Journal of Pediatrics & Child Health Care

Open Access

Austin Publishing Group

Case Report

Collaborative Improvement and Innovation Networks Improving the Quality of Pediatric Physical and Mental Health Care

Sullivan E[1]*, Cushing K[1], Robinson P[2], Fields P[1] and Bohnenkamp J[2]

[1]The School-Based Health Alliance, USA

[2]University of Maryland School of Medicine, National Center for School Mental Health, USA

***Corresponding author:** Erin Sullivan, Research and Evaluation, School-Based Health Alliance, 1010 Vermont Ave NW, Suite 600, Washington, DC 20005, United States

Received: March 16, 2021; **Accepted:** April 01, 2021; **Published:** April 08, 2021

Abstract

Youth throughout the United States face physical and mental health concerns that threaten their wellbeing and academic success. This is especially true among low-income communities and communities of color. School-Based Health Centers (SBHCs) and Comprehensive School Mental Health Systems (CSMHSs) are evidence-based delivery models that provide essential health services to students and their communities, recognized for targeting barriers like transportation, cost, and time. This paper describes a national initiative to increase the number of SBHCs and CSMHSs, improve the quality of care delivered, and strengthen the sustainability of school-based health and mental health through Collaborative Improvement and Innovation Networks (CoIINs). In spring 2020, when schools nationwide closed abruptly due to the COVID-19 pandemic, this initiative provided participants an essential professional network and space to share challenges, innovations, and best practices to sustain high quality care delivered to students. Participants shared that their involvement encouraged staff and state agencies to work more closely together and provided protected time to focus solely on student health. The CoIIN was especially helpful as sites transitioned from in-person to telehealth care due to school closures. Participation helped sites engage in peer-to-peer sharing, comparison, benchmarking, and a continuous piloting of new strategies. This case report describes the CoIIN with a particular focus on implementation during COVID-19. This will benefit school-based health and mental health practitioners and stakeholders interested in employing a similar model of quality improvement and support.

Keywords: School-based health; School mental health; COVID-19; Quality improvement

Introduction

Millions of children and adolescents in the United States (US) face physical and mental health concerns that threaten their wellbeing and academic performance [1]. Disparities by race, ethnicity, and socioeconomic status in the U.S. are well documented and include unequal access to convenient, quality health care [2-5]. Youth in low-income communities experience higher rates of obesity and depression [6] and are less likely to have a regular source of medical care [2]. It is estimated that more than 7 million children in the US have a mental health disorder [7], yet fewer than half of those diagnosed receive treatment [8,9]. The majority of youth who receive treatment primarily access this care at school [8,9], and youth are substantially more likely to complete mental health treatment that is provided in a school setting [8-11].

The healthcare landscape changed drastically due to the COVID-19 pandemic and subsequent restrictions. Compared to the same months in 2019, between March and May 2020, there were 44% fewer outpatient mental health services and 44% fewer cognitive development screenings administered to the 40 million children on Medicaid and the Children's Health Insurance Program [12]. Furthermore, preliminary research points to increases in depression, anxiety, and other mental health challenges due to the pandemic [13-16]. Youth face new and intensified stressors such as illness, death, social isolation, economic stress, and increased domestic violence risk [17,18]. Prolonged exposure to these stressors affects mental health and well-being and can lead to impaired neurological development [17]. Experts have called for targeted school-based mental health interventions to respond to this multifaceted crisis and minimize burden on the healthcare system [15].

School-Based Health Centers (SBHCs) and Comprehensive School Mental Health Systems (CSMHSs) are evidence-based systems for improving health care access and equity. These delivery models represent a shared commitment between families, educators, administrators, and health workers to support students' health, well-being, and academic success. Both models provide comprehensive mental health services to students on or near school campuses, increase mental and behavioral health access and utilization [19], promote a positive school climate, and reduce the prevalence and severity of mental illnesses [20]. SBHCs and CSMHSs tend to target schools that serve low-income and resource-limited communities whose populations have limited or no access to comprehensive health services.

Citation: Sullivan E, Cushing K, Robinson P, Fields P and Bohnenkamp J. Collaborative Improvement and Innovation Networks Improving the Quality of Pediatric Physical and Mental Health Care. J Pediatr & Child Health Care. 2021; 6(1): 1039.

