to develop the algorithms to integrate them with the existing health data.

Miami-Dade County's SBHCs are staffed by either a nurse or an Advanced Registered Nurse Practitioner (ARNP). Those staffed with ARNP's can provide primary care services. Those centers staffed by nurses can provide basic school health services, including state-mandated screenings, health promotion, preventive services, behavioral assessments, counseling, immunizations and first aid emergency care. However, all the SBHC's provide state mandated screening services. School social workers provide behavioral health services, although there is some momentum to enable SBHCs to assist. Mental health data are not yet part of the linked data system.

How Are the Data Linked?

One of HCN's first responsibilities for The Children's Trust was to develop a data processing system that could serve as a "single point of service health network," a singular place that contains students' health, demographic, and academic data. Accordingly, HCN developed the Children's Health Education & Economic Resource (CHEER), which The Children's Trust describes as "a ground-breaking, national model collaborative between The Children's Trust, Microsoft Corporation, HCN and Miami-Dade Public Schools." CHEER enables healthcare professionals to access real-time data at a single point of service to obtain a holistic view of the health and other issues students face." The CHEER data integration platform is a data warehouse and exchange service designed to integrate electronic health records (primary and behavioral health care) and public school records to provide real-time comprehensive student-level and population level data across primary health, behavioral health, and education sectors. HCN delivers health-related information to CHEER from the weekly data feed it receives on the 350,000 Miami-Dade Public School students. Each SBHC has an identifier that monitors students' use of that SBHC, as well as a special identification number to enable the data to be de-identified for analysis.

CHEER operates on a technology platform supplied by Microsoft Corporation called *AMALGA Unified Intelligence System*, a security-enhanced software designed especially to manage the real-time exchange of student data stored across different systems. AMALGA allows storage and access of data in a

"We don't know of a project of this scale anywhere in the country – it's a warehouse of bringing systems together," said Kevin Kearns, CEO of Health Choice Network, a nationally-recognized Miami-based company which manages a network of some 50 community health centers. Kearns emphasized that children and all patients will benefit from the improved decision-making, cost savings, reduction in errors and redundancies, and better overall care.

"The 21st century has arrived at The Children's Trust with CHEER," said Dr. Andy Brickman, executive director of Childhood Health and Development at The Children's Trust. "For a patient anywhere in the world – one displaced by a hurricane – this system will show their allergies, their medical history, a child's immunization records," Brickman said.

Source: The Children's Trust, "Single Point of Service Health Network: Plenty to CHEER About."

"By accessing multiple sources and bringing this valuable data together, our school-based health initiative will better serve children in the community."

Modesto E. Abety, President and CEO of The Children's Trust.

"cloud" environment which enables parents, health and academic professionals (with parental consent) to access students' health and education records. The system also can link encounter data from students who may use a provider outside of the SBHC and school system.

CHEER allows the collection of encounter-level data from all of the SBHCs that are not using Intergy (an electronic health record); data from SBHCs that use Intergy also can be pulled into CHEER given its compatible format. All data in the CHEER system can be searched – i.e., by students' last name, first name, birthdate, school, grade level, etc. As described by the Program Administrator, the system locates information "better than a Google search" – the system is equally dexterous at translating data into an easily usable report format. "The feed we get from DCPS is inside the CHEER system so they don't have to do a manual entry for that student or to look for that student – it cleans that part up. It's goof-proof. So as the live feed is updating, so too is CHEER."

AMALGA links health (CHEER, Intergy) and educational (ISIS) data via students' identification numbers; it also could include other data. For example, the Program Administrator of HCN indicated that electronic records of housing conditions, or changes in the weather could be included, enabling analyses of its effects on asthma or attendance. ISIS includes students' grades, disciplinary information, attendance, immunization compliance, exceptional student education, and data entered by school social workers. Health and academic data in AMALGA are student-identified and cannot be accessed without parental permission. CHEER collects students' health and academic data. AMALGA is positioned to incorporate and translate multiple data systems in common reportable language. CHEER could serve as the primary source of data for research purposes, allowing analyses that could be published, all using de-identified data. Because CHEER is updated daily, new data replace older data in the system; hence, it is not possible to rerun analyses with older data because the data exists as a live feed, every day. Historical reports are saved; historical data, however, are not.

The five SBHCs operated by FQHCs use Intergy for billing and as their EHR. The other four SBHCs are not FQHCs and use only paper records to document clinical information.

Challenges

HIPAA and FERPA. Although the system enables analyses at the individual level, without parental consent, HIPAA and FERPA restrictions prohibit access to client-identified data. The lack of consents could limit the system's utility to identify the range of issues and needs at the individual student level.

Barriers to extracting additional data from ISIS and other sources (private providers and other public programs and services) into AMALGA:

- The cost involved in transferring the data and creating report templates in AMALGA
- Resistance by parents, community members, and others who are distrustful and wary of potential abuses of these master data files being kept in an electronic "cloud" given the substantial personal, sensitive, detailed information about families and children. However, the data stored in the cloud has the same level of security applied to all medical data (and is subject to HIPPA regulation).

What is the Potential Impact of Integrating Student Health Data with Academic Data?

Reports based on aggregate data, provided by HCN to The Children's Trust, monitor the reach, impact, and ongoing needs facing children in Miami-Dade County and allow administrators to make adjustments in policy, practice, and funding where necessary to improve health services to school-age children. The reports also serve as the primary vehicle for accountability by The Children's Trust to Miami-Dade voters regarding the return on the investment of the millage increase to support children's health services in the area.