Table 1: CoIIN Performance Measures, Definitions, and Goals.

SBHC Track		
Measure	**Definition**	**CoIIN Goal**
Clients	Number of unduplicated clients who had at least one visit of any type to the SBHC.	At least 15% increase compared to the last school year.
Visits	The total number of visits of any type provided to clients. (drop-in or scheduled face-to-face or telemedicine visits for physical health, behavioral health, oral health, first aid or triage, group services, health education, etc.)	At least 15% increase compared to the last school year.
Well-Child Visits^	**Numerator**: Number of unduplicated SBHC clients aged 0-21 years who had at least one comprehensive well-care visit provided by the SBHC or non-SBHC provider. **Denominator**: Number of unduplicated clients who had at least one visit to the SBHC.	At least 80% of clients have a well-child visit.
Annual Risk Assessment^	**Numerator**: Number of unduplicated SBHC clients with documentation of one or more age-appropriate annual risk assessment(s). **Denominator**: Number of unduplicated clients who had at least one visit to the SBHC.	At least 80% of clients will have an annual risk assessment.
Depression Screening^	**Numerator**: Number of unduplicated clients aged 12 or older with documentation of screening for clinical depression using an age-appropriate standardized tool. **Denominator**: Number of unduplicated clients aged 12 or older who had at least one visit to the SBHC.	At least 80% of clients aged 12 or older have a depression screening.
BMI Screening*^	**Numerator**: Number of unduplicated SBHC clients aged 3-17 years with documentation of BMI percentile and counseling for nutrition and physical activity at least once during the school year. **Denominator**: Number of unduplicated clients aged 3-17 with at least one visit to the SBHC.	At least 80% of clients aged 3-17 years have BMI screening and counseling for nutrition and physical activity.
Chlamydia Screening*^	**Numerator**: Number of unduplicated male/female clients identified as sexually active who had one or more test for Chlamydia documented. **Denominator**: Number of unduplicated male/female clients identified as sexually active.	At least 80% of male/female clients identified as sexually active have one or more Chlamydia tests.
CSMHS Track		
Eligible Students	Number of students for whom Tier 2 or 3 services were indicated (by referral and screening) in the reporting month.	100% of sites will document
Enrolled Students	Number of students who started or received Tier 2 and 3 services & supports, through either school- or community-based providers, in the reporting month.	
Mental Health Screening**	**Numerator**: Number of students screened in the reporting month. **Denominator**: Number of students in the entire student body.	100% of sites will screen students for mental health.
Student Functioning	**Numerator**: Number of students receiving Tier 2 or 3 services and supports with improvements in social, emotional, behavioral, or academic functioning since baseline. **Denominator**: Number of students who received Tier 2 and 3 services & supports.	80% of students will have improvement in social, emotional, behavioral, or academic functioning.
Chronic Absence	**Numerator**: Number of students with chronic absence. **Denominator**: Number of students in the entire student body.	Decrease by 20% from baseline.
School Mental Health Quality Assessment (SMH-QA)**	Assess CSMHS quality across seven domains: teaming, needs assessment/ resource mapping, screening, MH promotion (tier 1), MH prevention and intervention (tier 2/3), funding and sustainability, impact.	Improvement across three time points (baseline, midpoint and end).

*Reporting these measures optional during the COVID-19 pandemic.
^SBHA National Performance Measures.
**CSMHS National Performance Measures [22].

In 2014, two national school-based health and mental health leaders, the School-Based Health Alliance (SBHA) and the National Center for School Mental Health (NCSMH), launched a joint initiative to provide leadership and facilitation of school-based health and mental health care growth and quality. The two five-year initiatives aim to increase the number of SBHCs and CSMHSs, improve the quality of health services provided, and strengthen school-based mental health sustainability through Collaborative Improvement and Innovation Networks (CoIINs). This paper describes the CoIINs and highlights unique benefits and successes in advancing high-quality school health and mental health services, particularly during the COVID-19 pandemic.

Case Presentation

CoIINs support teams to test and implement strategies to change outcomes through quality improvement methods. Participants commit to sharing best practices, ideas, and lessons and track progress with similar benchmarks and shared goals. CoIIN participants identify common aims and measurable objectives, determine and use evidence-based strategies, and evaluate defined metrics and real-time data to determine successes [21]. The SBHA- and NCSMH-led CoIINs support SBHCs and CSMHSs in using national performance measures [22,23] to drive quality improvement and innovation in school health and mental health care. The performance measures, developed through national consensus-building and refinement by diverse stakeholders, are the common focal point for measuring and publicly reporting outcomes, thereby driving system- and practice-level improvements and innovations. The CoIINs also report and measure specific school health and mental health quality indicators monthly (Table 1). The indicators focus on mental health screening, including depression and trauma screening, and annual well-care visits, the highest standard of preventative care that is often underutilized by practitioners [24-26].

SBHA and NCSMH support two parallel CoIIN tracks that focus on SBHCs and CSMHSs, respectively (Figure 1). At least five states with multiple SBHCs or CSMHS teams participate in each

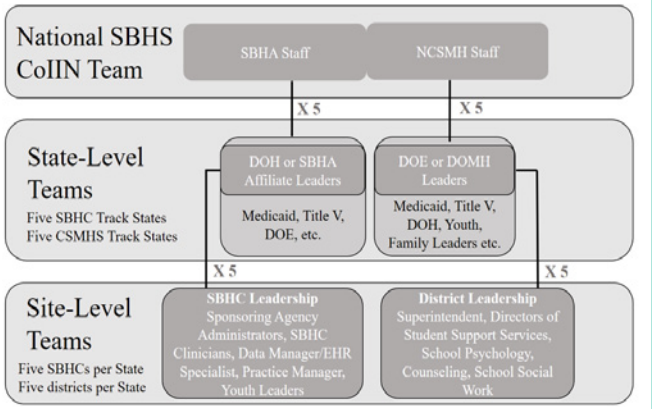

Figure 1: CoIIN Tracks and Participants.
DOH: Department of Health; DOE: Department of Education; DOMH: Department of Mental Health.

Table 2: SBHC Performance Measure Improvement.

Number of Measures Improved	Number of SBHCs n (%)
None	1 (4)
1	2 (7)
2	9 (33)
3	6 (22)
4	7 (26)
5	2 (7)

N=27. Five SBHCs, representing three sponsors were unable to provide year-end data and were excluded.

CoIIN. One to two representatives from the state Department of Education, Department of Mental Health, SBHA Affiliate, or Department of Health Agency lead state-level teams. The teams also include representatives from other state agencies, state-level organizations, state Medicaid agencies, state Title V Maternal and Child health agencies, and youth and family leadership. Each state also has multiple local-level teams. SBHC local-level teams include medical sponsoring agency administrators, data managers, SBHC clinicians, and practice managers. CSMHS local-level teams include leaders such as superintendents, directors of student support services, school psychologists, counselors, and school social workers. All CoIIN participants engage in monthly calls with their track and communicate through an online peer-to-peer engagement platform. In addition, local-level teams submit performance measures and at least one Plan-Do-Study-Act (PDSA) [27] cycle each month.

When schools, SBHCs, and CSMHSs abruptly closed physical operations in spring 2020 due to the COVID-19 pandemic, SBHA and NCSMH teams quickly pivoted efforts to continue supporting the needs of program participants and their staff, students, and families. SBHA shifted focus from in-person care and clinical measures to mixed delivery (in-person and virtual care) and sustainability. SBHA also transitioned chlamydia screening and body mass index screening to optional measures and focused on those easier to facilitate through telehealth. NCSMH made monthly data submissions optional through the end of the 2019-20 school year, adjusted the content of monthly calls to reflect unique needs due to the pandemic, and changed the content of virtual learning sessions to focus on supporting students throughout the summer and fall 2020 back-to-school months in virtual, hybrid and in-person learning models.

Discussion

CoIINS are a valuable resource for school-based health and mental health stakeholders, especially during the COVID-19 crisis. The professional network provides a space for participants to share challenges, lessons, and best practices, which proved especially important as sites shifted service modalities and strategies to continue providing care throughout the COVID-19 pandemic. CoIINs allow participants to engage in peer-to-peer sharing, comparison, and benchmarking; test what does and does not work across settings using rapid cycles of PDSA; and quickly share lessons and results. Working in partnership, stakeholders from diverse settings nationwide determine which combination of strategies work best in which types of settings, pinpointing unique barriers and facilitators to successful implementation [28]. Beyond this, reporting standardized quality measures fosters accountability and encourages improvement.