Although in the early stages of development, the potential impact of CHEER's linked and de-identified student records is significant. School staff and health staff will be able to understand the fuller picture of what is going on in students' lives that may be affecting their health, well-being, and abilities to prosper academically. Why is a student missing so much school? Why are they failing classes? If a student gets consent forms signed, the health provider examining that student can look at school data to better understand the context surrounding the student's barriers to health and well-being. The ability to investigate a range of questions that impact students' health, learning, and academic success would be dramatically heightened if comprehensive data were available to investigate the health, social, and environmental issues faced by students. As the HCN Administrator asks, "does using a SBHC have an impact on attendance for students with chronic disease over time? The linked data would enable the fuller picture of what's going on. The plan is to run analyses and reports using de-identified data on standardized test scores and attendance, to see what's going on."

What Ongoing Work Uses or Expands Linked Health and Academic Data?

HCN established the CHEER Collaborative with a vision to "ensure that school children in Miami Dade's underserved communities are medically and behaviorally positioned for academic success." CHEER will support a service delivery system that uses Community Health Workers (CHWs), SBHCs, and FQHCs to provide health care access and a medical home to high-risk students who may not have access to a SBHC in their home school. The proposed approach creates an early warning data system designed to identify students with both unmanaged health and/or behavioral health issues in combination with evidence of academic difficulty.

CHEER could identify school-aged children at high risk of academic failure due to unrecognized medical and behavioral conditions in the underserved communities of Miami-Dade County. In partnership with SBHCs and FQHCs, CHEER has several specific goals: reduce absenteeism, reduce suspension rates, increase academic performance, reduce emergency room visits, and reduce hospitalizations and length of stay.

Although the school district has released attendance and standardized test scores to be linked in CHEER, the ultimate goal is to integrate students' school records with records of their health and social needs. Immediate priorities include adding enrollment in Free and Reduced Lunch and behavioral health assessment to the data system, as well as information about students' insurance status, eligibility and enrollment in Medicaid. As the HCN Program Administrator explained, "We're trying to find a work-around so we can have access to DCPS so we can have a look at that entire kid. Of course you run into HIPPA, FERPA, and 1,000 other issues…but that remains a long-term goal."

What are the Key Elements of Success?

Widespread community support from Miami-Dade County voters. Two key ingredients for success have been (1) the voter's strong support for funding The Children's Trust and (2) the policies and democratic, participatory processes the Trust uses to set priorities and make decisions. According to the Program Administrator, "without that, the data system would not be in force."

Don't ask for everything at once – get what they'll give you, build trust, then go back for more. As suggested, integrating school data into CHEER happened incrementally. Initial requests were for student demographics by HCN were non-controversial – demographic data at the student-level is not included in FERPA regulations and thus, from a legal standpoint, could be easily added without issue. Through an inter-local agreement, DCPS agreed to upload demographic data every day into CHEER. The "hot buttons" for educators came next, several years after CHEER was underway - attendance and standardized test scores. Given the financial benefit with improvements in attendance and test scores, the District was enthusiastic and receptive to including that information in the system and running analyses on both.

A simmering movement in Miami-Dade County. Increasingly, there is a push from The Children's Trust and others to develop this more comprehensive system because "most everyone sees the benefits of it." However, as the Program Administrator indicates, "If we had just pushed for data without educating folks, we would not have gotten that far."

Sources

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- Miami-Dade County, Division of Student Services, Health Connect in Our Schools
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- The Children's Trust, "Single Point of Service Health Network: Plenty to CHEER About"

Seattle

Introduction and Background: Why Link Health Data and Academic Data?

In 1990, the Seattle voters passed its landmark Families and Education Levy (the "Levy"), a supplemental property tax proposed by Mayor Norman Rice to ensure that students were "safe, healthy, and ready to learn." Since its inception, the seven-year Levy has been renewed four times, reflecting the broad-base of support by Seattle voters. Beginning with the 2004 renewal, Levy funds have been more strategically focused on improving academic achievement in measurable ways. The Levy recently approved in 2011 through 2018, approved $232 million to sustain and expand its commitment to several key overarching goals: improving school readiness, increasing academic achievement and closing the achievement gap, and making sure graduating students will be college/career ready.

> A key impetus behind the work to link SBHC data with academic data was an entrepreneurial and visionary mayor and the coalescence of favorable politics and leadership.

In 2004, the public Levy Planning Committee convened to develop the 2004 renewal proposal granted priority for two key areas: intensifying work to close the achievement gap between both students of color and low-income students and the rest of the student population; and increasing public accountability and outcome measurement through strengthening data systems.

To satisfy the Levy's mandate for data-driven accountability, Seattle Public Schools (SPS), City of Seattle Office for Education, and Public Health of Seattle and King County (PHSKC) established a formal partnership in 2005 to develop a system for linking health-related data from school-based health centers (SBHCs) serving Seattle's students with students' academic and demographic data. This linked data system marks one of the most comprehensive and pioneering efforts in the country to link SBHC and school-related data, enabling the availability of evidence-based data to support and guide practice and policy decisions county-wide, and the data needed to measure the impact of the Levy's investments in SBHCs on academic outcomes.

The City of Seattle and PHSKC's investment plans for the new 2011 Levy include program enhancements and new strategies to achieve its goals, and requires increased collaboration with other Levy-funded strategies, coordination with schools to identify and address the academic and health needs of the Levy's priority students, and new academically oriented performance targets. SPS adopted a new data access protocol that will allow PHSKC to

directly request access to student data. In addition, a new data sharing agreement between OFE and SPS allows the city greater access to student data.

To comply with its objectives, the Levy ties funding with performance, which Levy-funded projects can earn by achieving outcome targets. These outcomes and indicators for the 2012-2013 Levy specific to school health care services include the following.

2012-2013 Outcomes and Indicators for Assessing the Performance of SBHCs and School Health Support Services (school nurse services)

Outcomes:

Percent of SBHC and Health Support Service users who are passing all classes
Percent of SBHC and Health Support Services users who are meeting or exceeding standards in math and reading (Elementary only)

Indicators:

Number of students who:

- *Receive primary medical and mental health services (SBHCs)*
- *Receive intensive SBHC interventions that support academic achievement (SBHCs)*
- *Are brought into immunization compliance (SBHCs)*
- *Are screened for behavioral risk factors (School Health Support Services)*
- *Percent of users with fewer than 10 absences per year (SBHCs and School Health Support Services)*

The Need for the Levy, from The Seattle City Council Source: www.seattle.gov/council/issues/families_education_levy/

- "Only 67 percent of the Seattle Public Schools' Class of 2010 graduated on-time. For African Americans the graduation rate was just 53 percent, and it was well under 50 percent for Latinos and Native Americans. Of those who graduated, only 46 percent were prepared for admission to a four-year college. Academic achievement gaps in Seattle Public Schools are staggering, even at a young age.
- In 2010, almost 90 percent of white students and students from higher socioeconomic backgrounds were reading at grade level in 3rd grade, compared to barely half of African American and Latino students and students who qualify for free and reduced lunch. Less than 30 percent of African American and English Language Learners performed at grade level in 4th grade math, compared to almost 80 percent of white students.
- School reports released for the first time this past fall show great disparities in academic outcomes. Thirteen schools were found to have poor academic performance overall as well as low academic growth—in other words, they are not improving. All but one of these are elementary schools and all but one are located south of the ship canal. Nearly half are concentrated in southeast Seattle neighborhoods."

Who Are the Key Partners in Developing and Sustaining the Linked SBHC and Academic Data?

The City of Seattle and SPS believe that a strong partnership is necessary to increase the academic outcomes for all of Seattle's children and to close the achievement gap. In 2005, a formal partnership agreement between the two was created, outlining the roles and expectations of each in attaining this goal. The City of Seattle and SPS also have a data-sharing agreement that allows the city to track indicators and outcomes for students participating in Levy programs. This data system is critical to measuring student outcomes and continuing to improve Levy programs. The roles played by the following partners were essential to Seattle's success in linking SBHC and academic data:

1. City of Seattle's Office for Education. The Families and Education Levy (FEL) appropriated funding to the Department of Neighborhoods' Office for Education, which administers and oversees financial activity for the Levy.

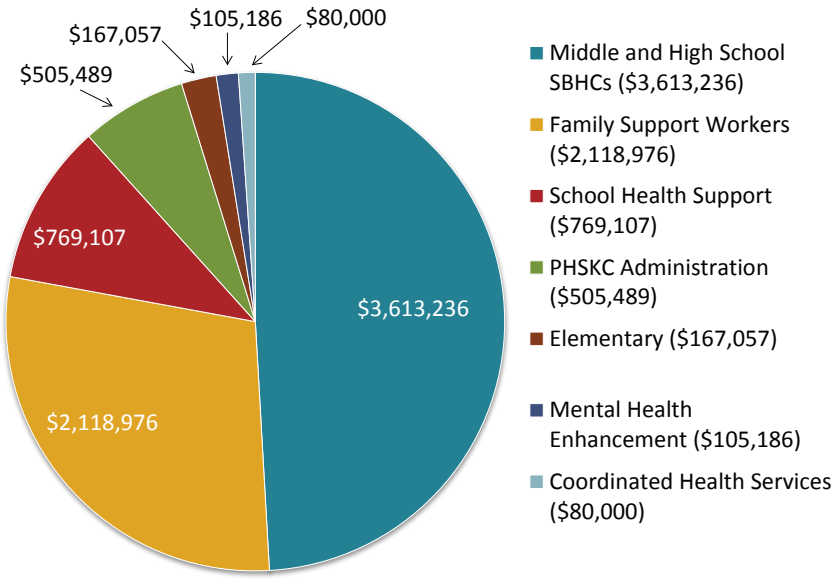
   The Office for Education's information director oversees and manages the accountability and evaluation

structure for Levy-funded programs. To protect student records and maintain the quality of the data system, OFE contracts with the city's Finance and Administrative Services Department to manage and maintain the FEL database. The database administrator works in a different location from OFE, and does not play a role in the development or use of the data.

2. SPS provides academic and demographic data to the City of Seattle Office for Education, stripped of all student identifiers and replaced with proxy numbers to link the data files.

3. PHSKC manage the student health investment for the Office for Education. PHSKC subcontracts funding to sponsor organizations and directly sponsors SBHCs in three high schools. PHSKC coordinates the partnerships between SPS, the Office for Education, and the sponsor organizations. PHSKC provides training and support for SBHC providers, school health support staff, and family support workers. They coordinate funding and activities with the city around expansion in interagency data sharing. As one of the five areas invested in by the Levy, "student health services" are provided to students through 20 SBHCs in Seattle. SBHC's represent 15 percent of the Levy's resources, receiving over $5 million per year.

2012-2013 FEL Student Health Investment



Source: Power Point Presentation: Families And Education Levy, Student Levy, 2012-2013 Update, Levy Oversight Committee Meeting, Oct.9, 2012.

4. SBHC Sponsor Organizations. Sponsors serve as direct service providers and primary care operation managers. Sponsors manage the SBHCs to meet Levy targets, and provide utilization data which can be linked to academic data. They work closely with PHSKC and SPS to align the funded services with the Levy's intentions and targets.

About Seattle's SBHCs

- SBHCs are staffed by an integrated, multi-disciplinary team, including 1.0 FTE mid-level practitioner (NP/PA), at least 1.0 FTE mental health counselor, 1.0 FTE administrative and eligibility support, and either a school nurse or a public health nurse. Middle schools have at least.5 FTE medical providers in each of the SBHCs.

- In coordination with the SBHCs, school nursing services provide screening for academic risk and population-based health services across health center sites and other programs. School health support staff and SBHC providers work together to assess and refer students to SBHCs and other services; increase immunization compliance; and manage chronic conditions.