In the 2019-20 CoIIN, all ten participating states completed monthly CoIIN meetings despite COVID-19 distressing operations. Participant data consistently demonstrated improvements in CoIIN and national performance measures, including well-child visits and mental health screenings. Despite the disruption in service delivery,

Table 3: CoIIN End-of-Year Evaluation Results, 2019-20.

CoIIN participation…	Somewhat agree, n (%)	Strongly agree, n (%)
SBHC Participants		
Helped improve at least one clinical practice in our SBHC		27 (100)
Helped our SBHC standardize data collection	4 (15)	23 (85)
Provided opportunities to learn from other SBHCs about strategies to improve the health center	7 (26)	20 (74)
Provided opportunities to learn from other SBHCs about strategies to improve performance data documentation	7 (26)	20 (74)
Helped our SBHC set up effective and efficient systems to extract the required data	7 (26)	15 (56)
CSMHS Participants		
Improved the quality of our school mental health practices or policies	15 (50)	8 (27)
Helped us better identify important areas for improvement	12 (40)	13 (43)
Helped us better monitor important areas of improvements	7 (23)	15 (50)
The in-state visit with NCSMH faculty and staff benefited my state and/or districts	9 (30)	15 (50)

all but one participating SBHC (that was unable to report data) improved in at least one national performance measure, and most improved in two, three, or four performance measures (Table 2). At the end of the year, all SBHCs and a majority of CSMHSs agreed that participation helped them improve at least one practice or policy as well as strategize, identify, or monitor areas for improvement (Table 3). One CSMHS participant shared that "protected time to have conversations focused solely on mental health at our site was incredibly helpful." An SBHC participant assessed that the program "united [staff at all] schools to work together [and] created a bond between office clinic representatives, [patient] care technicians, and [nurse practitioners]." A CSMHS participant similarly expressed that their "state agencies are working much more closely together" due to CoIIN participation. Another CSMHS participant shared that the CoIIN was especially helpful during the pandemic in that "COVID-19 created the necessity to collaborate in unplanned and different ways, which is the hallmark of a CoIIN."

The CoIIN was a particular asset early in the pandemic when many sites embarked on a sudden shift from in-person care to telehealth. Mostly auxiliary before the pandemic, telehealth emerged as an essential tool to provide continued care to students learning off-site. The CoIIN provided a network for participants to share transition ideas, successes, and failures. For instance, one participant focused a PDSA cycle on establishing telehealth and used the reporting structure to identify necessary steps. This included establishing protocols and consents for telehealth visits, developing patient care lists to identify high-risk patients who would benefit from telehealth, and reconfiguring electronic medical records to include telehealth. Telehealth visit reports confirmed that all providers obtained patient consent for telehealth visits, conducted telehealth appointments, and provided appropriate documentation and billing and coding for telehealth visits. Sharing this implementation and reporting process greatly assisted participants in similar situations.

Despite school closures and related challenges throughout the pandemic, SBHCs and CSMHSs continued to provide vital physical and mental health services to students. The CoIIN model supports those working in these systems in sharing ideas and best practices throughout the ever-changing health and education landscapes. Especially in the early days of the COVID-19 outbreak and related restrictions, the approach allowed participants to test new strategies like telehealth and supported successful implementation on a larger scale.

Acknowledgement

We gratefully acknowledge the school-based health center and comprehensive school mental health system staff and stakeholders who participated in the CoIIN initiative, as well as the School-Based Health Alliance and National Center for School Mental Health staff who supported this work.