- Although the mix of services delivered at each site is tailored to the unique needs of each school community, all SBHCs provide comprehensive primary health care, including both medical and mental health care; screenings, health assessments, and interventions that focus on students who are academically at risk; risk prevention strategies that are integrated into primary health care, emphasizing mental and behavioral health interventions; assistance to students in managing chronic conditions; addressing high-risk behaviors most common among adolescents; and immunization compliance. Some sites offer enhanced services, including dental, health education, nutrition, and naturopathic medicine.

What SBHC and Academic Data are Linked?

SBHC and academic data were first linked in 2004, resulting in roughly seven to nine years of linked data on students in 2012. At least three times per year, SPS provides the Office for Education with demographic and academic data for all 45,000 students, after stripping the student IDs and replacing them with a proxy identification number. Data are available longitudinally at the student-level, though students are identified via a proxy number only. The system supports extensive analyses for planning, program development and evaluation.

Examples of data linked in this system include the following:

From the Office for Education, via data maintained by SPS

- Demographic information, including grade, gender, race and ethnicity, whether the student is an English-Language Learner and was born out of country, living situation, whether or not the student is eligible for Free or Reduced Lunch, and approximate geographic location of student residence.
- Participation in selected programs, including student and family participation in Family Support, Family Involvement, and Middle School Support programs, student visits to school nurses, and immunization compliance.
- Academic data, including school of attendance and academic behaviors; state test results; attendance; discipline; formative assessments in the course of the year; improvements in math, reading, writing; grades and credits for secondary students; whether the students passed all their courses; whether they failed any core courses; promotion/non-promotion; mobility status (if the student changed schools or left SPS).

From SBHC Sponsors via PHSKC

- School-based health center data. Sponsors of school-based health centers report healthcare utilization data and homeless status to PHSKC. Data includes: visit type (mental health or medical); visit date; whether they have a chronic condition; were targeted for school success (based on the presence of factors that threaten it); and school ID. These data are gathered for every visit. All visit and procedure codes for a given student are included in the data.

Any data that is extractable and tied to a student ID can be linked. Except for the student identifier, 100 percent of the variables available in the demographic and academic databases are linkable and provided to Public Health.

How are the Data Linked?

Linking SBHC and school data involves several steps. See the sidebar on the right for more information.

Three times per year, SPS sends complete demographic and education data to the database administrator for all 45,000 SPS students, identified only by proxy number. The database administrator loads the tables into the FEL databases so the Office for Education can conduct analyses of students who received services from Levy-funded programs compared with those who did not. The Office for Education can then match health data with information about the student's attendance, disciplinary actions, GPA – whatever is available that is of interest, with that new proxy ID. The Office for Education does not routinely share these data with other agencies or programs. Several times a year the Office for Education provides a data dump of all the data about the SBHC students to PHSKC.

Steps for Linking SBHC and School Data

1. Every month, SBHC organizations send an SBHC data file to PHSKC.
2. PHSKC sends all SBHC data to the database administrator who removes the student IDs and sends them to SPS with a record locator for each student ID.
3. SPS returns a file to the database administrator that includes only the record locator and a proxy ID for each student.
4. The database administrator reinstates the proxy IDs into the SBHC data file as indicated by the record locator and then loads the SBHC data file into the FEL database.

What are the Challenges in Linking the Data and

Strategies for Overcoming Them?

The linking process, by and large, has been fairly seamless and without particular difficulty. Where there have been challenges, they include the following:

- **Problems with students' ID numbers, which is most common with highly transient students, homeless students, and students who may leave school for periods of time and later return.** As one interviewee described, obtaining an ID from students who have dropped out "is the area where the student ID becomes really difficult – students who are disengaged from school. They have no idea what their ID is – they may have participated in three different school districts in their high school career. There is a statewide ID – but not all schools use it – yet many assign their own ID. That's probably the most challenging population to get a student ID. Beyond this, the mobility database – multiple codes for the same youth, requires that we sort through them all to find their final disposition code."

- **Managing historical data when a significant change in the structure of data occurs**, such as new federal codes for student race and ethnicity, and new CPT codes.

- **Limitations in data sharing imposed by Federal and State Regulations, which limits cross-agency sharing of individual information without consent.** Without parental consent for minors, the Family Educational Rights and Privacy Act (FERPA) prohibits SPS from sharing personal school files with anyone other than parents (or adult students) and SPS employees. The same is true of the Health Care Privacy and Health Insurance Portability and Accountability Act of 1996 (HIPAA): without parental consent for minors or self-consent by students to share confidential information, HIPAA prohibits health care providers serving the student from sharing personal health information with anyone who is not a medical provider.

  Interview participants identified two opportunities for working within FERPA and HIPAA's rules to enable student-identified, cross-agency, linked data (which is essential to be able to identify and address individual student needs):

  - *Creating a contractual arrangement between the agencies wherein one agency or organization (e.g., SBHCs or PHSKC) serves as an agent of the other (e.g., schools).* Because so much of what PHSKC does is directly relevant to schools and advancing students' academic outcomes, PHSKC and individual sponsors have sought in the past to achieve status as an agent of the school. As of yet, however, this status has not been obtained.

  - *Obtaining approved release of academic information form as part of the consent packet.* SBHC sponsors routinely provide this release of information form in parent/guardian packets "at the beginning of the school year, every time a kid registers, every time we hand out a registration packet." Although this creates an opportunity for the SBHC to access academic data through the school, for students for whom they have a FERPA release, not all parents sign these forms. Many adolescent students self-consent for confidential services and do not provide the FERPA release form from their parent in that registration process. Academic data obtained via this process is used by clinicians to target services and care to support academic goals. Students with a FERPA release are not representative of all SBHC users and therefore this subset of user data cannot be used to draw conclusions about the user population.

What Has Been the Impact of Linking SBHC with Academic Data?

Linking SBHC and academic data has had an impact on an array of areas, including the following.

Impact on academic outcomes. The linked data enables systematic studies on the effect of SBHC utilization on students' health, health behaviors, risk factors, and academic outcomes. For example, a recent study for the City of Seattle conducted by the University of Washington using the linked data found that students who used

SBHC medical services were more likely to have increased attendance. Similarly, students who used SBHC mental health services were more likely to have higher GPAs, though with each of the studies, the increases were low to moderate. Further investigation of the dynamics surrounding findings such as these, particularly among subgroups of at-risk students, helps to reveal the ways and conditions under which SBHCs influence academic success.

Driving practice and guiding program planning. As the following comment from a participant in the interviews revealed, linking information about students' health with their academic outcomes can play a major role in helping to inform and guide decisions about SBHC programming, resource allocation, and practice. For example, are the SBHCs reaching and serving students who are underperforming? Are they reaching students who are at greatest academic risk?

> *"Our predominant target group of students is those who are failing in school. The schools we are most interested in are schools that have high numbers of students who are struggling in school. The data raises a certain level of consciousness: are the SBHCs serving the right students? The database is helpful in being able to say that half of the students you are serving today failed the year before and three years ago it was only 10 percent of your student population, at least in the target. At one middle school, for example, 20 percent of the population is Hispanic/Latino kids, and yet the center is only serving 8 percent of the Hispanic/Latino kids. We know that 50 percent of the kids failing in that school are Hispanic /Latinos – the Centers need to go see more Hispanic Latino students! The partners are great in using that data – with outreach for example. We pay attention and come we come up with reasonable answers because we pay attention to these data."*

Leveraging schools and districts to work collaboratively with SBHCs to support the academic success of students. At a building level, principals with whom this information is shared are more likely to work collaboratively with the SBHC, recognizing the SBHCs' track record of achieving the same results they are striving for. Other Levy-funded school programs also clearly see the impact of health services on student success.

One of the individuals interviewed for this case study described the power of the linked SBHC and academic data as follows.

> *"I wanted research that says SBHCs impact academic outcomes – I wanted us to be front and center as a program that was doing what we set out to do and had some academic and peer reviewed research to back that up and not just the softer programmatic evaluations in partnership with the citation and internal to ourselves. I had a political agenda – everyone shared it – the sponsors wanted to see that – we wanted to maintain and expand what we were doing. The pathway often starts at Seattle Public Schools – if you have the data that says this is how this will help you, that is extremely impactful. We've had endless conversations at the national level of how do we get to that point – the work that they've done – working with the other state associations and NASBHC."*
> *"The data are regularly used in the office and with some of our partner agencies. It is used in preparing proposals for Levy-funding; we use it a lot for planning and for looking at potential interventions for next year; we'll check it against research about the importance of finishing our work in 9th grade on time. We also had a researcher look into risk factors among students in the schools; we're using it to negotiate targets and school outcomes that are realistic. We're in the middle of doing that work right now."*

> "Politically, the Levy has been brilliant for school-based health. School-based health is going to be 50 percent larger than it was two years ago because of the renewal of the levy. We're going to have investments in oral health, we're bringing school-based health care to the highest risk students in a program called the Interagency School where a lot of high risk kids are dropping in and out of school; we're getting into elementary schools…What we've been able to do with these data both formally and rigorously with the University is to make believers out of a lot of decision-makers around here."
>
> *Interview respondent*

Leveraging funds. Linking SBHC and academic data has played an important role in attracting other sources of revenue to support SBHCs by providing data-driven evidence of need, value, and impact particularly for local policy makers. Additionally, the data are used to support grant applications from the government and private foundations.

Sharing with the field through published findings from research that use the linked data and presenting it and the findings at conferences and other forums.

Strengthened partnerships and community-wide alignment in support of student success. Strong partnerships between the educational community, SBHCs, and community-based groups served not only as a source of success in linking the data, but as an important outcome of the work as well. Much of the innovation and progress made for students in the Seattle area has come from strong coalitions for children, set in motion in large part by the Levy and initiatives of political leadership in the city.

What is the Ongoing Work that Utilizes or Expands Linked Health and Academic Data?

Guided by the goal of enhancing the academic impact of all Levy health investments through improving the quality of school mental health services, PHSKC is developing the web-based Mental Health Integrated Tracking System (MHITS) to provide web-based standardized assessment tools and a mental health monitoring and feedback system for students who utilize SBHCs. The registry is designed with several aims in mind: to support increased care coordination between schools, SBHCs, and community mental health providers; to advance evidence-based practice based on standardized assessment; to strengthen process and outcome monitoring; and to target provider training and supports in areas most in need. The system went live with some middle and high school SBHC providers in January 2013 and will be launched for all mental health practitioners' in Levy-supported SBHCs in September 2013, with staged spread to all Levy-supported health investments and family support workers after that. Specific elements of MHITS include the following:

- A toolbox of standardized screening instruments
- Increased capacities to:
    1. Track progress over time and cue providers
    2. Manage caseload systematically so no one falls through the cracks
    3. Review students' academic information and develop goals in their plans of care to reduce health-related issues that present barriers to academic success
    4. Provide rich outcome data, transparency and accountability

Also in September 2013, the Registry's developers hope to upload academic data into the MHITS system for students for whom they have FERPA releases on file. This academic data will deliver useful and functional feedback to clinicians and allow the systematic evaluation of treatment progress. Data will be student-specific and requires parental consent (FERPA release) for the data to be received from SPS. Program staff notes that if SPS recognizes PHSKC as an agent of SPS, the Registry could be afforded full access to all patients' academic data, instead of having data only for the subset of patients for whom they have FERPA releases on file. Though students can self-consent for mental health and reproductive health services, consent to provide access to their academic data requires consent by their parents until they are 18 years old.