References

1. Basch CE. Healthier Students Are Better Learners: A Missing Link in School Reforms to Close the Achievement Gap. Journal of School Health. 2011; 81: 593-598.
2. Bloom B, Cohen RA, Freeman G. Summary health statistics for U.S. children; National health interview survey, 2011. 2012.
3. Centers for Disease C, Prevention. CDC Health Disparities and Inequalities Report: United States. 2013.
4. Kann L, Kinchen S, Shanklin SL, Flint KH, Kawkins J, Harris WA, et al. Youth risk behavior surveillance--United States, 2013. MMWR Suppl. 2014; 63: 1-168.
5. Health UDo, Services H. National healthcare quality report 2012. Agency for Healthcare Research and Quality. 2013.
6. Irwin CE, Adams SH, Park MJ, Newacheck PW. Preventive care for adolescents: few get visits and fewer get services. Pediatrics. 2009; 123: e565-e572.
7. Whitney DG, Peterson MD. US national and state-level prevalence of mental health disorders and disparities of mental health care use in children. JAMA Pediatrics. 2019; 173: 389-391.
8. McKay MM, Lynn CJ, Bannon WM. Understanding inner city child mental health need and trauma exposure: implications for preparing urban service providers. Am J Orthopsychiatry. 2005; 75: 201-210.
9. Merikangas KR, He JP, Burstein M, Swendsen J, Avenevoli S, Case B, et al. Service utilization for lifetime mental disorders in U.S. adolescents: results of the National Comorbidity Survey-Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry. 2011; 50: 32-45.
10. Duong MT, Bruns EJ, Lee K, Cox S, Coifman J, Mayworm A, et al. Rates of mental health service utilization by children and adolescents in schools and other common service settings: a systematic review and meta-analysis. Administration and Policy in Mental Health and Mental Health Services Research. 2020.
11. Green JG, McLaughlin KA, Alegria M, Costello EJ, Gruber MJ, Hoagwood K, et al. School mental health resources and adolescent mental health service use. Journal of the American Academy of Child & Adolescent Psychiatry. 2013; 52: 501-510.
12. CMS issues urgent call to action following drastic decline in care for children in Medicaid and Children's Health Insurance Program Due to COVID-19 pandemic. Centers for Medicare & Medicaid Services. 2020.
13. Jiao WY, Wang LN, Liu J, Fang SF, Jiao FY, Pettoello-Mantovani M, et al. Behavioral and emotional disorders in children during the COVID-19 epidemic. J Pediatr. 2020; 221: 264-266.e1.
14. Garfield R, Chidambaram P. Children's health and well-being during the Coronavirus Pandemic. Kaiser Family Foundation. 2020.
15. Hamoda HM, Chiumento A, Alonge O, Hamdani SU, Saeed K, Wissow L, et al. Addressing the consequences of the COVID-19 lockdown for children's mental health: investing in school mental health programs. Psychiatr Serv. 2021; appips202000597.
16. Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G. Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. Psychiatry Res. 2020; 293: 113429.
17. Policy Brief: The Impact of COVID-19 on children. United Nations Sustainable Development Group. 2020.
18. Abramson A. How COVID-19 may increase domestic violence and child abuse. American Psychological Association. 2020.
19. Knopf JA, Finnie RK, Peng Y, Hahn RA, Truman BI, Vernon-Smiley M, et al. School-Based Health Centers to Advance Health Equity: A Community Guide Systematic Review. Am J Prev Med. 2016; 51: 114-126.
20. School Health Assessment and Performance Evaluation System Baltimore, MD: National Center for School Mental Health.
21. Collaborative Improvement & Innovation Networks (CoIINs). Maternal and Child Health Bureau, Health Resources and Services Administration. 2018.
22. Hoover S, Lever N, Sachdev N, Bravo N, Schlitt J, Acosta Price O, et al. Advancing Comprehensive School Mental Health Systems: Guidance From the Field. Baltimore, MD: National Center for School Mental Health. University of Maryland School of Medicine. 2019.
23. Performance Measures: Quality Counts Initiative Washington, DC: School-Based Health Alliance.

24. Goodman E, Huang B. Socioeconomic status, depressive symptoms, and adolescent substance use. Arch Pediatr Adolesc Med. 2002; 156: 448-453.

25. Schreier HM, Chen E. Socioeconomic status and the health of youth: a multilevel, multidomain approach to conceptualizing pathways. Psychol Bull. 2013; 139: 606-654.

26. Child and adolescent well-care visits. Washington, DC: National Committee for Quality Assurance. 2016.

27. Plan-Do-Study-Act (PDSA) Worksheet Cambridge, Massachusetts: Institute for Healthcare Improvement. 2021.

28. Clancy CM, Margolis PA, Miller M. Collaborative networks for both improvement and research. Pediatrics. 2013; 131: S210-S214.