Levy-funds also support the ongoing West Seattle High School Pilot project. Utilizing MHITS, the pilot seeks to improve coordination between schools, SBHCs, and community mental health providers to:

- Improve referrals/services between school staff, SBHC, and community mental health agencies
- Enable schools to determine when drug/alcohol referrals have been completed, reducing the need for out of school suspension
- Develop school protocols to trigger mental health referral. The project is piloting the use of a SPS risk score
- Give each student one shared care plan that all mental health providers implement collaboratively

- Develop processes to help the exchange of academic and health-related information and improved rate of return of release forms

Using data from MHITS, analysts will be able to assess whether students' use of mental health services are associated with improvements on measures of depression, anxiety, and other mental health issues. That information can, in turn, be linked with attendance, students' GPAs, and whether they stayed in school and graduated, for example. Over time, as this data system continues to be developed, the end result should be a robust database that enables evidence about what strategies are working well, which are not, for which students, and under what circumstances.

What are the Key Elements of Success?

What has been learned from Seattle? What does it take to achieve the kind of success in developing data systems that link health and academic information that have been, as one interviewee described, "wildly popular"? How can SBHCs be viewed as an essential partner advancing students' academic success? The Seattle experience underscores the importance of several critical factors:

- Leadership from the city
- Support from voters for levy dollars in support of families and education
- Having a funder (in this case the city) that is willing to support the work and provide leadership in making the data linkage happen
- Investment, partnership, and collaboration from SBHC sponsor agencies
- Strong partnerships and a common vision among stakeholders
- Strong community engagement, support, and the public will for improving conditions for all children to succeed academically
- A strong accountability structure, including a data-sharing agreement with and performance-based contracts tied to achieving specific outcome goals
- Incentives to SBHCs to collect student IDs
- Commitment to use data for continuous program improvements: the information needs to be used to inform action and correction
- Access to people with specific skills who can be effective within the system and who has data skills: "these people are in rare supply."

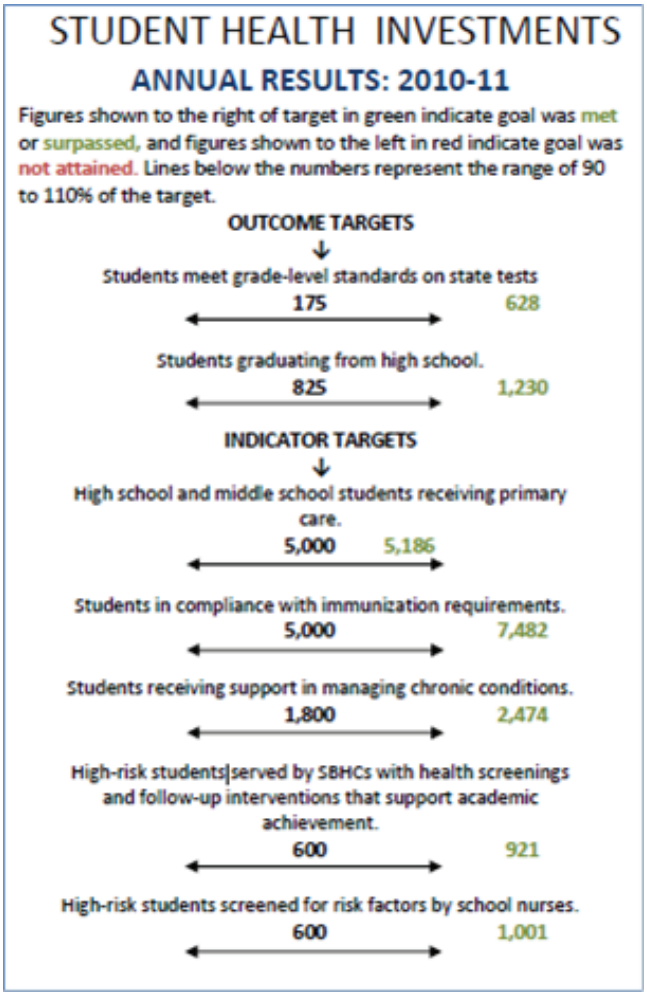
Sources

Interviews:
TJ Cosgrove, Deputy Director, Community Health Services Division, Public Health - Seattle & King County
Jessica Knaster Wasse, Program Manager, Public Health-Seattle & King County, Community & School-based Partnerships
Michael Pullman, Researcher, University of Washington, School of Medicine
Sara Rigel, Program Manager, Public Health-Seattle & King County, Community & School-based Partnerships
Gerard "Sid" Sidorowicz, Deputy Director, Office for Education, City of Seattle
Colin Walker, School Based Program Manager, NeighborCare Health

Written materials include those available on the City of Seattle and Seattle Public Schools websites and materials shared by the sources, above.

Levy-Funded school-based health centers are accountable to voters for making improvements in the targeted areas below. The 2012 Levy includes attendance as an indicator target to the list at right.

As the Annual Report indicates, "results from the 2010-11 school year indicate that the health investments greatly exceeded their targets on both outcomes and indicators. Given this consistently high performance, outcome targets for the 2012-13 school year will be increased to reflect ambitious, yet attainable goals." The graphic to the right is from the Seattle's Families & Education Levy's Annual Report, 2010-2011.



Created by Public Health Seattle and King County, Community and School Based Partnership

Integrative Summary

The case studies presented on the preceding pages show the major strides made in integrating data across health and education arenas – a challenge some might characterize as "the impossible." The four communities forged ahead with a vision that had at its core the sense of responsibility to do better by our children and adolescents in achieving health and educational success for all children. This summary is intended to identify and examine key commonalities and distinctions among the communities. The primary overarching interview questions guide the analysis.

Why link health data documented in SBHCs with education-related data for the users of SBHCs?

SBHC leaders and providers in all four communities were eager to link SBHC encounter data with education-related data to demonstrate the "so what" of school-based health centers – i.e., the differences SBHCs made in advancing the health and educational success of the children and youth they serve. SBHC providers also underscored the value of linking SBHC and academic data in helping to guide decisions about program planning. For example, were the benefits the SBHCs helped to achieve shared among all subgroups of children? Were there gaps in the SBHCs' reach and impact on academic success among the schools' students? In each community, the SBHCs' readiness to link these data was conflated with a larger political will to support the data linkage at a particular point in time in each respective community. In essence, the SBHCs recognized the opportunity and seized it.

While SBHC providers and leaders were interested in obtaining evidence about SBHCs' impact on children and adolescents who were most in need of services, funders and local and state policymakers sought to determine the return on investment of resources in SBHCs. In two communities, voters played a key role in decisions related to allocating public resources to support the success and prosperity of school-age children. The business community also helped to propel the development of linked information systems through their interests in identifying and reducing barriers to improved graduation rates in the prospective work force. Beyond this, a growing demand in general for increased accountability, as evidenced in the landmark health care reform legislation of 2011 - the Affordable Care Act, propelled a larger-base of support for building data systems that could measure and monitor health care quality and the impact and effectiveness of public investments, including SBHCs.

What SBHC and education-related data are linked?

In two of the four communities (Cincinnati and Miami-Dade County), a foundation is being established for linking SBHC encounter data with education-related data that includes students' demographic and academic information. SBHC encounter data includes clinical, screening (e.g., vision, dental, immunizations, BMI, labs, etc.) and school nurse data as well as information specific to health issues such as allergies and chronic illnesses. Educational demographic data may include gender, racial and ethnic group, and residential information. Academic data may include GPA, attendance, disciplinary actions, grades and the results of standardized tests. In both communities, the linked data is limited in its availability for analysis at the de-identified aggregate level, as opposed to at the level of the individual student – information that would be helpful in guiding a direct intervention with particular students.

In the remaining two communities (East Baton Rouge and Seattle), SBHC and education-related data have been linked for at least a couple of years. In East Baton Rouge, encounter data for mental health services is linked with the individual students' GPA before and after the receipt of services in order to identify improvements in students' academic standing. This data is linked with limited access at the individual student level.

In contrast, Seattle has linked an extensive amount of SBHC and educational data, available both longitudinally over a seven-year period and at the student level without identifiers. SBHC encounter data linked with academic data includes utilization data, residential status, chronic conditions and identification for special services to promote school success based on threatening risk factors. Education–related data linked with SBHC data includes an extensive list of demographic information that incorporates a number of social factors, including country of birth, living situation, and eligibility for Free or Reduced Lunch. Academic data are also linked with social indicators, such as promotion or non-promotion, mobility status, attendance, discipline and academic behaviors. In addition, Seattle's linked data includes students' participation in selected programs designed to respond to psychosocial and academic student and family issues. The linked data can also reveal whether the student and/or family participate in school support programs, programs financed largely by the same resources as the SBHCs. Seattle's linked data is currently available for aggregate analysis and not at the student-level.

How are the SBHC and education-related data linked?

The mechanics of linking the SBHC data with education-related data varies from a manual process to one that's totally automated to another that involves a 3rd party to assure the student's confidentiality. Regardless of the mechanics for linking the data, East Baton Rouge is the only community where an individual student can be identified for services and where changes in student health and academic standing can be monitored. In the remaining communities, Cincinnati, Miami-Dade County and Seattle, the linked data for individual students are secured with restricted access or are only available in the aggregate for all students. In all communities the data is either linked or will be linked via the student's unique identifier.

In East Baton Rouge, a health provider manually links the data generated by a student's mental health diagnosis and receipt of SBHC mental health services with the student's GPA. Although this information is maintained in the SBHC paper health record, the SBHC is moving to electronic health records in the near future, utilizing the students' unique identifier. The provider, Health Care in Schools, has a business agreement included in their contract for services with the East Baton Rouge Parish School District that satisfies HIPAA and FERPA requirements.

Cincinnati and Miami-Dade County utilize electronic systems to provide the technical structure that links the students' health information from SBHCs and school nurse programs to school-related information. Cincinnati uses an electronic record system initiated by the school district to incorporate some limited health information from the SBHC and school nurse program into the school record. Access to the student's linked information is protected unless authorized by the student or parent.

Miami-Dade County engages a third-party administrative agency that employs a platform designed to link and exchange the information from two independent electronic record systems – education and health. This platform accumulates the information in real time and provides reports based on aggregate data. Here again, access to the student's linked information is protected unless authorized by the student or parent.

Seattle has developed an extensive electronic system for linking SBHC encounter data with school-related information and students' utilization of select social support services. Student's confidentiality is protected via proxy identifiers that provides Seattle's health and education leaders with information needed to target services and assess the outcome and impact of their investments. However without parental or student consent, the information is available only for analyses based on aggregate data and prohibits identifying or responding to the specific needs of an individual student.

What are the opportunities and challenges in linking the data?

Opportunities

SBHC leaders and providers were in alignment in recognizing the many opportunities created by linking SBHC encounter data with education-related data. Foremost, the linked data enables a fuller understanding of students' needs and the relationship that SBHCs play in meeting those needs. This is particularly critical information in identifying and reducing barriers to health and academic success among students at greatest risk for academic and social and emotional difficulties.

Linking SBHC encounter data and education-related information has encouraged agencies, including schools and providers, to develop partnerships with each other to address common concerns about the population they serve and provide needed services. The aggregate data has also afforded SBHCs the opportunity to monitor students' needs and to assess the reach, outcomes and impacts of their use of school-based health care on educational indicators, such as attendance and grades. The information provides vital information about the prevalence of chronic health issues such as allergies, asthma, and diabetes amongst the school population and enables the SBHC and school to be a partner in the management of these conditions. It is also used to account for and allocate resources as well as modify practice, and policy where indicated.

Nevertheless the difficulty encountered in navigating the restrictions of HIPAA and FERPA represents a substantial challenge for SBHC leaders, providers and educators.

Challenges

To protect students' privacy and confidentiality, HIPAA and FERPA regulations restrict access to students' SBHC encounter and education-related data. With the exception of East Baton Rouge, the other communities have limited ability to optimize the value of the linked SBHC encounter and education-related information for individual students because HIPAA and FERPA limit their access to the linked data. SBHC leaders and providers in Cincinnati, Miami-Dade County, and Seattle have not been able to consistently access linked SBHC and education data for an individual identifiable student. Consequently, there are lost opportunities to identify a SBHC user who is struggling academically or for a teacher to look at an asthmatic student's SBHC record to understand why he or she may be falling asleep in class. On the other hand, SBHC providers in East Baton Rouge, through a business agreement with the school district, are able to monitor the academic progress of students who receive mental health services and make adjustments as needed.

The limitations of HIPAA and FERPA are reduced if the parent or adult student has consented to having their full record available to health and educational professionals. Obtaining that consent is not necessarily simple, however. Two sites noted that community members, including parents, were very concerned about how the SBHC information, especially mental health utilization data, might be used by school staff.

In addition, having the resources needed to consistently support the provision of school-based health care and the development of the supporting data and information systems remains a challenge for two of the four communities.

What is the impact of linking SBHC with education-related data?

All four communities reported positive and affirming outcomes and impacts from linking SBHC encounter data and/or data from school nurse programs with education-related data. The linked information has been used, for example, to analyze trends in the prevalence of select clinical or social conditions or relationships between clinical indicators and academic outcomes. The findings have supported adjustments in resources, programming, practice and policy as indicated.

The linked SBHC and education-related data and findings from analyses of the data have been used to gain or maintain the support of the education community, including teachers, principals, and school boards, as well as local and state policy makers who control and set priorities regarding the allocation of often scarce resources. It has been useful in encouraging collaboration on behalf of student health, well-being and success.

What are the key elements of success?

The work in Miami-Dade County and Seattle was generated by the interest and advocacy of a community leader (Miami-Dade County) and policy maker (Seattle). These persuasive leaders were able to garner the support of voters to provide the resources for SBHCs as a strategy for improving student well-being and academic success. A catalyst for linking SBHC and educational data was the need for accountability and evidence of a return on the investment of public resources. Leadership, collaboration, and community support were key elements for linking the data in these communities.

In Cincinnati and East Baton Rouge, key elements of success included advocacy by leaders of the respective school districts to identify and respond to the needs of struggling students. Leaders believed that school-based health care would contribute to the academic success of students who were struggling. Evidence of improvements in health and academic indicators were drivers. Leadership, collaboration, and historical relationships and partnerships were key elements for success in these communities.

It also was common across communities for SBHC leaders and providers to view the work involved in linking SBHC and educational data as an opportunity rather than a chore; it afforded a way to demonstrate the difference SBHCs can make in students' health and educational success.

Lessons Learned

One of the intentions of this report is to share the experiences and lessons of the SBHC leaders and providers in their work to link SBHC encounter data with school-related data. The hope is that other SBHC leaders and providers become more informed about how this linkage can happen and be inspired to move in that direction. The four sites offered several lessons in moving the work forward:

- Just get started and don't ask for everything at once, take what you can get, use the data, show its value and then make additional requests.
- Share the stories of what's been learned from linking the data and make explicit how the data supports the stories.

- Trusting relationships is essential. Incremental progress supports the evolution of trusting relationships and the development of a common vision.
- Outspoken leadership and advocacy from influential stakeholders paves the way for progress. Generate the will.
- Engage people with the technical skills to make the linkage happen. Information systems are complex and require technical expertise to make the interface between systems a reality.
- Take advantage of the national movement in health reform for increased accountability.

Conclusions

School-based health centers have established the evidence that they meet a myriad of needs for students where they are – in schools. Whether the model is that of a school nurse program or a school-based health center offering primary physical and mental health care there's no doubt that they make some difference in the lives of school-age children and adolescents. Improvements have been documented in access to primary and mental health care, care coordination, utilization of preventive health services, emergency department costs and attendance. There is even some evidence that improvements can be found in students' grades, grade point average, and test scores.

However there's more to learn to be able to change the lives of those students that experience entrenched disparities in health that also affect their ability to be successful in school. More information is needed for SBHCs to become full partners with the education community, parents and the stakeholders invested in student success. There's more to learn to be able to tell the full story of the student users of SBHCs across the country.

The challenge faced by SBHC leaders and providers is to unite and construct a nationwide strategy to add a provision to HIPAA and FERPA regulations that incorporates the sharing of SBHC and school-related information for students. This would enable a more comprehensive view of students' lives and the opportunity to tailor interventions more specifically to health and school success. It may also provide the impetus for school-wide physical, mental and social health assessments of all students for conditions and behaviors that put them at risk for poor academic performance. This information opens up the opportunities for a public health approach to focus upstream on primary prevention and early interventions.

A complement to this strategy is the need for a national commitment and sustainable resources to create a national data warehouse that captures the linked SBHC encounter data with education-related information on SBHC users. This information would more fully reflect the circumstances of students with economic and social factors operating in their lives that have the potential to derail their ability to be successful in school and graduate. A national data warehouse would provide the evidence and the case for local, state and national policy and investments for student success and graduation and most importantly signify a major step towards health and economic equity for marginalized communities.

And finally, SBHC leaders and providers will have to initiate strategies to generate the will among parents and influential stakeholders to advocate for parent engagement at the school level so they provide the required consent for limited sharing of their student's SBHC and education records. Parent and stakeholder advocacy must extend to the national level to instigate movement to modify HIPAA and FERPA regulations to better serve and support student success and academic achievement towards graduation. High school graduation is the only path towards adult health and economic equity.

school–community health alliance of Michigan

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